

MULTINATIONAL ANDEAN PROJECT

Canadian International Development Agency, Arrangement: 24846, RC/Project: 540/20080
Commitment: 189086, Supplier: G41000

REPORT #13



Second Quarter Activity Report -1999/00
Second Quarter Financial Report -1999/00

Geological Survey of Canada (GSC)

Vancouver, Canada

Servicio Geológico Minero Argentino (SEGEMAR)

Buenos Aires, Argentina

Servicio Nacional de Geología y Minería (SERGEOMIN)

La Paz, Bolivia

Servicio Nacional de Geología y Minería (SERNAGEOMIN)

Santiago de Chile, Chile

Instituto Geológico Minero y Metalúrgico (INGEMMET)

Lima, Peru

October 1, 1999

Prepared by:

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Annex G:	Report on the short course on 'Mineral Deposits Classification and Genetic Modeling: Their Application to Metallogenic and Regional Mineral Potential Studies', La Paz, Bolivia - Dr. Andre Panteleyev.
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Annex I:	Ad in the Northern Miner announcing changes in the draft area of the Bolivia, Chile, Peru Airborne Survey.
Annex J:	Map News Vol.2 - No.'s 4,5, & 6 (English)

Report Summary

This document (MAP Report #13) reports on the activities from the second quarter of the 1999/00 fiscal year (April 1, 1999-September 30, 1999) and gives a financial report for the first half of the 1999/2000 fiscal year of the Multinational Andean Project (MAP). A revised budget forecast ending December 31, 2001 is also presented.

Start: Aug. 1996 **Finish:** Fiscal year 2001 (Dec. 31/2001) **Cost limitation:** ^{CDN}\$4,800,000.00

Accomplishments

2nd Quarter

- Dr. Andre Panteleyev travelled to Bolivia to give a short course in Metallogeny followed by fieldwork.
- Dr. Metcalfe travelled to Bolivia to do field work in regional mapping in volcanic areas with SERGEOMIN scientists.
- Executive Council Meeting in Santa Cruz, Bolivia (see minutes attached Annex C).
- The first meeting of the Scientific Committee for the Metallogenic Map occurred in August in Santa Cruz (see minutes attached Annex D).
- Meeting of potential airborne survey participants from private sector for proposed Bolivia, Chile, Peru survey in August in Santa Cruz (see report attached Annex E).
- Dr. Dennis Teskey visited Peru to meet with potential private sector participants in the Bolivia, Chile, Peru airborne survey (see report attached Annex E).
- First meeting of potential private sector participants in the proposed Argentina, Chile multi-client airborne survey in Santiago on September 28 (see report attached Annex F).
- Two Argentinean scientists participated in the TerranePaths 99 meeting and fieldtrips in Vernon B.C. during the first week of October.
- MAP Fellowship funds have been issued to Ing. Mario Carpio (INGEMMET), Ing. Elmer Boulanger (INGEMMET), Ing. Oscar Palacios (INGEMMET), Geol. Paulina Gana (SERNAGEOMIN), Cartog. Cesar Reyes (SERNAGEOMIN), Ing. Sergio Gelcich (SERNAGEOMIN).
- MAP NEWS and BOLETIN PMA v.2 No. 5, 6, & 7 (Annex J)

Information Needs from Participating Countries

- Names of participants from each country for all upcoming short courses and participants for the upcoming Executive Council Meeting in Vancouver in January, 2000.
- Updated information for the individual country description section on the MAP WEB Page needs to be sent to Mr. Otto Krauth.
- Lists of publications from the MAP area are to be forwarded to MAP administration as soon as possible to be included in the project WEB Page.
- Hard copy and where appropriate, digital versions, of maps and publications from the project region are to be forwarded to MAP Administration to be included in the shortly to be created "MAP Library".
- Samples for establishing petrologic and lithologic standards from all countries.

Activities: April 1, 1999-March 31, 2000

As set out in the **Logical Framework** presented in Report #1, the project focuses on four purposes (given as A, B, C and D). These are given below and the activities planned to fulfil each of the purposes outlined. Activities started in the 1996/97 fiscal year are prefixed by "96", those started in fiscal year 1997/98 are prefixed by "97", those started in the 1998/99 fiscal year are prefixed "98", and those started in the 1999/00 fiscal year are prefixed by "99". Activities are further indicated by country using a letter: Argentina "A", Bolivia "B", Chile "C", Peru "P", and activities on behalf of all countries by an "M", and finally PM for activities that are carried out by and for project management. Activities are numbered consecutively from the year of initiation. All of the detailed budget information by Country, Purpose and Sub-unit is presented in Annex A.

- Indicates initial work on the Activity.
- ◆ Indicates work completed on Activity in first quarter (April 1-June 30, 1999) or action required in the second quarter.
- ▶ Indicates work completed on Activity in the second quarter (July 1-September 30, 1999) or action items for the third quarter.
- ◇ Indicates work completed on Activity in third quarter (October 1-December 31, 1999) or action items for the fourth quarter.
- ★ Indicates the status of the Activity for the conclusion of the 1999/00 fiscal year (January 1- March 31, 2000).

Activities Removed: The following listed activities have been removed from Report #13 as there is no anticipated activity related to them during the current fiscal year:

A.96/A-3, A.97/B-1, A.98/B-1, A.97/C-2, A.97/C-4, A.96/P-4, A.97/P-5, B.97/M-2, C.98/B-1, C.98/P-1, D.97/A-1, D.97/A-2, D.98/A-1, D.96/B-9, D.98/B-1, D.98/B-2, D.96/C-12, D.96/C-15, D.97/C-4, D.97/C-6, D.96/P-16, D.96/P-17, D.96/P-18.

Purpose A

Quarter	Summary of Activities	Budget changes	Current Budget
A	Geological work leading to more compatible geoscience data within the four National Geoscience Agencies		\$148,500.00
1 st Quarter	Budget change		
2 nd Quarter	Budget change		
3 rd Quarter	Budget change*	\$1,820.00	\$150,320.00
4 th Quarter	Final Expenditure		

* Budget increase due to participation of Argentina in TerranePaths 99 Conference in Canada (Activity: A.96/A-2)

Details by Activities

A.96/A-1	Training in TM imaging, structural/alteration interpretation of imaging, alteration zones, digital data capture (FieldLog)	Argentina	\$0.00
1 st Quarter	Budget change		
2 nd Quarter	Budget change		
3 rd Quarter	Budget change		
4 th Quarter	Final Expenditure		

This activity will enhance the overall ability of SEGEMAR in a number of areas of digital data capture and manipulation, thus creating products with more uniform digital standards. Training over the five years of the project will focus on using satellite images (remote sensing) analysis to map geologic structure and zones of alteration, standardizing database structure and learning how to capture data digitally in the field. Emphasis will be placed on database structures and training in "FieldLog" and the palmtop computer based program "FieldWorker" to help standardize data acquisition within each country and between the countries. FieldWorker will assist the Argentineans in digital capture of data while in the field and FieldLog will assist in producing maps using CAD software. Training has been carried out in each of the participating countries. There is some overlap in this activity with Purpose D (Institutional Strengthening).

In this fiscal year no specific activities are planned under this activity, but follow up may be necessary in FieldLog and manipulation of satellite images at a later date in another fiscal year.

First Quarter Action Items:

- No activity planned for 1999/2000 fiscal year.

A.96/A-2	In-field training in regional mapping techniques, volcanology, and metallogeny	Argentina	\$10,500.00
1 st Quarter	Budget change		
2 nd Quarter	Budget change		
3 rd Quarter	Budget change*	-\$5,760.00	\$4,740.00
4 th Quarter	Final Expenditure		

* Reduction of budget due to postponement of activity until the subsequent fiscal year. Budget increase due to unanticipated participation of scientists at TerrainPaths 99 conference.

This activity will enhance the ability of SEGEMAR in the interpretation of complex structure and volcanic stratigraphy and its relationship to alteration zones. In regional mapping it is important to standardize techniques and methodology. Additionally, understanding metallogeny of specific areas and incorporating that information into the regional context is extremely valuable, leading to enhanced products. Dating and geochemistry are important tools in regional mapping. Accurate data to build regional geochemical understanding of volcanic rocks is extremely important for regional correlations and interpretations and will lead to enhanced products, more usable to client groups. Dating is also critical to constrain geological interpretations built on field mapping, particularly in a regional context. This activity will enhance skills in all these areas in addition to contributing to high quality products. There is some overlap in this activity with Purpose D (Institutional Strengthening).

During the 1999/2000 fiscal year SEGEMAR plans to complete the Antofalla and Susques sheets at 1:250,000 with the help of a Canadian expert.

First Quarter Action Items:

- Project Administrator to organize with SEGEMAR who will be the Canadian expert and when the work should be done.

First Quarter Report and Second Quarter Action Items:

- ◆ Canadian Expert to be decided upon between project management in Canada and Argentina.

Second Quarter Report and Third Quarter Action Items

- ▶ Budget increase due to unanticipated participation of scientists at TerrainPaths 99 conference.
- ▶ Dr.'s Elizabeth Rovere and Raul Seggiaro of SEGEMAR participated at the TerrainPaths 99 conference in Vernon, British Columbia.

A.98/A-1	Multiparameter geophysical and geochemical interpretation and integration	Argentina	\$7,000.00
1 st Quarter	Budget change		
2 nd Quarter	Budget change		
3 rd Quarter	Budget change		
4 th Quarter	Final Expenditure		

Regional geophysical and geochemical information is extremely valuable for exploration work and regional mapping. Tools such as regional gravity, aeromagnetic and geochemical surveys are especially powerful when integrated and presented as a multi-parameter synthesis of data. This activity will provide training in specific geophysical and geochemical interpretative techniques and presentations as well as in how to carry out multi-parameter interpretations and produce products. There is some overlap in this activity with Purpose D (Institutional Strengthening).

In this fiscal year Mr. Jeff Harris (GSC Ottawa) has been requested to assist the Argentineans with data interpretation after completion of the regional litho-geochemical analyses. Additional training in geophysical interpretation may also be required in this fiscal year.

First Quarter Action Items:

- Project Administrator to work with SEGEMAR to plan the visit of the Canadian expert to Buenos Aires and possibly a SEGEMAR scientist to Canada.

First Quarter Report and Second Quarter Action Items:

- ◆ Jeff Harris has been contacted regarding this activity.
- ◆ Plans are under way to organize the travel of Dr. Harris or another Canadian expert to Argentina.
- ◆ During the second quarter, Project Administrator to work with SEGEMAR on organizing trip of scientist to Canada for training.

Second Quarter Report and Third Quarter Action Items

- ▶ It is planned for Dr. Harris to travel to Argentina in the fourth quarter or early in the next fiscal year.

A.98/A-2	Geological, geophysical, geochemical data integration and digital data presentation (CD-ROM)	Argentina	\$17,500.00
1 st Quarter	Budget change		
2 nd Quarter	Budget change		
3 rd Quarter	Budget change		
4 th Quarter	Final Expenditure		

Large quantities of digital data are the hallmark of modern multi-parameter geological field investigations. The integration, manipulation and presentation of these data presents a particular set of problems for the scientist communicating with several different types of client groups. Exploration clients would like certain types of data presented in a particular way that may be very different from the way a health specialist might wish to view the data when trying to establish environmental control factors in disease. Satisfying a wide range of client groups by presenting information in an understandable and easily accessible way is the goal of this project. Integral to this project is the establishment of digital and cartographic standards between the participating countries. This is addressed in the multi-country activity B.98/M-2.

During the 1999/2000 fiscal year work will focus on integrating digital databases into a GIS format to be used as a tool to help create maps that show mining potential.

First Quarter Action Items:

- Project Administrator to organize training with SEGEMAR.

First Quarter Report and Second Quarter Action Items:

- ◆ Project Administrator to organize training with SEGEMAR.

Second Quarter Report and Third Quarter Action Items

- ▶ Activity postponed until the fourth quarter.

A.96/B-3	Training in regional mapping, volcanology and metallogenic studies	Bolivia	\$21,850.00
1 st Quarter	Budget change		
2 nd Quarter	Budget change		
3 rd Quarter	Budget change*	\$6,080.00	\$27,930.00
4 th Quarter	Final Expenditure		

* Third quarter budget change due to increase in number of days by XDM geological consultants.

The Bolivians are commencing work on regional mapping in the Western Cordillera (Cordillera Occidental). This is a region of highly prospective mineralization that is as yet poorly understood and studied. A great deal needs to be done to increase understanding of the regional context of volcanic activity and its link to mineralization. Work under this activity will be done to assist the Bolivians in upgrading their field skills in regional mapping of volcanic terrain and gain increased abilities in the regional interpretation for metallogenic studies.

In the 1999/2000 fiscal year this activity will include the visit of a Canadian expert to Bolivia to conduct volcanology field work with SERGEOMIN scientists.

First Quarter Action Items:

- Preparations for Canadian expert to travel to Bolivia for field work in July of 1999.

First Quarter Report and Second Quarter Action Items:

- ◆ Dr. Paul Metcalfe has been contracted to conduct field work with SERGEOMIN scientists June 28 to July 23, 1999.

Second Quarter Report and Third Quarter Action Items

- ▶ Budget change due to increase in number of days by XDM geological consultants.
- ▶ Dr. Metcalfe travelled to Bolivia (June 28 - July 3) and conducted field work with SERGEOMIN scientists. (See Annex H).

A.99/B-1	Training in the use of the PIMA mineral analyser	Bolivia	\$9,700.00
1 st Quarter	Budget change		
2 nd Quarter	Budget change		
3 rd Quarter	Budget change		
4 th Quarter	Final Expenditure		

The PIMA short-wave infrared mineral analyser is a fast and efficient method of determining the major alteration minerals present in samples. It will be used in-situ in the field, on core, and on hand samples in the office. The short-wave infrared (SWIR) technique can analyse alteration minerals such as clays, carbonates and selected sulfates, particularly alunite and jarosite. SWIR analysis is also sensitive to elemental substitution and crystallinity changes in minerals. Understanding the alteration mineralogy is an important tool for better understanding ore deposits. Using the instrument, an alteration halo can be determined around a mineralized area helping pinpoint the centre of alteration and assisting in modelling the alteration system. Using this instrument, it will be possible to study alteration zone mineralization and mineral deposits in the field, greatly enhancing the overall understanding of mineral deposits in a region.

During the 1999/2000 fiscal year the MAP - PIMA mineral analyser will be used for training in Bolivia by PIMA

personnel.

First Quarter Action Items:

- Project Administrator to organize with SERGEOMIN and PIMA instructor Dr. Anne Thompson dates for training.

First Quarter Report and Second Quarter Action Items:

- ◆ PIMA training set for November 1999.

Second Quarter Report and Third Quarter Action Items

- ▶ Ms. Anne Thompson has been contracted and training will be from November 2-5 in Bolivia .

A.97/C-3	Fission track studies to determine uplift and denudation and its relation to supergene processes	Chile	\$6,200.00
1 st Quarter	Budget change		
2 nd Quarter	Budget change		
3 rd Quarter	Budget change		
4 th Quarter	Final Expenditure		

Uplift of the Andean Mountains is a significant event, not only in terms of the impact on physiography but also from the viewpoint of mineralization and denudation. In southern Chile it has been found that the structures on which uplift occurs may also be the loci for ore forming fluids. The erosion of the mountain belts is significant in revealing mineral resources that would otherwise be too deeply buried to extract profitably. By determining uplift rates, locus of uplift (faults), and separating blocks that may have been uplifted as a unit, mineral exploration will be more carefully focussed to those areas which are most favourable in terms of denudation and appropriate structures.

In 1997/98 Dr. Lisel Currie of GSC Calgary travelled to Chile and worked with SERNAGEOMIN staff collecting fission track samples. Some of the results of these analyses are now in hand and work can begin on further collaborative research.

First Quarter Action Items:

- Set up dates for work in the field with Dr. Lisel Currie.
- MAP Sample Coordinator to follow up on completion of sample analysis.

First Quarter Report and Second Quarter Action Items:

- ◆ Tentative dates set up (December 1999) for Dr. Currie's visit to Chile.
- ◆ Second batch of samples at lab being analysed.

Second Quarter Report and Third Quarter Action Items

- ▶ A contract was put in place on August 25, 1999 for \$28,600 with Dalhousie University Fission Track Lab to complete analysis of 26 samples from Chile for Apatite Fission Track dating. Phase 1 consisted of fission track analysis of 5 samples, of which 3 gave dates, already distributed in a report dated 99-02-21. Included in this latest contract are Phases 2 and 3, totaling 26 additional samples. Phase 2 consists of a batch of 14 samples that have been analysed and the report was prepared and sent on September 29, 1999. Phase 3 consists of a batch of 12 samples, with results expected by the end of November, and a final summary report on all 31 samples in December 1999.
- ▶ Dr. Currie will not be available to conduct field work in Chile. An alternate scientist is being chosen and it is anticipated that the planned fieldwork will occur during the fourth quarter of the current fiscal year.

A.99/C-1	Training in Ar/Ar Geochronology methods at GSC Ottawa, and setting up of geochronology facilities at SERNAGEOMIN.	Chile	\$20,700.00
1 st Quarter	Budget change*	-\$7,500.00	\$13,200.00
2 nd Quarter	Budget change		
3 rd Quarter	Budget change		
4 th Quarter	Final Expenditure		

*1st quarter budget change because original plans for four month visit of P. Cornejo to Ottawa was incorrect. One month is the true projected visit time.

SERNAGEOMIN recently (1998) acquired equipment to establish a geochronology Ar/Ar lab at their facility in Santiago. SERNAGEOMIN has requested that the GSC help with this initiative under MAP.

During the 1999/00 fiscal year Ms. P. Cornejo of SERNAGEOMIN will travel to GSC Ottawa to work with Mr. Mike Villeneuve at the Geochronology Laboratory for a period of four weeks. This activity will also include a visit of Mr. Villeneuve to Chile for two weeks to give a general course on interpretation of geochronology data, as well as to help develop geochronological methods that will be applied in the new SERNAGEOMIN geochron lab. Mr. Villeneuve will also help set up a pilot control program that will include the processing of sample collections.

First Quarter Action Items:

- Project Administrator to work with SERNAGEOMIN management and GSC personnel to set up training in Chile and establish dates for the work of Ms. Cornejo in Ottawa.

First Quarter Report and Second Quarter Action Items:

- ◆ Ms. Cornejo tentatively scheduled to travel to Ottawa in October.

Second Quarter Report and Third Quarter Action Items

- ▶ Ms. Cornejo's visit has been postponed until March 2000.
- ▶ Mr. Villeneuve will travel to Chile to work at the SERNAGEOMIN facilities from November 15 to 26.

A.99/C-2	Training in epithermal alteration zone mapping using the PIMA	Chile	\$20,700.00
1 st Quarter	Budget change		
2 nd Quarter	Budget change		
3 rd Quarter	Budget change		
4 th Quarter	Final Expenditure		

The PIMA short-wave infrared mineral analyser is a fast and efficient method of determining the major alteration minerals present in samples. It will be used in-situ in the field, on core, and on hand samples in the office. The short-wave infrared (SWIR) technique can analyse alteration minerals such as clays, carbonates and selected sulfates, particularly alunite and jarosite. SWIR analysis is also sensitive to elemental substitution and crystallinity changes in minerals. Understanding the alteration mineralogy is an important tool for better understanding ore deposits. Using the instrument, an alteration halo can be determined around a mineralized area helping pinpoint the centre of alteration and assisting in modelling the alteration system. Using this instrument, it will be possible to study alteration zone mineralization and mineral deposits in the field, greatly enhancing the overall understanding of mineral deposits in a region.

The MAP PIMA will be used for training SERNAGEOMIN geologists in the field. The objective will be to increase their knowledge of mapping epithermal alteration zones associated with volcanism. During the 1999/00 fiscal year Dr. Panteleyev will conduct the field course after PIMA training is conducted in Santiago by Dr. Anne Thompson.

First Quarter Action Items:

- Project Administrator to coordinate dates for training and field work with SERNAGEOMIN, Dr. Panteleyev, and PIMA instructor Dr. Anne Thompson.
- Project administrator to set up appropriate contracts in order that the required training carried.

First Quarter Report and Second Quarter Action Items:

- ◆ Dates for PIMA training and Dr. Panteleyev's visit tentatively scheduled for November.

Second Quarter Report and Third Quarter Action Items

- ▶ PIMA training and Dr. Panteleyev's visit have been postponed until March 2000.

A.97/P-6	Training in petrography, petrogenesis, geochemistry, volcanic stratigraphy and mapping, field applications	Peru	\$21,850.00
1 st Quarter	Budget change		
2 nd Quarter	Budget change		
3 rd Quarter	Budget change		
4 th Quarter	Final Expenditure		

Volcanic rocks are complex, both stratigraphically and petrologically. New tools are being developed to help characterize these types of rocks to better understand the tectonic environment in which they formed and the impact of their eruption and associated hydrothermal systems on the surrounding rock units. Adequate data to characterise volcanic sequences and make observations relevant for regional mapping and metallogenic work, requires an investment in detailed field studies, petrology and geochemistry. This activity will enhance the skills of INGEMMET scientists to handle the complex volcanological relationships found in the MAP field area and to create maps and other products compatible with Chilean geologists. During the 1999/2000 fiscal year this activity will include a short course in volcanology given by a Canadian expert or experts. There is some overlap in this activity with Purpose D (Institutional Strengthening).

First Quarter Action Items:

- Project Administrator to organize dates and scope of short course in Lima with INGEMMET.

First Quarter Report and Second Quarter Action Items:

- ◆ Course set for 2nd week of September 1999.
- ◆ Dr. Kelly Russell has been contracted and will give the course along with Dr. Catherine Hickson in September.

Second Quarter Report and Third Quarter Action Items

- ▶ The course was postponed until November 29 to December 5.
- ▶ Most preparation work on course material has been completed.

A.98/P-1	Metallogenic resource evaluation and mineral deposit modelling and applications	Peru	\$11,800.00
1 st Quarter	Budget change		
2 nd Quarter	Budget change		
3 rd Quarter	Budget change*	\$1,500.00	\$13,300.00
4 th Quarter	Final Expenditure		

*Budget change due to increase in number of billable days by consultant.

This activity will enhance the ability of INGEMMET in the interpretation and understanding of alteration zones. Understanding metallogeny of specific areas and incorporating that information into a regional synthesis is extremely valuable and will lead to enhanced products. Dating and geochemistry are important tools in regional

metalogenic projects in order to produce useful products. There is some overlap in this activity with Purpose D (Institutional Strengthening). The in-field training commenced in 1998/99 with a visit by Dr. Andre Panteleyev. During the 1999/2000 fiscal year Dr. Panteleyev will again visit Peru to continue field work with INGEMMET geologists.

First Quarter Action Items:

- Prepare contract for Dr. Panteleyev and organize trip.

First Quarter Report and Second Quarter Action Items:

- ◆ Dr. Pantelyev is scheduled to work in Peru from August 24 to September 17, 1999.

Second Quarter Report and Third Quarter Action Items

- ▶ Budget increase due to increase in number of anticipated days for Dr. Panteleyev.
- ▶ Activity has been postponed until fourth quarter.

A.99/P-1	Training in epithermal alteration zone mapping using the PIMA mineral analyser	Peru	\$8,200.00
1 st Quarter	Budget change		
2 nd Quarter	Budget change		
3 rd Quarter	Budget change		
4 th Quarter	Final Expenditure		

The PIMA short-wave infrared spectrometer is a fast and efficient method of determining the major alteration minerals present in samples. It will be used in-situ in the field, on core, and on hand samples in the office. The short-wave infrared (SWIR) technique can analyse alteration minerals such as clays, carbonates and selected sulfates, particularly alunite and jarosite SWIR analysis is also sensitive to elemental substitution and crystallinity changes in minerals. Understanding the alteration mineralogy is an important tool for better understanding ore deposits. Using the instrument, an alteration halo can be determined around a mineralized area helping pinpoint the centre of alteration and assisting in modelling the alteration system. Using this instrument, it will be possible to study alteration zone mineralization and mineral deposits in the field, greatly enhancing the overall understanding of mineral deposits in a region.

During the 1999/2000 fiscal year the MAP - PIMA mineral analyser will be used for training in Peru by PIMA personnel.

First Quarter Action Items:

- Project Administrator to organize with INGEMMET and PIMA instructor Dr. Anne Thompson dates for training.

First Quarter Report and Second Quarter Action Items:

- ◆ Training date set for November 1999.

Second Quarter Report and Third Quarter Action Items

- ▶ Ms. Anne Thompson has been contracted and training will commence in November in Peru and Bolivia.

Purpose B

Quarter	Summary of Activities	Budget changes	Current Budget
B	Increase cooperation between Geoscience institutions in all five countries (Horizontal Integration) by carrying out geological work leading to more compatible geoscience data within the four National Geoscience Agencies		\$130,570.00
1 st Quarter	Budget change		
2 nd Quarter	Budget change		
3 rd Quarter	Budget change *	\$11,350.00	\$141,920.00
4 th Quarter	Final Expenditure		

* Budget increase due to unanticipated rental vehicle expenses during mineral deposits field tour.

Details by Activities

B.96/M-1	Collaboration on display and participation at a North American international geoscience conference held in Canada	all	\$24,800.00
1 st Quarter	Budget change		
2 nd Quarter	Budget change		
3 rd Quarter	Budget change		
4 th Quarter	Final Expenditure		

This activity will bring all the countries together to discuss problems of mutual concern. In both formal and informal meetings increased understanding of issues faced by each of the national surveys will be discussed. In addition, it is an excellent opportunity for the countries to display the products produced by the project to an international client group. There is considerable overlap with Purpose C (Enhanced Institutional Relationships). These meetings have provided a venue for the Executive Council meetings.

In 1996/97 MAP participated in the Prospectors and Developers Association of Canada (PDAC) conference in Toronto and in 1997/98 the joint meeting of the Society of Economic Geologists and the BC & Yukon Chamber of Mines (Cordilleran Roundup) annual meeting was the venue. During 1998/99 MAP participants met again at the Toronto based Prospectors and Developers Association conference in March 1999. During the 1999/2000 fiscal year MAP will again use the BC & Yukon Chamber of Mines annual meeting (Cordilleran Roundup) as a venue for the Executive Council Meetings.

First Quarter Action Items:

- Project Administrator to make hotel reservations for January meetings.

First Quarter Report and Second Quarter Action Items:

- ◆ Hotel reservations made for 15 people.

Second Quarter Report and Third Quarter Action Items

- ▶ Booth space has been booked for a MAP display.

B.96/M-2	Discussions in Regional Metallogeny and Project goals relative to Regional synthesis and future project goals	all	\$7,750.00
1 st Quarter	Budget change		
2 nd Quarter	Budget change		
3 rd Quarter	Budget change		
4 th Quarter	Final Expenditure		

Metallogenic aspects of the project and production of products such as maps are the prime concern of the target client group - the mineral exploration community. These products and the project must continue to be reviewed to ensure the needs of this client community are met and project objectives fulfilled.

There has not been meeting on this subject, since the meeting in Buenos Aires in 1996. As the countries progress toward completion of regional mapping and the year 2000 deadline approaches for completion of the 1:500,000 geology and mineral resources map. More time and energy must be put into this activity. The Cartographic Standards Committee, chaired by Robert Cocking, will initiate some of the work on this Activity. A one month working program in Canada is planned for early in the 2000/01 fiscal year.

First Quarter Action Items:

- Information requested by the Cartographic Standards Committee must be forthcoming early in this fiscal year.

First Quarter Report and Second Quarter Action Items:

- ◆ First meeting of the Geoscience Committee will be held in Santa Cruz, Bolivia, August 20, 1999.

Meeting Attendees:

Dr. Eduardo Zappettini	-	Argentina
Ing. Vitaliano Miranda	-	Bolivia
Dr. Bertrand Heuschmidt	-	Bolivia
Dr. Waldo Vivallo	-	Chile
Ing. Oscar Palacios	-	Peru
Dr. Catherine Hickson	-	Canada
Mr. Mike Ellerbeck	-	Canada

B.97/M-1	Mineral Deposits Field Trip through portions of the four participating countries		\$39,350.00
1 st Quarter	Budget change		
2 nd Quarter	Budget change		
3 rd Quarter	Budget change*	\$11,350.00	\$50,700.00
4 th Quarter	Final Expenditure		

* Budget increase due to unanticipated rental vehicle expenses.

Metallogenic aspects of the project are the prime concern of the target client group - the mineral exploration community. This field trip will bring project geologists from each of the participating countries together to investigate known mineral deposits in the participating countries. By studying deposits of known type, in well understood geological settings, participants will gain enhanced understanding of ore forming processes. The lessons learned at these deposits will be used to better understand similar deposits within the project areas. This work can greatly enhance the ability of the geologists to put similar deposits in their own field areas into a regional context. This will enhance the overall understanding of the spatial and temporal position of ore deposits.

In fiscal year 1997/98 the first half of this trip was run. This fiscal year will see completion of the second half under a slightly different format. The trip organization and leadership will be in the hands of representatives from

Argentina (Dr. Eduardo Zappettini) and Bolivia (Ing. Humberto Mallo). A Canadian technical expert will accompany the group to provide background and regional metallogenic and mineral deposit information.

First Quarter Action Items:

- Project Administrator to organize field trip logistics with Project Leaders in Argentina and Bolivia.
- **Participants:**
Argentina: Dr. Eduardo Zappettini, Ing. Adolfo Dominguez, Ing. Eulogio Ramallo
Bolivia: Ing. Humberto Mallo, Vitaliano Miranda, Hernan Uribe
Chile: Ing. Ricardo Troncoso, Dr. Waldo Vivallo, Geol. Jorge Muñoz
Peru: Ing. Elmer Boulanger, Ing. Mario Carpio
Canada: Dr. Andre Panteleyev, Dr. Jennifer Getsinger, Mr. Mike Ellerbeck
- Trip participants are to meet in La Paz, Bolivia for departure on May 3, 1999.
 Planned Itinerary:

		May	
Bolivia	3	La Paz - Kori Kollo - Oruro	
	4	Oruro - Mina Bolivar - Oruro	
	5	Oruro - Challapata - Potosí	
	6	Potosi - Pulacayo - Uyuni	
	7	Uyuni -Potosi	
	8	Potosi - Tupiza - Villazon	
	Argentina	9	Villazon - La Quiaca
		10	La Quiaca - Pirquitas
11		Pirquitas- Abra Pampa - Tres Cruces - Aguilar - Humahuaca	
12		Humahuaca - Purmamarca - Jama - Salinas Grandes - San Antonio de los Cobres, Pocitos, Mina Fenix	
13		Mina Fenix - Tincalayu - Mina Fenix	
14		Mina Fenix - Antofagasta de la Sierra - La Alumbreira	
15		La Alumbreira - Andalgala	
16		Andalgala - Agua Rica - Andalgala -	
17		Andalgala - Tucuman - End of Tour	
18		Return home	

First Quarter Report and Second Quarter Action Items:

- ◆ Activity complete.

B.98/M-1	Development of rock and lithogeochemical standards		\$37,100.00
1 st Quarter	Budget change		
2 nd Quarter	Budget change		
3 rd Quarter	Budget change		
4 th Quarter	Final Expenditure		

The analytical quality of geochemical data is a crucial factor for interpretation of geochemical trends, both spatially and temporally. Each of the countries has some in-house analytical capability, but in order for those analyses to be compared between laboratories and countries, standards must be run with the unknown samples to ensure accuracy and consistency of results. International samples are available but are very costly. By establishing rock standards for each country the project will establish an excellent set of standards that will be interchanged between the countries. These standards are also a legacy for each country, their usefulness lasting far beyond the end of the project. For this activity a database will also be developed to store sample information.

First Quarter Action Items:

- Begin work on collection of samples to be sent to Canada. MAP Sample Coordinator Dr. Jennifer Getsinger to organize and administer this activity.
- Work on database to begin with developer, Mr. Joe Nagel.

First Quarter Report and Second Quarter Action Items:

- ◆ Bolivia has collected 100 kg of Dacite and will send the sample to Vancouver.
- ◆ Preliminary work completed on sample database.

Second Quarter Report and Third Quarter Action Items

- ▶ Three countries have chosen potential standard rocks and sent small samples to MAP Administration at GSC Vancouver. More sample choices and larger amounts of sample are required for a complete evaluation of their suitability as petrological standards. Requirements are outlined in the MAP **Petrological Standards Guidelines** as updated on August 12, 1999 for the MAP Executive Council meeting, and should be carefully considered when choosing standard rock samples to send in.

B.98/M-2	Development of cartographic standards for application to 1:1 000 000 or 1:2 000 000 geology and mineral resource map		\$21,570.00
1 st Quarter	Budget change		
2 nd Quarter	Budget change		
3 rd Quarter	Budget change		
4 th Quarter	Final Expenditure		

Undertaking a multinational mapping project presents a number of difficult issues which must be addressed. One of these is producing maps that cross international boundaries. Often the mapping scale, expertise and age of mapping in adjacent map areas produces boundary "faults" even within a country. This problem is usually magnified when crossing country boundaries. Additionally, when dealing with digital data file compatibility, and other cartographic details must be consistent. This activity will seek to establish uniform cartographic standards and digital file transfers between the four countries in order to produce the 1:500 000 geology and mineral resources map.

The 1999/2000 fiscal year will see the first meeting of the Cartographic Standards Committee (June) and will do all preparatory work required for the planned meetings and joint work on the Geology & Mineral Resources map to occur at GSC facilities in Vancouver in Spring 2000.

First Quarter Action Items:

- Project Administrator to organize with INGEMMET the time and place for the meetings of the Cartographic Standards Committee in Lima (some time in late June, 1999).
- Rob Cocking and Otto Krauth to obtain necessary data from member countries to compile a preliminary map of project area for use as a base.

First Quarter Report and Second Quarter Action Items:

- ◆ First meeting of cartographic standards committee complete:

Meeting Attendees:

Committee Members:

Lic. Graciela Marin - Argentina
 Ing. Vitaliano Miranda - Bolivia
 Geol. Paulina Gana - Chile
 Cartog. César Reyes - Chile
 Cartog. Robert Cocking - Canada
 Ing. Manuel Paz - Peru
 Ing. Robert Monge - Peru
 Ing. William Martínez - Peru

Guests:

Ing. Francisco Herrera - Peru
 Ing. Mario Carpio - Peru
 Ing. Samuel Lú - Peru
 Ing. Luis Vargas - Peru

Translator:

Ing. Rolando Cruzado - Peru

- ◆ Geoscience committee meeting to be held in Santa Cruz on August 20, 1999.

Second Quarter Report and Third Quarter Action Items

- ▶ The geoscience committee meeting was held in Santa Cruz, Bolivia August 20, 1999. (See meeting minutes Annex D).

B.98/M-3	Volcanology field studies and workshops		\$0.00
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The project regions cover a diverse geology. However, the most abundant rock type found in the map areas of all the countries are volcanic rocks. The processes responsible for the formation of the volcanic centres are often also associated with mineralization. The understanding of the temporal, geochemical and physical evolution of volcanic centres is often a key for establishing exploration targets in a region. This activity will enhance the skills of scientific staff in understanding, mapping and interpreting volcanic stratigraphy and data.

In 1998/99 Fiscal year two very successful field courses were run. One was in Canada and the other in Chile. Additional more advanced training for course participants may be appropriate at a later date.

First Quarter Action Items:

- No activity planned for 1999/2000 fiscal year.

Purpose C

Quarter	Summary of Activities	Budget changes	Current Budget
C	Enhance institutional relationships with Private Sector (mineral exploration and mining companies)		\$37,700.00
1 st Quarter	Budget change		
2 nd Quarter	Budget change		
3 rd Quarter	Budget change		
4 th Quarter	Final Expenditure		

Details by Activities

C.96/M-1	Post "News Release" and other information for participants and Private Sector Companies through WEB Page		\$28,800.00
1 st Quarter	Budget change		
2 nd Quarter	Budget change (Correction)		
3 rd Quarter	Budget change		
4 th Quarter	Final Expenditure		

Purpose C is to enhance the institutional relationships of the National Geoscience Institutes with the private sector. To facilitate transfer of information to the private sector, a web site was established in 1997/98. General information about the project is posted on the site, accessible to anyone with access to the web. An internal section, accessible only to project participants, is used for internal communications, posting of reports and a newsletter. It will also be used to help the project track rock samples and other types of information.

First Quarter Action Items:

- Update WEB page with individual country information as well as new photos and maps.
- Produce MAP News, v. 2, nos. 1, 2, 3.

First Quarter Report and Second Quarter Action Items:

- ◆ MAP News v.2 nos 1, 2 &3 produced and distributed.
- ◆ Some sections of WEB Page updated (ie. Peru - Publications, and MAP News v.2 no's 1, 2, 3, the Airborne Survey section).

Second Quarter Report and Third Quarter Action Items

- ▶ MAP News Vol.2 - No.'s 4,5, & 6 produced and distributed. (See Annex J)
- ▶ Airborne survey section of WEB page updated.

C.97/M-1	Technical Liaison Committee with Industry Representatives.		\$5,200.00
1 st Quarter	Budget change		
2 nd Quarter	Budget change		
3 rd Quarter	Budget change		
4 th Quarter	Final Expenditure		

In order to help the countries understand Canadian practices in terms of our relationship with the private sector, a representative from the private sector was invited to assist in the review of work done under the MAP project and make recommendations to the Geological Survey of Canada to assist the Project Manager in helping develop or modify activities so that they have maximum impact for the private sector. The goal is to provide feedback to the counties on the needs of the mineral exploration community and how project activities might best meet those needs.

In 1997/98 Dr. Art Soregaroli (Chief Scientist, TECK Corporation, Retired) agreed to be the technical advisor to the GSC for MAP.

In 1999/2000 Dr. Soregaroli will continue in his role as Technical Advisor to MAP and will meet with MAP management once per month.

First Quarter Action Items:

- Dr. Soregaroli to meet with MAP management in May to review work plans for 1999/2000.

First Quarter Report and Second Quarter Action Items:

- ◆ Dr. Soregaroli had one meeting with MAP manager and administrator.

Second Quarter Report and Third Quarter Action Items

- ▶ Dr. Soregaroli had two meetings with MAP management in Vancouver during the last quarter.
- ▶ Project Manager reported to MAP Executive Council in Santa Cruz in August on Technical Liaison meetings with Industry Representative.

C.98/M-2	Project information and profile enhancement		\$3,700.00
1 st Quarter	Budget change		
2 nd Quarter	Budget change		
3 rd Quarter	Budget change		
4 th Quarter	Final Expenditure		

In order to increase the profile of the National Geoscience Agencies with the private sector, the work of the Agencies must be better known. To enhance this exposure, MAP scientists and managers will participate in meetings or conferences (such as those under activity C.96/M-1) where mineral industry representatives are present.

It is very important that project information be distributed both formally and informally by project participants at these meetings and while participating in MAP activities, such as the mine tour (B.97/M-1). They will be assisted in this by providing written information in the form of brochures and notices to client groups. In this manner, project participants can represent the project and their organizations to a wide client group.

During the 1999/2000 fiscal year this activity will involve the visit of Dr. Panteleyev to the "ProExplo99" Congress in Lima to give a talk on MAP.

First Quarter Action Items:

- Dr. Panteleyev to attend conference in Lima at the end of April.

First Quarter Report and Second Quarter Action Items:

- ◆ Activity complete. Dr. Panteleyev attended the ProExplo 99 conference in Peru.

Second Quarter Report and Third Quarter Action Items

- ▶ No activity during the second quarter.

C.99/M-H1	Holding account for multi-parameter airborne survey between Argentina and Chile		[\$41,000.00]
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The Activity number was created to deal with the management of the Multi-parameter airborne survey being flown cooperatively between Chile, Argentina and private sector stakeholders. To assist in the management of this activity, a single accounting number will be used, then the final costs allocated based on a split of 50% to Argentina and 50% to Chile. These costs appear under Activities D.99/M-A1 and D.99/M-C1.

C.99/M-H2	Holding account for multi-parameter airborne survey between Bolivia, Chile, and Peru		[\$503,500.00]
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The Activity number was created to deal with the management of the Multi-parameter airborne survey being flown cooperatively between Peru, Chile, Bolivia and private sector stakeholders. To assist in the management of this activity, a single accounting number will be used, then the final costs allocated based on a split determined by a % of the kilometres flown in each country of the total survey: 54% to Bolivia, 28.4% for Peru, and 17.6% to Chile. These percentages are based on km² to be flown in each country and will be subject to adjustment once a final airborne survey area has been defined and agreed upon by all parties involved. These costs appear under Activities D.99/M-C2, D.99/M-P1 and D.99/M-B1.

Purpose D

Quarter	Summary of Activities	Budget changes	Current Budget
D	Institutional strengthening		\$875,300.00
1 st Quarter	Budget change		
2 nd Quarter	Budget change		
3 rd Quarter	Budget change	\$10,740.00	\$886,040.00
4 th Quarter	Final Expenditure		

Details by Activities

D.96/A-1	Geochemical Exploration techniques, sample handling and data analysis	Argentina	\$30,000.00
1 st Quarter	Budget change		
2 nd Quarter	Budget change		
3 rd Quarter	Budget change		
4 th Quarter	Final Expenditure		

The Argentinean Survey plans to re-analyse samples collected in the past under other projects. These samples were originally analysed for a very limited range of elements. The intent of re-analysis is to produce a larger suite of elements more pertinent to the needs of today's exploration community. This type of data is especially important to mineral exploration companies as it assists them in targeting exploration activity. When the analyses are complete, it is expected that a short course in the interpretation of regional geochemical analyses will be given. In addition, under this activity, the Argentinean geochemical laboratory will be upgraded by the purchase of a Tungsten carbide ring mill. The ring mill is an essential piece of equipment used to efficiently pulverize rock samples.

First Quarter Action Items:

- Project Administrator to organize the shipment of ring mill and sieves to Argentina.
- MAP Sample Coordinator Dr. Jennifer Getsinger to organize with SEGEMAR the receipt of samples for geochemical analysis.

First Quarter Report and Second Quarter Action Items:

- ◆ Ring mill sent to Argentina
- ◆ Double set of Stream Sediment standards requested from CANMET for Argentina, and delivered to Argentina.

Second Quarter Report and Third Quarter Action Items

- ▶ No samples have been received to date.

D.96/A-2	Airborne geophysics acquisition and interpretation	Argentina	\$0.00
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Airborne geophysics is an important tool used by exploration companies to assess and help define an exploration program in a new region. Airborne geophysics has been flown in other areas of the Puna but no regional airborne aeromagnetic data is available for the area of Multinational Andean Project. Under MAP, airborne geophysics, specifically aeromagnetic data and radiometric data was flown. This airborne geophysics was acquired through a multi-company-government consortium. This multi-company-government consortium also enhanced the relationship of SEGEMAR with the private sector. Participating companies report that the data are useful and have helped define exploration targets. The Survey data will be released publically in January, 2000.

First Quarter Action Items:

- No activity planned for 1999/2000 fiscal year.

D.96/A-3	Precision analytical whole rock analyses for major, trace and rare earth elements	Argentina	\$0.00
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In order to assist the exploration community in focusing their exploration efforts, it is imperative that an understanding of the geological evolution of a region is acquired. It is through understanding the regional geological evolution that focussed exploration can progress. Specific types of geological features may be associated with mineralization or provide a control on the distribution of ore bodies. Volcanoes can have differing chemical signatures and origins - some associated with ore forming fluids, others not. Within this project, acquisition of excellent analytical data on rocks (particularly analyses of volcanic rocks) contained within the project area is of prime importance in helping to elucidate the relationships between various volcanic strata and mineralization. Samples will be analysed for a complete suite of major, minor and trace elements. A sub-set of these samples will be analysed for rare earth elements. Assistance in interpretation of the results will be through the multi-country activity B.98/M-3 (Volcanic field studies and workshops). In addition, some limited laboratory equipment has been acquired.

Note: From now on, samples collected for precision analytical whole rock analyses for major, trace, and rare earth elements will be processed consistently with the guidelines outlined for the MAP petrological sample standards program. Fresh rock samples (rather than partially crushed samples) are required to maintain consistency in terms of lack of contamination by grinding (tungsten carbide ring pulverisation will be used to MAP specifications). Analytical results will now be more conducive to scientific research because all samples sent for petrological geochemistry will undergo the same geochemical procedures as the MAP sample standards.

First Quarter Action Items:

- No activity planned for 1999/2000 fiscal year.

D.96/A-4	Precision dating by Ar-Ar or other techniques as applicable	Argentina	\$10,000.00
1 st Quarter	Budget change		
2 nd Quarter	Budget change		
3 rd Quarter	Budget change		
4 th Quarter	Final Expenditure		

In addition to precise whole rock geochemical analyses, an understanding of the timing of geological events is critical to understanding the geological evolution of an area. The temporal elements of this project will be addressed using radiometric dating techniques.

First Quarter Action Items:

- Samples, currently at GSC Ottawa geochronology facility to be completed.

First Quarter Report and Second Quarter Action Items:

- ◆ Analytical results passed to Argentina of Ar-Ar and U-Pb analyses done at GSC Ottawa.

Second Quarter Report and Third Quarter Action Items

- ▶ Sample information for the HHB-98 series of samples was passed along to Dr. Daniel Rubiolo, along with 5 new U/Pb dates and 2 new Ar-Ar dates from the GSC Geochronology Lab in Ottawa (in addition to 2 new Ar-Ar dates completed in May and June). Four new Ar-Ar samples were sent to Ottawa and results should be completed by the end of October, 1999. From the UBC Geochronology Lab in Vancouver, 10 U/Pb dates were obtained from 10 out of 15 rock samples from Argentina waiting for completion of K/Ar dating. UBC's K/Ar dating has been held up due to ongoing equipment problems.

D.99/A-1	MAP Fellowship fund (\$5,000 US)	Argentina	
1 st Quarter	Budget change		
2 nd Quarter	Budget change		
3 rd Quarter	Budget change*	\$7,500.00	\$7,500.00
4 th Quarter	Final Expenditure		

*Budget change due to the creation of the activity in the second quarter.

It was decided at the March 1999 Executive Council Meetings in Toronto to implement a MAP Fellowship fund (US\$5,000.00 per country per year of the project) to be used to help fund travel of scientists from the four South American MAP members on MAP related activities. The rules for the disbursement of the fund can be found in report #11 Part B Annex G "MAP Fellowship Fund Terms of Reference".

Second Quarter Report and Third Quarter Action Items

- ▶ No fellowship fund disbursements have been requested by Argentina so far this fiscal year.

D.96/B-5	On-site assessment and training in laboratory techniques	Bolivia	\$0.00
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Good analytical technique is crucial for good analytical results. Under this activity, assistance will be given to SERGEOMIN to help them improve their analytical techniques.

No work is forecast in this activity this fiscal year.

First Quarter Action Items:

- No activity planned for 1999/2000 fiscal year.

D.96/B-6	Precision analytical whole rock analyses for major, trace and rare earth elements	Bolivia	\$13,950.00
1 st Quarter	Budget change		
2 nd Quarter	Budget change		
3 rd Quarter	Budget change	-\$5,000.00	\$8,950.00
4 th Quarter	Final Expenditure		

In order to assist the exploration community in focussing their exploration efforts, it is imperative that an understanding of the geological evolution of a region is acquired. It is through understanding the geological evolution of a region that focussed exploration can progress. Specific types of geological features may be associated with mineralization or provide a control on the distribution of ore bodies. Volcanoes can have differing chemical signatures and origins - some associated with ore forming fluids, other not. Within this project, acquisition of excellent analytical data on rocks (particularly analyses of volcanic rocks) contained within the project area is of prime importance in helping to elucidate the relationships between various volcanic strata and mineralization. The Bolivians propose that a significant number of samples will be analysed for a complete suite of major, minor and trace elements. A sub-set of these samples will be analysed for rare earth elements.

First Quarter Action Items:

- MAP Sample Coordinator Dr. Jennifer Getsinger to confirm with SERGEOMIN number of samples to be sent and create a sample processing time line.

First Quarter Report and Second Quarter Action Items:

- ◆ Bolivia has collected 94 rock samples for analysis and will be collecting more during field work in July.
- ◆ Communications under way to determine the best analytical package for the samples.
- ◆ Samples should be sent to Vancouver during the 2nd quarter.

Second Quarter Report and Third Quarter Action Items

- ▶ Budget change in third quarter due to reduction in total number of samples anticipated from 200 to 100.
- ▶ Seven samples have been collected and crushed in Bolivia and sent to Vancouver, where they are now awaiting a decision about exact choice of analysis procedure. Six samples are also awaiting decisions about isotopic analyses such as whether extra precision and age interpretation are required for lead isotopes. From now on, samples collected for precision analytical whole rock analyses for major, trace, and rare earth elements will be processed consistently with the guidelines outlined for the MAP petrological sample standards program. Fresh rock samples (rather than partially crushed samples) are required to maintain consistency in terms of lack of contamination by grinding (tungsten carbide ring pulverisation will be used to MAP specifications). Analytical results will now be more conducive to scientific research because all samples sent for petrological geochemistry will undergo the same geochemical procedures as the MAP sample standards.

D.96/B-7	On-site training in fluid inclusion analyses	Bolivia	\$11,200.00
1 st Quarter	Budget change		
2 nd Quarter	Budget change		
3 rd Quarter	Budget change		
4 th Quarter	Final Expenditure		

Fluid inclusions are small trapped pockets of fluids within minerals. Determining the fluids that are contained within these small trapped bubbles helps geologists understand the evolution of the minerals themselves. Understanding the evolution, or growth, of these minerals helps determine the evolution of potentially ore-bearing fluids. The analysis of these fluids provides critical clues to the understanding of the evolution of an ore deposit. To help the Bolivians increase their expertise in this area, fluid inclusion apparatus has been bought and a contract awarded for training in the use of the equipment. If necessary, follow-up courses or workshops will be held in upcoming fiscal years.

The 1999/2000 fiscal year will include on-site training in Fluid Inclusion analysis using the Fluid Inclusion Equipment previously donated to Bolivia by MAP.

First Quarter Action Items:

- Project Administrator to coordinate the training with SERGEOMIN and Fluid Inc.

First Quarter Report and Second Quarter Action Items:

- ◆ Training re-scheduled for November 1999.

Second Quarter Report and Third Quarter Action Items

- ▶ Fluid Inc. of Colorado, USA has been contracted to give a short course in Fluid Inclusion and to set up MAP donated equipment December 2-8 in La Paz.

D.96/B-8	Geochemical exploration techniques, sample handling and data analysis	Bolivia	\$12,950.00
1 st Quarter	Budget change		
2 nd Quarter	Budget change		
3 rd Quarter	Budget change*	-\$4,200.00	\$8,750.00
4 th Quarter	Final Expenditure		

* Budget change in third quarter due to reduction in number of anticipated samples from 500 to 300.

The Bolivian Survey plans to analyse a total of 1500 samples over the course of the project. Regional geochemical surveys are one of the best ways to generate exploration interest in an area and help exploration companies focus exploration work. It is expected that a short course in the interpretation of regional geochemical analyses will be held sometime in the future. Additionally, the Bolivian geochemical expertise will be increased by training on the

PIMA mineral analyser (under activity B.97/M-2).

During the 1999/2000 fiscal year it is planned that SERGEOMIN will send 500 samples for Au+34 analyses.

First Quarter Action Items:

- MAP Sample Coordinator Dr. Jennifer Getsinger to Coordinate with SERGEOMIN sample shipment time and Project Administrator to set up standing offer with Activation Laboratories.

First Quarter Report and Second Quarter Action Items:

- ◆ Dr. Getsinger has been in contact with Bolivian personnel to decide on best Au plus multi-element analysis package.

Second Quarter Report and Third Quarter Action Items

- ▶ Budget change in third quarter due to reduction in number of anticipated samples from 500 to 300.
- ▶ A batch of 108 stream sediment samples and 7 replicates is being sent to Actlabs, along with a batch of 45 altered rocks and 5 replicates, for geochemical analysis of "Au+48" elements.

D.96/B-9	On-site training in petrographic techniques (binocular, reflected and transmitted)	Bolivia	\$0.00
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In addition to detailed analyses and precise dating it is also necessary to have an understanding of the petrogenesis of rocks within the project area. In order to upgrade the petrographic capability of Bolivia training will be given on petrographic techniques. No equipment funds remain to upgrade these facilities.

First Quarter Action Items:

- No activity planned for 1999/2000 fiscal year.

D.96/B-10	Precision dating by Ar-Ar or other techniques as applicable	Bolivia	\$42,250.00
1 st Quarter	Budget change		
2 nd Quarter	Budget change		
3 rd Quarter	Budget change*	-\$20,000.00	\$22,250.00
4 th Quarter	Final Expenditure		

* Budget change in third quarter due to reduction in anticipated number of samples from 40 to 20.

In addition to precise whole rock geochemical analyses, an understanding of the timing of geological events is critical to understanding the geological evolution of an area. The temporal elements of this project will be addressed using radiometric dating techniques.

During the 1999/2000 fiscal year it is planned that SERGEOMIN will send 40 samples for radiometric dating.

First Quarter Action Items:

- MAP Sample Coordinator Dr. Jennifer Getsinger to organize with SERGEOMIN and Mr. Mike Villeneuve of GSC Ottawa, time line for sample receipt and analysis . Some of these samples will be collected during the planned field work in July (see Activity A.96/B-3)

First Quarter Report and Second Quarter Action Items:

- ◆ It is anticipated that during the current field season Bolivia will collect approximately 40 samples for Ar-Ar dating at GSC Ottawa.

Second Quarter Report and Third Quarter Action Items

- ▶ Budget change in third quarter due to reduction in anticipated number of samples from 40 to 20.
- ▶ At the GSC Geochronology Lab in Ottawa, 15 samples held over from last year are waiting for approval on Ar-Ar dating, and are ready to be reprocessed, pending a decision. Six samples now in the Vancouver

GSC office that were collected in July 1999 in Bolivia by Andre Panteleyev are also awaiting approval for Ar-Ar dating. From the UBC Geochronology Lab in Vancouver, 5 new U/Pb dates were obtained from 9 zircon-containing rocks out of 15 samples from Bolivia waiting for completion of K/Ar dating. One U/Pb date from this batch had already been completed, for a total of 6 U/Pb dates for Bolivia. The other attempted zircon U/Pb dates were unresolved. UBC's K/Ar dating has been held up due to ongoing equipment problems.

D.96/B-11	On-site training in digital manipulation, large format printing and map production	Bolivia	\$10,000.00
1 st Quarter	Budget change		
2 nd Quarter	Budget change		
3 rd Quarter	Budget change		
4 th Quarter	Final Expenditure		

Digital manipulation of data is of prime importance in the production of new and updated geological maps. The ability of the Bolivians to handle digital data has been upgraded through the purchase of equipment and through specific training in the use of the equipment. Training through GLOBESar II project and acquisitions of software (PCI) started in fiscal year 1997/98. Two images of importance to MAP were obtained to work with under the GLOBESar project. This is training that is also being made available to the Argentineans and Peruvians.

First Quarter Action Items:

- Shipping and repair of SGI computer and scanner.

First Quarter Report and Second Quarter Action Items:

- ◆ SGI repaired and sent back to Bolivia.
- ◆ Scanner lamp ordered and is being sent to Bolivia.

Second Quarter Report and Third Quarter Action Items

- ▶ The scanner lamp was sent to Bolivia, however when tested it proved not to be the problem. Currently it is being organized that the scanner be sent back to the manufacturer for repair.

D.99/B-1	MAP Fellowship fund (\$5,000 US)	Bolivia	
1 st Quarter	Budget change		
2 nd Quarter	Budget change		
3 rd Quarter	Budget change*	\$7,500.00	\$7,500.00
4 th Quarter	Final Expenditure		

*Budget change due to the creation of the activity in the second quarter.

It was decided at the March 1999 Executive Council Meetings in Toronto to implement a MAP Fellowship fund (US\$5,000.00 per country per year of the project) to be used to help fund travel of scientists from the four South American MAP members on MAP related activities. The rules for the disbursement of the fund can be found in report #11Part B Annex G "MAP Fellowship Fund Terms of Reference".

Second Quarter Report and Third Quarter Action Items

- ▶ No fellowship fund disbursements have been requested by Bolivia so far this fiscal year.

D.96/C-13	⁴⁰ Ar/ ³⁹ Ar dating in GSC Ottawa	Chile	\$40,650.00
1 st Quarter	Budget change		
2 nd Quarter	Budget change		
3 rd Quarter	Budget change		
4 th Quarter	Final Expenditure		

In addition to precise whole rock analytical data upon which to base petrogenetic interpretations, an understanding of the timing of geological events is critical. Timing is the basis of understanding the geological evolution of an area. The temporal element of this project will be addressed using radiometric dating techniques. Samples were submitted for precise dating using the $^{40}\text{Ar}/^{39}\text{Ar}$ method. Additional expertise, training or other assistance will be available as needed by the Chileans to help them establish an $^{40}\text{Ar}/^{39}\text{Ar}$ facility in Chile (See also Activity A.99/C-1).

During 1999/00 Chile will be sending 20 samples of very young rocks from Stratovolcanoes for Ar/Ar dating and 5-10 samples of other ages for resolution of stratigraphic problems by using Ar/Ar dates.

First Quarter Action Items:

- MAP Sample Coordinator Dr. Jennifer Getsinger to organize with SERNAGEOMIN and Mr. Mike Villeneuve of GSC Ottawa time line for sample receipt and analysis.

First Quarter Report and Second Quarter Action Items:

- ◆ Samples have not yet been received in Canada.

Second Quarter Report and Third Quarter Action Items

- ▶ Twenty samples from Chile have been received by GSC Geochronology Lab in Ottawa and are in the process of analysis, with results expected within 3 months.

D.96/C-14	Hydrogeology Project Development	Chile	\$35,950.00
1 st Quarter	Budget change		
2 nd Quarter	Budget change		
3 rd Quarter	Budget change		
4 th Quarter	Final Expenditure		

Once mineral deposits have been identified, exploration and mining companies are faced with the problem of finding an adequate source of water for exploration and mining operations. In the extremely arid Altiplano this is a significant impediment to mine development. The Chileans have identified a need for hydrogeological investigations in the project region to identify and constrain existing aquifers. Experts from the University of Waterloo Hydrogeology group will assist SERNAGEOMIN in establishing a ground water exploration program in the project area.

During the 1999/00 fiscal year the continuation of this important activity will include a one week visit of Geo. Marcela Venegas at the University of Waterloo to continue work on analysis of data already collected under the project.

There will also be another visit of Dr.'s Ramon Aravena and David Rudolph to Chile to continue field work.

First Quarter Action Items:

- Project Administrator to plan with Chilean Project Leader and Dr.'s Aravena and Rudolph, the visit of Geo. Marcela Venegas to Waterloo.

First Quarter Report and Second Quarter Action Items:

- ◆ Visit of Geo. Marcela Venegas and Geo. Isabel Santibanez SERNAGEOMIN to Waterloo in April complete.

Second Quarter Report and Third Quarter Action Items

- ▶ It is currently planned that Dr.'s Aravena and Rudolph travel to Chile during in January 2000 for field work.

D.97/C-3	Zircon (U-Pb) radiometric dating	Chile	\$42,650.00
1 st Quarter	Budget change		
2 nd Quarter	Budget change		
3 rd Quarter	Budget change		
4 th Quarter	Final Expenditure		

An understanding of the timing of geological events is critical to understanding the geological evolution of an area. The temporal elements of this project will be addressed using radiometric dating techniques, mostly ⁴⁰Ar/³⁹Ar (activity D.96/C-13). Some critical stratigraphic units are beyond the age range for which ⁴⁰Ar/³⁹Ar dating techniques are useful. For these samples, dating will be done by U-Pb extraction of zircons or other techniques as deemed most appropriate for the age and type of rock being dated.

During the 1999/00 fiscal year Chile will be sending 10-12 samples for U/Pb zircon dates.

First Quarter Action Items:

- MAP samples organizer to coordinate with SERNAGEOMIN and Mr. Mike Villeneuve of GSC Ottawa time line for sample receipt and analysis.

First Quarter Report and Second Quarter Action Items:

- ◆ Samples not yet received.
- ◆ Palynological results sent to Chile.

Second Quarter Report and Third Quarter Action Items

- ▶ Samples from Chile received for U/Pb dating at GSC Geochronology Lab in Ottawa include one in August, and eight in September 1999. Six others were already in process. All have been prepared and are undergoing analysis. Results have been completed for sample ES-2024.

D.97/C-5	Fluid inclusion training and equipment	Chile	\$0.00
1 st Quarter	Budget change		
2 nd Quarter	Budget change		
3 rd Quarter	Budget change*	\$3,000.00	\$3,000.00
4 th Quarter	Final Expenditure		

* Budget change due travel of Dr. Reynolds to Chile in March.

Fluid inclusions are small trapped pockets of fluids within minerals. Determining the fluids that are contained within these small trapped bubbles helps understand the evolution of the minerals themselves. Understanding the evolution, or growth, of these minerals helps determine the evolution of potentially ore-bearing fluids. The analysis of these fluids provides critical clues to the understanding of the evolution of an ore deposit. The Chileans already have a high level of expertise in fluid inclusion work, and their facilities were upgraded in 1997/98. No additional work is anticipated under this activity in this fiscal year.

First Quarter Action Items:

- No activity planned for 1999/2000 fiscal year.

Second Quarter Report and Third Quarter Action Items

- ▶ Budget change in third quarter due to invitation by SERNAGEMIN of Dr. Reynolds to Chile in March 2000 to review Chilean Fluid Inclusion equipment donated under MAP.

D.99/C-1	¹⁴ C Dating	Chile	\$8,150.00
1 st Quarter	Budget change		
2 nd Quarter	Budget change		
3 rd Quarter	Budget change		
4 th Quarter	Final Expenditure		

An understanding of the timing of geological events is critical to understanding the geological evolution of an area. The temporal elements of this project will be addressed using radiometric dating techniques, mostly ⁴⁰Ar/³⁹Ar and U-Pb (activities D.96/C-13 and D.97/C-7). Some critical stratigraphic units are, however, much too young for either of these dating techniques to be useful. For these samples, dating will be done by ¹⁴C method. These dates are critical to establishing the most recent volcanic episodes in the project regions.

During the 1999/00 fiscal year Chile will send 15 samples for ¹⁴C dates and will possibly send another 10-15 after the first batch are complete.

First Quarter Action Items:

- Nineteen samples already at GSC to be sent to ¹⁴C lab at Waterloo, Ontario.

First Quarter Report and Second Quarter Action Items:

- ◆ Analyses in progress at University of Waterloo, Environmental Isotope Lab, for 19 samples.

Second Quarter Report and Third Quarter Action Items

- ▶ Of 19 samples submitted to University of Waterloo's Environmental Isotope Lab, 15 are in the process of conventional Carbon-14 dating, with 10 dates completed so far, the remaining 5 are expected by the end of October, 1999. The other 4 required special processing (AMS) and will be completed later.

D.99/C-2	MAP Fellowship fund (\$5,000 US)	Chile	\$0.00
1 st Quarter	Budget change		
2 nd Quarter	Budget change		
3 rd Quarter	Budget change*	\$7,500.00	\$7,500.00
4 th Quarter	Final Expenditure		

*Budget change due to the creation of the activity in the second quarter.

It was decided at the March 1999 Executive Council Meetings in Toronto to implement a MAP Fellowship fund (US\$5,000.00 per country per year of the project) to be used to help fund travel of scientists from the four South American MAP members on MAP related activities. The rules for the disbursement of the fund can be found in report #11 Part B Annex G "MAP Fellowship Fund Terms of Reference".

First Quarter Action Items:

- During the first quarter the Fellowship fund was used to help Geol. P. Gana and Cartog. C. Reyes attend the first meeting of the Cartographic Standards Committee in Lima June 17 & 18, 1999. (US\$1,000.00 each)

Second Quarter Report and Third Quarter Action Items

- ▶ The fund was not used on Chile during the second quarter.

D.99/M-A1	Airborne Geophysics acquisition and interpretation (Argentina/Chile) Argentina - 50% of \$41,000.00	Multi/Argentina	\$20,500.00*
1 st Quarter	Budget change		
2 nd Quarter	Budget change		
3 rd Quarter	Budget change		
4 th Quarter	Final Expenditure		
D.99/M-C1	Airborne Geophysics acquisition and interpretation (Argentina/Chile) Chile - 50% of \$41,000.00	Multi/Chile	\$20,500.00*
1 st Quarter	Budget change		
2 nd Quarter	Budget change		
3 rd Quarter	Budget change		
4 th Quarter	Final Expenditure		

* It is expected that these administrative costs will be covered by the private sector stakeholders, but until such time as there is a clear indication of the number of companies agreeing to participate in the Survey, these costs will be reflected in the project's budget.

With the successful completion of the Puna Austral Survey in the 1998/99 fiscal year, SEGEMAR and SERNAGEOMIN decided to enter into a joint airborne survey along the mutual border of the countries (see map in Newsletter vol. 2, no. 2). This survey will be entirely funded by industry participants but administration of the Activity will be carried out by MAP administration.

First Quarter Action Items:

- Contract Dr. Dennis Teskey to begin contacting potential private sector participants.
- Place announcement of activity in Northern Miner issue focussing on Latin America.
- Place map of proposed survey area on MAP Web Page.

First Quarter Report and Second Quarter Action Items:

- ◆ Dr. Teskey's contract has been issued.
- ◆ Northern Miner announcement place in April 1999.
- ◆ Map of proposed survey area posted on WEB Page.
- ◆ Dr. Teskey has visited Argentina and Chile to discuss the proposed surveys with the geological surveys as well as with industry.
- ◆ Deadline set for mid August for potential industry partners to express interest.
- ◆ One company has confirmed participation and has sent funds.
- ◆ First meeting of potential participants set for August 19, 1999 in Santa Cruz, Bolivia.

Second Quarter Report and Third Quarter Action Items

- ▶ First meeting with potential industry partners took place in Santiago September 28, 1999. (See Annex F).
- ▶ Informative announcement to be placed in Northern Miner on the upcoming survey and indicating crucial dates to potential partners.

D.99/M-B1	Airborne Geophysics acquisition and interpretation (Peru/Bolivia/Chile) Bolivia - 54% of \$503,500.00	Multi/Bolivia	\$271,890.00
1 st Quarter	Budget change		
2 nd Quarter	Budget change		
3 rd Quarter	Budget change		
4 th Quarter	Final Expenditure		
D.99/M-P1	Airborne Geophysics acquisition and interpretation (Peru/Bolivia/Chile) Peru - 28.4% of \$503,500.00	Multi/Peru	\$142,994.00
1 st Quarter	Budget change		
2 nd Quarter	Budget change		
3 rd Quarter	Budget change		
4 th Quarter	Final Expenditure		
D.99/M-C2	Airborne Geophysics acquisition and interpretation (Peru/Bolivia/Chile) Chile - 17.6% of \$503,500.00	Multi/Chile	\$88,816.00
1 st Quarter	Budget change		
2 nd Quarter	Budget change		
3 rd Quarter	Budget change		
4 th Quarter	Final Expenditure		

The successful completion of the Puna Austral Airborne Survey in the 1998/99 fiscal year lead to the collaboration of the SERGEOMIN, SERNAGEOMIN, and INGEMMET on a joint airborne survey of the mutual border regions between (see map in Newsletter vol. 2, no. 2). The budget breakdown is based at present, on the percentage of estimated km² to be covered in the survey in each country.

First Quarter Action Items:

- Contract Dr. Dennis Teskey to begin contacting potential private sector participants.
- Place announcement of activity in Northern Miner issue focussing on Latin America
- Place map of proposed survey area on MAP Web Page.
- Organize travel of Dr. Teskey to the region to meet with potential private sector participants at mining related congresses.

First Quarter Report and Second Quarter Action Items:

- ◆ Dr. Teskey has maintained continued contact with a number of potential industry partners.
- ◆ Northern Miner announcement placed in April 1999.
- ◆ Map of proposed survey area placed on WEB page.
- ◆ Dr. Teskey has travelled to Bolivia, and Chile and is scheduled to travel to Peru at the end of August, 1999.
- ◆ One company has confirmed participation and has sent funds.
- ◆ First meeting of potential participants set for August 19, 1999 in Santa Cruz, Bolivia.

Second Quarter Report and Third Quarter Action Items

- ▶ The first meeting with potential private sector participants took place in Santa Cruz, Bolivia on August 19, 1999. (See report Annex E)
- ▶ A subsequent meeting took place in Lima under the direction of Dr. Teskey and Ing. Paz from INGEMMET. (See report Annex E).
- ▶ The final area of the proposed survey will be decided upon by the end of October, 1999.
- ▶ There is currently financial commitment from one company and verbal commitment from three others and significant interest from a number of other companies.
- ▶ An add was placed in the October 18 edition of the Northern Miner displaying the revised draft area of the survey (See ad Annex I)

D.96/P-19	Precision dating by Zircon (U-Pb), Ar/Ar or other techniques as applicable	Peru	\$61,650.00
1 st Quarter	Budget change		
2 nd Quarter	Budget change		
3 rd Quarter	Budget change		
4 th Quarter	Final Expenditure		

In addition to precise whole rock geochemical analyses, an understanding of the timing of geological events is critical to understanding the geological evolution of an area. The temporal elements of this project will be addressed using radiometric dating techniques for crystalline rocks (dating of sedimentary rocks will be through fossils).

During the 1999/2000 fiscal year it is planned that INGEMMET will send 35 samples for dating: 10 for U-Pb and 25 for Ar/Ar.

First Quarter Action Items:

- MAP Sample Coordinator Dr. Jennifer Getsinger to organize with INGEMMET and Mr. Mike Villeneuve of GSC Ottawa time line for sample receipt and analysis.

First Quarter Report and Second Quarter Action Items:

- ◆ On hand: Six (6) samples for Ar-Ar dating, three (3) samples for K-Ar dating, three (3) samples for Lead Isotope Studies (Common Pb), ten (10) samples for Whole Rock Geochemistry (Petrochemistry), and eight (8) samples for Petrographic Analysis.

Second Quarter Report and Third Quarter Action Items

- ▶ Of a sample suite collected in Peru in 1998 by Andre Panteleyev, 3 samples have been sent to Chile for K-Ar dating as of August 25, 1999; 3 samples have gone to University of British Columbia Geochronology Lab for common Pb analysis, with a report expected in October 1999; 6 samples are undergoing Ar-Ar dating analysis at GSC Geochronology Lab in Ottawa, with results expected in February 2000; and 8 thin sections are undergoing petrographic analysis by Andre Panteleyev.

D.96/P-20	Precision analytical whole rock analyses for major, trace and rare earth elements	Peru	\$0.00
1 st Quarter	Budget change		
2 nd Quarter	Budget change		
3 rd Quarter	Budget change*	\$1,940.00	\$1,940.00
4 th Quarter	Final Expenditure		

* 3rd quarter budget change due to unexpected sample analysis costs.

In order to assist the exploration community in focussing their exploration efforts, it is imperative that an understanding of the geological evolution of a region is acquired. It is through understanding the geological evolution of a region that focussed exploration can progress. Specific types of geological features may be associated with mineralization or provide a control on the distribution of ore bodies. Volcanoes can have differing chemical signatures and origins - some associated with ore forming fluids, others not. Within this project, acquisition of excellent analytical data on rocks (particularly analyses of volcanic rocks) contained within the project area is of prime importance in helping to elucidate the relationships between various volcanic strata and mineralization. The Peruvians propose that over the next few years a significant number of samples will be analysed for a complete suite of major, minor and trace elements. Assistance in interpretation of the results will be through the multi-country activity B.98/M-3 (Volcanic field studies and workshops). In addition some limited laboratory equipment will be acquired.

Note: From now on, samples collected for precision analytical whole rock analyses for major, trace, and rare

earth elements will be processed consistently with the guidelines outlined for the MAP petrological sample standards program. Fresh rock samples (rather than partially crushed samples) are required to maintain consistency in terms of lack of contamination by grinding (tungsten carbide ring pulverisation will be used to MAP specifications). Analytical results will now be more conducive to scientific research because all samples sent for petrological geochemistry will undergo the same geochemical procedures as the MAP sample standards.

First Quarter Action Items:

- No activity planned for 1999/2000 fiscal year.

Second Quarter Report and Third Quarter Action Items

- ▶ Budget change due to unexpected sample analysis costs.
- ▶ Ten samples collected by Andre Panteleyev from Peru in 1998 are in the GSC Vancouver office to be sent out for research-quality whole rock and trace element geochemistry.

D.98/P-1	Geophysical training in 3-dimensional modelling or gravity and aeromagnetic using Magi XL and oasis (GeoSoft)	Peru	\$0.00
1 st Quarter	Budget change		
2 nd Quarter	Budget change		
3 rd Quarter	Budget change*	\$5,000.00	\$5,000.00
4 th Quarter	Final Expenditure		

* 3rd quarter budget increase due to Dr. Teskey's travel to Peru.

Geophysical data such as aeromagnetic, gravity and EM are tools that will be used to obtain a 3-dimensional understanding of the geology of a region. Training in use of off-the-shelf software will be provided as well as interpretation and training in synthesis of geophysical and geological data.

First Quarter Action Items:

- No activity planned for 1999/2000 fiscal year.

Second Quarter Report and Third Quarter Action Items

- ▶ Budget increase in third quarter due to Dr. Teskey's travel to Peru.

D.98/P-2	Fluid Inclusion Training and Equipment	Peru	\$11,200.00
1 st Quarter	Budget change		
2 nd Quarter	Budget change		
3 rd Quarter	Budget change		
4 th Quarter	Final Expenditure		

Fluid inclusions are small trapped pockets of fluids within minerals. Determining the fluids contained within these small trapped bubbles helps understand the evolution of the minerals themselves. Understanding the evolution, or growth, of these minerals helps determine the evolution of potentially ore-bearing fluids. The analysis of these fluids provides critical clues to the understanding of the evolution of an ore deposit.

INGEMMET received the fluid inclusion equipment in 98/99 fiscal year. This fiscal year INGEMMET will receive training in Fluid Inclusion analysis techniques using the Fluid Inclusion donated during the 1998/99 fiscal year.

First Quarter Action Items:

- Project administrator to organize with INGEMMET and Fluid Inc. time of training.
- Arrange for shipping of fluid inclusion equipment.

First Quarter Report and Second Quarter Action Items:

- ◆ Fluid Inclusion training set for final week of October.
- ◆ Fluid Inclusion equipment shipped to Peru.

Second Quarter Report and Third Quarter Action Items

- ▶ INGEMMET has received the Fluid Inclusion equipment and is preparing for the short course which is scheduled for December 13 through 17, 1999.

D.99/P-1	MAP Fellowship fund (\$5,000 US)	Peru	\$0.00
1 st Quarter	Budget change		
2 nd Quarter	Budget change		
3 rd Quarter	Budget change*	\$7,500.00	\$7,500.00
4 th Quarter	Final Expenditure		

* Budget change due to the creation of the activity in the second quarter.

It was decided at the March 1999 Executive Council Meetings in Toronto to implement a MAP Fellowship fund (US\$5,000.00 per country per year of the project) to be used to help fund travel of scientists from the four South American MAP members on MAP related activities. The rules for the disbursement of the fund can be found in report #11 Part B Annex G "MAP Fellowship Fund Terms of Reference".

First Quarter Action Items:

- During the first quarter the Fellowship fund was used to help Ing. Mario Carpio and Ing. Elmer Boulanger for participation in the Mineral Deposits Filed Tour - Activity # B.97/M-1 (US\$1,000.00 each)

Second Quarter Report and Third Quarter Action Items

- ▶ During the second quarter the Fellowship fund helped Ing. Oscar Palacios attend the first meeting of the metallogenic map geoscience committee in Santa Cruz Bolivia Activity B.98/M-2. (See report Annex D).

Project Management

Quarter	Summary of Activities	Budget changes	Initial Budget
PM	Project Management		\$137,893.00
1 st Quarter	Budget change		
2 nd Quarter	Budget change		
3 rd Quarter	Budget change	-\$4,400.00	\$136,694.00
4 th Quarter	Final Expenditure		

PM.99/M-1	Preparation of final report (1998/99) and 1st quarter forecast (1999/00)	Canada	\$3,760.00
1 st Quarter	Budget change		
2 nd Quarter	Budget change		
3 rd Quarter	Budget change		
4 th Quarter	Final Expenditure		

PM.99/M-2	Preparation of 1st quarter financial report (April-June) and 2nd quarter forecast (July-Sept.)	Canada	\$2,650.00
1 st Quarter	Budget change		
2 nd Quarter	Budget change		
3 rd Quarter	Budget change		
4 th Quarter	Final Expenditure		

PM.99/M-3	Preparation and attendance at mid-year Executive Council Meeting	Canada	\$21,300.00
1 st Quarter	Budget change		
2 nd Quarter	Budget change		
3 rd Quarter	Budget change	-\$4,400.00	\$16,900.00
4 th Quarter	Final Expenditure		

PM.99/M-4	Preparation of mid-year report and 2nd quarter financial report (July-Sept.) and 3rd quarter forecast (Oct.-Dec.)	Canada	\$2,650.00
1 st Quarter	Budget change		
2 nd Quarter	Budget change		
3 rd Quarter	Budget change		
4 th Quarter	Final Expenditure		

PM.99/M-5	Preparation of 3rd quarter (Oct.-Dec.) financial report and 4th quarter forecast (Jan.-March)	Canada	\$2,650.00
1 st Quarter	Budget change		
2 nd Quarter	Budget change		

3 rd Quarter	Budget change		
4 th Quarter	Final Expenditure		

PM.99/M-6	Preparation and attendance at end-of-year Executive Council Meeting, preparation of Annual Work Plan (including 5-year budget projection)	Canada	\$29,050.00
1 st Quarter	Budget change		
2 nd Quarter	Budget change		
3 rd Quarter	Budget change		
4 th Quarter	Final Expenditure		

PM.99/M-7	Database management	Canada	\$5,450.00
1 st Quarter	Budget change		
2 nd Quarter	Budget change		
3 rd Quarter	Budget change		
4 th Quarter	Final Expenditure		

PM.99/M-8	Annual Work Plan 1999-2000 including financial forecasts for project	Canada	\$2,650.00
1 st Quarter	Budget change		
2 nd Quarter	Budget change		
3 rd Quarter	Budget change		
4 th Quarter	Final Expenditure		

PM.99/M-9	Project Administration and Management	Canada	\$67,733.00
1 st Quarter	Budget change		
2 nd Quarter	Budget change		
3 rd Quarter	Budget change		
4 th Quarter	Final Expenditure		

Project management is carried out by the Geological Survey of Canada under the direction of Project Manager, Dr. Catherine Hickson. The goal of project management is to provide effective and efficient management. Under project management the various reports requested by CIDA will be completed in addition to keeping strict financial control over the project.

First Quarter Action Items:

- Complete report #11 parts "A" and "B".

First Quarter Report and Second Quarter Action Items:

- ◆ Report #11 parts "A" and "B" completed.
- ◆ MAP financial database set up for 1999/2000 fiscal year.

Second Quarter Report and Third Quarter Action Items

- ▶ Report 12 completed.
- ▶ Mid year Executive Council Meeting occurred in Santa Cruz, Bolivia.
- ▶ Dr.'s Hickson and Russell gave short course to Barrick in Chile and in Peru.

Multi-year Project Financial Profile (re-profiled to fiscal year 2001/2002)

							Forecast	
	CIDA Initial Funding Profile	Total Expenditures 1996/97	Total Expenditures 1997/98	Total Expenditure 98/99	Total Expenditures First Half 99/00	Total Expenditures to Sept. 30, 1999	1999/00 Expenditure Forecast	Expected Total Funds Remaining
Argentina								
Personnel GSC (01)	\$ 195,000.00	\$ 14,789.06	\$ 26,611.79	\$ 42,077.73	\$ 1,653.53	\$ 85,132.11	\$ 11,250.00	\$ 100,271.42
Personnel Non-GSC (02)	\$ 200,000.00	\$ 41,755.05	\$ 113,033.54	\$ 67,457.56	\$ 8,022.50	\$ 230,268.65	\$ 17,500.00	\$ (39,746.15)
Local Consultants (03)	\$ 0.00	\$ 0.00	\$ 0.00	\$ 0.00	\$ 0.00	\$ 0.00	\$ 0.00	\$ 0.00
Travel (04)	\$ 87,000.00	\$ 15,472.11	\$ 31,660.73	\$ 23,328.39	\$ 4,605.56	\$ 75,066.79	\$ 22,000.00	\$ (5,461.23)
Geoscience Services (05)	\$ 390,000.00	\$ 47,887.22	\$ 200,167.61	\$ 197,170.13	\$ 3,779.81	\$ 449,004.77	\$ 40,500.00	\$ (95,724.96)
Equipment & Software (06)	\$ 70,000.00	\$ 69,228.50	\$ 54,988.71	\$ 0.00	\$ 0.00	\$ 124,217.21	\$ 0.00	\$ (54,217.21)
Other (07)	\$ 110,000.00	\$ 2,998.82	\$ 6,466.17	\$ 0.00	\$ 343.63	\$ 9,808.62	\$ 1,250.00	\$ 99,285.01
Total Argentina	\$ 1,052,000.00	\$ 192,130.76	\$ 432,928.55	\$ 330,033.81	\$ 18,405.03	\$ 973,498.15	\$ 92,500.00	\$ 4,406.88
Bolivia								
Personnel GSC (01)	\$ 250,000.00	\$ 1,171.98	\$ 11,871.86	\$ 1,754.41	\$ 2,224.52	\$ 17,022.77	\$ 8,470.00	\$ 226,731.75
Personnel Non-GSC (02)	\$ 245,000.00	\$ 4,209.70	\$ 1,406.30	\$ 7,466.66	\$ 34,451.98	\$ 47,534.64	\$ 69,430.00	\$ 162,487.34
Local Consultants (03)	\$ 0.00	\$ 0.00	\$ 0.00	\$ 0.00	\$ 0.00	\$ 0.00	\$ 0.00	\$ 0.00
Travel (04)	\$ 87,000.00	\$ 0.00	\$ 8,444.05	\$ 5,525.39	\$ 1,043.34	\$ 15,012.78	\$ 22,860.00	\$ 50,170.56
Geoscience Services (05)	\$ 240,000.00	\$ 18,742.88	\$ 24,317.84	\$ 2,104.25	\$ 2,283.00	\$ 47,447.97	\$ 266,440.00	\$ (71,604.97)
Equipment & Software (06)	\$ 120,000.00	\$ 157,500.98	\$ 13,976.54	\$ 0.00	\$ 0.00	\$ 171,477.52	\$ 0.00	\$ (51,477.52)
Other (07)	\$ 110,000.00	\$ 1,250.01	\$ 1,968.79	\$ 0.00	\$ 2,388.86	\$ 5,607.66	\$ 10,970.00	\$ 95,811.20
Transfer of funds to Administration and Multi							\$ 124,926.63	
Total Bolivia	\$ 1,052,000.00	\$ 182,875.55	\$ 61,985.38	\$ 16,850.71	\$ 42,391.70	\$ 304,103.34	\$ 503,096.63	\$ 287,191.73
Chile								
Personnel GSC (01)	\$ 250,000.00	\$ 5,522.66	\$ 12,436.46	\$ 30,527.95	\$ 1,905.27	\$ 50,392.34	\$ 17,708.00	\$ 183,804.93
Personnel Non-GSC (02)	\$ 245,000.00	\$ 1,453.20	\$ 23,015.20	\$ 26,100.00	\$ 11,054.92	\$ 61,623.32	\$ 62,060.00	\$ 132,371.60
Local Consultants (03)	\$ 0.00	\$ 0.00	\$ 0.00	\$ 0.00	\$ 0.00	\$ 0.00	\$ 0.00	\$ 0.00
Travel (04)	\$ 87,000.00	\$ 3,924.27	\$ 12,829.51	\$ 8,057.76	\$ 7,250.49	\$ 32,062.03	\$ 32,084.00	\$ 30,104.46
Geoscience Services (05)	\$ 240,000.00	\$ 79.85	\$ 37,532.86	\$ 17,436.16	\$ 2,822.13	\$ 57,871.00	\$ 170,526.00	\$ 14,425.13
Equipment & Software (06)	\$ 120,000.00	\$ 14,613.85	\$ 90,181.22	\$ 0.00	\$ 0.00	\$ 104,795.07	\$ 3,500.00	\$ 11,704.93
Other (07)	\$ 110,000.00	\$ 710.15	\$ 1,422.34	\$ 0.00	\$ 414.95	\$ 2,547.44	\$ 1,438.00	\$ 106,429.51
Transfer of funds to Administration and Multi							\$ 124,926.63	
Total Chile	\$ 1,052,000.00	\$ 26,303.98	\$ 177,417.59	\$ 82,121.87	\$ 23,447.76	\$ 309,291.20	\$ 412,242.63	\$ 353,913.93
Peru								
Personnel GSC (01)	\$ 250,000.00	\$ 5,968.76	\$ 14,097.63	\$ 725.32	\$ 2,270.50	\$ 23,062.21	\$ 11,312.00	\$ 217,896.29
Personnel Non-GSC (02)	\$ 245,000.00	\$ 2,537.88	\$ 2,935.00	\$ 40,166.67	\$ 17,403.73	\$ 63,043.28	\$ 54,540.00	\$ 144,820.45
Local Consultants (03)	\$ 0.00	\$ 0.00	\$ 0.00	\$ 0.00	\$ 0.00	\$ 0.00	\$ 0.00	\$ 0.00
Travel (04)	\$ 87,000.00	\$ 7,263.29	\$ 2,866.54	\$ 12,608.34	\$ 5,226.33	\$ 27,964.50	\$ 22,556.00	\$ 41,705.83
Geoscience Services (05)	\$ 240,000.00	\$ 99.08	\$ 22,484.93	\$ 863.76	\$ 2,937.46	\$ 26,385.23	\$ 184,184.00	\$ 32,368.23
Equipment & Software (06)	\$ 120,000.00	\$ 60,018.98	\$ 10,990.51	\$ 58,419.77	\$ 0.00	\$ 129,429.26	\$ 0.00	\$ (9,429.26)
Other (07)	\$ 110,000.00	\$ 1,489.32	\$ 951.69	\$ 20.00	\$ 536.64	\$ 2,997.65	\$ 1,042.00	\$ 106,496.99
Transfer of funds to Administration and Multi							\$ 124,926.63	
Total Peru	\$ 1,052,000.00	\$ 77,377.31	\$ 54,326.30	\$ 112,803.86	\$ 28,374.66	\$ 272,882.13	\$ 398,560.63	\$ 408,931.90
Administration								
Personnel GSC (01)	\$ 240,000.00	\$ 40,634.27	\$ 68,366.40	\$ 90,671.06	\$ 39,815.03	\$ 239,486.76	\$ 71,500.00	\$ (31,171.73)
Personnel Non-GSC (02)	\$ 80,000.00	\$ 19,118.00	\$ 29,281.01	\$ 21,794.64	\$ 11,328.76	\$ 81,522.41	\$ 22,188.00	\$ (12,381.65)
Local Consultants (03)	\$ 0.00	\$ 0.00	\$ 0.00	\$ 0.00	\$ 0.00	\$ 0.00	\$ 0.00	\$ 0.00
Travel (04)	\$ 15,000.00	\$ 21,774.05	\$ 13,121.12	\$ 27,016.38	\$ 6,102.78	\$ 68,014.33	\$ 16,800.00	\$ (63,711.55)
Geoscience Services (05)	\$ 0.00	\$ 41.53	\$ 11,671.80	\$ 5,890.86	\$ 1,757.71	\$ 19,361.90	\$ 9,400.00	\$ (27,004.19)
Equipment & Software (06)	\$ 0.00	\$ 4,963.38	\$ 210.00	\$ 0.00	\$ 337.67	\$ 5,511.05	\$ 0.00	\$ (5,173.38)
Other (07)	\$ 0.00	\$ 3,162.26	\$ 18,068.88	\$ 15,591.65	\$ 2,897.26	\$ 39,720.05	\$ 16,806.00	\$ (53,628.79)
Transfer of funds from Bolivia, Chile and Peru							\$ (193,071.29)	
Total Administration	\$ 335,000.00	\$ 89,693.49	\$ 140,719.21	\$ 160,964.59	\$ 62,239.21	\$ 453,616.50	\$ (56,377.29)	\$ 0.00
Multi								
Personnel GSC (01)	\$ 55,000.00	\$ 1,649.00	\$ 20,706.93	\$ 38,055.58	\$ 26,932.36	\$ 87,343.87	\$ 43,470.00	\$ (48,881.51)
Personnel Non-GSC (02)	\$ 30,000.00	\$ 2,500.00	\$ 0.00	\$ 18,715.94	\$ 25,703.61	\$ 46,919.55	\$ 63,550.00	\$ (54,765.94)
Local Consultants (03)	\$ 1,000.00	\$ 0.00	\$ 0.00	\$ 0.00	\$ 0.00	\$ 0.00	\$ 0.00	\$ 1,000.00
Travel (04)	\$ 151,000.00	\$ 18,000.00	\$ 53,403.25	\$ 42,253.69	\$ 14,633.14	\$ 128,290.08	\$ 45,500.00	\$ (8,156.94)
Geoscience Services (05)	\$ 0.00	\$ 0.00	\$ 1,450.87	\$ 1,708.66	\$ 4,430.54	\$ 7,590.07	\$ 14,400.00	\$ (17,559.53)
Equipment & Software (06)	\$ 0.00	\$ 0.00	\$ 45,906.80	\$ 0.00	\$ 0.00	\$ 45,906.80	\$ 0.00	\$ (45,906.80)
Other (07)	\$ 20,000.00	\$ 1,000.00	\$ 4,053.70	\$ 9,684.19	\$ 1,296.67	\$ 16,034.56	\$ 12,700.00	\$ (7,437.89)
Transfer of funds from Bolivia, Chile and Peru							\$ (181,708.60)	
Total Multi	\$ 257,000.00	\$ 23,149.00	\$ 125,521.55	\$ 110,418.06	\$ 72,996.32	\$ 332,084.93	\$ (2,088.60)	\$ (0.01)
	CIDA Initial Funding Profile	Total Expenditures 1996/97	Expenditures 1997/98	Total Expenditure 98/99	Total Expenditures First Quarter 99/00	Total Expenditures to Date	1999/00 Expenditure Forecast	Expected Total Funds Remaining
Total Project	\$ 4,800,000.00	\$ 591,530.09	\$ 992,898.58	\$ 813,192.90	\$ 247,854.68	\$ 2,645,476.25	\$ 1,347,934.00	\$ 1,054,444.43
Project								
Personnel GSC (01)	\$ 1,260,000.00	\$ 69,735.73	\$ 154,091.07	\$ 203,812.05	\$ 74,801.21	\$ 502,440.06	\$ 163,710.00	\$ 668,651.15
Personnel Non-GSC (02)	\$ 1,080,000.00	\$ 71,573.83	\$ 169,671.05	\$ 181,701.47	\$ 107,965.50	\$ 530,911.85	\$ 289,268.00	\$ 367,785.65
Local Consultants (03)	\$ 1,000.00	\$ 0.00	\$ 0.00	\$ 0.00	\$ 0.00	\$ 0.00	\$ 0.00	\$ 1,000.00
Travel (04)	\$ 479,000.00	\$ 66,433.72	\$ 122,325.20	\$ 118,789.95	\$ 38,861.64	\$ 346,410.51	\$ 161,800.00	\$ 9,651.13
Geoscience Services (05)	\$ 1,110,000.00	\$ 66,850.56	\$ 297,625.91	\$ 225,173.82	\$ 18,010.65	\$ 607,660.94	\$ 685,450.00	\$ (165,100.29)
Equipment & Software (06)	\$ 430,000.00	\$ 306,325.69	\$ 216,253.78	\$ 58,419.77	\$ 337.67	\$ 581,326.91	\$ 3,500.00	\$ (154,499.24)
Other (07)	\$ 440,000.00	\$ 10,610.56	\$ 32,931.57	\$ 25,295.84	\$ 7,878.01	\$ 76,715.98	\$ 44,206.00	\$ 326,956.03
Total	\$ 4,800,000.00	\$ 591,530.09	\$ 992,898.58	\$ 813,192.90	\$ 247,854.68	\$ 2,645,476.25	\$ 1,347,934.00	\$ 1,054,444.43

Annex A:
Budget by Country and Activity for April 1, 1999 to March 31, 2000

Summary Financial Report 1999/00

	<u>Budget</u>	<u>Commit</u>	<u>Actual</u>
Total Administration	\$136,694.00	\$6,051.24	\$62,239.21
Total Argentina	\$97,240.00	\$0.00	\$18,405.03
Total Bolivia	\$378,170.00	\$28,789.08	\$42,391.70
Total Chile	\$287,316.00	\$49,300.00	\$23,447.76
Total Multi	\$179,620.00	\$60,707.73	\$72,996.32
Total Peru	\$273,634.00	\$33,495.00	\$28,374.66
Grand Total	<u>\$1,352,674.00</u>	<u>\$178,343.05</u>	<u>\$247,854.68</u>

Detailed Transaction Reports - 1999/00

Activity PM.99/M-1 Administration Preparation of final report (98/99) and 1st quarter forecast (1999/00).

Date	Subunit	Budget	Commit	Actual	Obs.
Apr/1/99	1 - Personnel (GSC)	\$1,000.00	\$0.00	\$0.00	Mike Ellerbeck 5 days
Apr/1/99	1 - Personnel (GSC)	\$350.00	\$0.00	\$0.00	Cathie Hickson 1 day
Apr/1/99	1 - Personnel (GSC)	\$660.00	\$0.00	\$0.00	Jennifer Getsinger 3 day
Jun/30/99	1 - Personnel (GSC)	\$0.00	\$0.00	\$1,322.16	6 days Jennifer Getsinger: help prep. year-end report
Jun/30/99	1 - Personnel (GSC)	\$0.00	\$0.00	\$724.50	2 days, Cathie Hickson Project managment
Jun/30/99	1 - Personnel (GSC)	\$0.00	\$0.00	\$1,000.00	Mike Ellerbeck 5 days
Sep/30/99	1 - Personnel (GSC)	\$1,040.00	\$0.00	\$0.00	Budget increase
Apr/1/99	2 - Personnel (non GSC)	\$1,250.00	\$0.00	\$0.00	Rodus 5 day
Jul/28/99	2 - Personnel (non GSC)	\$0.00	\$0.00	\$2,438.00	Rodus Administration Support
Sep/30/99	2 - Personnel (non GSC)	\$1,188.00	\$0.00	\$0.00	Budget increase
Apr/1/99	3 - Local Consultants	\$0.00	\$0.00	\$0.00	
Apr/1/99	4 - Travel	\$0.00	\$0.00	\$0.00	
Apr/1/99	5 - Geoscience Services	\$500.00	\$0.00	\$0.00	Courier reports
May/5/99	5 - Geoscience Services	\$0.00	\$0.00	\$211.16	DHL Courier (reports)
May/5/99	5 - Geoscience Services	\$0.00	\$0.00	\$16.72	DHL Courier (reports)
Jun/2/99	5 - Geoscience Services	\$0.00	\$0.00	\$586.24	DHL Courier of Documents
Jun/10/99	5 - Geoscience Services	\$0.00	\$0.00	\$21.48	DHL Courier of documents
Sep/30/99	5 - Geoscience Services	-\$500.00	\$0.00	\$0.00	Budget decreased since activity has been fully completed
Apr/1/99	6 - Equipment	\$0.00	\$0.00	\$0.00	
Apr/1/99	7 - Other	\$0.00	\$0.00	\$0.00	
May/5/99	7 - Other	\$0.00	\$0.00	\$42.68	Report printing / Ikon Document Services
May/18/99	7 - Other	\$0.00	\$0.00	\$593.94	Ikon Document printing
Sep/30/99	7 - Other	\$1,473.00	\$0.00	\$0.00	Budget increase
Total for this activity:		\$6,961.00	\$0.00	\$6,956.88	

Activity PM.99/M-2 Administration Preparation of 1st quarter financial report (April-June) and 2nd quarter forecast (July to Sept.).

Date	Subunit	Budget	Commit	Actual	Obs.
Apr/1/99	1 - Personnel (GSC)	\$600.00	\$0.00	\$0.00	Mike Ellerbeck 3 days

Apr/1/99	1 - Personnel (GSC)	\$350.00	\$0.00	\$0.00	Cathie Hickson 1 days
Apr/1/99	1 - Personnel (GSC)	\$450.00	\$0.00	\$0.00	Jennifer Getsinger 3 days
Jun/30/99	1 - Personnel (GSC)	\$0.00	\$0.00	\$362.25	1 day, Cathie Hickson Project managment
Jun/30/99	1 - Personnel (GSC)	\$0.00	\$0.00	\$600.00	Mike Ellerbeck 5 days
Oct/18/99	1 - Personnel (GSC)	\$0.00	\$0.00	\$1,086.75	5 days Catherine Hickson
Oct/18/99	1 - Personnel (GSC)	\$0.00	\$0.00	\$231.38	1.05 days Jennifer Getsinger
Apr/1/99	2 - Personnel (non GSC)	\$750.00	\$0.00	\$0.00	Rodus 3 days
Sep/13/99	2 - Personnel (non GSC)	\$0.00	\$0.00	\$480.00	Rodus services
Sep/30/09	2 - Personnel (non GSC)	\$0.00	\$0.00	\$270.00	Rodus services
Apr/1/99	3 - Local Consultants	\$0.00	\$0.00	\$0.00	
Apr/1/99	4 - Travel	\$0.00	\$0.00	\$0.00	
Apr/1/99	5 - Geoscience Services	\$500.00	\$0.00	\$0.00	Courier reports
Sep/2/99	5 - Geoscience Services	\$0.00	\$0.00	\$546.07	DHL Courier
Apr/1/99	6 - Equipment	\$0.00	\$0.00	\$0.00	
Apr/1/99	7 - Other	\$0.00	\$0.00	\$0.00	
Sep/13/99	7 - Other	\$0.00	\$0.00	\$227.15	IKON document services /Executive Council Document printing
Total for this activity:		\$2,650.00	\$0.00	\$3,803.60	

Activity PM.99/M-3 Administration Preparation and attendance at mid-year Executive Council Meeting.

Date	Subunit	Budget	Commit	Actual	Obs.
Apr/1/99	1 - Personnel (GSC)	\$3,500.00	\$0.00	\$0.00	Cathie Hickson 10 days
Apr/1/99	1 - Personnel (GSC)	\$3,200.00	\$0.00	\$0.00	Mike Ellerbeck 16 days
Apr/1/99	1 - Personnel (GSC)	\$900.00	\$0.00	\$0.00	Jennifer Getsinger 4 days
Apr/1/99	1 - Personnel (GSC)	\$300.00	\$0.00	\$0.00	Claire Despins 2 days
Oct/18/99	1 - Personnel (GSC)	\$0.00	\$0.00	\$3,622.50	10 days Catherine Hickson
Oct/18/99	1 - Personnel (GSC)	\$0.00	\$0.00	\$881.44	4 days Jennifer Getsinger
Oct/18/99	1 - Personnel (GSC)	\$0.00	\$0.00	\$198.32	.9 days Jennifer Getsinger
Apr/1/99	2 - Personnel (non GSC)	\$3,500.00	\$0.00	\$0.00	Rodus 14 days
Sep/30/99	2 - Personnel (non GSC)	\$0.00	\$0.00	\$850.00	Rodus services (prep.)
Apr/1/99	3 - Local Consultants	\$0.00	\$0.00	\$0.00	
Apr/1/99	4 - Travel	\$6,000.00	\$0.00	\$0.00	Airfare 3 people to Bolivia
Apr/1/99	4 - Travel	\$1,400.00	\$0.00	\$0.00	Hotel 3 people to Bolivia 7 nights
Apr/1/99	4 - Travel	\$1,100.00	\$0.00	\$0.00	Exp. 3 people to Bolivia 7 nights
Jul/28/99	4 - Travel	\$0.00	\$2,500.00	\$0.00	Rodus International Corp.
Aug/5/99	4 - Travel	\$0.00	\$0.00	\$30.68	Petty cash for Photo to obtain Visa
Aug/26/99	4 - Travel	\$0.00	\$0.00	\$2,960.00	Catherine Hickson Travel Expenses

Sep/8/99	4 - Travel	\$0.00	\$0.00	\$1,551.10	Mike Ellerbeck airfare to Bolivia
Sep/13/99	4 - Travel	-\$3,000.00	\$0.00	\$0.00	Reduced airtravel
Sep/13/99	4 - Travel	-\$800.00	\$0.00	\$0.00	Reduced hotel expenses
Sep/15/99	4 - Travel	\$0.00	\$0.00	\$1,451.00	Catherine Hickson airfare to Bolivia
Oct/7/99	4 - Travel	\$0.00	\$0.00	\$20.00	Catherine Hickson travel expenses
Oct/7/99	4 - Travel	\$0.00	\$0.00	\$90.00	Mike Ellerbeck travel expenses
Apr/1/99	5 - Geoscience Services	\$1,000.00	\$0.00	\$0.00	rental projector, prep meeting, etc
Sep/2/99	5 - Geoscience Services	\$0.00	\$0.00	\$16.72	DHL Courier
Sep/13/99	5 - Geoscience Services	-\$600.00	\$0.00	\$0.00	Reduced rental projector, prep meeting, etc.
Apr/1/99	6 - Equipment	\$0.00	\$0.00	\$0.00	
Apr/1/99	7 - Other	\$400.00	\$0.00	\$0.00	Misc. photocopies
Sep/8/99	7 - Other	\$0.00	\$0.00	\$304.48	Staples / Executive Council meeting Supplies (Zip disks, Floppies, Folders, etc)
Total for this activity:		\$16,900.00	\$2,500.00	\$11,976.24	

Activity PM.99/M-4 Administration Preparation of mid-year report and 2nd quarter financial report (July-Sept) and 3rd quarter forecast (Oct-Dec).

Date	Subunit	Budget	Commit	Actual	Obs.
Apr/1/99	1 - Personnel (GSC)	\$600.00	\$0.00	\$0.00	Mike Ellerbeck 3 days
Apr/1/99	1 - Personnel (GSC)	\$350.00	\$0.00	\$0.00	Cathie Hickson 1 days
Apr/1/99	1 - Personnel (GSC)	\$450.00	\$0.00	\$0.00	Jennifer Getsinger 3 days
Apr/1/99	2 - Personnel (non GSC)	\$750.00	\$0.00	\$0.00	Rodus 3 days
Apr/1/99	3 - Local Consultants	\$0.00	\$0.00	\$0.00	
Apr/1/99	4 - Travel	\$0.00	\$0.00	\$0.00	
Apr/1/99	5 - Geoscience Services	\$500.00	\$0.00	\$0.00	Courier reports
Apr/1/99	6 - Equipment	\$0.00	\$0.00	\$0.00	
Apr/1/99	7 - Other	\$0.00	\$0.00	\$0.00	
Total for this activity:		\$2,650.00	\$0.00	\$0.00	

Activity PM.99/M-5 Administration Preparation of 3rd quarter (Oct-Dec) financial report and 4th quarter forecast (Jan-March).

Date	Subunit	Budget	Commit	Actual	Obs.
Apr/1/99	1 - Personnel (GSC)	\$600.00	\$0.00	\$0.00	Mike Ellerbeck 3 days
Apr/1/99	1 - Personnel (GSC)	\$350.00	\$0.00	\$0.00	Cathie Hickson 1 days
Apr/1/99	1 - Personnel (GSC)	\$450.00	\$0.00	\$0.00	Jennifer Getsinger 3 days

Apr/1/99	2 - Personnel (non GSC)	\$750.00	\$0.00	\$0.00	Rodus 3 days
Apr/1/99	3 - Local Consultants	\$0.00	\$0.00	\$0.00	
Apr/1/99	4 - Travel	\$0.00	\$0.00	\$0.00	
Apr/1/99	5 - Geoscience Services	\$500.00	\$0.00	\$0.00	Courier reports
Apr/1/99	6 - Equipment	\$0.00	\$0.00	\$0.00	
Apr/1/99	7 - Other	\$0.00	\$0.00	\$0.00	
Total for this activity:		\$2,650.00	\$0.00	\$0.00	

Activity PM.99/M-6 Administration Preparation and attendance at end-of-year Executive Council Meeting, preparation of Annual Work Plan (Including 4 year budget projection).

Date	Subunit	Budget	Commit	Actual	Obs.
Apr/1/99	1 - Personnel (GSC)	\$4,200.00	\$0.00	\$0.00	Cathie Hickson 12 days
Apr/1/99	1 - Personnel (GSC)	\$3,600.00	\$0.00	\$0.00	Mike Ellerbeck 18 days
Apr/1/99	1 - Personnel (GSC)	\$2,650.00	\$0.00	\$0.00	Jennifer Getsinger 12 days
Apr/1/99	1 - Personnel (GSC)	\$2,000.00	\$0.00	\$0.00	Extra GSC personel
Apr/1/99	2 - Personnel (non GSC)	\$3,000.00	\$0.00	\$0.00	Rodus 12 days
Apr/1/99	3 - Local Consultants	\$0.00	\$0.00	\$0.00	
Apr/1/99	4 - Travel	\$7,000.00	\$0.00	\$0.00	Hotel for 10 people for 7 nights
Apr/1/99	4 - Travel	\$3,500.00	\$0.00	\$0.00	Exp. for 10 people for 7 nights
Apr/1/99	4 - Travel	\$600.00	\$0.00	\$0.00	Car Rental for 10 people for 7 nights
Apr/1/99	4 - Travel	\$1,000.00	\$0.00	\$0.00	Meeting room rental 4 days
Apr/1/99	5 - Geoscience Services	\$1,000.00	\$0.00	\$0.00	Rental projector + Misc.
Apr/1/99	6 - Equipment	\$0.00	\$0.00	\$0.00	
Apr/1/99	7 - Other	\$500.00	\$0.00	\$0.00	Misc.
Total for this activity:		\$29,050.00	\$0.00	\$0.00	

Activity PM.99/M-7 Administration Database Management

Date	Subunit	Budget	Commit	Actual	Obs.
Apr/1/99	1 - Personnel (GSC)	\$700.00	\$0.00	\$0.00	2 days for Cathie Hickson
Apr/1/99	2 - Personnel (non GSC)	\$2,000.00	\$0.00	\$0.00	Kustos / Joe Nagel Database Training
Apr/1/99	2 - Personnel (non GSC)	\$750.00	\$0.00	\$0.00	Rodus 3 days
Sep/13/99	2 - Personnel (non GSC)	\$0.00	\$0.00	\$390.00	Rodus services
Sep/13/99	2 - Personnel (non GSC)	\$0.00	\$0.00	\$360.00	Rodus services

Apr/1/99	3 - Local Consultants	\$0.00	\$0.00	\$0.00	
Apr/1/99	4 - Travel	\$0.00	\$0.00	\$0.00	
Apr/1/99	5 - Geoscience Services	\$0.00	\$0.00	\$0.00	
Apr/1/99	5 - Geoscience Services	\$2,000.00	\$0.00	\$0.00	Kustos / Joe Nagel Database Development
Apr/1/99	6 - Equipment	\$0.00	\$0.00	\$0.00	
Apr/1/99	7 - Other	\$0.00	\$0.00	\$0.00	
Total for this activity:		\$5,450.00	\$0.00	\$750.00	

Activity PM.99/M-8 Administration Annual Work plan 2000/01 (March 15, 2000) including forecasts for and revised forecasts for project.

Date	Subunit	Budget	Commit	Actual	Obs.
Apr/1/99	1 - Personnel (GSC)	\$600.00	\$0.00	\$0.00	Mike Ellerbeck 3 days
Apr/1/99	1 - Personnel (GSC)	\$350.00	\$0.00	\$0.00	Cathie Hickson 1 days
Apr/1/99	1 - Personnel (GSC)	\$450.00	\$0.00	\$0.00	Jennifer Getsinger 3 days
Apr/1/99	2 - Personnel (non GSC)	\$750.00	\$0.00	\$0.00	Rodus 3 days
Apr/1/99	3 - Local Consultants	\$0.00	\$0.00	\$0.00	
Apr/1/99	4 - Travel	\$0.00	\$0.00	\$0.00	
Apr/1/99	5 - Geoscience Services	\$500.00	\$0.00	\$0.00	Courier reports
Apr/1/99	6 - Equipment	\$0.00	\$0.00	\$0.00	
Apr/1/99	7 - Other	\$0.00	\$0.00	\$0.00	
Total for this activity:		\$2,650.00	\$0.00	\$0.00	

Activity PM.99/M-9 Administration Project Administration & management

Date	Subunit	Budget	Commit	Actual	Obs.
Apr/1/99	1 - Personnel (GSC)	\$26,800.00	\$0.00	\$0.00	Mike Ellerbeck salary less already budgeted
Apr/1/99	1 - Personnel (GSC)	\$1,800.00	\$0.00	\$0.00	Cathie Hickson 5 days
Apr/1/99	1 - Personnel (GSC)	\$1,500.00	\$0.00	\$0.00	Claire Despins 10 days
Apr/1/99	1 - Personnel (GSC)	\$1,500.00	\$0.00	\$0.00	Chiu 10 days
Apr/1/99	1 - Personnel (GSC)	\$7,500.00	\$0.00	\$0.00	Dong 50 days
Apr/1/99	1 - Personnel (GSC)	\$1,200.00	\$0.00	\$0.00	Stanley 5 days
Apr/1/99	1 - Personnel (GSC)	\$1,500.00	\$0.00	\$0.00	Vanlier 10 days
May/19/99	1 - Personnel (GSC)	\$0.00	\$0.00	\$3,616.67	Mike Ellerbeck Salary
May/19/99	1 - Personnel (GSC)	\$0.00	\$0.00	-\$3,616.67	Mike Ellerbeck Salary / Adjustment

Jun/19/99	1 - Personnel (GSC)	\$0.00	\$0.00	\$9,664.33	Mike Ellerbeck Salary (** estimated for the 1st quarter)
Jun/19/99	1 - Personnel (GSC)	\$0.00	\$0.00	\$539.92	Mike Ellerbeck Salary adjustment for 1st quarter
Jun/30/99	1 - Personnel (GSC)	\$0.00	\$0.00	\$720.44	4.66 days Claire Despins
Jun/30/99	1 - Personnel (GSC)	\$0.00	\$0.00	\$2,423.96	11 days Jennifer Getsinger: Administration and lab communications, database planning, etc.
Jun/30/99	1 - Personnel (GSC)	\$0.00	\$0.00	\$3,228.00	20 days, Mory Dong: Accounting and Finance Admin.
Jun/30/99	1 - Personnel (GSC)	\$0.00	\$0.00	\$2,173.50	6 days, Cathie Hickson Project management
Jun/30/99	1 - Personnel (GSC)	\$0.00	\$0.00	-\$1,000.00	Transfer to PM.99/M-9 Mike Ellerbeck 5 days
Jun/30/99	1 - Personnel (GSC)	\$0.00	\$0.00	-\$600.00	Transfer to PM.99/M-2 Mike Ellerbeck 5 days
Jun/30/99	1 - Personnel (GSC)	\$0.00	\$0.00	-\$4,000.00	Transfer to B.97/M-1 Mike Ellerbeck 20 days
Jun/30/99	1 - Personnel (GSC)	\$0.00	\$0.00	-\$400.00	Transfer to D.99/M-P1 Mike Ellerbeck 2 days
Jun/30/99	1 - Personnel (GSC)	\$0.00	\$0.00	-\$400.00	Transfer to D.99/M-A1 Mike Ellerbeck 2 days
Jun/30/99	1 - Personnel (GSC)	\$0.00	\$0.00	-\$400.00	Transfer to D.99/M-B1 Mike Ellerbeck 2 days
Jun/30/99	1 - Personnel (GSC)	\$0.00	\$0.00	-\$200.00	Transfer to D.96/C-14 Mike Ellerbeck 1 days
Jun/30/99	1 - Personnel (GSC)	\$0.00	\$0.00	-\$400.00	Transfer to D.99/M-C1 Mike Ellerbeck 2 days
Aug/3/99	1 - Personnel (GSC)	\$0.00	\$0.00	\$3,405.32	Mike Ellerbeck Salary
Aug/3/99	1 - Personnel (GSC)	\$0.00	\$0.00	\$1,191.86	Mike Ellerbeck Salary
Aug/5/99	1 - Personnel (GSC)	\$0.00	\$0.00	\$100.00	Mory Dong
Aug/31/99	1 - Personnel (GSC)	\$0.00	\$0.00	\$3,405.32	Mike Ellerbeck Salary
Aug/31/99	1 - Personnel (GSC)	\$0.00	\$0.00	\$1,532.39	Mike Ellerbeck Salary
Aug/31/99	1 - Personnel (GSC)	\$0.00	\$0.00	-\$1,191.86	Mike Ellerbeck Salary Reversal
Oct/4/99	1 - Personnel (GSC)	\$0.00	\$0.00	\$5,107.98	Mike Ellerbeck salary
Oct/4/99	1 - Personnel (GSC)	\$0.00	\$0.00	\$170.27	Mike Ellerbeck salary
Oct/4/99	1 - Personnel (GSC)	\$0.00	\$0.00	-\$1,532.39	Reversal for entry on 8/31/99
Oct/18/99	1 - Personnel (GSC)	\$0.00	\$0.00	\$311.74	2 days W. Chiu
Oct/18/99	1 - Personnel (GSC)	\$0.00	\$0.00	\$1,664.00	10 days M. Dong
Oct/18/99	1 - Personnel (GSC)	\$0.00	\$0.00	\$1,086.75	3 days Catherine Hickson
Oct/18/99	1 - Personnel (GSC)	\$0.00	\$0.00	\$3,184.20	14.45 days Jennifer Getsinger
Apr/1/99	2 - Personnel (non GSC)	\$4,500.00	\$0.00	\$0.00	Rocio Lopez 18 days
Apr/1/99	2 - Personnel (non GSC)	\$3,000.00	\$0.00	\$0.00	Rodus 12 days Financial update, etc.
Jul/27/99	2 - Personnel (non GSC)	\$0.00	\$3,551.24	\$0.00	Rodus International Corp.
Jul/28/99	2 - Personnel (non GSC)	\$0.00	\$0.00	\$345.00	Rodus Administration Support
Jul/28/99	2 - Personnel (non GSC)	\$0.00	\$0.00	\$915.00	Rodus Administration Support
Jul/28/99	2 - Personnel (non GSC)	\$0.00	\$0.00	\$3,748.81	Rodus Administration Support
Sep/13/99	2 - Personnel (non GSC)	\$0.00	\$0.00	\$870.00	Rodus services
Sep/13/99	2 - Personnel (non GSC)	\$0.00	\$0.00	-\$360.00	Rodus services / transfer to PM.99/M-7
Sep/22/99	2 - Personnel (non GSC)	\$0.00	\$0.00	\$1,526.95	Rodus Services
Sep/23/99	2 - Personnel (non GSC)	\$0.00	\$0.00	\$615.00	Rodus Services
Sep/30/99	2 - Personnel (non GSC)	\$0.00	\$0.00	-\$850.00	Rodus services (prep.) / transfer to PM.99/M-2

Sep/30/09	2 - Personnel (non GSC)	\$0.00	\$0.00	-\$270.00	Modus services / transfer to PM.99/M-2
Apr/1/99	3 - Local Consultants	\$0.00	\$0.00	\$0.00	
Apr/1/99	4 - Travel	\$0.00	\$0.00	\$0.00	
Apr/1/99	5 - Geoscience Services	\$4,000.00	\$0.00	\$0.00	Phone + fax
Sep/23/99	5 - Geoscience Services	\$0.00	\$0.00	\$346.77	DHL Courier
Oct/13/99	5 - Geoscience Services	\$0.00	\$0.00	\$12.55	Fedex Courier
Apr/1/99	6 - Equipment	\$0.00	\$0.00	\$0.00	
Aug/12/99	6 - Equipment	\$0.00	\$0.00	\$82.67	Power Supply Cable
Sep/24/99	6 - Equipment	\$0.00	\$0.00	\$255.00	Superbase software upgrade to V3.61
Apr/1/99	7 - Other	\$2,700.00	\$0.00	\$0.00	Computer rental (J. Getsinger + Rocio)
Apr/1/99	7 - Other	\$2,300.00	\$0.00	\$0.00	Boardroom rental & 16th meeting room
Apr/1/99	7 - Other	\$1,600.00	\$0.00	\$0.00	Stationery and photocopies
Apr/1/99	7 - Other	\$3,000.00	\$0.00	\$0.00	LCD projector rental
Apr/1/99	7 - Other	\$375.00	\$0.00	\$0.00	Slide Scanner rental
Apr/1/99	7 - Other	\$96.00	\$0.00	\$0.00	Postage meter rental
Apr/1/99	7 - Other	\$1,035.00	\$0.00	\$0.00	Fax machine lease
Apr/1/99	7 - Other	\$2,216.00	\$0.00	\$0.00	Telephone (VMS) and long distance charges
Apr/1/99	7 - Other	\$1,111.00	\$0.00	\$0.00	Telephone Line BC tel
Apr/29/99	7 - Other	\$0.00	\$0.00	\$31.55	BC Tel
Apr/29/99	7 - Other	\$0.00	\$0.00	\$33.05	BC Tel
Apr/29/99	7 - Other	\$0.00	\$0.00	\$27.00	BC Tel
Apr/29/99	7 - Other	\$0.00	\$0.00	\$31.55	BC Tel
Apr/29/99	7 - Other	\$0.00	\$0.00	\$33.05	BC Tel
Apr/29/99	7 - Other	\$0.00	\$0.00	\$27.00	BC Tel
May/5/99	7 - Other	\$0.00	\$0.00	\$16.32	Petty cash / Louise Fox
May/17/99	7 - Other	\$0.00	\$0.00	\$11.50	Quicksilver courier documents
Jun/10/99	7 - Other	\$0.00	\$0.00	\$31.63	BC Tel
Jun/10/99	7 - Other	\$0.00	\$0.00	\$33.13	BC Tel
Jun/10/99	7 - Other	\$0.00	\$0.00	\$27.08	BC Tel
Jul/30/99	7 - Other	\$0.00	\$0.00	\$40.02	BC Tel 666-0183
Jul/30/99	7 - Other	\$0.00	\$0.00	\$33.13	BC Tel 666-0528
Jul/30/99	7 - Other	\$0.00	\$0.00	\$37.08	BC Tel 666-2997
Aug/12/99	7 - Other	\$0.00	\$0.00	\$5.49	Staples / Office Supplies
Aug/12/99	7 - Other	\$0.00	\$0.00	\$29.95	Staples / Office Supplies
Aug/13/99	7 - Other	\$0.00	\$0.00	\$142.36	Maps and publications
Aug/26/99	7 - Other	\$0.00	\$0.00	\$31.63	BC Tel 666-0183
Aug/26/99	7 - Other	\$0.00	\$0.00	\$33.13	BC Tel 666-0528
Aug/26/99	7 - Other	\$0.00	\$0.00	\$27.08	BC Tel 666-2997
Sep/8/99	7 - Other	\$0.00	\$0.00	\$37.95	BC Stamp works / MAP Seal

Sep/8/99	7 - Other	\$0.00	\$0.00	\$43.92	Staples / Blank Diplomas template
Sep/13/99	7 - Other	\$0.00	\$0.00	\$31.63	BC tel 666-0183
Sep/13/99	7 - Other	\$0.00	\$0.00	\$33.13	BC tel 666-0528
Sep/13/99	7 - Other	\$0.00	\$0.00	\$28.03	BC tel 666-2997
Sep/24/99	7 - Other	\$0.00	\$0.00	\$110.00	Nu-Age Transparencies
Oct/13/99	7 - Other	\$0.00	\$0.00	\$620.40	Transparencies
Oct/14/99	7 - Other	\$0.00	\$0.00	\$79.71	BC Tel 666-0183
Oct/14/99	7 - Other	\$0.00	\$0.00	\$34.43	BC Tel 666-0528
Oct/14/99	7 - Other	\$0.00	\$0.00	\$27.08	BC Tel 666-2997

Total for this activity: \$67,733.00 \$3,551.24 \$38,752.49

Total for Administration \$136,694.00 \$6,051.24 \$62,239.21

Activity A.96/A-1 Argentina

Training in TM imaging, structural/alteration interpretation of imaging, alteration zones, digital data capture (Field log)

Date	Subunit	Budget	Commit	Actual	Obs.
Apr/1/99	1 - Personnel (GSC)	\$0.00	\$0.00	\$0.00	
Apr/1/99	2 - Personnel (non GSC)	\$0.00	\$0.00	\$0.00	
Apr/1/99	3 - Local Consultants	\$0.00	\$0.00	\$0.00	
Apr/1/99	4 - Travel	\$0.00	\$0.00	\$0.00	
Apr/1/99	5 - Geoscience Services	\$0.00	\$0.00	\$0.00	
Apr/1/99	6 - Equipment	\$0.00	\$0.00	\$0.00	
Apr/1/99	7 - Other	\$0.00	\$0.00	\$0.00	
Total for this activity:		\$0.00	\$0.00	\$0.00	

Activity A.96/A-2 Argentina

In-field training in regional mapping techniques, volcanology and metallogeny.

Date	Subunit	Budget	Commit	Actual	Obs.
Apr/1/99	1 - Personnel (GSC)	\$8,500.00	\$0.00	\$0.00	GSC expert to help finish Geological map of Antofalla and Susques at 1:250,000
Sep/13/99	1 - Personnel (GSC)	-\$8,500.00	\$0.00	\$0.00	Postponed until next fiscal year
Apr/1/99	2 - Personnel (non GSC)	\$0.00	\$0.00	\$0.00	
Apr/1/99	3 - Local Consultants	\$0.00	\$0.00	\$0.00	
Apr/1/99	4 - Travel	\$2,000.00	\$0.00	\$0.00	Expert Travel
Sep/13/99	4 - Travel	-\$2,000.00	\$0.00	\$0.00	Postponed until next fiscal year

Oct/8/99	4 - Travel	\$0.00	\$0.00	\$1,470.00	Elizabeth Rovere Airfare and travel expenses
Oct/8/99	4 - Travel	\$2,940.00	\$0.00	\$1,470.00	Increase budget to cover travel expenses
Apr/1/99	5 - Geoscience Services	\$0.00	\$0.00	\$0.00	
Sep/16/99	5 - Geoscience Services	\$0.00	\$0.00	\$900.00	Terrane Paths 99 Registration / Rovere (Argentina)
Sep/16/99	5 - Geoscience Services	\$0.00	\$0.00	\$900.00	Terrane Paths 99 Registration / Seggiaro (Argentina)
Sep/30/99	5 - Geoscience Services	\$1,800.00	\$0.00	\$0.00	Terrane Paths 99 Registration / Seggiaro (Argentina)
Apr/1/99	6 - Equipment	\$0.00	\$0.00	\$0.00	
Apr/1/99	7 - Other	\$0.00	\$0.00	\$0.00	
Total for this activity:		\$4,740.00	\$0.00	\$4,740.00	

Activity A.98/A-1 Argentina

Multiparameter geophysical and geochemical interpretation and integration.

Date	Subunit	Budget	Commit	Actual	Obs.
Apr/1/99	1 - Personnel (GSC)	\$0.00	\$0.00	\$0.00	
Apr/1/99	2 - Personnel (non GSC)	\$5,000.00	\$0.00	\$0.00	10 days multiparameter GIS interpretation in BA for geochemical data
Apr/1/99	3 - Local Consultants	\$0.00	\$0.00	\$0.00	
Apr/1/99	4 - Travel	\$2,000.00	\$0.00	\$0.00	GIS expert travel to Buenos Aires (Jeff Harris)
Apr/1/99	5 - Geoscience Services	\$0.00	\$0.00	\$0.00	
Apr/1/99	6 - Equipment	\$0.00	\$0.00	\$0.00	
Apr/1/99	7 - Other	\$0.00	\$0.00	\$0.00	
Total for this activity:		\$7,000.00	\$0.00	\$0.00	

Activity A.98/A-2 Argentina

Geological, geophysical, geochemical data archiving, integration and digital data presentation (CD-ROM).

Date	Subunit	Budget	Commit	Actual	Obs.
Apr/1/99	1 - Personnel (GSC)	\$8,500.00	\$0.00	\$0.00	GSC expert to work with Argentinean scientist in Canada
Apr/1/99	2 - Personnel (non GSC)	\$0.00	\$0.00	\$0.00	
Apr/1/99	3 - Local Consultants	\$0.00	\$0.00	\$0.00	
Apr/1/99	4 - Travel	\$8,000.00	\$0.00	\$0.00	Argentinean scientist in Vancouver / Hotel / Expenses/ local travel
Apr/1/99	5 - Geoscience Services	\$0.00	\$0.00	\$0.00	
Apr/1/99	6 - Equipment	\$0.00	\$0.00	\$0.00	
Apr/1/99	7 - Other	\$1,000.00	\$0.00	\$0.00	Misc.
Total for this activity:		\$17,500.00	\$0.00	\$0.00	

Activity D.96/A-1 Argentina

Geochemical Exploration techniques, samples handling and data analysis.

Date	Subunit	Budget	Commit	Actual	Obs.
Apr/1/99	1 - Personnel (GSC)	\$0.00	\$0.00	\$0.00	
Jun/30/99	1 - Personnel (GSC)	\$0.00	\$0.00	\$220.36	1 day Jennifer Getsinger communicating/acquiring/sending stream sediment standards samples
Apr/1/99	2 - Personnel (non GSC)	\$0.00	\$0.00	\$0.00	
Apr/1/99	3 - Local Consultants	\$0.00	\$0.00	\$0.00	
Apr/1/99	4 - Travel	\$0.00	\$0.00	\$0.00	
Apr/1/99	5 - Geoscience Services	\$30,000.00	\$0.00	\$0.00	Multi element geochem analysis of sediments
Jul/30/99	5 - Geoscience Services	\$0.00	\$0.00	\$201.98	DHL Courier
Jul/30/99	5 - Geoscience Services	\$0.00	\$0.00	\$877.83	DHL Courier
Aug/12/99	5 - Geoscience Services	\$0.00	\$0.00	\$900.00	Stream Sediments
Apr/1/99	6 - Equipment	\$0.00	\$0.00	\$0.00	
Apr/1/99	7 - Other	\$0.00	\$0.00	\$0.00	
Jun/10/99	7 - Other	\$0.00	\$0.00	\$12.55	Federal Express Courier of documents
Jul/30/99	7 - Other	\$0.00	\$0.00	\$12.55	Federal Express Courier
Total for this activity:		\$30,000.00	\$0.00	\$2,225.27	

Activity D.96/A-2 Argentina

Airborne Geophysics acquisition and interpretation.

Date	Subunit	Budget	Commit	Actual	Obs.
Apr/1/99	1 - Personnel (GSC)	\$0.00	\$0.00	\$0.00	
Apr/1/99	2 - Personnel (non GSC)	\$0.00	\$0.00	\$0.00	
Apr/1/99	3 - Local Consultants	\$0.00	\$0.00	\$0.00	
Apr/1/99	4 - Travel	\$0.00	\$0.00	\$0.00	
Apr/1/99	5 - Geoscience Services	\$0.00	\$0.00	\$0.00	
Apr/1/99	6 - Equipment	\$0.00	\$0.00	\$0.00	
Apr/1/99	7 - Other	\$0.00	\$0.00	\$0.00	
Total for this activity:		\$0.00	\$0.00	\$0.00	

Activity D.96/A-3 Argentina

Precision analytical whole rock analysis for major, trace and rare earth elements.

Date	Subunit	Budget	Commit	Actual	Obs.
Apr/1/99	1 - Personnel (GSC)	\$0.00	\$0.00	\$0.00	
Apr/1/99	2 - Personnel (non GSC)	\$0.00	\$0.00	\$0.00	
Apr/1/99	3 - Local Consultants	\$0.00	\$0.00	\$0.00	
Apr/1/99	4 - Travel	\$0.00	\$0.00	\$0.00	
Apr/1/99	5 - Geoscience Services	\$0.00	\$0.00	\$0.00	
Apr/1/99	6 - Equipment	\$0.00	\$0.00	\$0.00	
Apr/1/99	7 - Other	\$0.00	\$0.00	\$0.00	
Total for this activity:		\$0.00	\$0.00	\$0.00	

Activity D.96/A-4 Argentina

Precision dating by Ar-Ar or other techniques as applicable.

Date	Subunit	Budget	Commit	Actual	Obs.
Apr/1/99	1 - Personnel (GSC)	\$0.00	\$0.00	\$0.00	
Jun/30/99	1 - Personnel (GSC)	\$0.00	\$0.00	\$29.38	1 hour Jennifer Getsinger communicating with UBC Geochron Lab about K-Ar
Jun/30/99	1 - Personnel (GSC)	\$0.00	\$0.00	\$116.07	4 hours Jennifer Getsinger communicating with Andre Panteleyev and Argentina
Jun/30/99	1 - Personnel (GSC)	\$0.00	\$0.00	\$1.45	Adjustment to 4 hours Jennifer Getsinger communicating with Andre Panteleyev and Argentina
Oct/18/99	1 - Personnel (GSC)	\$0.00	\$0.00	\$705.15	3.2 days Jennifer Getsinger
Apr/1/99	2 - Personnel (non GSC)	\$0.00	\$0.00	\$0.00	
Apr/1/99	3 - Local Consultants	\$0.00	\$0.00	\$0.00	
Apr/1/99	4 - Travel	\$0.00	\$0.00	\$0.00	
Apr/1/99	5 - Geoscience Services	\$10,000.00	\$0.00	\$0.00	Radiometric samples for Argentina
Apr/1/99	6 - Equipment	\$0.00	\$0.00	\$0.00	
Apr/1/99	7 - Other	\$0.00	\$0.00	\$0.00	
May/5/99	7 - Other	\$0.00	\$0.00	\$19.29	Report printing / Ikon Document Services
May/11/99	7 - Other	\$0.00	\$0.00	\$34.19	Doc printing / Ikon Document Services
May/11/99	7 - Other	\$0.00	\$0.00	\$23.55	Doc printing / Ikon Document Services
Total for this activity:		\$10,000.00	\$0.00	\$929.08	

Activity D.99/A-1 Argentina

Fellowship fund to cover travel expenses for scientists participating in MAP activities. Recipients must be approved as outlined in terms of reference.

Date	Subunit	Budget	Commit	Actual	Obs.
Sep/30/99	1 - Personnel (GSC)	\$0.00	\$0.00	\$0.00	
Sep/30/99	2 - Personnel (non GSC)	\$0.00	\$0.00	\$0.00	
Sep/30/99	3 - Local Consultants	\$0.00	\$0.00	\$0.00	
Sep/30/99	4 - Travel	\$7,500.00	\$0.00	\$0.00	Fellowship setup (US\$5000)
Sep/30/99	5 - Geoscience Services	\$0.00	\$0.00	\$0.00	
Sep/30/99	6 - Equipment	\$0.00	\$0.00	\$0.00	
Sep/30/99	7 - Other	\$0.00	\$0.00	\$0.00	
Sep/30/99	7 - Other	\$0.00	\$0.00	\$0.00	
Total for this activity:		\$7,500.00	\$0.00	\$0.00	

Activity D.99/M-A1 Argentina

Airborne Geophysics acquisition and interpretation (Argentina 50% of \$41,000)

Date	Subunit	Budget	Commit	Actual	Obs.
Apr/1/99	1 - Personnel (GSC)	\$1,750.00	\$0.00	\$0.00	Cathie Hickson 10 days / Admin travel and meetings /
Apr/1/99	1 - Personnel (GSC)	\$1,000.00	\$0.00	\$0.00	Mike Ellerbeck 10 days / Admin travel and meetings /
Jun/30/99	1 - Personnel (GSC)	\$0.00	\$0.00	\$400.00	Mike Ellerbeck 2 days
Oct/18/99	1 - Personnel (GSC)	\$0.00	\$0.00	\$181.12	1 day Catherine Hickson
Apr/1/99	2 - Personnel (non GSC)	\$7,500.00	\$0.00	\$0.00	Dennis Teskey 30 days
Apr/1/99	2 - Personnel (non GSC)	\$5,000.00	\$0.00	\$0.00	# Safety Audit
Jun/30/99	2 - Personnel (non GSC)	\$0.00	\$0.00	\$7,322.50	Transfer for holding account
Sep/30/99	2 - Personnel (non GSC)	\$0.00	\$0.00	\$700.00	Transfer for holding account
Apr/1/99	3 - Local Consultants	\$0.00	\$0.00	\$0.00	
Apr/1/99	4 - Travel	\$2,500.00	\$0.00	\$0.00	2 trips for Dennis Teskey
Apr/1/99	4 - Travel	\$1,000.00	\$0.00	\$0.00	1 trip for Cathie Hickson
Apr/1/99	4 - Travel	\$1,000.00	\$0.00	\$0.00	1 trip for Mike Ellerbeck
Apr/1/99	4 - Travel	\$0.00	\$0.00	\$0.00	1 trip for Mike Ellerbeck
Jun/30/99	4 - Travel	\$0.00	\$0.00	\$1,665.56	Transfer for holding account
Apr/1/99	5 - Geoscience Services	\$500.00	\$0.00	\$0.00	Postage and Courier
Apr/1/99	6 - Equipment	\$0.00	\$0.00	\$0.00	
Apr/1/99	7 - Other	\$250.00	\$0.00	\$0.00	Misc.
Sep/30/99	7 - Other	\$0.00	\$0.00	\$241.50	Transfer for holding account

Total for this activity: \$20,500.00 \$0.00 \$10,510.68

Total for Argentina \$97,240.00 \$0.00 \$18,405.03

Activity A.96/B-3 Bolivia

Training in regional mapping, volcanology and metallogenic studies

Date	Subunit	Budget	Commit	Actual	Obs.
Apr/1/99	1 - Personnel (GSC)	\$200.00	\$0.00	\$0.00	Mike Ellerbeck 1 day prep
Apr/1/99	1 - Personnel (GSC)	\$450.00	\$0.00	\$0.00	Jennifer Getsinger 2 days prep
Apr/1/99	2 - Personnel (non GSC)	\$7,400.00	\$0.00	\$0.00	Paul Metcalfe Volcanology course + field work 21 days
Apr/1/99	2 - Personnel (non GSC)	\$8,500.00	\$0.00	\$0.00	Andre Panteleyev 17 days / Metallogeny course
Jul/27/99	2 - Personnel (non GSC)	\$0.00	\$2,587.50	\$0.00	XDM Geological Services
Jul/27/99	2 - Personnel (non GSC)	\$0.00	\$164.55	\$0.00	Paul Metcalfe
Jul/30/99	2 - Personnel (non GSC)	\$0.00	\$0.00	\$2,100.00	Paul Metcalfe - Field Trip Volcanology
Jul/30/99	2 - Personnel (non GSC)	\$0.00	\$0.00	\$1,485.45	Paul Metcalfe - Field Trip Volcanology
Aug/4/99	2 - Personnel (non GSC)	\$0.00	\$0.00	\$4,900.00	Paul Metcalfe Service Contract
Aug/4/99	2 - Personnel (non GSC)	\$0.00	\$0.00	\$14,562.50	XDM geological Services Contract
Sep/22/99	2 - Personnel (non GSC)	\$0.00	\$0.00	\$2,100.00	Paul Metcalfe Mapping services
Sep/30/99	2 - Personnel (non GSC)	\$6,080.00	\$0.00	\$0.00	Budget increase to cover XDM services
Apr/1/99	3 - Local Consultants	\$0.00	\$0.00	\$0.00	
Apr/1/99	4 - Travel	\$2,500.00	\$0.00	\$0.00	Paul Metcalfe fare to Bolivia
Apr/1/99	4 - Travel	\$2,000.00	\$0.00	\$0.00	Andre Panteleyev fare to Bolivia
Apr/1/99	5 - Geoscience Services	\$400.00	\$0.00	\$0.00	Courier samples from Bolivia
Apr/1/99	5 - Geoscience Services	\$200.00	\$0.00	\$0.00	Courier samples from Bolivia / Andre Panteleyev course
Apr/1/99	6 - Equipment	\$0.00	\$0.00	\$0.00	
Apr/1/99	7 - Other	\$200.00	\$0.00	\$0.00	Misc + photocopies
Jul/29/99	7 - Other	\$0.00	\$0.00	\$11.50	Quicksilver Enterprises LTD.
Sep/23/99	7 - Other	\$0.00	\$0.00	\$17.25	Quicksilver Courier
Total for this activity:		\$27,930.00	\$2,752.05	\$25,176.70	

Activity A.99/B-1 Bolivia

Training in epithermal alteration zone mapping using the PIMA

Date	Subunit	Budget	Commit	Actual	Obs.
Apr/1/99	1 - Personnel (GSC)	\$200.00	\$0.00	\$0.00	Mike Ellerbeck 1 day prep

Apr/1/99	2 - Personnel (non GSC)	\$6,000.00	\$0.00	\$0.00	Anne Thompson training (October)
Oct/8/99	2 - Personnel (non GSC)	\$0.00	\$9,555.00	\$0.00	PWGSC PIMA
Apr/1/99	3 - Local Consultants	\$0.00	\$0.00	\$0.00	
Apr/1/99	4 - Travel	\$2,000.00	\$0.00	\$0.00	Anne Thompson travel
Apr/1/99	4 - Travel	\$1,000.00	\$0.00	\$0.00	PIMA insurance
Oct/8/99	4 - Travel	\$0.00	\$1,960.00	\$0.00	PWGSC PIMA
Apr/1/99	5 - Geoscience Services	\$0.00	\$0.00	\$0.00	
Apr/1/99	6 - Equipment	\$0.00	\$0.00	\$0.00	
Apr/1/99	7 - Other	\$500.00	\$0.00	\$0.00	Misc. and other expenses
Oct/8/99	7 - Other	\$0.00	\$735.00	\$0.00	PIMA
Total for this activity:		\$9,700.00	\$12,250.00	\$0.00	

Activity D.96/B-10 Bolivia

Precision Dating by Ar-Ar or other techniques as applicable.

Date	Subunit	Budget	Commit	Actual	Obs.
Apr/1/99	1 - Personnel (GSC)	\$900.00	\$0.00	\$0.00	Jennifer Getsinger 4 days
Jun/30/99	1 - Personnel (GSC)	\$0.00	\$0.00	\$29.38	1 hour Jennifer Getsinger communicating with UBC Geochron Lab about K-Ar
Oct/18/99	1 - Personnel (GSC)	\$0.00	\$0.00	\$341.56	1.55 days Jennifer Getsinger
Apr/1/99	2 - Personnel (non GSC)	\$350.00	\$0.00	\$0.00	Paul Metcalfe 1 day
Apr/1/99	3 - Local Consultants	\$0.00	\$0.00	\$0.00	
Apr/1/99	4 - Travel	\$0.00	\$0.00	\$0.00	
Apr/1/99	5 - Geoscience Services	\$40,000.00	\$0.00	\$0.00	40 samples at \$1,000 each
Apr/1/99	5 - Geoscience Services	\$1,000.00	\$0.00	\$0.00	Courier samples
Sep/13/99	5 - Geoscience Services	-\$20,000.00	\$0.00	\$0.00	Reduced from 40 to 20 samples
Apr/1/99	6 - Equipment	\$0.00	\$0.00	\$0.00	
Apr/1/99	7 - Other	\$0.00	\$0.00	\$0.00	
May/5/99	7 - Other	\$0.00	\$0.00	\$12.27	Report printing / Ikon Document Services
Total for this activity:		\$22,250.00	\$0.00	\$383.21	

Activity D.96/B-11 Bolivia

On-site training in digital manipulation, large format printing and map production.

Date	Subunit	Budget	Commit	Actual	Obs.
Apr/1/99	1 - Personnel (GSC)	\$0.00	\$0.00	\$0.00	
Apr/1/99	2 - Personnel (non GSC)	\$0.00	\$0.00	\$0.00	

Apr/1/99	3 - Local Consultants	\$0.00	\$0.00	\$0.00	
Apr/1/99	4 - Travel	\$0.00	\$0.00	\$0.00	
Apr/1/99	5 - Geoscience Services	\$0.00	\$0.00	\$0.00	
Aug/27/99	5 - Geoscience Services	\$0.00	\$0.00	\$701.16	DHL Courier
Apr/1/99	6 - Equipment	\$0.00	\$0.00	\$0.00	
Apr/1/99	7 - Other	\$0.00	\$0.00	\$0.00	
Apr/1/99	7 - Other	\$10,000.00	\$0.00	\$0.00	Repair of Silicon Graphics and Vidar Scanner
May/14/99	7 - Other	\$0.00	\$0.00	\$293.60	Brokerage Fees (Livingston) for importation of SGI computer. Sent by SERGEOMIN for repairs
Jun/10/99	7 - Other	\$0.00	\$0.00	\$45.00	Air Canada freight charges
Jul/28/99	7 - Other	\$0.00	\$35.28	\$0.00	Lamp for scanner
Sep/13/99	7 - Other	\$0.00	\$0.00	\$38.38	Vidar Lamp for scanner shipping
Sep/13/99	7 - Other	\$0.00	\$0.00	\$370.04	Vidar Lamp for scanner
Sep/24/99	7 - Other	\$0.00	\$0.00	\$1,340.00	Silicon Graphics / SGI Repairs
Total for this activity:		\$10,000.00	\$35.28	\$2,788.18	

Activity D.96/B-5 Bolivia

On-site assessment and training in laboratory techniques.

Date	Subunit	Budget	Commit	Actual	Obs.
Apr/1/99	1 - Personnel (GSC)	\$0.00	\$0.00	\$0.00	
Apr/1/99	2 - Personnel (non GSC)	\$0.00	\$0.00	\$0.00	
Apr/1/99	3 - Local Consultants	\$0.00	\$0.00	\$0.00	
Apr/1/99	4 - Travel	\$0.00	\$0.00	\$0.00	
Apr/1/99	5 - Geoscience Services	\$0.00	\$0.00	\$0.00	
Apr/1/99	6 - Equipment	\$0.00	\$0.00	\$0.00	
Apr/1/99	7 - Other	\$0.00	\$0.00	\$0.00	
Total for this activity:		\$0.00	\$0.00	\$0.00	

Activity D.96/B-6 Bolivia

Precision analytical whole rock analyses for major, trace and rare earth elements.

Date	Subunit	Budget	Commit	Actual	Obs.
Apr/1/99	1 - Personnel (GSC)	\$1,100.00	\$0.00	\$0.00	Jennifer Getsinger 5 days
Jun/30/99	1 - Personnel (GSC)	\$0.00	\$0.00	\$58.76	2 hours Jennifer Getsinger: Comm with Hernan Uribe about best analyses for samples he's collected, pricing, etc.
Oct/18/99	1 - Personnel (GSC)	\$0.00	\$0.00	\$264.43	1.2 days Jennifer Getsinger

Apr/1/99	2 - Personnel (non GSC)	\$350.00	\$0.00	\$0.00	Paul Metcalfe 1 day
Apr/1/99	3 - Local Consultants	\$0.00	\$0.00	\$0.00	
Apr/1/99	4 - Travel	\$0.00	\$0.00	\$0.00	
Apr/1/99	5 - Geoscience Services	\$10,000.00	\$0.00	\$0.00	# 200 samples @ \$50 per sample
Apr/1/99	5 - Geoscience Services	\$1,000.00	\$0.00	\$0.00	Courier samples
Apr/1/99	5 - Geoscience Services	\$1,500.00	\$0.00	\$0.00	Thin Sections / 100 samples @ 15 each
Sep/13/99	5 - Geoscience Services	-\$5,000.00	\$0.00	\$0.00	Reduced from 200 to 100 samples
Oct/8/99	5 - Geoscience Services	\$0.00	\$0.00	\$1,581.84	DHL Courier
Apr/1/99	6 - Equipment	\$0.00	\$0.00	\$0.00	
Apr/1/99	7 - Other	\$0.00	\$0.00	\$0.00	
Total for this activity:		\$8,950.00	\$0.00	\$1,905.03	

Activity D.96/B-7 Bolivia

On-site training in fluid inclusion analyses.

Date	Subunit	Budget	Commit	Actual	Obs.
Apr/1/99	1 - Personnel (GSC)	\$200.00	\$0.00	\$0.00	Mike Ellerbeck 1 day prep
Apr/1/99	2 - Personnel (non GSC)	\$8,000.00	\$0.00	\$0.00	Fluid Inc. training
Oct/8/99	2 - Personnel (non GSC)	\$0.00	\$7,350.00	\$0.00	PWGSC Fluid Inc.
Oct/8/99	2 - Personnel (non GSC)	\$0.00	\$2,205.00	\$0.00	PWGSC Fluid Inc.
Apr/1/99	3 - Local Consultants	\$0.00	\$0.00	\$0.00	
Apr/1/99	4 - Travel	\$3,000.00	\$0.00	\$0.00	Fluid inc. 2 people travel
Apr/1/99	5 - Geoscience Services	\$0.00	\$0.00	\$0.00	
Apr/1/99	6 - Equipment	\$0.00	\$0.00	\$0.00	
Apr/1/99	7 - Other	\$0.00	\$0.00	\$0.00	
Oct/8/99	7 - Other	\$0.00	\$490.00	\$0.00	Fluid Inc.
Total for this activity:		\$11,200.00	\$10,045.00	\$0.00	

Activity D.96/B-8 Bolivia

Geochemical exploration techniques, sample handling and data analyses.

Date	Subunit	Budget	Commit	Actual	Obs.
Apr/1/99	1 - Personnel (GSC)	\$1,100.00	\$0.00	\$0.00	Jennifer Getsinger 5 days
Jun/30/99	1 - Personnel (GSC)	\$0.00	\$0.00	\$58.76	2 hours Jennifer Getsinger: Comm with Hernan Uribe about best analyses for samples he's collected, pricing, etc.
Oct/18/99	1 - Personnel (GSC)	\$0.00	\$0.00	\$484.79	2.2 days Jennifer Getsinger
Apr/1/99	2 - Personnel (non GSC)	\$350.00	\$0.00	\$0.00	Paul Metcalfe 1 day

Apr/1/99	3 - Local Consultants	\$0.00	\$0.00	\$0.00	
Apr/1/99	4 - Travel	\$0.00	\$0.00	\$0.00	
Apr/1/99	5 - Geoscience Services	\$10,500.00	\$0.00	\$0.00	500 samples Au +34
Apr/1/99	5 - Geoscience Services	\$1,000.00	\$0.00	\$0.00	Courier Samples
Sep/19/99	5 - Geoscience Services	-\$4,200.00	\$0.00	\$0.00	Reduced from 500 to 300 samples
Oct/5/99	5 - Geoscience Services	\$0.00	\$3,706.75	\$0.00	Activation Labs / Geochemical analysis
Apr/1/99	6 - Equipment	\$0.00	\$0.00	\$0.00	
Apr/1/99	7 - Other	\$0.00	\$0.00	\$0.00	
Total for this activity:		\$8,750.00	\$3,706.75	\$543.55	

Activity D.99/B-1 Bolivia

Fellowship fund to cover travel expenses for scientists participating in MAP activities. Recipients must be approved as outlined in terms of reference.

Date	Subunit	Budget	Commit	Actual	Obs.
Sep/30/99	1 - Personnel (GSC)	\$0.00	\$0.00	\$0.00	
Sep/30/99	2 - Personnel (non GSC)	\$0.00	\$0.00	\$0.00	
Sep/30/99	3 - Local Consultants	\$0.00	\$0.00	\$0.00	
Sep/30/99	4 - Travel	\$7,500.00	\$0.00	\$0.00	Fellowship setup (US\$5000)
Sep/30/99	5 - Geoscience Services	\$0.00	\$0.00	\$0.00	
Sep/30/99	6 - Equipment	\$0.00	\$0.00	\$0.00	
Sep/30/99	7 - Other	\$0.00	\$0.00	\$0.00	
Total for this activity:		\$7,500.00	\$0.00	\$0.00	

Activity D.99/M-B1 Bolivia

Airborne Geophysics acquisition and interpretation (Peru/Bolivia/Chile) (Bolivia 54% of \$503,500)

Date	Subunit	Budget	Commit	Actual	Obs.
Apr/1/99	1 - Personnel (GSC)	\$2,700.00	\$0.00	\$0.00	15 days Cathie Hickson
Apr/1/99	1 - Personnel (GSC)	\$1,620.00	\$0.00	\$0.00	15 days Mike Ellerbeck
Jun/30/99	1 - Personnel (GSC)	\$0.00	\$0.00	\$379.19	Transfer for holding account
Jun/30/99	1 - Personnel (GSC)	\$0.00	\$0.00	\$400.00	Mike Ellerbeck 2days
Sep/30/99	1 - Personnel (GSC)	\$0.00	\$0.00	\$12.04	Transfer for holding account
Oct/18/99	1 - Personnel (GSC)	\$0.00	\$0.00	\$195.61	1 day Catherine Hickson
Apr/1/99	2 - Personnel (non GSC)	\$27,000.00	\$0.00	\$0.00	100 days for Dennis Teskey
Apr/1/99	2 - Personnel (non GSC)	\$5,400.00	\$0.00	\$0.00	# Safety Audit
Sep/30/99	2 - Personnel (non GSC)	\$0.00	\$0.00	\$9,304.03	Transfer for holding account

Apr/1/99	3 - Local Consultants	\$0.00	\$0.00	\$0.00	
Apr/1/99	4 - Travel	\$2,700.00	\$0.00	\$0.00	2 trips for Dennis teskey
Apr/1/99	4 - Travel	\$1,080.00	\$0.00	\$0.00	1 trip for Cathie Hickson
Apr/1/99	4 - Travel	\$1,080.00	\$0.00	\$0.00	1 trip for Mike Ellerbeck
Sep/30/99	4 - Travel	\$0.00	\$0.00	\$1,043.34	Transfer for holding account
Apr/1/99	5 - Geoscience Services	\$229,500.00	\$0.00	\$0.00	Aeromag Survey Bolivia 54%
Apr/1/99	5 - Geoscience Services	\$540.00	\$0.00	\$0.00	Postage and Courier
Apr/1/99	6 - Equipment	\$0.00	\$0.00	\$0.00	
Apr/1/99	7 - Other	\$270.00	\$0.00	\$0.00	Misc.
Sep/30/99	7 - Other	\$0.00	\$0.00	\$260.82	Transfer for holding account

Total for this activity: \$271,890.00 \$0.00 \$11,595.03

Total for Bolivia \$378,170.00 \$28,789.08 \$42,391.70

Activity A.97/C-3 Chile

Fission track studies to determine uplift and denudation and its relationship to supergene processes.

Date	Subunit	Budget	Commit	Actual	Obs.
Apr/1/99	1 - Personnel (GSC)	\$3,500.00	\$0.00	\$0.00	Lisel Currie 10 days
Oct/18/99	1 - Personnel (GSC)	\$0.00	\$0.00	\$396.65	1.8 days Jennifer Getsinger
Apr/1/99	2 - Personnel (non GSC)	\$0.00	\$0.00	\$0.00	
Apr/1/99	3 - Local Consultants	\$0.00	\$0.00	\$0.00	
Apr/1/99	4 - Travel	\$2,000.00	\$0.00	\$0.00	Lisel Currie travel to Santiago
Apr/1/99	5 - Geoscience Services	\$500.00	\$0.00	\$0.00	Courier Samples
Apr/1/99	6 - Equipment	\$0.00	\$0.00	\$0.00	
Apr/1/99	7 - Other	\$200.00	\$0.00	\$0.00	Misc + photocopy
Total for this activity:		\$6,200.00	\$0.00	\$396.65	

Activity A.99/C-1 Chile

Training in Ar/Ar Geochronology methods at GSC Ottawa, and setting up of geochronology facilities at SERNAGEOMIN

Date	Subunit	Budget	Commit	Actual	Obs.
Apr/1/99	1 - Personnel (GSC)	\$8,000.00	\$0.00	\$0.00	Mike Villeneuve 25 days
Apr/1/99	2 - Personnel (non GSC)	\$0.00	\$0.00	\$0.00	
Apr/1/99	3 - Local Consultants	\$0.00	\$0.00	\$0.00	
Apr/1/99	4 - Travel	\$2,500.00	\$0.00	\$0.00	Mike Villeneuve Travel to Chile

Apr/1/99	4 - Travel	\$10,000.00	\$0.00	\$0.00	P. Cornejo 4 months to Ottawa
Jun/30/99	4 - Travel	-\$7,500.00	\$0.00	\$0.00	P. Cornejo / change from 4 months to 1 month.
Apr/1/99	5 - Geoscience Services	\$0.00	\$0.00	\$0.00	
Apr/1/99	6 - Equipment	\$0.00	\$0.00	\$0.00	
Apr/1/99	7 - Other	\$200.00	\$0.00	\$0.00	Misc.
Total for this activity:		\$13,200.00	\$0.00	\$0.00	

Activity A.99/C-2 Chile

Training in epithermal alteration zone mapping using the PIMA

Date	Subunit	Budget	Commit	Actual	Obs.
Apr/1/99	1 - Personnel (GSC)	\$200.00	\$0.00	\$0.00	Mike Ellerbeck 1 day prep
Apr/1/99	2 - Personnel (non GSC)	\$9,000.00	\$0.00	\$0.00	Andre Panteleyev 18 days
Apr/1/99	2 - Personnel (non GSC)	\$6,000.00	\$0.00	\$0.00	Anne Thompson training
Oct/8/99	2 - Personnel (non GSC)	\$0.00	\$9,555.00	\$0.00	PWGSC PIMA
Apr/1/99	3 - Local Consultants	\$0.00	\$0.00	\$0.00	
Apr/1/99	4 - Travel	\$2,000.00	\$0.00	\$0.00	Anne Thompson travel
Apr/1/99	4 - Travel	\$2,000.00	\$0.00	\$0.00	Andre Panteleyev travel
Apr/1/99	4 - Travel	\$1,000.00	\$0.00	\$0.00	Insurance for the PIMA when travelling
Oct/8/99	4 - Travel	\$0.00	\$1,960.00	\$0.00	PWGSC PIMA
Apr/1/99	5 - Geoscience Services	\$0.00	\$0.00	\$0.00	
Apr/1/99	6 - Equipment	\$0.00	\$0.00	\$0.00	
Apr/1/99	7 - Other	\$500.00	\$0.00	\$0.00	Misc. and other expenses
Oct/8/99	7 - Other	\$0.00	\$735.00	\$0.00	PIMA
Total for this activity:		\$20,700.00	\$12,250.00	\$0.00	

Activity D.96/C-13 Chile

Ar-Ar dating in Ottawa.

Date	Subunit	Budget	Commit	Actual	Obs.
Apr/1/99	1 - Personnel (GSC)	\$450.00	\$0.00	\$0.00	Jennifer Getsinger 2 days
Oct/18/99	1 - Personnel (GSC)	\$0.00	\$0.00	\$66.11	.3 days Jennifer Getsinger
Apr/1/99	2 - Personnel (non GSC)	\$0.00	\$0.00	\$0.00	
Apr/1/99	3 - Local Consultants	\$0.00	\$0.00	\$0.00	
Apr/1/99	4 - Travel	\$0.00	\$0.00	\$0.00	
Apr/1/99	5 - Geoscience Services	\$30,000.00	\$0.00	\$0.00	20 young samples Ar/Ar @ \$1,500.00 each

Apr/1/99	5 - Geoscience Services	\$10,000.00	\$0.00	\$0.00	10 intermediate samples Ar/Ar @ \$1,000.00 each
Apr/1/99	5 - Geoscience Services	\$200.00	\$0.00	\$0.00	Courier sample
Jun/2/99	5 - Geoscience Services	\$0.00	\$0.00	\$213.75	DHL Courier of Documents
Jul/30/99	5 - Geoscience Services	\$0.00	\$0.00	\$1,984.75	DHL Courier
Oct/13/99	5 - Geoscience Services	\$0.00	\$0.00	\$419.11	DHL Courier
Apr/1/99	6 - Equipment	\$0.00	\$0.00	\$0.00	
Apr/1/99	7 - Other	\$0.00	\$0.00	\$0.00	
May/5/99	7 - Other	\$0.00	\$0.00	\$17.01	Report printing / Ikon Document Services
May/11/99	7 - Other	\$0.00	\$0.00	\$27.35	Doc printing / Ikon Document Services
Total for this activity:		\$40,650.00	\$0.00	\$2,728.08	

Activity D.96/C-14 Chile

Hydrogeology Project Development.

Date	Subunit	Budget	Commit	Actual	Obs.
Apr/1/99	1 - Personnel (GSC)	\$500.00	\$0.00	\$0.00	2 days Mike Ellerbeck
Jun/30/99	1 - Personnel (GSC)	\$0.00	\$0.00	\$200.00	Mike Ellerbeck 1days
Apr/1/99	2 - Personnel (non GSC)	\$11,000.00	\$0.00	\$0.00	22 days for Ramon Aravena
Apr/1/99	2 - Personnel (non GSC)	\$11,000.00	\$0.00	\$0.00	22 days for David Rudolph
Sep/23/99	2 - Personnel (non GSC)	\$0.00	\$1,500.00	\$0.00	Ramon Aravena
Apr/1/99	3 - Local Consultants	\$0.00	\$0.00	\$0.00	
Apr/1/99	4 - Travel	\$2,000.00	\$0.00	\$0.00	David Rudolph travel
Apr/1/99	4 - Travel	\$2,000.00	\$0.00	\$0.00	Ramon Aravena travel
Apr/1/99	4 - Travel	\$1,500.00	\$0.00	\$0.00	M. Venegas 1 week in Waterloo
Apr/28/99	4 - Travel	\$0.00	\$0.00	\$1,235.65	Marcela Venegas / Hydrogeology project
Apr/28/99	4 - Travel	\$0.00	\$0.00	\$1,235.65	Isabel Santibanez / Hydrogeology project
Apr/1/99	5 - Geoscience Services	\$1,400.00	\$0.00	\$0.00	Samples 40 samples Oxygen Deuterium Tritium
Apr/1/99	5 - Geoscience Services	\$1,650.00	\$0.00	\$0.00	Samples 40 samples Deuterium
Apr/1/99	5 - Geoscience Services	\$1,200.00	\$0.00	\$0.00	Samples 10 samples tritium
Apr/1/99	6 - Equipment	\$3,500.00	\$0.00	\$0.00	Software for Hydrogeology
Apr/1/99	7 - Other	\$200.00	\$0.00	\$0.00	Misc.
Jun/2/99	7 - Other	\$0.00	\$0.00	\$13.25	Federal Express Courier
Total for this activity:		\$35,950.00	\$1,500.00	\$2,684.55	

Activity D.97/C-3 Chile

Zircon or other types of radiometric dating.

Date	Subunit	Budget	Commit	Actual	Obs.
Apr/1/99	1 - Personnel (GSC)	\$450.00	\$0.00	\$0.00	Jennifer Getsinger 2 days
Jun/30/99	1 - Personnel (GSC)	\$0.00	\$0.00	\$29.38	1 hour Jennifer Getsinger communicating pollen results to Chile
Oct/18/99	1 - Personnel (GSC)	\$0.00	\$0.00	\$88.14	.4 days Jennifer Getsinger
Apr/1/99	2 - Personnel (non GSC)	\$0.00	\$0.00	\$0.00	
Apr/1/99	3 - Local Consultants	\$0.00	\$0.00	\$0.00	
Apr/1/99	4 - Travel	\$0.00	\$0.00	\$0.00	
Apr/1/99	5 - Geoscience Services	\$42,000.00	\$0.00	\$0.00	12 samples U/Pb @ \$3500.00 each
Apr/1/99	5 - Geoscience Services	\$200.00	\$0.00	\$0.00	12 samples courier
May/17/99	5 - Geoscience Services	\$0.00	\$0.00	\$28.63	DHL Courier
Jun/2/99	5 - Geoscience Services	\$0.00	\$0.00	\$69.75	DHL Courier of Documents
Jul/28/99	5 - Geoscience Services	\$0.00	\$4,750.00	\$0.00	Radiocarbon dating University of Waterloo
Jul/28/99	5 - Geoscience Services	\$0.00	\$23,400.00	\$0.00	PWGSC
Jul/30/99	5 - Geoscience Services	\$0.00	\$0.00	\$41.00	DHL Courier
Apr/1/99	6 - Equipment	\$0.00	\$0.00	\$0.00	
Apr/1/99	7 - Other	\$0.00	\$0.00	\$0.00	
May/5/99	7 - Other	\$0.00	\$0.00	\$11.82	Report printing / Ikon Document Services
May/11/99	7 - Other	\$0.00	\$0.00	\$19.01	Doc printing / Ikon Document Services
Total for this activity:		\$42,650.00	\$28,150.00	\$287.73	

Activity D.97/C-5 Chile

Fluid Inclusion training and equipment.

Date	Subunit	Budget	Commit	Actual	Obs.
Apr/1/99	1 - Personnel (GSC)	\$0.00	\$0.00	\$0.00	
Apr/1/99	2 - Personnel (non GSC)	\$0.00	\$0.00	\$0.00	
Sep/13/99	2 - Personnel (non GSC)	\$2,000.00	\$0.00	\$0.00	Jim Reynolds 2 days to check Fluid Inclusion Equipment
Oct/8/99	2 - Personnel (non GSC)	\$0.00	\$2,940.00	\$0.00	PWGSC Fluid Inc.
Apr/1/99	3 - Local Consultants	\$0.00	\$0.00	\$0.00	
Apr/1/99	4 - Travel	\$0.00	\$0.00	\$0.00	
Sep/13/99	4 - Travel	\$1,000.00	\$0.00	\$0.00	Jim Reynolds airfare
Oct/8/99	4 - Travel	\$0.00	\$1,470.00	\$0.00	PWGS Fluid Inc.
Apr/1/99	5 - Geoscience Services	\$0.00	\$0.00	\$0.00	

Apr/1/99	6 - Equipment	\$0.00	\$0.00	\$0.00	
Apr/1/99	7 - Other	\$0.00	\$0.00	\$0.00	
Oct/8/99	7 - Other	\$0.00	\$490.00	\$0.00	Fluid Inc.
Total for this activity:		\$3,000.00	\$4,900.00	\$0.00	

Activity D.99/C-1 Chile

Rck sample dating using C14 dating techniques

Date	Subunit	Budget	Commit	Actual	Obs.
Apr/1/99	1 - Personnel (GSC)	\$450.00	\$0.00	\$0.00	Jennifer Getsinger 2 days
Jun/30/99	1 - Personnel (GSC)	\$0.00	\$0.00	\$220.36	1 day Jennifer Getsinger communicating with Geochron lab at University of Waterloo
Oct/18/99	1 - Personnel (GSC)	\$0.00	\$0.00	\$132.22	.6 days Jennifer Getsinger
Apr/1/99	2 - Personnel (non GSC)	\$0.00	\$0.00	\$0.00	
Apr/1/99	3 - Local Consultants	\$0.00	\$0.00	\$0.00	
Apr/1/99	4 - Travel	\$0.00	\$0.00	\$0.00	
Apr/1/99	5 - Geoscience Services	\$7,500.00	\$0.00	\$0.00	30 samples ¹⁴ C @\$250.00 each
Apr/1/99	5 - Geoscience Services	\$200.00	\$0.00	\$0.00	Samples courier
Jul/28/99	5 - Geoscience Services	\$0.00	\$2,500.00	\$0.00	Radiocarbon dating University of Waterloo
Jul/30/99	5 - Geoscience Services	\$0.00	\$0.00	\$16.57	DHL Courier
Jul/30/99	5 - Geoscience Services	\$0.00	\$0.00	\$48.57	DHL Courier
Apr/1/99	6 - Equipment	\$0.00	\$0.00	\$0.00	
Apr/1/99	7 - Other	\$0.00	\$0.00	\$0.00	
Total for this activity:		\$8,150.00	\$2,500.00	\$417.72	

Activity D.99/C-2 Chile

Fellowship fund to cover travel expenses for scientists participating in MAP activities. Recipients must be approved as outlined in terms of reference.

Date	Subunit	Budget	Commit	Actual	Obs.
Sep/30/99	1 - Personnel (GSC)	\$0.00	\$0.00	\$0.00	
Sep/30/99	2 - Personnel (non GSC)	\$0.00	\$0.00	\$0.00	
Sep/30/99	3 - Local Consultants	\$0.00	\$0.00	\$0.00	
Jul/30/99	4 - Travel	\$0.00	\$0.00	\$2,773.58	Fellowship funds for P Gana and S. Reyes
Sep/30/99	4 - Travel	\$7,500.00	\$0.00	\$0.00	Fellowship setup (US\$5000)
Sep/30/99	5 - Geoscience Services	\$0.00	\$0.00	\$0.00	
Sep/30/99	6 - Equipment	\$0.00	\$0.00	\$0.00	
Sep/30/99	7 - Other	\$0.00	\$0.00	\$0.00	

Total for this activity: \$7,500.00 \$0.00 \$2,773.58

Activity D.99/M-C1 Chile

Airborne Geophysics acquisition and interpretation (Chile 50% of \$41,000)

Date	Subunit	Budget	Commit	Actual	Obs.
Apr/1/99	1 - Personnel (GSC)	\$1,750.00	\$0.00	\$0.00	Cathie Hickson 5 days / Admin travel and meetings /
Apr/1/99	1 - Personnel (GSC)	\$1,000.00	\$0.00	\$0.00	Mike Ellerbeck 10 days / Admin travel and meetings /
Jun/30/99	1 - Personnel (GSC)	\$0.00	\$0.00	\$123.59	Transfer for holding account
Jun/30/99	1 - Personnel (GSC)	\$0.00	\$0.00	\$400.00	Mike Ellerbeck 2days
Sep/30/99	1 - Personnel (GSC)	\$0.00	\$0.00	\$3.93	Transfer for holding account
Oct/18/99	1 - Personnel (GSC)	\$0.00	\$0.00	\$181.13	1 day Catherine Hickson
Apr/1/99	2 - Personnel (non GSC)	\$7,500.00	\$0.00	\$0.00	Dennis Teskey 30 days
Apr/1/99	2 - Personnel (non GSC)	\$5,000.00	\$0.00	\$0.00	# Safety Audit
Jun/30/99	2 - Personnel (non GSC)	\$0.00	\$0.00	\$7,322.50	Transfer for holding account
Sep/30/99	2 - Personnel (non GSC)	\$0.00	\$0.00	\$700.00	Transfer for holding account
Sep/30/99	2 - Personnel (non GSC)	\$0.00	\$0.00	\$3,032.42	Transfer for holding account
Apr/1/99	3 - Local Consultants	\$0.00	\$0.00	\$0.00	
Apr/1/99	4 - Travel	\$2,500.00	\$0.00	\$0.00	2 trips for Dennis Teskey
Apr/1/99	4 - Travel	\$1,000.00	\$0.00	\$0.00	1 trip for Cathie Hickson
Apr/1/99	4 - Travel	\$1,000.00	\$0.00	\$0.00	1 trip for Mike Ellerbeck
Apr/1/99	4 - Travel	\$0.00	\$0.00	\$0.00	1 trip for Mike Ellerbeck
Jun/30/99	4 - Travel	\$0.00	\$0.00	\$1,665.56	Transfer for holding account
Sep/30/99	4 - Travel	\$0.00	\$0.00	\$340.05	Transfer for holding account
Apr/1/99	5 - Geoscience Services	\$500.00	\$0.00	\$0.00	Postage and Courier
Apr/1/99	6 - Equipment	\$0.00	\$0.00	\$0.00	
Apr/1/99	7 - Other	\$250.00	\$0.00	\$0.00	Misc.
Sep/30/99	7 - Other	\$0.00	\$0.00	\$241.50	Transfer for holding account
Sep/30/99	7 - Other	\$0.00	\$0.00	\$85.01	Transfer for holding account
Total for this activity:		\$20,500.00	\$0.00	\$14,095.69	

Activity D.99/M-C2 Chile

Airborne Geophysics acquisition and interpretation (Peru/Bolivia/Chile) (Chile 17.6% of \$503,500)

Date	Subunit	Budget	Commit	Actual	Obs.
Apr/1/99	1 - Personnel (GSC)	\$880.00	\$0.00	\$0.00	15 days Cathie Hickson

Apr/1/99	1 - Personnel (GSC)	\$528.00	\$0.00	\$0.00	15 days Mike Ellerbeck
Oct/18/99	1 - Personnel (GSC)	\$0.00	\$0.00	\$63.76	1 day Catherine Hickson
Apr/1/99	2 - Personnel (non GSC)	\$8,800.00	\$0.00	\$0.00	100 days for Dennis Teskey
Apr/1/99	2 - Personnel (non GSC)	\$1,760.00	\$0.00	\$0.00	# Safety Audit
Apr/1/99	3 - Local Consultants	\$0.00	\$0.00	\$0.00	
Apr/1/99	4 - Travel	\$880.00	\$0.00	\$0.00	2 trips for Dennis Teskey
Apr/1/99	4 - Travel	\$352.00	\$0.00	\$0.00	1 trip for Cathie Hickson
Apr/1/99	4 - Travel	\$352.00	\$0.00	\$0.00	1 trip for Mike Ellerbeck
Apr/1/99	5 - Geoscience Services	\$176.00	\$0.00	\$0.00	Postage and Courier
Apr/1/99	5 - Geoscience Services	\$75,000.00	\$0.00	\$0.00	Aeromag Survey Chile 17.6%
Apr/1/99	6 - Equipment	\$0.00	\$0.00	\$0.00	
Apr/1/99	7 - Other	\$88.00	\$0.00	\$0.00	Misc.
Total for this activity:		\$88,816.00	\$0.00	\$63.76	

Total for Chile **\$287,316.00** **\$49,300.00** **\$23,447.76**

Activity B.96/M-1 Multi

Collaboration on display and participation at a North American international geoscience conference held in Canada.

Date	Subunit	Budget	Commit	Actual	Obs.
Apr/1/99	1 - Personnel (GSC)	\$1,400.00	\$0.00	\$0.00	6 days Jennifer Getsinger / Booth prep. and attendance
Apr/1/99	1 - Personnel (GSC)	\$800.00	\$0.00	\$0.00	4 days Mike Ellerbeck / Booth prep. and attendance
Apr/1/99	1 - Personnel (GSC)	\$800.00	\$0.00	\$0.00	5 days Claire / Booth prep. and attendance
Apr/1/99	1 - Personnel (GSC)	\$700.00	\$0.00	\$0.00	2 days Cathie Hickson / Booth prep and attendance
Oct/18/99	1 - Personnel (GSC)	\$0.00	\$0.00	\$22.04	.1 days Jennifer Getsinger
Apr/1/99	2 - Personnel (non GSC)	\$1,300.00	\$0.00	\$0.00	5 days Rodus / Booth prep. and attendance
Apr/1/99	2 - Personnel (non GSC)	\$800.00	\$0.00	\$0.00	3 days Rocio Lopez / Booth prep. and attendance
Apr/1/99	3 - Local Consultants	\$0.00	\$0.00	\$0.00	
Apr/1/99	4 - Travel	\$12,000.00	\$0.00	\$0.00	10 people Vancouver 8 days / Hotel + expenses
Apr/1/99	5 - Geoscience Services	\$0.00	\$0.00	\$0.00	
Oct/13/99	5 - Geoscience Services	\$0.00	\$0.00	\$384.22	DHL Courier
Apr/1/99	6 - Equipment	\$0.00	\$0.00	\$0.00	
Apr/1/99	7 - Other	\$4,000.00	\$0.00	\$0.00	15 people conference registration Round Up
Apr/1/99	7 - Other	\$2,500.00	\$0.00	\$0.00	Booth rental
Apr/1/99	7 - Other	\$500.00	\$0.00	\$0.00	Misc + Photocopies
Total for this activity:		\$24,800.00	\$0.00	\$406.26	

Activity B.96/M-2 Multi

Discussions in regional metallogeny and project goals relative to regional syntheses and future goals.

Date	Subunit	Budget	Commit	Actual	Obs.
Apr/1/99	1 - Personnel (GSC)	\$1,750.00	\$0.00	\$0.00	Cathie Hickson 5 days
Apr/1/99	1 - Personnel (GSC)	\$3,500.00	\$0.00	\$0.00	Rob Cocking 15 days
Apr/1/99	2 - Personnel (non GSC)	\$2,500.00	\$0.00	\$0.00	Andre Panteleyev 5 days
Apr/1/99	3 - Local Consultants	\$0.00	\$0.00	\$0.00	
Apr/1/99	4 - Travel	\$0.00	\$0.00	\$0.00	
Apr/1/99	5 - Geoscience Services	\$0.00	\$0.00	\$0.00	
Apr/1/99	6 - Equipment	\$0.00	\$0.00	\$0.00	
Apr/1/99	7 - Other	\$0.00	\$0.00	\$0.00	
Total for this activity:		\$7,750.00	\$0.00	\$0.00	

Activity B.97/M-1 Multi

Mineral deposits field trip through portions of the four participating countries.

Date	Subunit	Budget	Commit	Actual	Obs.
Apr/1/99	1 - Personnel (GSC)	\$4,000.00	\$0.00	\$0.00	Mike Ellerbeck 20 days
Apr/1/99	1 - Personnel (GSC)	\$4,400.00	\$0.00	\$0.00	Jennifer Getsinger 20 days
Apr/1/99	1 - Personnel (GSC)	\$350.00	\$0.00	\$0.00	Cathie Hickson management 1 day
Jun/30/99	1 - Personnel (GSC)	\$0.00	\$0.00	\$5,949.72	27 days Jennifer Getsinger / Mineral Dep. Trip including preparation and debriefing
Jun/30/99	1 - Personnel (GSC)	\$0.00	\$0.00	\$4,000.00	Mike Ellerbeck 20 days
Sep/30/99	1 - Personnel (GSC)	\$1,200.00	\$0.00	\$0.00	Budget increase to cover
Apr/1/99	2 - Personnel (non GSC)	\$12,000.00	\$0.00	\$0.00	Andre Panteleyev 25days
May/12/99	2 - Personnel (non GSC)	\$0.00	\$0.00	\$3,345.70	XDM Geological / Andre Panteleyev field trip
Jul/27/99	2 - Personnel (non GSC)	\$0.00	\$0.00	\$4,675.00	XDM Geological services
Jul/27/99	2 - Personnel (non GSC)	\$0.00	\$0.00	\$681.16	XDM Geological services
Jul/27/99	2 - Personnel (non GSC)	\$0.00	\$0.00	\$10,450.00	XDM Geological services
Jul/27/99	2 - Personnel (non GSC)	\$0.00	\$0.00	\$378.43	XDM Geological services
Jul/27/99	2 - Personnel (non GSC)	\$0.00	\$1,435.84	\$0.00	XDM Geological Services
Jul/30/99	2 - Personnel (non GSC)	\$0.00	\$0.00	\$1,183.87	XDM geological Services
Sep/30/99	2 - Personnel (non GSC)	\$10,150.00	\$0.00	\$0.00	Budget increase to cover additional XDM services
Apr/1/99	3 - Local Consultants	\$0.00	\$0.00	\$0.00	
Apr/1/99	4 - Travel	\$1,800.00	\$0.00	\$0.00	Mike Ellerbeck trip hotel + expenses

Apr/1/99	4 - Travel	\$1,800.00	\$0.00	\$0.00	Jennifer Getsinger trip hotel + expenses
Apr/1/99	4 - Travel	\$1,800.00	\$0.00	\$0.00	Andre Panteleyev trip hotel + expenses
Apr/1/99	4 - Travel	\$5,000.00	\$0.00	\$0.00	Transport Buses locally
Apr/1/99	4 - Travel	\$2,000.00	\$0.00	\$0.00	Mike airfare
Apr/1/99	4 - Travel	\$2,000.00	\$0.00	\$0.00	Jennifer Getsinger airfare
Apr/1/99	4 - Travel	\$2,000.00	\$0.00	\$0.00	Andre Panteleyev airfare
Apr/1/99	4 - Travel	\$1,700.00	\$0.00	\$0.00	PIMA insurance 30 days
Jun/2/99	4 - Travel	\$0.00	\$0.00	\$7,717.50	Mike Ellerbeck / Vehicles rentals
Jun/2/99	4 - Travel	\$0.00	\$0.00	\$1,102.50	J. Getsinger / Air Travel
Jun/2/99	4 - Travel	\$0.00	\$0.00	\$1,102.50	Mike Ellerbeck / Santa Cruz (includes adjustment from Vehicles rentals)
Jun/10/99	4 - Travel	\$0.00	\$0.00	\$129.47	J. Getsinger Amex
Jun/10/99	4 - Travel	\$0.00	\$0.00	\$129.47	M. Ellerbeck Amex
Jun/10/99	4 - Travel	\$0.00	\$0.00	-\$1,102.50	J. Getsinger / Air Travel
Jun/16/99	4 - Travel	\$0.00	\$0.00	\$1,559.53	J. Getsinger Travel
Oct/7/99	4 - Travel	\$0.00	\$0.00	\$1,456.70	Mike Ellerbeck travel airfare
Oct/7/99	4 - Travel	\$0.00	\$0.00	\$1,456.70	Jennifer getsinger travel airfare
Apr/1/99	5 - Geoscience Services	\$0.00	\$0.00	\$0.00	
May/13/99	5 - Geoscience Services	\$0.00	\$0.00	\$25.10	Courier Federal Express / Mineral Dep. field trip (passport / visa)
Jun/21/99	5 - Geoscience Services	\$0.00	\$0.00	\$11.50	Quicksilver courier
Jul/30/99	5 - Geoscience Services	\$0.00	\$0.00	\$52.79	DHL Courier
Apr/1/99	6 - Equipment	\$0.00	\$0.00	\$0.00	
Apr/1/99	7 - Other	\$500.00	\$0.00	\$0.00	Misc. / Photocopy, etc.
Jul/29/99	7 - Other	\$0.00	\$0.00	\$47.88	Blasco Ricardo / Gas
Jul/29/99	7 - Other	\$0.00	\$0.00	\$53.22	Aca La Quiaca Comp. / Gas
Total for this activity:		\$50,700.00	\$1,435.84	\$44,406.24	

Activity B.98/M-1 Multi

Development of rock and lithogeochemical standards.

Date	Subunit	Budget	Commit	Actual	Obs.
Apr/1/99	1 - Personnel (GSC)	\$6,600.00	\$0.00	\$0.00	Jennifer Getsinger time: 30 days
Apr/1/99	1 - Personnel (GSC)	\$1,800.00	\$0.00	\$0.00	Cathie Hickson time: 5 days
Apr/1/99	1 - Personnel (GSC)	\$200.00	\$0.00	\$0.00	Mike Ellerbeck time: 3 days
Oct/18/99	1 - Personnel (GSC)	\$0.00	\$0.00	\$1,245.03	5.65 days Jennifer Getsinger
Apr/1/99	2 - Personnel (non GSC)	\$5,000.00	\$0.00	\$0.00	Kelly Russell time: 10 days /Petrology
Apr/1/99	2 - Personnel (non GSC)	\$5,000.00	\$0.00	\$0.00	Kelly Russell time: 10 days Trip to Peru and Bolivia
Apr/1/99	3 - Local Consultants	\$0.00	\$0.00	\$0.00	

Apr/1/99	4 - Travel	\$3,000.00	\$0.00	\$0.00	Kelly Russell trip Peru & Bolivia
Apr/1/99	5 - Geoscience Services	\$500.00	\$0.00	\$0.00	Sample processing thinsection / Vancouver Petrographics @ \$20 each. approx 20 samples
Apr/1/99	5 - Geoscience Services	\$8,000.00	\$0.00	\$0.00	Sample processing Geochemical analysis approx. 60 analysis + prep
Apr/1/99	5 - Geoscience Services	\$3,000.00	\$0.00	\$0.00	Kustos / Joe Nagel Database Development
Oct/4/99	5 - Geoscience Services	\$0.00	\$0.00	\$3,440.48	Kiustos / Joe Nagel database development
Oct/8/99	5 - Geoscience Services	\$0.00	\$0.00	\$17.00	Samples Thin section / Vancouver Petrographics
Apr/1/99	6 - Equipment	\$0.00	\$0.00	\$0.00	
Apr/1/99	7 - Other	\$4,000.00	\$0.00	\$0.00	Sample shipment
Total for this activity:		\$37,100.00	\$0.00	\$4,702.51	

Activity B.98/M-2 Multi

Development of cartographic standards for application to 1:500,000 geology and mineral resources map.

Date	Subunit	Budget	Commit	Actual	Obs.
Apr/1/99	1 - Personnel (GSC)	\$4,670.00	\$0.00	\$0.00	20 days Rob Cocking
Jun/30/99	1 - Personnel (GSC)	\$0.00	\$0.00	\$6,334.13	28 days + 4 hours, Robert Cocking: Work on DCW, Cartographic Standards Meeting in Lima, Prep, set-up and reporting
Jun/30/99	1 - Personnel (GSC)	\$0.00	\$0.00	\$7.40	Adjustment for: 28 days + 4 hours, Robert Cocking: Work on DCW, Cartographic Standards Meeting in Lima, Prep, set-up and reporting
Oct/18/99	1 - Personnel (GSC)	\$0.00	\$0.00	\$5,600.70	25.2days Robert Cocking
Apr/1/99	2 - Personnel (non GSC)	\$2,000.00	\$0.00	\$0.00	Rocio Lopez translation
Apr/1/99	2 - Personnel (non GSC)	\$1,800.00	\$0.00	\$0.00	Interpreter services
Apr/1/99	3 - Local Consultants	\$0.00	\$0.00	\$0.00	
Apr/1/99	4 - Travel	\$3,000.00	\$0.00	\$0.00	Rob Cocking travel
Apr/1/99	4 - Travel	\$6,000.00	\$0.00	\$0.00	ICA conference in Ottawa
Apr/1/99	4 - Travel	\$500.00	\$0.00	\$0.00	Meeting expenses Peru
Apr/1/99	4 - Travel	\$700.00	\$0.00	\$0.00	Meeting expenses Peru / Rob Cocking
Apr/1/99	4 - Travel	\$700.00	\$0.00	\$0.00	Meeting expenses Peru / Interpreter
Apr/1/99	4 - Travel	\$1,500.00	\$0.00	\$0.00	Interpreter travel
Jul/28/99	4 - Travel	\$0.00	\$2,500.00	\$0.00	Rodus International Corp.
Jul/30/99	4 - Travel	\$0.00	\$0.00	\$754.80	Robert Cocking Airfare to Lima, Peru
Jul/30/99	4 - Travel	\$0.00	\$0.00	\$650.87	Robert Cocking hotel, Lima, Peru
Apr/1/99	5 - Geoscience Services	\$500.00	\$0.00	\$0.00	Postage and Courier
Apr/1/99	6 - Equipment	\$0.00	\$0.00	\$0.00	
Apr/1/99	7 - Other	\$200.00	\$0.00	\$0.00	Misc.
Jul/29/99	7 - Other	\$0.00	\$0.00	\$34.75	Navigation Charts & Maps
Jul/30/99	7 - Other	\$0.00	\$0.00	\$627.07	Translation Services / Rolando V. Cruzado Moreno

Total for this activity: \$21,570.00 \$2,500.00 \$14,009.72

Activity B.98/M-3 Multi

Volcanology short course, fieldwork and theory.

Date	Subunit	Budget	Commit	Actual	Obs.
Apr/1/99	1 - Personnel (GSC)	\$0.00	\$0.00	\$0.00	
Oct/18/99	1 - Personnel (GSC)	\$0.00	\$0.00	\$1,390.50	10 days Kelman
Oct/18/99	1 - Personnel (GSC)	\$0.00	\$0.00	\$1,811.25	5 days Catherine Hickson
Apr/1/99	2 - Personnel (non GSC)	\$0.00	\$0.00	\$0.00	
Apr/1/99	3 - Local Consultants	\$0.00	\$0.00	\$0.00	
Apr/1/99	4 - Travel	\$0.00	\$0.00	\$0.00	
Apr/1/99	5 - Geoscience Services	\$0.00	\$0.00	\$0.00	
Apr/1/99	6 - Equipment	\$0.00	\$0.00	\$0.00	
Apr/1/99	7 - Other	\$0.00	\$0.00	\$0.00	
Total for this activity:		\$0.00	\$0.00	\$3,201.75	

Activity C.96/M-1 Multi

Post "news releases" and other information for participants and Private Sector companies through Web page.

Date	Subunit	Budget	Commit	Actual	Obs.
Apr/1/99	1 - Personnel (GSC)	\$4,800.00	\$0.00	\$0.00	Mike Ellerbeck 24 days
Apr/1/99	1 - Personnel (GSC)	\$4,300.00	\$0.00	\$0.00	Cathie Hickson 12 days
Jun/30/99	1 - Personnel (GSC)	\$0.00	\$0.00	\$362.25	1 day, Cathie Hickson Project management
Oct/18/99	1 - Personnel (GSC)	\$0.00	\$0.00	\$209.34	.95 days Jennifer Getsinger
Apr/1/99	2 - Personnel (non GSC)	\$13,500.00	\$0.00	\$0.00	Rodus 54 days Newsletter and Web page maintenance
Apr/1/99	2 - Personnel (non GSC)	\$3,000.00	\$0.00	\$0.00	Rocio 12 days translation
Jun/21/99	2 - Personnel (non GSC)	\$0.00	\$0.00	\$2,381.60	Rodus consulting time
Jul/27/99	2 - Personnel (non GSC)	\$0.00	\$10,460.55	\$0.00	Rodus International Corp.
Jul/28/99	2 - Personnel (non GSC)	\$0.00	\$0.00	\$1,338.35	Rodus Web Page update
Sep/13/99	2 - Personnel (non GSC)	\$0.00	\$0.00	\$660.00	Rodus Web page update
Sep/22/99	2 - Personnel (non GSC)	\$0.00	\$0.00	\$609.50	Rodus Web page update
Apr/1/99	3 - Local Consultants	\$0.00	\$0.00	\$0.00	
Apr/1/99	4 - Travel	\$0.00	\$0.00	\$0.00	
Apr/1/99	5 - Geoscience Services	\$2,400.00	\$0.00	\$0.00	Postage and Courier \$200 per month
Jul/30/99	5 - Geoscience Services	\$0.00	\$0.00	\$211.16	DHL Courier

Aug/4/99	5 - Geoscience Services	\$0.00	\$0.00	\$211.16	DHL Courier
Oct/13/99	5 - Geoscience Services	\$0.00	\$0.00	\$77.13	DHL Courier
Apr/1/99	6 - Equipment	\$0.00	\$0.00	\$0.00	
Apr/1/99	7 - Other	\$800.00	\$0.00	\$0.00	Newsletter Printing
Jul/28/99	7 - Other	\$0.00	\$849.25	\$0.00	Rodus International Corp. / newsletter
Sep/13/99	7 - Other	\$0.00	\$0.00	\$50.75	Rodus / Newsletter printing
Total for this activity:		\$28,800.00	\$11,309.80	\$6,111.24	

Activity C.97/M-1 Multi

Technical Liason Committee with Industry representatives.

Date	Subunit	Budget	Commit	Actual	Obs.
Apr/1/99	1 - Personnel (GSC)	\$1,400.00	\$0.00	\$0.00	Hickson meets Art Soregaroli time: 4 days
Apr/1/99	1 - Personnel (GSC)	\$800.00	\$0.00	\$0.00	Mike Ellerbeck time: 4 days
Apr/1/99	2 - Personnel (non GSC)	\$3,000.00	\$0.00	\$0.00	Art Soregaroli: 6 days
Apr/1/99	3 - Local Consultants	\$0.00	\$0.00	\$0.00	
Apr/1/99	4 - Travel	\$0.00	\$0.00	\$0.00	
Apr/1/99	5 - Geoscience Services	\$0.00	\$0.00	\$0.00	
Apr/1/99	6 - Equipment	\$0.00	\$0.00	\$0.00	
Apr/1/99	7 - Other	\$0.00	\$0.00	\$0.00	
Total for this activity:		\$5,200.00	\$0.00	\$0.00	

Activity C.98/M-1 Multi

Technical Review by Private Sector.

Date	Subunit	Budget	Commit	Actual	Obs.
Apr/1/99	1 - Personnel (GSC)	\$0.00	\$0.00	\$0.00	
Apr/1/99	2 - Personnel (non GSC)	\$0.00	\$0.00	\$0.00	
Apr/1/99	3 - Local Consultants	\$0.00	\$0.00	\$0.00	
Apr/1/99	4 - Travel	\$0.00	\$0.00	\$0.00	
Apr/1/99	5 - Geoscience Services	\$0.00	\$0.00	\$0.00	
Apr/1/99	6 - Equipment	\$0.00	\$0.00	\$0.00	
Apr/1/99	7 - Other	\$0.00	\$0.00	\$0.00	
Total for this activity:		\$0.00	\$0.00	\$0.00	

Activity C.98/M-2 Multi

Project information and profile enhancement.

Date	Subunit	Budget	Commit	Actual	Obs.
Apr/1/99	1 - Personnel (GSC)	\$0.00	\$0.00	\$0.00	
Apr/1/99	2 - Personnel (non GSC)	\$3,500.00	\$0.00	\$0.00	7 days for Andre Panteleyev attendance PROEXPO 99 Lima Peru April 27/30 to give presentation on MAP
Apr/1/99	3 - Local Consultants	\$0.00	\$0.00	\$0.00	
Apr/1/99	4 - Travel	\$0.00	\$0.00	\$0.00	
Aug/5/99	4 - Travel	\$0.00	\$0.00	\$158.60	Petty cash to obtain Visa
Apr/1/99	5 - Geoscience Services	\$0.00	\$0.00	\$0.00	
Apr/1/99	6 - Equipment	\$0.00	\$0.00	\$0.00	
Apr/1/99	7 - Other	\$200.00	\$0.00	\$0.00	Misc. + photocopies
Total for this activity:		\$3,700.00	\$0.00	\$158.60	

Activity C.99/M-H1 Multi

** Holding Account.

Airborne Geophysics acquisition and interpretation (Argentina/Chile)

Argentina: 50%, Chile: 50%

Date	Subunit	Budget	Commit	Actual	Obs.
Apr/1/99	1 - Personnel (GSC)	\$0.00	\$0.00	\$0.00	
Apr/1/99	2 - Personnel (non GSC)	\$0.00	\$0.00	\$0.00	
Jun/2/99	2 - Personnel (non GSC)	\$0.00	\$0.00	\$6,000.00	Dennis Teskey consulting time
Jun/21/99	2 - Personnel (non GSC)	\$0.00	\$0.00	\$8,645.00	Dennis Teskey consulting time
Jun/30/99	2 - Personnel (non GSC)	\$0.00	\$0.00	-\$14,645.00	Transfer for holding account
Jul/27/99	2 - Personnel (non GSC)	\$0.00	\$4,023.88	\$0.00	Dennis Teskey
Jul/27/99	2 - Personnel (non GSC)	\$0.00	\$350.00	\$0.00	Paul Metcalfe
Jul/30/99	2 - Personnel (non GSC)	\$0.00	\$0.00	\$525.00	Paul Metcalfe - Airborne Survey Services
Sep/13/99	2 - Personnel (non GSC)	\$0.00	\$0.00	\$875.00	Paul Metcalfe Mapping services
Sep/30/99	2 - Personnel (non GSC)	\$0.00	\$0.00	-\$525.00	Transfer for holding account
Sep/30/99	2 - Personnel (non GSC)	\$0.00	\$0.00	-\$875.00	Transfer for holding account
Apr/1/99	3 - Local Consultants	\$0.00	\$0.00	\$0.00	
Apr/1/99	4 - Travel	\$0.00	\$0.00	\$0.00	
Jun/10/99	4 - Travel	\$0.00	\$0.00	\$3,331.12	Dennis Teskey Amex (Air fare)
Jun/10/99	4 - Travel	\$0.00	\$0.00	-\$3,331.12	Transfer for holding account
Apr/1/99	5 - Geoscience Services	\$0.00	\$0.00	\$0.00	
Apr/1/99	6 - Equipment	\$0.00	\$0.00	\$0.00	

Apr/1/99	7 - Other	\$0.00	\$0.00	\$0.00	
Aug/12/99	7 - Other	\$0.00	\$0.00	\$483.00	Southam Magazine Page Ad (\$966.00)
Sep/30/99	7 - Other	\$0.00	\$0.00	-\$483.00	Transfer for holding account
Total for this activity:		\$0.00	\$4,373.88	\$0.00	

Activity C.99/M-H2 Multi

** Holding Account.

Airborne Geophysics acquisition and interpretation (Peru/Bolivia/Chile) Bolivia: 54%, Peru: 28.4%, Chile: 17.6%

Date	Subunit	Budget	Commit	Actual	Obs.
Apr/1/99	1 - Personnel (GSC)	\$0.00	\$0.00	\$0.00	
Jun/30/99	1 - Personnel (GSC)	\$0.00	\$0.00	\$724.50	2 days, Cathie Hickson work on aeromag survey
Jun/30/99	1 - Personnel (GSC)	\$0.00	\$0.00	-\$702.20	Transfer for holding account
Sep/30/99	1 - Personnel (GSC)	\$0.00	\$0.00	-\$22.30	Transfer for holding account
Apr/1/99	2 - Personnel (non GSC)	\$0.00	\$0.00	\$0.00	
Jul/27/99	2 - Personnel (non GSC)	\$0.00	\$350.00	\$0.00	Paul Metcalfe
Jul/27/99	2 - Personnel (non GSC)	\$0.00	\$40,738.21	\$0.00	Dennis Teskey
Jul/30/99	2 - Personnel (non GSC)	\$0.00	\$0.00	\$3,000.00	Dennis Teskey - Airborne Survey Services
Jul/30/99	2 - Personnel (non GSC)	\$0.00	\$0.00	\$525.00	Paul Metcalfe - Airborne Survey Services
Aug/27/99	2 - Personnel (non GSC)	\$0.00	\$0.00	\$4,134.28	Dennis Teskey - Airborne Survey Services
Sep/13/99	2 - Personnel (non GSC)	\$0.00	\$0.00	\$875.00	Paul Metcalfe Mapping services
Sep/22/99	2 - Personnel (non GSC)	\$0.00	\$0.00	\$8,695.40	Dennis Teskey Services
Sep/30/99	2 - Personnel (non GSC)	\$0.00	\$0.00	-\$17,229.68	Transfer for holding account
Apr/1/99	3 - Local Consultants	\$0.00	\$0.00	\$0.00	
Apr/1/99	4 - Travel	\$0.00	\$0.00	\$0.00	
Sep/8/99	4 - Travel	\$0.00	\$0.00	\$1,932.11	Dennis Teskey Airfare / Bolivia/ Peru
Sep/30/99	4 - Travel	\$0.00	\$0.00	-\$1,932.11	Transfer for holding account
Sep/30/99	4 - Travel	\$0.00	\$0.00	-\$483.00	Transfer for holding account
Apr/1/99	5 - Geoscience Services	\$0.00	\$0.00	\$0.00	
Apr/1/99	6 - Equipment	\$0.00	\$0.00	\$0.00	
Apr/1/99	7 - Other	\$0.00	\$0.00	\$0.00	
Aug/12/99	7 - Other	\$0.00	\$0.00	\$483.00	Southam Magazine Page Ad (\$966.00)
Total for this activity:		\$0.00	\$41,088.21	\$0.00	
Total for Multi		\$179,620.00	\$60,707.73	\$72,996.32	

Activity A.97/P-6 Peru

Training in petrography, petrogenesis, geochemistry, volcanic stratigraphy and mapping & field applications.

Date	Subunit	Budget	Commit	Actual	Obs.
Apr/1/99	1 - Personnel (GSC)	\$6,300.00	\$0.00	\$0.00	Cathie Hickson 18 days
Apr/1/99	1 - Personnel (GSC)	\$400.00	\$0.00	\$0.00	Mike Ellerbeck prep 2 days
Apr/1/99	1 - Personnel (GSC)	\$450.00	\$0.00	\$0.00	Jennifer Getsinger prep 2 days
Jun/30/99	1 - Personnel (GSC)	\$0.00	\$0.00	\$724.50	2 days, Cathie Hickson Peru volcanology short course
Apr/1/99	2 - Personnel (non GSC)	\$0.00	\$0.00	\$0.00	
Apr/1/99	2 - Personnel (non GSC)	\$10,000.00	\$0.00	\$0.00	Kelly Russell 20 days
Sep/22/99	2 - Personnel (non GSC)	\$0.00	\$0.00	\$5,000.00	Kelly Russell Services
Sep/22/99	2 - Personnel (non GSC)	\$0.00	\$0.00	\$6,000.00	Kelly Russell Services Short Course
Sep/22/99	2 - Personnel (non GSC)	\$0.00	\$6,000.00	\$0.00	Kelly Russell Short Course
Sep/30/99	2 - Personnel (non GSC)	\$0.00	\$0.00	\$1,390.50	Kelly Russell Services
Apr/1/99	3 - Local Consultants	\$0.00	\$0.00	\$0.00	
Apr/1/99	4 - Travel	\$2,000.00	\$0.00	\$0.00	Cathie Hickson travel
Apr/1/99	4 - Travel	\$2,000.00	\$0.00	\$0.00	Kelly Russell travel
Sep/22/99	4 - Travel	\$0.00	\$2,000.00	\$0.00	Kelly Russell airfare
Oct/8/99	4 - Travel	\$0.00	\$0.00	\$177.61	Catherine Hickson travel
Apr/1/99	5 - Geoscience Services	\$500.00	\$0.00	\$0.00	Courier samples
Jul/28/99	5 - Geoscience Services	\$0.00	\$176.00	\$0.00	Vancouver Petrographics LTD
Oct/8/99	5 - Geoscience Services	\$0.00	\$0.00	\$44.16	Sample Bags
Apr/1/99	6 - Equipment	\$0.00	\$0.00	\$0.00	
Apr/1/99	7 - Other	\$200.00	\$0.00	\$0.00	Misc. + photocopies
Jul/28/99	7 - Other	\$0.00	\$300.00	\$0.00	Kelly Russell / photocopying & Misc
Sep/13/99	7 - Other	\$0.00	\$0.00	\$61.79	Prentice Hall Canada / Geological Publication (Book)
Sep/13/99	7 - Other	\$0.00	\$0.00	\$0.51	Prentice Hall Canada / Geological Publication (Book)
Oct/4/99	7 - Other	\$0.00	\$0.00	\$110.00	Transparencies
Total for this activity:		\$21,850.00	\$8,476.00	\$13,509.07	

Activity A.98/P-1 Peru

Metallogenic resource evaluation and mineral deposit modelling and applications.

Date	Subunit	Budget	Commit	Actual	Obs.
Apr/1/99	1 - Personnel (GSC)	\$400.00	\$0.00	\$0.00	Mike Ellerbeck 2 days
Apr/1/99	2 - Personnel (non GSC)	\$9,000.00	\$0.00	\$0.00	Andre Panteleyev 18 days

Sep/13/99	2 - Personnel (non GSC)	\$1,500.00	\$0.00	\$0.00	Andre Panteleyev additional 3 days
Apr/1/99	3 - Local Consultants	\$0.00	\$0.00	\$0.00	
Apr/1/99	4 - Travel	\$2,000.00	\$0.00	\$0.00	Andre Panteleyev travel
Apr/1/99	5 - Geoscience Services	\$200.00	\$0.00	\$0.00	Courier samples for Andre Panteleyev
Apr/1/99	6 - Equipment	\$0.00	\$0.00	\$0.00	
Apr/1/99	7 - Other	\$200.00	\$0.00	\$0.00	Misc. Photocopies
Jul/30/99	7 - Other	\$0.00	\$0.00	\$46.48	UBC Bookstore, Mapping Geological Structure
Total for this activity:		\$13,300.00	\$0.00	\$46.48	

Activity A.99/P-1 Peru

Training in epithermal alteration zone mapping using the PIMA

Date	Subunit	Budget	Commit	Actual	Obs.
Apr/1/99	1 - Personnel (GSC)	\$200.00	\$0.00	\$0.00	Mike Ellerbeck 1 day prep
Apr/1/99	2 - Personnel (non GSC)	\$6,000.00	\$0.00	\$0.00	Anne Thompson training
Oct/8/99	2 - Personnel (non GSC)	\$0.00	\$9,555.00	\$0.00	PWGSC PIMA
Apr/1/99	3 - Local Consultants	\$0.00	\$0.00	\$0.00	
Apr/1/99	4 - Travel	\$2,000.00	\$0.00	\$0.00	Anne Thompson travel
Oct/8/99	4 - Travel	\$0.00	\$1,960.00	\$0.00	PWGSC PIMA
Apr/1/99	5 - Geoscience Services	\$0.00	\$0.00	\$0.00	
Apr/1/99	6 - Equipment	\$0.00	\$0.00	\$0.00	
Apr/1/99	7 - Other	\$0.00	\$0.00	\$0.00	
Oct/8/99	7 - Other	\$0.00	\$735.00	\$0.00	PIMA
Total for this activity:		\$8,200.00	\$12,250.00	\$0.00	

Activity D.96/P-19 Peru

Precision dating by Zircon, Ar-Ar or other techniques as applicable.

Date	Subunit	Budget	Commit	Actual	Obs.
Apr/1/99	1 - Personnel (GSC)	\$650.00	\$0.00	\$0.00	Jennifer Getsinger 3 days
Jun/30/99	1 - Personnel (GSC)	\$0.00	\$0.00	\$220.36	1 day Jennifer Getsinger: rock samples collected by Andre Panteleyev, meeting with AP, re-packaging for analysis, outlining details of analysis; letter to M. Paz, etc.
Oct/18/99	1 - Personnel (GSC)	\$0.00	\$0.00	\$396.65	1.8 days Jennifer Getsinger
Apr/1/99	2 - Personnel (non GSC)	\$0.00	\$0.00	\$0.00	
Apr/1/99	3 - Local Consultants	\$0.00	\$0.00	\$0.00	
Apr/1/99	4 - Travel	\$0.00	\$0.00	\$0.00	

Apr/1/99	5 - Geoscience Services	\$35,000.00	\$0.00	\$0.00	10 samples for radiometric dating @ \$3500 per sample
Apr/1/99	5 - Geoscience Services	\$1,000.00	\$0.00	\$0.00	35 samples courier
Apr/1/99	5 - Geoscience Services	\$25,000.00	\$0.00	\$0.00	25 samples for radiometric dating @ \$1000 per sample
Aug/31/99	5 - Geoscience Services	\$0.00	\$2,124.00	\$0.00	Laboratory of geochronology
Sep/21/99	5 - Geoscience Services	\$0.00	\$600.00	\$0.00	UBC Services
Sep/23/99	5 - Geoscience Services	\$0.00	\$0.00	\$213.73	DHL Courier
Sep/23/99	5 - Geoscience Services	\$0.00	\$0.00	\$33.77	Quicksilver Courier
Sep/23/99	5 - Geoscience Services	\$0.00	\$0.00	\$59.00	Vancouver Petrographics/ thin sections
Apr/1/99	6 - Equipment	\$0.00	\$0.00	\$0.00	
Apr/1/99	7 - Other	\$0.00	\$0.00	\$0.00	
May/5/99	7 - Other	\$0.00	\$0.00	\$10.14	Report printing / Ikon Document Services
May/11/99	7 - Other	\$0.00	\$0.00	\$20.55	Doc printing / Ikon Document Services
Total for this activity:		\$61,650.00	\$2,724.00	\$954.20	

Activity D.96/P-20 Peru

Precision analytical whole rock analyses for major, trace and rare earth elements.

Date	Subunit	Budget	Commit	Actual	Obs.
Apr/1/99	1 - Personnel (GSC)	\$0.00	\$0.00	\$0.00	
Jun/30/99	1 - Personnel (GSC)	\$0.00	\$0.00	\$220.36	1 day Jennifer Getsinger: rock samples collected by Andre Panteleyev, meeting with AP, re-packaging for analysis, outlining details of analysis; letter to M. Paz, etc.
Sep/30/99	1 - Personnel (GSC)	\$440.00	\$0.00	\$0.00	Jennifer Getsinger for rock samples analyses
Apr/1/99	2 - Personnel (non GSC)	\$0.00	\$0.00	\$0.00	
Apr/1/99	3 - Local Consultants	\$0.00	\$0.00	\$0.00	
Apr/1/99	4 - Travel	\$0.00	\$0.00	\$0.00	
Apr/1/99	5 - Geoscience Services	\$0.00	\$0.00	\$0.00	
Sep/23/99	5 - Geoscience Services	\$0.00	\$0.00	\$59.00	Vancouver Petrographics/ thin sections
Sep/30/99	5 - Geoscience Services	\$1,500.00	\$0.00	\$0.00	10 Rock samples analyses
Apr/1/99	6 - Equipment	\$0.00	\$0.00	\$0.00	
Apr/1/99	7 - Other	\$0.00	\$0.00	\$0.00	
Total for this activity:		\$1,940.00	\$0.00	\$279.36	

Activity D.98/P-1 Peru

Geophysical training in 3 dimensional modelling or gravity and aeromagnetic using Magi xi and Oasis (GeoSoft).

Date	Subunit	Budget	Commit	Actual	Obs.
Apr/1/99	1 - Personnel (GSC)	\$0.00	\$0.00	\$0.00	
Apr/1/99	2 - Personnel (non GSC)	\$0.00	\$0.00	\$0.00	
Sep/13/99	2 - Personnel (non GSC)	\$3,000.00	\$0.00	\$0.00	Dennis Teskey to Peru 4 days
Sep/13/99	2 - Personnel (non GSC)	\$0.00	\$0.00	\$120.00	Rodus services
Apr/1/99	3 - Local Consultants	\$0.00	\$0.00	\$0.00	
Apr/1/99	4 - Travel	\$0.00	\$0.00	\$0.00	
Sep/13/99	4 - Travel	\$1,500.00	\$0.00	\$0.00	Dennis Teskey airfare
Apr/1/99	5 - Geoscience Services	\$0.00	\$0.00	\$0.00	
Apr/1/99	6 - Equipment	\$0.00	\$0.00	\$0.00	
Apr/1/99	7 - Other	\$0.00	\$0.00	\$0.00	
Sep/13/99	7 - Other	\$500.00	\$0.00	\$0.00	Dennis Teskey prep + photocopies
Total for this activity:		\$5,000.00	\$0.00	\$120.00	

Activity D.98/P-2 Peru

Fluid Inclusion training and equipment

Date	Subunit	Budget	Commit	Actual	Obs.
Apr/1/99	1 - Personnel (GSC)	\$200.00	\$0.00	\$0.00	Mike Ellerbeck 1 day prep
Apr/1/99	2 - Personnel (non GSC)	\$8,000.00	\$0.00	\$0.00	Fluid inc. training
Oct/8/99	2 - Personnel (non GSC)	\$0.00	\$7,350.00	\$0.00	PWGSC Fluid Inc.
Apr/1/99	3 - Local Consultants	\$0.00	\$0.00	\$0.00	
Apr/1/99	4 - Travel	\$3,000.00	\$0.00	\$0.00	Fluid Inc. 2 people travel
Oct/8/99	4 - Travel	\$0.00	\$2,205.00	\$0.00	PWGS Fluid Inc.
Apr/1/99	5 - Geoscience Services	\$0.00	\$0.00	\$0.00	
Aug/27/99	5 - Geoscience Services	\$0.00	\$0.00	\$2,475.01	PIMA Shipment through DHL Courier
Aug/27/99	5 - Geoscience Services	\$0.00	\$0.00	\$52.79	DHL Courier
Apr/1/99	6 - Equipment	\$0.00	\$0.00	\$0.00	
Apr/1/99	7 - Other	\$0.00	\$0.00	\$0.00	
Aug/4/99	7 - Other	\$0.00	\$0.00	\$150.00	Jardine Insurance for Equipment shipment from Miami to Vancouver (return flight)
Oct/8/99	7 - Other	\$0.00	\$490.00	\$0.00	Fluid Inc.
Total for this activity:		\$11,200.00	\$10,045.00	\$2,677.80	

Activity D.99/M-P1 Peru

Airborne Geophysics acquisition and interpretation (Peru/Bolivia/Chile) (Peru 28.4% of \$503,500)

Date	Subunit	Budget	Commit	Actual	Obs.
Apr/1/99	1 - Personnel (GSC)	\$1,420.00	\$0.00	\$0.00	15 days Cathie Hickson
Apr/1/99	1 - Personnel (GSC)	\$852.00	\$0.00	\$0.00	15 days Mike Ellerbeck
Jun/30/99	1 - Personnel (GSC)	\$0.00	\$0.00	\$199.42	Transfer for holding account
Jun/30/99	1 - Personnel (GSC)	\$0.00	\$0.00	\$400.00	Mike Ellerbeck 2days
Sep/30/99	1 - Personnel (GSC)	\$0.00	\$0.00	\$6.33	Transfer for holding account
Oct/18/99	1 - Personnel (GSC)	\$0.00	\$0.00	\$102.88	1 day Catherine Hickson
Apr/1/99	2 - Personnel (non GSC)	\$14,200.00	\$0.00	\$0.00	100 days for Dennis Teskey
Apr/1/99	2 - Personnel (non GSC)	\$2,840.00	\$0.00	\$0.00	# Safety Audit
Sep/30/99	2 - Personnel (non GSC)	\$0.00	\$0.00	\$4,893.23	Transfer for holding account
Apr/1/99	3 - Local Consultants	\$0.00	\$0.00	\$0.00	
Apr/1/99	4 - Travel	\$1,420.00	\$0.00	\$0.00	2 trips for Dennis Teskey
Apr/1/99	4 - Travel	\$568.00	\$0.00	\$0.00	1 trip for Cathie Hickson
Apr/1/99	4 - Travel	\$568.00	\$0.00	\$0.00	1 trip for Mike Ellerbeck
Sep/30/99	4 - Travel	\$0.00	\$0.00	\$548.72	Transfer for holding account
Apr/1/99	5 - Geoscience Services	\$284.00	\$0.00	\$0.00	Postage and Courier
Apr/1/99	5 - Geoscience Services	\$120,700.00	\$0.00	\$0.00	Aeromag Survey Peru 28.4%
Apr/1/99	6 - Equipment	\$0.00	\$0.00	\$0.00	
Apr/1/99	7 - Other	\$142.00	\$0.00	\$0.00	Misc.
Sep/30/99	7 - Other	\$0.00	\$0.00	\$137.17	Transfer for holding account
Total for this activity:		\$142,994.00	\$0.00	\$6,287.75	

Activity D.99/P-1 Peru

Fellowship fund to cover travel expenses for scientists participating in MAP activities. Recipients must be approved as outlined in terms of reference.

Date	Subunit	Budget	Commit	Actual	Obs.
Sep/30/99	1 - Personnel (GSC)	\$0.00	\$0.00	\$0.00	
Sep/30/99	2 - Personnel (non GSC)	\$0.00	\$0.00	\$0.00	
Sep/30/99	3 - Local Consultants	\$0.00	\$0.00	\$0.00	
Jun/2/99	4 - Travel	\$0.00	\$0.00	\$3,000.00	Fellowship fund for Elmer Boulanger and Mario Carpio / airfare to Bolivia and Argentina
Jun/2/99	4 - Travel	\$0.00	\$0.00	\$1,500.00	Fellowship fund for Oscar Palacios/ airfare to Bolivia
Sep/30/99	4 - Travel	\$7,500.00	\$0.00	\$0.00	Fellowship setup (US\$5000)

Sep/30/99	5 - Geoscience Services	\$0.00	\$0.00	\$0.00
Sep/30/99	6 - Equipment	\$0.00	\$0.00	\$0.00
Sep/30/99	7 - Other	\$0.00	\$0.00	\$0.00

Total for this activity: **\$7,500.00** **\$0.00** **\$4,500.00**

Total for Peru **\$273,634.00** **\$33,495.00** **\$28,374.66**

Grand Total - Budget: **\$1,352,674.00**

Total CIDA Payments: **\$488,500.00**

Grand Total - Commit: **\$178,343.05**

Grand Total - Actual: **\$247,854.68**

Balance: **\$62,302.27**

Annex B:
Revised Calendar of Activities for Fiscal Year 1999/2000



MAP

Revised Calendar of Activities 1999/2000

October 1999

Sun	Mon	Tue	Wed	Thu	Fri	Sat
26	27	28	29	30	1	2
Terrane Paths 99 / (www.rokus.com/terranepaths99)						
3	4	5	6	7	8	9
10	11	12	13	14	15	16
17	18	19	20	21	22	23
24	25	26	27	28	29	30
31	1	2	3	4	5	6

November 1999

Sun	Mon	Tue	Wed	Thu	Fri	Sat
31	1	2	3	4	5	6
PIMA Training - Peru						
7	8	9	10	11	12	13
PIMA Training - Chile (incl. Panteleyev)						
14	15	16	17	18	19	20
Metallogenic Fieldwork - Panteleyev, Chile						
21	22	23	24	25	26	27
PIMA Training - Bolivia						
28	29	30	1	2	3	4

December 1999

Sun	Mon	Tue	Wed	Thu	Fri	Sat
28	29	30	1	2	3	4
Currie / Fission Track - Chile						
5	6	7	8	9	10	11
Currie / Fission Track - Chile						
12	13	14	15	16	17	18
Currie / Fission Track - Chile						
19	20	21	22	23	24	25
26	27	28	29	30	31	1

January 2000

Sun	Mon	Tue	Wed	Thu	Fri	Sat
26	27	28	29	30	31	1
Rept. #14						
2	3	4	5	6	7	8
Hydrogeology - Chile / Aravena & Rudolph						
9	10	11	12	13	14	15
Hydrogeology - Chile / Aravena & Rudolph						
16	17	18	19	20	21	22
Exec. Council Meeting & Cordilleran Roundup - Vancouver						
23	24	25	26	27	28	29
30	31	1	2	3	4	5

February 2000

Sun	Mon	Tue	Wed	Thu	Fri	Sat
30	31	1	2	3	4	5
6	7	8	9	10	11	12
13	14	15	16	17	18	19
20	21	22	23	24	25	26
27	28	29	1	2	3	4

March 2000

Sun	Mon	Tue	Wed	Thu	Fri	Sat
27	28	29	1	2	3	4
P. Cornejo in Ottawa with Mike Villeneuve (4 weeks)						
5	6	7	8	9	10	11
P. Cornejo in Ottawa with Mike Villeneuve (4 weeks)						
12	13	14	15	16	17	18
P. Cornejo in Ottawa with Mike Villeneuve (4 weeks)						
19	20	21	22	23	24	25
Jim Reynolds Fluid Inc.						
P. Cornejo in Ottawa with Mike Villeneuve (4 weeks)						
26	27	28	29	30	31	1
P. Cornejo in Ottawa with Mike Villeneuve (4 weeks)						
PIMA Training - Chile						
						Rept. #15

Annex C:
Minutes from Executive Council Meeting - August 21, 22, 1999, Santa Cruz ,
Bolivia

Multinational Andean Project
Argentina - Bolivia - Chile - Peru - Canada
Santa Cruz, Bolivia - August 21 to 22, 1999

Minutes



Attendees

Argentina

Lic. Roberto Page - Executive Secretary - MAP - Director - SEGEMAR
Lic. Jose Mendía - Jefe del Proyecto - SEGEMAR
Dr. Eduardo Zappettini - Coordinador Nacional - SEGEMAR

Bolivia

Ing. Marcelo Claure - Director Nacional - SERGEOMIN
Ing. Humberto Mallo - Jefe del Proyecto - SERGEOMIN
Ing. Hernán Uribe - Geólogo - SERGEOMIN
Ing. Vitaliano Miranda - Geólogo - SERGEOMIN
Dr. Bertrand Heuschmid - Geólogo - SERGEOMIN

Chile

Ing. Ricardo Troncoso - Director Nacional - SERNAGEOMIN
Dr. Constantino Mpodosis - Technical Advisor MAP - Subdirector Nacional de Geología -
SERNAGEOMIN
Dr. Moyra Gardeweg - Jefe del Proyecto - SERNAGEOMIN
Dr. Waldo Vivallo - Geólogo - SENAGEOMIN

Perú

Ing. Juan Mendoza - Vice-Ministro de Minería - Ministerio de Minería - INGEMMET
Ing. Oscar Palacios - Director de Geología - INGEMMET

Canada

Dr. Catherine Hickson - Project Manager - GSC
Dr. Dennis Teskey - Contractor
Mr. Mike Ellerbeck - Project Administrator - GSC

**Multinational Andean Project
Argentina - Bolivia - Chile - Peru - Canada
Santa Cruz, Bolivia - August 21 to 22, 1999**

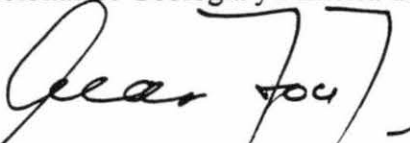
Approval of Minutes of the Meeting



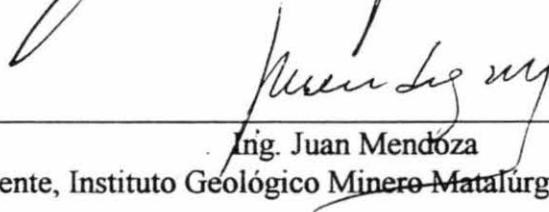
Lic. Roberto Page
Director, Instituto de Geología y Recursos Minerales (IGRM), Servicio Geológico Minero
Argentino (SEGEMAR)



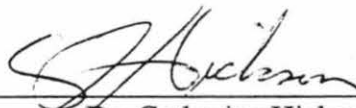
Ing. Humberto Mallo
Jefe del Proyecto, Servicio Nacional de Geología y Minería de Bolivia (SERGEOMIN)



Ing. Ricardo Troncoso
Director Nacional, Servicio Nacional de Geología y Minería de Chile (SERNAGEOMIN)



Ing. Juan Mendoza
Presidente, Instituto Geológico Minero Metalúrgico (INGEMMET)



Dr. Catherine Hickson
Project Manager, Multinational Andean Project (GSC)

Executive Council Meeting - Multinational Andean Project
Argentina - Bolivia - Chile - Peru - Canada
Santa Cruz, Bolivia - August 21 to 22, 1999

Minutes

Day 1
Hotel Caparuch

- 1) Welcome and introduction of observers by Executive Secretary, Lic. Roberto Page.
 - Dr. Waldo Vivallo (SERNAGEOMIN)
 - Dr. Dennis Teskey (Private Contractor)
 - Ing. Hernán Uribe (SERGEOMIN)

- 2) **Status of Action Items from March meetings of Executive Council:** (from March 15 to 17, 1999 meeting minutes):
 - *First meeting Cartographic Standards Committee to be held in Peru on June 17 and 18 . DONE. SEE ITEM #8*
 - *List of participants to International Cartographic Association (ICA) meeting in Ottawa, August 14 to 17 to be sent to MAP Administration. DUE TO THE PROXIMITY OF THE PERU CARTOGRAPHIC STANDARDS MEETING IT WAS DECIDED THAT MAP WOULD NOT PARTICIPATE AT THE ICA.*
 - *Project Leaders from Bolivia and Argentina work with MAP Administration to finalise the details of the Mineral Deposits Tour. DONE*
 - *Country Project Leaders to forward list of names, addresses, passport number, special needs and other pertinent information to MAP Administration. DONE*
 - *Project Leaders to have reviewed sample list and sent missing or incomplete information to Sample Coordinator. ONGOING*
 - *Sample Coordinator to have confirmed with Project Leaders in each country the number and type of analyses before proceeding with submission of samples for analytic work. ONGOING*
 - *Formal reports for samples to be distributed when they became available. Project leaders were requested to send missing information as soon as possible. ONGOING - SEE ITEM #6.*
 - *Each country to submit 5 copies of their MAP publications to Ellerbeck for distribution to each participating country's library through the Project Leaders. RECEIVED FROM PERU AND CHILE. ARGENTINA HAD THEIR DOCUMENTS TO DISTRIBUTE AT THE MEETING, BOLIVIA IS PREPARING THEIRS.*
 - *Publications received at GSC Vancouver will be catalogued and made available through the GSC Vancouver Cordilleran Geoscience Library. DONE FOR PERU AND CHILE, WILL BE COMPLETED FOR BOLIVIA AND ARGENTINA WHEN PUBLICATIONS ARE RECEIVED.*
 - *Interested countries to investigate the feasibility of selling MAP publications at GSC Vancouver's Information and Sales Office.*

A DISTRIBUTORSHIP AGREEMENT WAS DISTRIBUTED TO EACH COUNTRY. THIS AGREEMENT IS A CONTRACT BETWEEN THE NATIONAL GEOSCIENCE SURVEY AND THE VANCOUVER SALES OFFICE OF THE GEOLOGICAL SURVEY OF CANADA GRANTING THEM PERMISSION TO SELL PRODUCTS EMANATING FROM THE MAP PROGRAM. PROCEEDS FROM THE SALES ARE TO BE DISCUSSED WITH EACH COUNTRY BUT COULD BE PUT INTO A SPECIAL PURPOSE ACCOUNT FOR ONGOING RESEARCH.

- *When new publications are released, the country is to contact MAP administration immediately so the information can be posted on the Web page and put in the monthly Newsletter. ONGOING*
- *Peru and Bolivia to identify a staff member to receive geophysical training. DONE*
- *With the assistance of Dr. Dennis Teskey, determine the interest of the private sector in supporting such a survey. DONE. TESKEY VISITED ARGENTINA, CHILE, AND BOLIVIA AND IS TO VISIT PERU AUGUST 23 TO 27. SEE ITEM #9.*
- *Creating of National Petrological Standards for Geochemistry: Argentina will supply samples of basaltic composition, Bolivia will supply dacite, Chile a high and a low silica andesite and Peru, rhyolite. NO SAMPLES RECEIVED IN VANCOUVER TO DATE. SEE ITEM #7*

Discussion of other items of relevance from the previous meeting:

- A) Draft List of Publications completed and already published for the MAP area to be posted on the web page: COMPLETE FROM PERU.
- B) Terrane Paths '99 Conference: TWO PARTICIPANTS FROM ARGENTINA WILL BE ATTENDING THE MEETING.
- C) Verifiable Indicators: LETTER FROM MS. ROCIO LOPEZ INCLUDED IN THE AGENDA OF THE MEETING, OUTLINES QUESTIONS THAT NEED TO BE ANSWERED BY EACH OF THE COUNTRIES FOR COMPILATION OF 1999-2000 VERIFIABLE INDICATORS. THE INDICATORS ARE DUE AT MAP ADMINISTRATION NO LATER THAN OCTOBER 30, 1999.

ACTION: List of verifiable indicators are due at map administration no later than October 30, 1999.

Project budget allocations: The Project Manager presented the budget figures for the project, including a forecast for expenditures to the end of the project (December 31, 2001). Significant funds still remain at the end of the 1999/2000 fiscal year in the budgets of Peru, Bolivia and Chile. Argentina has expended almost all of its funds. On the other hand, the Multi-country and Administration budgets are over expended by a significant amount. A general discussion was held as to how to address this situation, including a discussion on the end date of MAP and possible post-MAP projects. Dr. Catherine Hickson pointed out that the initial budget allocations for Administration were shortsighted as they did not consider the complexity of the project and the reporting requirements to the countries and to CIDA. For instance, a financial database was developed specifically for this project as the current government of Canada system is not

designed to report on the various categories requested by CIDA (by Country and by Subunit). The existing system could also not be used to answer specific questions such as the "total funds spent specifically on training" frequently asked by CIDA. Under the category of Multi-country, many more activities have been funded than originally forecast. These include the project Web page, Newsletter, Mineral Deposits and Volcanology Field Courses, and Petrological Standards to list a few. Several suggestions were made as to how to redistribute the funds, including adding all forecast, but unspent funds at the end of the fiscal year, to the Administration and Multi-country categories. In the end it was agreed to transfer funds from the countries with funds remaining (Chile, Bolivia and Peru) into the Administration and Multi-country categories to cover the forecast deficit of \$194,000.00 (Admin) and \$171,000.00 (Multi) at the end of the 1999/2000 fiscal year. This will mean a reallocation of a forecasted amount of approximately \$121,500.00 from each country with funds remaining at the end of the fiscal year. The reallocation will be done in March, but subsequent forecasts will reflect this change in base funding level for each country.

Decision: It was unanimously agreed to transfer funds from the countries with funds remaining (Chile, Bolivia and Peru) into the Administration and Multi-country categories to cover the forecast deficit.

Action: MAP Management to prepare revised forecasts for each country to be included in the next quarterly report.

Further discussion centred around a new project (similar to MAP) to commence at the end of MAP. Hickson pointed out that CIDA was very happy with this project because of the degree of collaboration shown by the countries, the amount of cooperation, and the excellent work undertaken. Any future projects must embrace these principles. Work on outlining the goal of this new project must be started soon, as there is at least a one year time period for project approval. As MAP is planned to end halfway through a fiscal year, planning must start now if a new project is to be started in January of 2002. It was then agreed that each country would bring its ideas on a new project to the next Executive Council meeting in Vancouver, the week of January 25.

Decision: It was unanimously agreed to begin planning a new project to follow MAP.

Action: Each country will bring ideas on a new project to the next Executive Council meeting in Vancouver, the week of January 25.

- 4) **Mineral Deposits Field Course:** Members of the Executive Council reported that the trip was a very successful one and all participants learned a great deal. Unlike the first course, few problems were encountered on this trip. A full report can be found in Report #12, Annex D.
- 5) **Review of 1st quarter 1999/00 by Project Manager and Project Administrator:** MAP accomplishments from April 1 to June 30, 1999 were briefly reviewed. These can also be found in Report #12, page 3. Scheduling inconsistencies continues to plague the planning process. Most activities agreed upon in the early part of the fiscal year have been changed, in some cases very close to the date of execution of the activity. Another

management challenge has been the administration of the MAP Fellowship fund. It has been difficult to distribute the funds and not have banking charges incurred by the recipient. MAP Administration will need to find a better system to deal with the distribution of Fellowship funds.

Samples Update: Sample processing of scientific samples collected during Multinational Andean Project activities in the Andes continues with various methods of geochronological analysis, including radiometric dating ($^{40}\text{Ar}/^{39}\text{Ar}$, K-Ar, U-Pb-Zircon, Carbon-14, and Fission Track methods). Palaeontological and palynological dating are complete for samples submitted to date. No new geochemical analyses have been reported since March, although new orders are expected from all participating countries once sample processing decisions have been made regarding both previous and new specimen collections.

Summary of New Results (1998-1999):

- Radiometric dating results using U-Pb and $^{40}\text{Ar}/^{39}\text{Ar}$ methods at the Geological Survey of Canada laboratory in Ottawa were reported by Mr. Mike Villeneuve in April 1999. Formal reports were sent out to each country in May 1999. Updates on samples in progress have been forwarded as received. Total 1999 results include 15 $^{40}\text{Ar}/^{39}\text{Ar}$ dates for samples from Argentina, and 19 $^{40}\text{Ar}/^{39}\text{Ar}$ dates for samples from Chile; and 6 U-Pb dates for samples from Argentina, 11 U-Pb dates for samples from Chile, 1 U-Pb date for a sample from Bolivia, and 2 U-Pb dates for samples from Peru. In addition, new results from Vancouver (see below) add another 10 U-Pb (Zircon) age determinations for samples from Argentina and 6 U-Pb (Zircon) age determinations for samples from Bolivia. This work contributes 69 new radiometric dates to geologic knowledge of the Andes.
- In terms of K-Ar dating at the University of British Columbia's Geochronology Lab, the new Argon line has been unsuccessful so far in producing results. Fifteen samples from Argentina and seventeen samples from Bolivia, for which the potassium (K) has already been measured, are still in a priority position for argon (Ar) analysis. Results will be announced as soon as they are obtained. In the meantime, while equipment problems with the argon line are investigated, zircon separates have been extracted from samples that contain zircon (10 samples from Bolivia and 11 samples from Argentina), and have been dated by U-Pb methods instead. Results are in *Interim Report on Multinational Andean Project Uranium-Lead Geochronology on Rock Samples from Bolivia and Argentina, from the University of British Columbia Geochronology Laboratory (Vancouver, Canada)*, dated August 4, 1999.
- Radiocarbon (^{14}C) dating is in progress for 19 samples from Chile, through the University of Waterloo (Ontario, Canada) Environmental Isotope Laboratory. Results are expected within a few months.
- Fission track dating in order to determine uplift rates in the Andean Cordillera is in progress. Of 5 samples from Chile sent to the Dalhousie University (Halifax, Canada) Fission Track Laboratory, 3 have been successfully dated, and are reported on in *Dalhousie University Fission Track Laboratory report 99-2: Apatite Fission Track Dating of 3 samples from the Andes MAP transect*, dated February 21, 1999. A further 26 samples, also collected in collaboration with Dr. Lisel Currie of GSC Calgary, are in preparation for analysis, and are expected to produce results by the end of the year.

- Palaeontological and palynological investigations were attempted on eleven samples from Argentina and three from Chile. Two samples from Argentina with possible microfossils were found by the GSC Vancouver to be barren, and no report was submitted. Of the other 9 samples from Argentina, reported by White and Poulton of GSC Calgary in *Report No. 4-JMW-1999* (April 14, 1999), one contained enough palynomorphs to indicate an Albian (late Early Cretaceous) or younger age, and another showed possible modern contamination, while the rest were unsuitable for age determinations. Palynological assessment of 3 samples from Chile were reported in *Report No. 2-JMW-1999* (White and Doulton, GSC Calgary, March 17, 1999) to contain insufficient palynomorphs for determination of age or environment.

Petrological Standards Program: The new Petrological Standards program has begun with the collection of a preliminary dacite sample in Bolivia and a rhyolite sample in Peru. Chile has identified one of the two samples it is responsible for and will be sending the thin section and hand-sample to MAP Administration soon. Peru has also sent a thin section and hand-sample. Argentina has also collected a sample.

Action: Samples collected by the countries are to be sent to MAP Administration as soon as possible.

- 8) **Cartographic Standards Committee & Technical Committee for the Compilation of Mineral Resources Map of the border regions of the MAP countries:** Dr. Eduardo Zappettini reported on the results of the meeting of the Cartographic Standards Committee, June 17-18, 1999. Minutes of this meeting are available in Report #12, Annex C. The results of the Technical Committee meeting were also presented. The product will be a metallogenic map, synthesising available information from all of the countries. The borders of the area were revised and agreed to. Descriptive text will be added similar to that used on the Metallogenic map of South America (1:5,000,000). A unified stratigraphic column was agreed to in addition to the metallogenic symbols and colours to be used. Each country will define the deposits to be included in the table of deposits. The Committee agreed that the map would include metalliferous deposits and industrial minerals, but exclude ornamental rocks and construction material. It was agreed that the Technical Committee will meet to complete final details of the map the week of March 6, 2000 in Iquique, Chile. The minutes of the meetings will be available in Report #13 to be issued at the end of September. A summary of the results will be given in the next Map News.

Decision: The Technical Committee will meet to complete the final details of the map the week of March 6, 2000 in Iquique, Chile.

Action:

- Mr. Robert Cocking is to revise the draft map of the area with the agreed upon borders and distribute a copy to each country.
- Each country representative will write a geological synthesis of the area under their responsibility.
- Each country will complete a first draft of their geological map by the end of January.
- Geology maps for each country will be exchanged at the next Executive

Council meeting (Vancouver, January 2000) so that problem areas can be identified.

- Table (Ficha) of deposits to be completed by each country for the next Executive Council meeting (Vancouver, January 2000).
- Chile to plan a Technical Committee meeting in Iquique, the week of March 6, 2000. Where the final map will be assembled and the text of the explanatory notes will be revised.
- Zappettini and Vivallo will write an abstract for submission to the IGC meeting in Rio de Janeiro.

Airborne Survey Update: Teskey reported on the activities to date including a meeting held in Santa Cruz with 4 members of the private sector to define the Bolivia, Chile, Peru survey areas and to solicit funding from the private sector. Various items including price of participation and exclusivity period were discussed. It was decided at that meeting that each of the four companies would present a map showing the areas of interest to them relevant to the proposed area. These maps are to be returned to Teskey by September 15, 1999. The final decision on the area to be flown will be based on this input and input from other companies (some of which will be meeting with Teskey and representatives of INGEMMET during the week of August 24, 1999 in Lima, Peru). Teskey will remain in contact with other potential clients as well to keep them up-to-date on recent progress on the organization of the Survey. Optimal flying time for this survey is in April which means that the requisition from the GSC should be at PWGSC by late November.

Teskey also reported on the Chile, Argentina survey indicating that optimal flying time would be in February, thus requiring submission of the requisition to PWGSC by mid-October. A meeting was proposed to take place in Santiago during the final week of September, 1999 with representatives from potential industry partners. This meeting will be used to gauge interest for this survey and will enable a decision as to when the survey might commence.

MAP Special Symposium at the Andean Special Session of the IGC (Puerto Varas):

As had been agreed to and discussed at previous Executive Council meetings, MAP will have a Symposium as part of the Chilean National Congress to be held in Puerto Varas, August 3-7, 2000. This conference will host the Andean Special Session of the IGC. There was a general discussion on whether MAP should have a half day of presentations or a full day. It was agreed that the symposium would run for one full day and include poster presentations, a roundtable and the presentation of the preliminary version of the joint metallogenic map and at least two oral presentations from each of the countries. The Symposium will be called *Geological and Mineral Resources of the Central Andes: Advances from the Multinational Andean Project*. The presentations can include any new work using analytical data funded under the MAP project (by the countries or by using CIDA funds). The Executive Council meeting will also be held in conjunction with this meeting.

Decision: It was agreed that there would be a full day Symposium with at least two submissions from each of the countries. There will also be a person from each country appointed to act as coordinator of the submissions from that country

and this group will form a committee which will help Dr. Moyra Gardeweg organize the Symposium.

Argentina: Dr. Eduardo Zappettini

Bolivia: Ing. Humberto Mallo

Chile: Dr. Moyra Gardeweg

Peru: Ing. José León

Action: Gardeweg will write a short note on the symposium describing it for submission to the Congress organizers to be included in the next circular.

**Executive Council Meeting - Multinational Andean Project
Argentina - Bolivia - Chile - Peru - Canada**

**Day 2
Hotel Caparuch**

Argentina: Argentina presented a review of their project activities to date. Five map sheets have been completed at the 1:250,000 scale and one additional one is nearing completion and a third one is planned to start next year. Work continues on the processing of the geophysical data from the Austral Puna survey, due to be released publically in January, 2000. Three new geochemical maps are in progress and the samples are due to be sent to Canada for analysis in the near future. 1:250,000 metallogenic map of Pariquitas and Paso San Francisco are in progress and will be followed by similar map sheets in other parts of the project area. Work with a GSC staff member on Susques map sheet will be delayed until the next fiscal year as will some $^{40}\text{Ar}/^{39}\text{Ar}$ dating.

Bolivia: Bolivia presented a review of their project activities to date. Most recently there was a short course on Mineral Deposits Classification, Genetic Modelling and Metallogeny given by Panteleyev in La Paz to SERGEOMIN staff as well as private sector participants. Plans are under way for joint border field work with Chile and to this end the Bolivians agreed to send the maps of the common border areas to the Chilean representatives. The SGI computer was sent to Canada for repairs and then returned to SERGEOMIN and replacement parts for the Vidar Scanner were also sent. Testing for both pieces of equipment has been set for the final week of August. Currently it is planned to hold PIMA training in La Paz from November 22-26 and Fluid Inclusion training from November 29- December 3. The number of samples to be sent to Canada during the current fiscal year for $^{40}\text{Ar}/^{39}\text{Ar}$ dating has been reduced from 40 to 20. It was also decided that some samples for common lead and sulphur isotope analysis would be sent to Canada for analysis. The total anticipated number of samples to be sent to Canada for geochemical analysis during the current fiscal year was also reduced from 500 to 300.

Chile: Chile presented a review of the activities carried out in the first quarter of 1999. Progress has been made in both the Copiapó and Arica areas. In the Copiapó region the field activities of the mapping program (three 1:100,000 sheets) has been completed with only the final field check pending. One of the maps (Ojos del Salado sheet) is been prepared for publication in the SERNAGEOMIN Geological Map Series. The study of hydrothermal alteration zones along the border area with Argentina was completed and the final report is being revised. Advances were also made in the Hydrogeology Project. The hydrogeological map of the Negro Francisco Basin, terminated at the end of 1998 and will soon be released as a CDROM. In the Arica region important advances were made in the compilation of three 1:250,000 map sheets. The northernmost of the three. (Putre-Parinacota) will be finished by the end of the year. The field work for the Lluta and Camarones transect was completed. A set of samples for Pb/U and $^{40}\text{Ar}/^{39}\text{Ar}$ geochronological analyses was selected and these will be soon sent to Canada to be

processed. Samples for initial isotopic ratios (Sr and Nd) will also be sent.

Peru: Has completed all of the maps in the northern area and is now focussing work on the mineral resources of the area to the north and south of Lake Titicaca. Peru hosted the meeting of the Cartographic Standards Committee. Geophysical software was sent to Peru and they will receive some guidance from Teskey on the use of this software. Teskey will also review the status of geophysical data on file at INGEMMET during his visit August 23-27. During this visit there will also be a meeting held with private sector companies regarding the Airborne Survey. The area of interest to Peru will also be reviewed. The status of upcoming activities was reviewed and some scheduling changes will need to be made. Work on the volcanology short course originally scheduled to be given in Peru in September has been completed, but the course has been postponed to November 29 - December 3, 1999. A follow-up three weeks of field work by Panteleyev has been requested, but there has been difficulty scheduling this activity. Panteleyev is not available during the proposed dates. The PIMA training is scheduled for November 1 - 5 and training in the Fluid Inclusions for December 6 -10. Thirty-five samples are planned for dating, but it is not clear when these will be sent.

6:30pm. The meeting was reconvened for the signing of the minutes.

Annex D:
**Minutes from first meeting of the Scientific Committee for the joint
metallogenic map**

ACTAS DE LA REUNION DE LA COMISION DEL MAPA METALOGENETICO DEL AREA MAP
Argentina - Bolivia - Chile - Perú - Canadá
Santa Cruz, Bolivia - Viernes 20 de Agosto del 1999



Hotel Caparuch
Viernes, 20 de Agosto

ACTAS
PARTICIPANTES:

Miembros de la Comisión:

Coordinador de la Comisión	-	Dr. Eduardo Zappettini	-	Argentina
	-	Ing. Vitaliano Miranda	-	Bolivia
	-	Dr. Waldo Vivallo	-	Chile
	-	Ing. Oscar Palacios	-	Perú

Observadores:

Asesor Científico del MAP	-	Dr. Constantino Mpodozis	-	Chile
Gerente del Proyecto	-	Dr. Catherine Hickson	-	Canadá
	-	Ing. Ricardo Troncoso	-	Chile
	-	Ing. Humberto Mallo	-	Bolivia
	-	Dr. Bertrand Heuschmid	-	Bolivia
	-	Ing. Hernan Uribe	-	Bolivia
	-	Sr. Mike Ellerbeck	-	Canadá

GENERALIDADES:

Se decidió que este producto de síntesis será una MAPA METALOGENICO.

Tema 1. AREA FINAL DEL MAPA

Se acordaron los límites del área a ser incluida en el mapa utilizando el mapa base 1:1,000,000 preparado por el GSC.

Acción: GSC preparará un nuevo mapa con los límites definidos en esta oportunidad y proveerá una copia a cada país.

Tema 2: TEXTO EXPLICATIVO

Se decidió que al mapa se adjuntará un texto de características similares al texto explicativo del Mapa Metalogénico de América del Sur de 1983 a escala 1:5.000.000 publicado por UNESCO.

Acción: Cada representante elaborará una síntesis individual del área de su responsabilidad. El texto explicativo conjunto será elaborado en una reunión cuyo fecha debe decidir el Consejo Ejecutivo.

Tema 3: CARTOGRAFIA GEOLOGICA DE BASE

Se acordó una columna estratigráfica unificada que se agrega como Anexo I.
Cada país deberá confeccionar un mapa geológico de acuerdo a las unidades definidas en la columna estratigráfica unificada .

Acción: El mapa geológico de base deberá estar finalizado para la reunión de Vancouver a realizarse durante la última semana de enero del 2000, para compatibilizar luego las diferencias en la zona de frontera. Se recomienda a los países intercambiar datos en el área de frontera común para avanzar en la compatibilización antes de la reunión de Vancouver.

Tema 4: SIMBOLOGIA METALOGENETICA

Se acordó una simbología que permite diferenciar los tipos más característicos de yacimientos del área, de acuerdo a lo indicado en el Anexo II. Asimismo se establecieron los colores que permitirán definir las asociaciones metales principales de cada yacimiento (Anexo III).

Se adoptó un modelo de ficha de información de los yacimientos que será incluido en el texto explicativo y servirá como elemento de respaldo para la construcción del mapa (Anexo IV). Se decidió que cada país definirá los depósitos que quedarán incluidos en las fichas, y que no necesariamente se representarán todos en el mapa, a fin de asegurar una densidad de información que no impida la fácil lectura del mapa.

Cada representante completará las fichas de su país numerando de 1 en adelante, precediendo el número con la inicial del país.

Acción: Completar las fichas para la reunión de Vancouver.

Tema 5: YACIMIENTOS A REPRESENTAR

Acción: Se incluirán los yacimientos metalíferos y de minerales industriales. Quedan excluidos las rocas ornamentales y los áridos para construcción.

Tema 6: OTROS ELEMENTOS TECTONICOS Y METALOGENETICOS A INCLUIR

Acción: Se considerarán al momento de completar la información antes descripta, en función de la densidad de datos ploteados.

ANEXO I. Tipología de yacimientos

- | | | |
|-----|---|---|
| 1) | Pórfido: | ☆ |
| 2) | Volcano-sedimentario: | D |
| 3) | Red beds: | ~ |
| 4) | Sedimentario químico | □ |
| 5) | Placer: | ∪ |
| 6) | Skarn y greisen: | ⊕ |
| 7) | Pegmatita: | ↕ |
| 8) | Epitermal: | ▽ |
| 9) | Polimetálico tipo Boliviano: | △ |
| 10) | Vetiforme asociado a turbiditas: | ▭ |
| 11) | Asociados a rocas salcalinos : | 0 |
| 12) | Chimenea de Brecha: | ○ |
| 13) | Vetiforme asociado a plutones
félsicos: | 0 |
| 14) | Asociado a efusiones volcánicas
subaéreas: | ◇ |
| 15) | Indefinido: | ✕ |

ANEXO III. ASOCIACIONES PRINCIPALES

ELEMENTOS - COLORES

- 1) Cu: Rojo
- 2) Au: Amarillo
- 3) Pb-Zn (Ag): Azul
- 4) Ag: Celeste
- 5) Sn-Ag: Rosado
- 6) W: Violeta
- 7) Fe-Mn: Marrón
- 8) Sn: Anaranjado
- 9) Bi: Castaño claro
- 10) U-Th-ETR: verde claro
- 11) Sb: Verde oscuro
- 12) Minerales Industriales: Negro
- 13) Otros: gris

ANEXO IV. FICHA DE SINTESIS

Numero: Inicial del país seguido del número del depósito ordenados de norte a sur.

Nombre: Mayúscula-minúscula. No se usarán abreviaturas geográficas (por ej Cerro, Santa, etc)

Sustancia: Se utilizarán cinco columnas listando en orden de importancia decreciente cada elemento explotado económicamente como principal o subproducto.

Mineralogía: Se indicarán, con las abreviaturas de la Normativa de Cartas Metalogenéticas de Argentina, los minerales de mena de interés económico, tanto primarios como secundarios. Se omitirán los minerales de ganga.

Alteración: Se definirá una lista de alteraciones y las siglas a utilizar, que formarán parte de este documento como Anexo.

Tamaño: Se seguirá la nomenclatura de la CCGW, (1998) Anexo V

Recursos: Se indicarán en dos columnas los recursos totales (explotados+explotables) siguiendo la escritura española (1.000.000 y no 1,000,000). Las leyes se indicarán la porcentajes o g/t: ej: 1,4% Zn; 5,2 g/t Au.

Forma: se indicará con el número correspondiente al listado del Anexo II.

Asociación: Se indicará con el número correspondiente al listado del Anexo III.

Modelo: Se indicará el número del modelo de depósito siguiendo la nomenclatura del USGS, que como Anexo forma parte de este documento.

Roca de caja: Contendrá dos columnas: litología y unidad correspondiente, siguiendo la columna unificada del mapa.

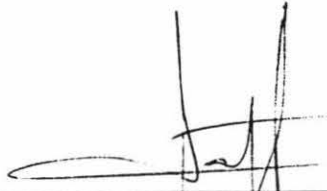
Edad del yacimiento: Comprende tres columnas: la edad absoluta en números, el método (K/Ar, Ar/Ar, U/Pb, etc.) y la geológica estimada indicando en abreviatura convencional el período (Cámbrico, Ordovícico, Silúrico...) y su eventual subdivisión (Inferior, Medio, Superior). En todos los casos debe indicarse la edad geológica estimada y, cuando se disponga también la edad absoluta

ANEXO ALTERACIONES HIDROTERMALES


TIPO ALTERACION	ABREVIATURA
SILICICA	Si
ALBITICA	Ab
POTASICA	K
CUARZO-SERICITICA	Q-Ser
SERICITICA	Ser
ARGILICA	Ar
ARGILICA AVANZADA	Ara
PROPILITICA	Pro
ALBITA-ACTINOLITA	Ab-Act
ACTINOLITICA	Act
CUARZO-TURMALINICA	Q-Turm
GREISSEN	Gr
CALCOSILICATADA (SKARN)	Sk
CARBONATICA	Ca

12

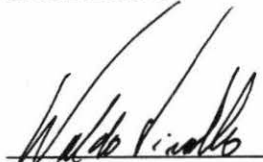
Proyecto Multinacional Andino
Argentina - Bolivia - Chile - Perú - Canadá
Reunión del Comité Técnico del Mapa Metalogénico
Santa Cruz, Bolivia - Viernes 20 de Agosto del 1999
Aprobación de las Actas


Dr. Eduardo Zappettini
SEGEMAR

Coordinador
Argentina


Ing. Vitaliano Miranda
SERGEOMN

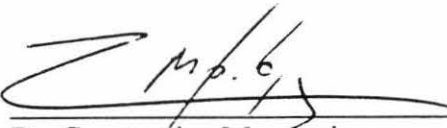
Representante
Bolivia


Dr. Waldo Vivallo
SERNAGEOMIN

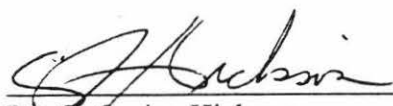
Representante
Chile


Ing. Oscar Palacios
INGEMMET

Representante
Perú


Dr. Constantino Mpodozis
SERNAGEOMIN

Asesor Científico
Chile


Dr. Catherine Hickson
GSC

Gerente del Proyecto
Canadá

Annex E:
**Report from the Santa Cruz and Lima meetings of potential private sector
participants in the Bolivia, Chile, Peru multi-client Airborne Survey**
Dr. Dennis Teskey

Bolivia, Chile, Peru Airborne Geophysical Survey
Submitted by Dr. Dennis Teskey

Meetings with Mining companies
19 Aug, Santa Cruz Bolivia
25th Aug, Lima Peru.

I arrived in Santa Cruz Aug 18th and attended the last day of the Bolivia 99 exposition.

I talked to Todd Ashinurst at the exposition. He still felt that the project did not quite fit their plans for the year and did not plan to attend the meeting on the 19th. However I still feel that there is a possibility and they should be kept informed. I also talked to Alan Carter of Billiton and we agreed to get in touch in Lima.

The Planning meeting on the 19th was attended by representatives of four companies-

Jorge Benavides	Phelps Dodge,
Eduardo Martinez	Anaconda,
Andrew Swarthout	Southern Peru Copper
Randall Nickson	BHP.
Jim McNamee	consultant.

The representative from Anglo American did not show up.

The terms of the draft agreement were reviewed by Dr. Hickson. Since it has become evident that the area as defined is too large relative to reasonable financing expectations, most of the discussion was focused on definition of the area. It was agreed that companies would provide us with their priority areas by Sept 15th, following which the final area would be determined. The final survey does not have to be continuous but must have a central area that includes the three country boundaries. The final area must be reasonable in terms of flying efficiency.

I traveled to Lima on Aug 23rd.

On Aug 24th Manual Paz and I visited Andrew Swarthout, Southern Peru Copper. There we found out that Phelps Dodge has undertaken a takeover of Asarco (who own Southern Peru) and Cyprus Amax (with whom they were in the process of merging). Andrew felt that the takeover would take place. The negative effect on the project is that this will put much of the decision making on hold and the number of participants is reduced. Southern Peru seems to be quite interested in the project.

The second meeting with potential participants took place at 10:00 a.m on the 25th Aug. Eleven companies attended, four were also represented in Santa Cruz.

Phelps Dodge	Walter Rodriguez
Noranda	Vern Arseneau
Minera Oro Vega S.A. ,	Enrique Barrantes
Buenaventura	Robinson Villanueva Nunez

	Silvia Hohler
	Alberto Torres
Cambrior	Noel Diaz Bernal
SIMSA	Roman Tejada Rospigliosi
Minera Andina de Exploraciones	Cesar Fuentes
Teck	Steve Jensen
Anaconda	Alberto Caballero Noriega
	Carlos Neyra Zuzunanga
BHP	Richard Pape
Southern Peru	Andrew Swarthout

Ing. Hugo Rivera and Ing. Manuel Paz welcomed the attendees and introduced MAP and the proposed survey. I explained the survey organization and concept and the decision regarding area selection made in Santa Cruz and discussed some of the technical requirements. This was followed by a question period. I think the meeting went very well and indicated significant interest in the survey, at least in Peru. Enrique Barrantes of Minera Oro indicated that their area of interest is to the northeast of the survey area. Buenaventura indicated an area on the northwest margin of the proposed area, partially overlapping.

On Aug. 26th Manuel Paz and I visited Billiton-Alan Carter, Gerente de Exploracion, Alan Wilson, Geologo Senior and Abraham Escalante, Geologo de Proyectos. Although quite interested in the project, Alan Carter feels that we are competing with Scintrex, who he thinks have nailed down the best area. In fact Scintrex's area overlaps the steepest terrain between the coastal lowlands and the Western Cordillera, and it is obvious, as I demonstrated at the meeting, that the area would have to be flown as two separate elevation surfaces, one at the lower level and one at the higher level (our survey) with enough overlap to merge the subsequent data sets. I emphasized to them that they could indicate their area of priority and we would try to accommodate it with the additional advantages of a competitive process and quality control. Although Scintrex, through PGW, has expressed a desire to cooperate, I feel that the best strategy is to wait until after the area is defined to discuss anything with them, as there is no reason that MAP should agree to exclude this area.

Since returning to Canada, I have received an email from Steve Jensen, Teck, who attended the meeting in Peru. He likes the project but higher level managers are saying no at this time.

Conclusion:

There is significant interest in the survey and I am more confident, particularly after the meetings in Santa Cruz and Lima, that the survey will go ahead although what happens in the next few weeks is critical. There is very strong recognition in the countries that this is an opportunity that should not be missed. The most important step now is to ensure that the country representatives, as well as myself remain in communication with the companies, so that they do provide us with their priority areas. Companies should be encouraged to discuss this amongst themselves so that the areas they present will represent significant continuous areas that can be easily included. A number of companies who have previously indicated interest did not attend the meetings and special effort should be made to get them into the process. These include Penoles (Luis Novelo-San Juan,

Argentina), Codelco, Anglo American, Inversiones North Chile, Outokumpu, Boliden Westmin, Homestake. In addition we were unable to make contact with Barrick in Peru. They should participate.

Companies in Bolivia that have not responded include Andean Silver Corp. (I met their geologist Luis Oviedo in Santa Cruz but he had not seen any of my emails.), Mitsui, I understand they want to do their own survey, Compania Minera Del Sur.

Companies who have replied in the negative but who could and should change their mind are Teck, Rio Algom, Battle Mountain Gold.

I would like to thank the representatives of SERGEOMIN and INGEMMET for the hospitality and assistance given me while in your countries. It is very much appreciated.

Please advise me of any errors or omissions in this report. I am looking forward to a successful project.

Dennis Teskey, PhD, P.Eng
MAP consultant

Annex F:
Letter sent to potential private sector participants in Argentina / Chile
Airborne Survey as a result of decisions made at Santiago meeting,
September 28, 1999

Santiago, de Septiembre, 1999

Sr.

PRESENTE

Muy señor mío,

El Servicio Nacional de Geología y Minería de Chile (SERNAGEOMIN) y el Servicio Geológico Minero de Argentina (SEGEMAR), en colaboración con el Servicio Geológico de Canadá (GSC) y con el apoyo de la Agencia de Desarrollo Internacional de Canadá (CIDA), han programado, en el marco del Proyecto Multinacional Andino (MAP), la realización de un proyecto de geofísica aerotransportada (Magnetometría y Espectrometría multicanal) en la zona limítrofe entre los 31° y 32°50'S y los 69°40' y 71°W. El proyecto será financiado por CIDA y un consorcio de empresas. El costo de participación por empresa es de US \$35.000.- Esta suma dará derecho a cada empresa de disponer en forma exclusiva de los datos, por un período de 1 año, después de lo cual SERNAGEOMIN y SEGEMAR podrán hacer pública la información.

A partir de lo resuelto en la reunión mantenida con compañías mineras el 28 de septiembre del corriente año y vista la confirmación por partes de algunas empresas de participar, se ha establecido un cronograma de actividades que asegure la realización del levantamiento en la próxima temporada (febrero 2000). Para ello es necesario que, en caso que su empresa tenga intención de participar en el consorcio, envíe a SERNAGEOMIN una carta de intención en tal sentido antes del **20 de octubre de 1999**. La contribución económica correspondiente, podrá hacerse efectiva hasta el 31 de marzo de 2000.

Considerando que, si el Proyecto se concreta, y que estará en el área el avión con su respectivo equipo, se ofrecerá a las empresas que formen parte del consorcio la posibilidad de aumentar el detalle en zonas de su elección y eventualmente agregar áreas a la ya definida. El incremento de costo resultante será responsabilidad exclusiva de la empresa solicitante. Asimismo, sólo ella dispondrá de estos resultados en forma exclusiva por el período de un año.

Los responsables del Proyecto MAP en los respectivos países, Dr. Eduardo Zappettini, SEGEMAR, Argentina (e-mail: ezappe@secind.mecon.ar; fono: 54-11-43493162) y Dra. Moyra Gardeweg, SERNAGEOMIN, Chile (e-mail: mgardeweg@sernageomin.cl; fono: 56-2-7375050) podrán facilitar información adicional requerida sobre el proyecto.

Se adjunta a la presente un borrador del acuerdo a celebrar con SERNAGEOMIN, SEGEMAR y el Servicio Geológico de Canadá, que establece las pautas y compromisos para participar en el consorcio, así como las especificaciones técnicas en las que se basará el llamado a licitación para la realización de los trabajos, junto a otro material de interés.

Esperando contar con su participación, le saluda atentamente,

Annex G:
Report on the short course on 'Mineral Deposits Classification and Genetic Modeling: Their Application to Metallogenic and Regional Mineral Potential Studies', La Paz, Bolivia - Dr. Andre Panteleyev

A 10-lecture short course was presented as part of the Multinational Andean Project (MAP) during June 28 – July 02, 1999 in La Paz, Bolivia at the auditorium of the Servicio Nacional de Geología y Minería (SERGEOMIN). The course was intended for geologists interested in economic geology, primarily those in SERGEOMIN engaged in investigations of regional mineralization, metallogeny and assessment of mineral potential. Twenty-two certificates were presented at the end of the course; participants included five from SERGEOMIN, five from universities and 12 private or company geologists. The course reviewed advances in metallogeny, schemes of deposit classification, and methods of data base construction and utilization. The emphasis was on ore deposits genesis with discussion about major styles of mineralization within a scheme of Cordilleran tectonic evolution ('metallogeny'). The following topics were discussed and illustrated.

Introduction:

- Deposits classification schemes and their application to metallogenic and regional mineral potential studies - the role of government surveys, advances in metallogeny, use of integrated data bases, regional mineral potential assessments using USGS and British Columbia examples; Cordilleran metallogenic studies – the Canadian Cordillera as an example
- Mineral deposits models: philosophy, construction, use and abuse; examples from Argentina and British Columbia, grade-tonnage data, various examples

Specific mineralizing environments and genetic models, with emphasis on mineralization and alteration styles:

- Continent-margin basins – clastic-hosted and sedimentary-exhalative 'sedex' Pb-Zn-barite deposits; minor discussion of carbonate-hosted Pb-Zn and 'manto' deposits; Aguilar as an example. Sedimentary-hosted 'Carlin-type' gold deposits.
- Submarine volcanic settings – volcanic-hosted 'volcanogenic' massive sulphide deposits (VMS). Classification with emphasis on recent tectonic setting schemes
- Veins – epithermal/mesothermal vein overview; intrusion-related veins and examples of vein district studies
- Skarns – general overview with focus on gold-bearing skarns
- Porphyry copper deposits – zoning and alteration characteristics. Discussion of supergene processes - surface expression of alteration and interpretation of leached cappings
- Intrusion-related Au-Bi-W mineralization - a new model and exploration target for gold in Bolivian polymetallic dome-hosted deposits
- Gold in the Cordillera - high-level subvolcanic environments: 'lithocaps' in porphyry copper and polymetallic dome-related deposits. Transitions from subvolcanic to hot spring environments – mineralization and alteration processes and products of evolving hydrothermal systems; hot spring deposits as surface expressions of epithermal hydrothermal systems.

The short course was presented in English with sequential Spanish translation. Questions, discussion and comments were solicited and encouraged from the participants. A large amount of published papers and short course notes was provided to SERGEOMIN prior to the course; from this material a 60-page set of notes was prepared and handed out to all participants.

Other activities following the short course included: fieldwork from July 5 to 12 in the 'Programa de Metalogenia en la Serrania Intersalar' with SERGEOMIN staff, headed by program leader Ing. Hernan Uribe; Dr. Paul Metcalfe participated in this work. During the fieldwork, and later again in La Paz, the utility of the MAP portable infrared mineral analyzer (PIMA) in determining the mineralogy of clay-altered alteration assemblages was demonstrated. Later in La Paz some productive and mutually useful discussions were held with the SERGEOMIN metallogenic working group. An invitation from the Colegio de Geologos de Bolivia to present an afternoon lecture in La Paz offered an opportunity to review the MAP program, and feature its activities in Bolivia, to a group of about forty Bolivian geologists. Also the May/June 1999 newsletter of the Colegio de Geologos included a 2-paragraph description of the Metallogenic and Mineral Deposits Modeling Short Course presented at SERGEOMIN, all duly attributed to the Multinational Andean Project.

Annex H:
**Report on fieldwork in regional mapping in volcanic areas in Bolivia with
SERGEOMIN scientists and Dr. Paul Metcalfe**

Executive Summary of Fieldwork August 1999

A. PURPOSE OF FIELDWORK

1. (first half) To study the relationship between volcanic stratigraphy and prospective areas of alteration in the Intersalar area.
2. (second half) To location directional transport indicators for the extensive ignimbrites exposed near the base of the regional stratigraphy to the west of Salar de Uyuni.
3. To locate possible sources for a dacite whole rock chemical standard for Bolivia's contribution to the PMA database.

B. TIME SPENT IN THE FIELD

A total of 14 days was spent in the field. A substantial portion of this time was used in travel within the Intersalar area. Despite this, an impressive proportion of the remainder (~70%) was spent in geological traverses, rather than "roadside geology".

C. GEOLOGICAL SYNTHESSES

1. *First half*

a. Salinas de Garci Mendoza (3 ½ days)

The area comprises an old eroded volcanic complex, putatively an ancient caldera, but explicit features exclusive to caldera formation have not yet been observed. The palaeovolcano comprises an extensive base of heterolithic breccias, dominantly with andesite clasts and an overlying succession of intercalated dacite ignimbrites (unwelded) and autobrecciated andesite/basaltic andesite lava flow. Volcanic sedimentary rocks are exposed in remarkably few areas other than the base. Brecciated monzonite clasts in the ignimbrites are probably derived from an old stock underlying the northern part of the volcano. The latest phase of activity comprised intrusion and extrusion of a number of domes/cryptodomes of dacitic to rhyolitic composition. These domes are prospective for high-sulphidation epithermal alteration with development of vuggy silica caps, barite, and alunite. Low sulphidation systems also occur in the area.

b. Chinchiluma, West of Salar de Uyuni (½) day

The volcano has a stratigraphy very similar to the SdGM area; rhyolite dome intrudes/extrudes from a dacite ignimbrite/andesite flow succession, described in the context of the stratigraphy seen in the second half, between Llica and Empexa, along the western margin of the Salar de Uyuni.

2. *Second half*

Regional volcanology West of Salar de Uyuni. A total of six days (and three travel days) was spent to the West of the Salar de Uyuni.

Stratigraphy

The base of the succession hitherto referred to as the Murmuntani Formation is described as a succession of "volcanic sedimentary rocks intercalated with lapilli tuffs and breccias". The base is not observed and the formation forms an apron upon which the younger volcanic centres rest. Overlying and intruding the Murmuntani are domes, mainly of dacitic composition. The age of the Murmuntani is presumed to be Upper Miocene.

Four days were spent examining parts of the Murmuntani Formation. The distinctively yellow-weathering clastic sedimentary rocks most closely identified with the name "Murmuntani" compose a facies which overlies, underlies, and is intercalated with at least two distinctive volcanic units which are mappable on a regional scale. It is possible therefore that the Murmuntani Formation may require redefinition or partition.

The lower volcanic unit comprises vitric-lithic ignimbrites, unwelded, with well-developed basal depositional facies in sections examined. At least two flow units are present. The unit has a remarkably consistent thickness (20 m) on a scale of tens of kilometres. Directional indicators are few and ambiguous but possibly indicate transport from the east or northeast. Laminar base-surge deposits suggest intermediate distance from source.

The upper volcanic unit comprises a total thickness of at least 80 m and probably well in excess of 100 m over distances in excess of 40 km. At least 5 flow units were identified in a single 60 m section, without visible base; these appear to form a single cooling unit. The entire unit may therefore have been deposited from a single, very large eruptive event. Lithology of the upper unit is remarkably consistent, being a welded crystal lapilli tuff of rhyolitic composition. Laminar or low-angle base-surge deposits suggest intermediate distance from source. Directional indicators suggest transport from the east or northeast. Their source is unknown.

The younger volcanic edifices rest on this basal succession. Only three of these were visited during fieldwork. The first, at the south end of the Salar de Empexa, hosts the Mina Desierto, visited during the first half of fieldwork. At Mina Desierto, vapour-phase crystallization and alteration deposited economic quantities of sulphur; the site was examined and will be described in more detail by Panteleyev. One other zone close to the Chilean border was similarly examined. The third location, to the southwest of Salar de Empexa, was visited as a prospective site for a dacite standard.

D. GEOLOGICAL WHOLE ROCK STANDARDS

Four possible locations were considered for a dacite whole rock standard. The first two, suggested by SERGEOMIN are:

1. Millina Loma, near Salinas de Garci Mendoza. The rock is a very fresh biotite hornblende K-feldspar phyric dacite with minor quartz. The drawback is that the K-feldspar is megacrystic (~35%) and contains small but significant quantities of amphibolitic xenoliths. Not recommended.
2. Cerro Oruro. Moderately plagioclase-phyric dacite from dome adjacent to Kori Kollo mine. The drawback is the moderate patchy propylitic alteration envelope, probably associated with the deposit. Not recommended.
3. The third candidate was a small dacite dome examined to the southwest of Salar de Empexa. However, the dome is moderately altered and, effectively, a porphyry. Not recommended.
4. A clast in a volcanic sedimentary rock examined on the last day of fieldwork is a black glassy dacite, identified by Ing. Uribe as being from Cora Cora in the Intersalar area. The clast contained roughly 20% quartz and/or feldspar phenocrysts but appeared homogeneous and moreover, unaltered even as a clast. In default of other locations, being found, I asked Ing. Uribe if a larger sample could be collected from the source.

ADDITIONAL

The impressive use of geological traversing as opposed to roadside geology made for an interesting and informative period of fieldwork, despite the brevity. What SERGEOMIN needs most is people which, of course can only be redressed in the light of an improved budget. Ing. Uribe is already looking into the possibility of employing students and (possibly) volunteers to maximize the effectiveness of the existing field budget. In addition, new personnel will add a new perspective to highlight any future changes in field methods.

I discussed with Ing. Uribe possibilities for improving upon the amount of hours spent in fieldwork. The most noticeable drain on this resource was the practice of staying at a "nearby" settlement often an hour or more by road from the field area. I described the Canadian method of "base-camp - fly camp", emphasizing that this would free drivers for other work during the day. This concept had already been considered and my contribution was accepted, I think, with enthusiasm. I will be sending Ing. Uribe a copy of the Cominco Guide to camp construction, portions of which may be useful to SERGEOMIN.

One practice which I think should be retained and, I think, expanded is that of using drivers. In a camp setting, budget permitting, the existing drivers could be given additional training pertinent to camp management (Industrial First Aid, for example), freeing all geological staff for scientific work.

Dr. Paul Metcalfe

Annex I:
Ad in the Northern Miner announcing proposed Airborne Surveys



Multinational Andean Project / Proyecto Multinacional Andino INDUSTRY PARTNERS SOUGHT FOR MULTIPARAMETER GEOPHYSICAL SURVEYS

<http://www.pma-map.com/>

In March 1999, the Multinational Andean Project (MAP), a CIDA funded project involving Argentina, Chile, Bolivia, and Peru decided to contract two multiparameter airborne geophysical surveys in Area 1 (Bolivia, Chile, Peru) and Area 2 (Argentina, Chile). Both surveys will be administered by MAP and funded by MAP and industry partners. Industry partners in either survey will receive exclusive use of that survey's data for a minimum of one year before general release. Participation cost for Area 1 is US \$75,000, while for Area 2 it is US \$35,000.

Area 1 - Bolivia, Chile, Peru

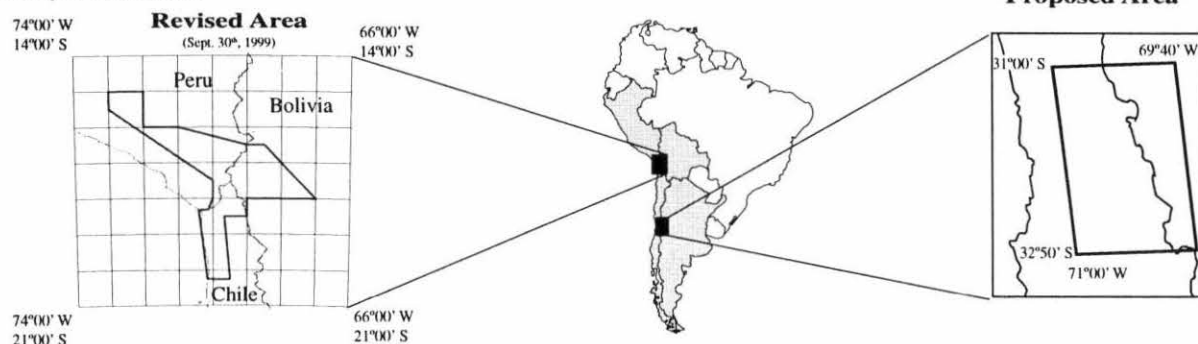
Following input from interested companies, the survey boundaries have been revised. The area as shown covers approximately 90,000 km². Companies are invited to indicate their interest in participation and suggested modifications or priority areas by the end of October, following which the final area will be established by the technical committee (which includes all participating companies). MAP will provide one-third of the funding. The participation fee for industry partners is US \$75,000. It is anticipated that the survey contract will be awarded early next year and that survey flying will commence in April 2000. Please address comments or questions to the contact listed below.

Dr. Dennis Teskey, Canada, Tel/Fax: (613) 834-0598
E-mail: dteskey@travel-net.com

Area 2 - Argentina, Chile

At a September 28 meeting of potential participants in the Argentina - Chile survey, a work plan (time-line) was established to ensure that the survey would commence by February 2000. If your company is interested in participating in this consortium please forward a "Letter of Intent" as soon as possible to:

Dr. Eduardo Zappettini,
Servicio Geológico Minero Argentino (SEGEMAR), Argentina
Tel: (54-11) 4349-3162 Fax: (54-11) 4349-3171
Email: ezappe@secind.mecon.ar



Annex J:
Map News Vol.2 - No. 4, 5, & 6 (English)



MAP NEWS

Internal Newsletter of the Multinational Andean Project

<http://www.pma-map.com/newsletter/v2n4.html>

Vancouver, BC, July 1st, 1999

A Monthly Update of Internal Project News

Vol 2 - No. 4

Activity Reports



Cartographic Standards Committee (Activity: B.98/M-2)

The Cartographic Standards Committee met for the first time in Lima, Peru on June 17 and 18. The two day meeting consisted of each country presenting its cartographic standards and methods followed by an open discussion of the Geological Mineral Resources map at 1:1,000,000. A second informal meeting may occur at the International Cartographic Association Conference in August if new cartographic issues arise and enough people are available.

Minutes from the first meeting of the Cartographic Standards Committee

Lima, 17th - 18th of June 1999

The first meeting of the cartographic standards committee of the Multinational Andean Project took place on the 17th-18th of June 1999 at the offices of INGEMMET (Lima, Peru).

Participants:

Lic. Graciela Marin	Argentina
Ing. Vitaliano Miranda	Bolivia
Geol. Paulina Gana	Chile
Cartog. César Reyes	Chile
Cartog. Robert Cocking	Canada

Ing. Manuel Paz	Peru
Ing. Robert Monge	Peru
Ing. William Martinez	Peru

Guests:

Ing. Francisco Herrera	Peru
Ing. Mario Carpio	Peru
Ing. Samuel Lú	Peru
Ing. Luis Vargas	Peru

Translator:

Ing. Rolando Cruzado

The meetings commenced with presentations by:

Graciela Marin	SEGEMAR
Vitaliano Miranda	SERGEOMIN
Paulina Gana y	
César Reyes	SERNAGEOMIN
Robert Monge	INGEMMET
Robert Cocking	GSC

After the presentations and discussions the following agreements were made:

Agreements

- Each country will supply their own data for the topographic base. This base will have the following characteristics:
 - Universal Transverse Mercator (UTM) projection
 - Datum: WGS 84
 - Contour lines: 1000 meters. The accuracy of the contour lines will be compared to GTOPO30
 - Ellipsoid: 1984 World Geodesic System
 - Grid: Geographic Coordinates every degree
 - Road coverage: International highways and roads that cross borders
 - River coverage: Up to second order
 - Population Centers: Provincial capitals and important localities
- The logo and flag of each country will be included.

- The Map will be printed by offset printing and files will be made available for plotter printing.
- The map will be produced in Spanish with English translation.
- The GTOPO30 for South America will be used as the basis for the location of the area of study.
- An insert showing the magnetic declination will be included.
- A figure will show references to authors, considering down to a scale of 1:250,000.

Proposals

- Geological Symbology

	Geological contact observed, inferred
	Strike and dip of bedding and overturned
	Bedding vertical, horizontal
	Anticline observed, inferred, overturned
	Syncline observed, inferred, overturned
	Fault observed, inferred
	Normal fault observed, inferred
	Inverse fault observed, inferred
	Strike slip fault dextral, sinistral
	Thrust fault
	Structural lineament
	Volcanic center active, inactive
	Caldera edge observed, inferred

- Symbology for geochronological dating will be discussed after the Geoscientific Committee reaches agreement on the topic.
- The Harland Geological Time Scale, 1989 will be used as the basis for the color scheme for the geologic units.
- A proposal was made to use the IUGS time scale, 1989 and/or Harland 1989.
 - The translations of the units of time will be based on common use. Ex. Jurassic - Jurásico
- Legend: The codes for the units will be formed by using the code of the geologic age at a Series level, plus the code for the geologic unit. Ex. Ksv Upper Cretaceous volcanic.
 - Some formation names will be included using colour to identify the country of source
 - It was proposed that the lithostratigraphic table will include formation names

- The colours and symbology of mineral deposits will be defined after agreements made by the geoscientific committee on this topic.
- The printing fonts will be Arial for Spanish and Arial Italic for English.
- It was proposed subject to approval that the topographic compilation will be done in Canada.
- The Executive Council will be requested to hold a meeting between the Cartographic Standard Committee and the Geoscience Committee at the beginning of December 1999.
- It is recommended to the Geoscience Committee to use the symbology of mineral deposits proposed by Bolivia, Chile and Peru as the basis for discussion on cartographic representation.

The International Cartographics Association Ottawa 1999

The International Cartographics Association "Ottawa 1999" conference had been considered as a possible venue for the MAP Cartographic Standards Committee (CSC) meeting. However, with the success of the first CSC meeting in Lima it is widely felt that a second meeting so soon is not necessary. Mr. Robert Cocking, CSC coordinator will be attending the meetings and any MAP member wishing to send delegates is encouraged to do so. Participants will be given tours of the GSC head office Cartography department.

Andre Panteleyev and Paul Metcalfe in Bolivia (Activity: A.96/B-3)

Dr. Andre Panteleyev of XDM Geological Consultants and Dr. Paul Metcalfe are currently in Bolivia (Panteleyev from June 28 to July 15 and Metcalfe from June 28 to July 23). Initially Dr. Panteleyev is giving a course in Metallogeny at the SERGEOMIN facilities in La Paz which is to be followed by field work with both scientists going to the field together with a SERGEOMIN field brigade. The focus of the field work will be on looking at mineral deposits in a regional context.

Upcoming Activities

Executive Council Meeting (Activity: PM.99/M-3)

Please note that the location of the next meeting of the MAP Executive Council has been changed to Santa Cruz, Bolivia from La Paz. The date for the meeting is still scheduled for August 21 to 23, 1999. The meeting will follow the "Bolivia '99 Mining and Construction" conference August 16 to 19, 1999. Please forward names of attendees to the Executive Council meeting to Mike Ellerbeck.

Fluid Inclusion Training

It is currently anticipated that training on the fluid inclusion equipment in Peru and Bolivia will commence in late October. Mr. Jim Reynolds, President of Fluid Inc., the manufacturer of the MAP fluid inclusion equipment will personally give the training in Bolivia and Peru. Mr. Reynolds needs to know how many participants there will be in each country. Please forward this information to MAP Administration.



PIMA Training

Training for the MAP Portable Infrared Mineral Analyzer (PIMA) for Bolivia, Chile, and Peru is scheduled to commence in November. Dr. Anne Thompson from PetraScience Consultants will be travelling to each country to give the course. Please forward names of participants from each country to MAP Administration.

Hickson to Peru (Activity: A.97/P-6)

Dr. Catherine Hickson of GSC Vancouver and MAP Project Manager will be in Peru in September to give a short course in volcanology and to conduct field work together with Peruvian geologists. Tentative dates for Dr. Hickson's visit are for September 6 to 17.

MAP Publications

The MAP administration has received publications from two of the countries. If you still haven't sent the material, please forward to Mike Ellerbeck 5 copies of MAP area publications for cataloguing and distribution.

Sample Standards Program

Collection of rock samples for the MAP Sample Standards Program has commenced in Bolivia. They have identified one dacite locality and collected 100 kg of the rock material. At the Executive Council meetings in March, it was agreed that each country would collect 100 kg each of at least four separate, prospective sample locations, and then send at least 4 kg of each to MAP Administration for processing. A final suite of standard samples is to be created from these specimens after initial analysis and evaluation. Bolivia will provide samples of dacite, Peru rhyolite, Argentina basalt, and Chile will provide both a high and a low silica andesite. We are looking forward to receiving the sample standards in order to proceed to the analytical phase of the program.



Nevados Payachata, Dpt. of Oruro, Bolivia-Chile border

Photo Contest

The deadline (August 1st) for the MAP photo contest is fast approaching. MAP participants are urged to send their pictures and get a chance to win a Geologist Cruiser Vest or a high quality hand lens.

For further MAP information please consult the project Web page at:

<http://www.pma-map.com>

Newsletter produced by MAP administrative staff:

- Mike Ellerbeck
- Rocío Lopez
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MAP NEWS

Internal Newsletter of the Multinational Andean Project

<http://www.pma-map.com/newsletter/v2n5.html>

Vancouver, BC, August 1st, 1999

A Monthly Update of Internal Project News

Vol 2 - No. 5

Activity Reports



Toronto, March 1999 - Executive Council Meeting

Executive Council Meeting (Activity: PM.99/M-3)

Santa Cruz, Bolivia
Hotel Caparuch
August 21st and 22nd, 1999
Proposed Agenda Items

- 1) Status of Action Items from March meetings of Executive Council (from March 15 to 17, 1999 meeting minutes)
- 2) Terrane Paths '99 Conference
- 3) Dates from UBC Geochronology Lab
- 4) Review of 1st quarter 1999/00
 - A) Accomplishments
 - B) Management Challenges
 - C) Required Information from Countries
 - D) Review of upcoming activities and Short-Courses
- 5) National Standards for Geochemistry
- 6) Discussion on Cartographic Standards Committee & Technical Committee for the Compilation of Mineral Resources Map of the border regions of the MAP countries.
 - A) Work plan for the creation of the Mineral Resources MAP
 - B) Technical Committee Report
- 7) Airborne Survey Update
 - A) Argentina / Chile Survey

- B) Bolivia / Chile / Peru Survey
 - Report on first meeting with potential participants

- 8) Present status of the MAP project in each country
 - Review of activities so far this fiscal year
 - 1) Field work
 - 2) Laboratory Studies
 - 3) Publications/Reports/ Maps



Airborne Geophysical Survey Meeting (Activity: D.99/M-C1 & D.99/M-C2)

Bolivia-Chile-Peru Airborne
Geophysical Survey

Hotel Caparuch
Santa Cruz Bolivia
August 19th, 1999
3:00pm - 6:00pm

1. Introduction to MAP
 - Dr. Catherine Hickson
2. Review of process (Puna Austral Example)
 - Agreement, Technical Committee, Contract Management (PWGSC), Request for Proposal, Proposal evaluation and award, Survey Management and Quality Control, Deliveries, Followup D. Teskey, C. Hickson
3. Current Project:
 - Proposed Area and anticipated cost

- MAP contribution
- Company contribution
- Area discussion - company input

4. Action if insufficient funds:

- Multi-year program
- Area priorities

5. Agreement

- Special purpose account, confidentiality, exclusivity period

6. Timing

7. Specifications

8. Discussion



Technical Committee For The Joint Mineral Resources Map (Activity: B.98/M-2)

Santa Cruz, Bolivia
Hotel Caparuch
August 20th, 1999

Participants:

Coordinator of Committee:

Dr. Eduardo Zappettini, Argentina

Members of the Committee:

Ing. Vitaliano Miranda, Bolivia
Dr. Waldo Vivallo, Chile
Ing. Oscar Palacios, Peru

Technical Advisor for MAP:

- Dr. Constantino Mpodosis,
Chile

Project Manager:

- Dr. Catherine Hickson,
Canada

Project Administrator:

- Mr. Mike Ellerbeck, Canada

- Introduction:

By the coordinator. General framework of the Project - General Objectives - Deadlines - Agreements by the Executive Council.

- Topic 1. Final Area of the Map

Material: Each country will present its proposed area.

Objectives: To agree on the final area to be mapped and making sure that the belts across border areas coincide.

- Topic 2: Descriptive Text

Development: Briefly analyse from a conceptual point of view, the feasibility of including descriptive text on the geology and the deposits on the map, mining record, etc. Each country will discuss its experience with this type of synthesis, at the national or bi-national level, and the level of difficulty in implementation.

Objective: Provide technical recommendation to the Executive Council.

- Topic 3: Geological Map Base

Required Materials from each Country: Available Geological Maps at 1:1,000,000, 1:500,000 or 1:250,000 scale.

Other participants: Responsible representatives for the geological area of each country.

Development: The objective of this session is to present and discuss the available information from each country, to be used as a base for the creation of the map. The focus will be the presentation by each country of the stratigraphic column, which must be consistent with existing knowledge. The goal is to accomplish compatibility between the columns and a UNIFIED COLUMN. Once the unified column is defined, it will be the base used by each country to create a preliminary map. Another topic that

will be approached will be the correlation of the units along the borders. The purpose of this is to identify areas of conflicting information, and to determine actions to take in order to achieve compatibility.

Note: The unification will include the definition of what is represented/differentiated: formation units/groups, lithologies, genetic environment, etc.

Objective: To agree on a unified stratigraphic column.

- Topic 4: Metallogenic Symbolology

Material: Guidelines for the execution of the Metallogenic Map of South America and the guidelines used in each country.

Development: Presentation by the Committee of the Guidelines for the Metallogenic Map of South America. Background; Groundwork; Agreements of the Executive Council. Comparison with the symbolology used in the other participating countries. Discrepancies and correlations. Database to be completed (mine record).

Objectives: Final agreement and implementation of the Guidelines - Database associated with deposits

- Topic 5: Deposits to Represent

Development: The objective of this module is to analyse, in view of the objectives of the map, which deposits will be represented. Among other points the following will be discussed: size limit of the deposits to be represented, whether or not to include industrial mineral deposits, ornamental stones, etc. Selection criteria of the deposits: size, metallogenic importance, historical significance, information density, etc.

Objectives: Unified Criteria for the selection of deposits included in the map.

- Topic 6: Other Tectonic and Metallogenic Elements to Include

Development: The inclusion of additional information will be analysed depending on convenience and availability in order to enrich the map. For example metallogenic belts, metallotects, land division, etc.

Objectives: To agree on what elements to include (if any).

Once all the planned activities for the five topics mentioned above are completed, an agreement will be signed, reflecting the results for each case and then it will be presented to the Executive Council.



Short Course on Mineral Deposits Classification and Genetic Modeling: Bolivia (Activity A.96/B-3)

A 10-lecture short course was presented by Dr. Andre Panteleyev as part of the Multinational Andean Project (MAP) during June 28 - July 02, 1999 in La Paz, Bolivia at the auditorium of the Servicio Nacional de Geología y Minería (SERGEOMIN). The course was intended for geologists interested in economic geology, primarily those in SERGEOMIN engaged in investigations of regional mineralization, metallogeny and assessment of mineral potential. Twenty-two certificates were presented at the end of the course; participants included five from SERGEOMIN, 5 from universities and 12 private or company geologists. The course reviewed advances in metallogeny, schemes of deposit classification, and methods of database construction and utilization. The emphasis was on ore deposits genesis with discussion about major styles of mineralization ('metallogeny').

For further MAP information please consult the project Web page at:

<http://www.pma-map.com>

Newsletter produced by MAP administrative staff:

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MAP NEWS

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<http://www.pma-map.com/newsletter/v2n6.html>

Vancouver, BC, September 1st, 1999

A Monthly Update of Internal Project News

Vol 2 - No. 6

Activity Reports

Executive Council Meeting (Activity: PM.99/M-3)



Executive Council Meeting, Santa Cruz, Bolivia
From left to right: Lic. Roberto Page (SEGEMAR), Ing. Humberto Mallo (SERGEOMIN), Ing. Ricardo Troncoso (SERNAGEOMIN), Ing. Juan Mendoza (INGEMMET), Dr. Catherine Hickson (GSC)

The recent MAP Executive Council Meeting took place in Santa Cruz, Bolivia on August 21st to 22nd. It was attended by:

Argentina	Bolivia
Lic. Roberto Page	Ing. Marcelo Claire
Ing. Jose Mendia	Ing. Humberto Mallo
Dr. Eduardo Zappettini	Ing. Hernan Uribe

Chile	Peru
Ing. Ricardo Troncoso	Ing. Juan Mendoza
Dr. Constantino Mpodozis	Ing. Oscar Palacios
Dr. Moyra Gardeweg P.	

Canada
Dr. Catherine Hickson
Mr. Mike Ellerbeck

Meeting Highlights

Project Budget Allocations:

The Project Manager presented the budget figures for the project, including a forecast for expenditures to the end of the project (December 31, 2001). MAP Management will prepare a revised forecast for each country to be included in the next quarterly report.

Further discussion centred around a new project (similar to MAP) to commence at the end of MAP. Work on outlining the goals of this new project must be started soon, as there is at least a one year time period for project approval. As MAP is planned to end halfway through a fiscal year, planning must

start now if a new project is to be started in January of 2002. It was then agreed that each country would bring its ideas on a new project to the next Executive Council meeting in Vancouver, the week of January 25, 2000.

Mineral Deposits Field Course:

Members of the Executive Council reported that the trip was a very successful one. All participants learned a great deal.

Review of 1st Quarter 1999 / 2000 by Project Manager and Project Administrator:

MAP accomplishments from April 1 to June 30, 1999 were briefly reviewed. These can also be found in Report #12, page 3. Scheduling inconsistencies continue to plague the planning process. Most activities agreed upon in the early part of the fiscal year have been changed, in some cases very close to the date of execution of the activity. Another management challenge has been the administration of the MAP Fellowship fund. It has been difficult to distribute the funds and not have banking charges incurred by the recipient. MAP Administration will need to find a better system to deal with the distribution of Fellowship funds.

Samples Update:

Sample processing of scientific samples collected during Multinational Andean Project activities in the Andes continues with various methods of geochronological analysis, including radiometric dating (⁴⁰Ar/³⁹Ar, K-Ar, U-Pb-Zircon, Carbon-14, and Fission Track methods). Palaeontological and palynological dating are complete for samples submitted to date. No new geochemical analyses have been reported since March, although new submissions are expected from all participating countries once sample processing decisions have been made regarding both previous and new specimen collections.

Petrological Standards Program:

The new Petrological Standards Program has begun with the collection of a preliminary dacite sample in Bolivia and a rhyolite sample in Peru. Chile has identified one of the two samples it is responsible for and will be sending the thin section and hand-sample to

MAP Administration soon. Peru has also sent a thin section and hand-sample. Argentina has also collected a sample. Samples collected by the countries are to be sent to MAP Administration as soon as possible. It is necessary to send about 4 kg of each of 3 or 4 different choices of rock samples for evaluation of their suitability as petrological standards.

Technical Committee Meeting For The Joint Mineral Resources Map (Activity: B.98/M-2)



Technical Committee Meeting - Santa Cruz, Bolivia.
From left to Right: Ing. Oscar Palacios (INGEMMET), Dr. Waldo Vivallo (SERNAGEOMIN), Dr. Eduardo Zappettini (SEGEMAR), Dr. Bertrand Heuschmidt (SERGEOMIN), Ing. Vitaliano Miranda (SERGEOMIN).

The meeting of the committee for the Metallogenic Map took place in Santa Cruz, Bolivia on August 20th. It was attended by:

Dr. Eduardo Zappettini - Argentina
Ing. Vitaliano Miranda - Bolivia
Dr. Bertrand Heuschmidt - Bolivia
Dr. Waldo Vivallo - Chile
Ing. Oscar Palacios - Peru
Dr. Catherine Hickson - Canada
Mr. Mike Ellerbeck - Canada

Meeting Highlights:

It was decided that the final product will be a Metallogenic Map. An agreement was reached on the following points:

- The GSC will prepare a base map with the defined borders at 1:1,000,000 and a copy will be provided to each country member.
- It was decided that the characteristics of the legend will be similar to those of the South American Metallogenic map produced by UNESCO in 1983 at 1:5,000,000 scale.
- The stratigraphic column was defined. Each country will compile their own geological map according to the units defined on the

stratigraphic column.

- An agreement was reached on a Symbology that highlights the most important types of deposits. A record registry standard for all the country members was also developed to facilitate the construction and data compilation of the Map.
- Guidelines were defined for determining which deposits to include in the Map. Industrial minerals and metalliferous deposits will be included. Ornamental rock and construction materials are excluded.
- Fluid and other Metallogenic elements will be included according to importance and density of the data to be plotted.

Airborne Geophysical Survey Meeting (Activity: D.99/M-C2)



The planning meetings for the Bolivia, Chile, Peru airborne geophysical survey were held in Santa Cruz, Bolivia on the 19th Aug, 1999 and in Lima, Peru on Aug. 25th, 1999. All three countries and four companies were represented in Santa Cruz, while the meeting in Lima was hosted by INGEMMET and attended by eleven companies. In Santa Cruz, it was decided to enhance the utility of the survey to industry by inviting potential participants to indicate their areas of priority to MAP by Sept. 15th. These areas would then be used to finalise the survey area in order to maximise company benefit while respecting MAP's objectives of furthering cooperation between the countries. Priority areas would not necessarily have to lie within the current defined area and the final area would not have to be continuous but must include a central core that encompasses common boundaries. Companies should fax or email their priority areas to Dr. Dennis Teskey or to one of the other project representatives, in confidence, by Sept. 15th. The Technical Committee was very encouraged by the interest shown in the project.

Dr. Dennis Teskey, Canada

email: dteskey@travel-net.com

Dr. Catherine Hickson, Canada

email: chickson@nrcan.gc.ca

Dr. Constantino Mpodozis, Chile

email: cmppodozi@sernageomin.cl

Ing. Humberto Mallo, Bolivia

email: sergeomi@caoba.entelnet.bo

Ing. Manuel Paz, Peru

email: mpaz@ingemmet.gob.pe

Argentina / Chile Airborne Survey Meeting (Activity: D.99/MH-2)

A meeting on the proposed Argentina - Chile joint Airborne Survey is planned for the 28th of September at 9:00 am at SERNAGEOMIN in Santiago, Chile. Representatives from SEGEMAR (Argentina) and SERNAGEOMIN (Chile) will be in attendance as will MAP Project Manager Dr. Catherine Hickson and representatives from companies interested in participating. Agenda topics will include:

- Review of the proposed survey area
- Participation fee
- Projected timeline
- Tendering procedures

If you wish to attend the meeting please contact MAP Administration in Vancouver at Tel: (604) 666-0183 Fax: (604) 666-7507 Email: mellerbeck@nrcan.gc.ca

Verifiable Indicators

It is important for project members to remember that Verifiable Indicators are the tools for measuring the progress of MAP. It is necessary to demonstrate that MAP is accomplishing its goals and therefore the information that you provide is very valuable. The following list describes the information required for the Verifiable Indicator report that will be submitted to CIDA. As was done in November of 1997 and 1998 please forward MAP administrative staff the requested information.

Please respond to the questions on the handout distributed at the Santa Cruz Executive Council Meeting or fill in the online questionnaire at:

<http://www.pma-map.com/indicators.html>

Administrative staff appreciates your cooperation and requests that you send this or any other information that can be considered a verifiable indicator by Oct 30 to MAP administration.

Mr. Mike Villeneuve to Chile (Activity: A.99/C-1)

Mr. Mike Villeneuve of GSC Ottawa - Geochronology Lab will be working at SERNAGEOMIN, Chile from the 15th to 26th of November to consult on various aspects of radiometric dating of the SERNAGEOMIN Geochronology Lab.

Terrane Paths 99

Raul Seggiaro and Elizabeth Rovere from SEGEMAR, Argentina will be attending the Terrane Paths 99 conference from the 1st to 10th of October at Silver Star Resort in the Okanagan

Valley, BC. For further information please consult the conference Web page at:

<http://www.rodus.com/terranepaths99/>

PIMA Training (Activity: A.99/B-1, A.99/C-2, A.99/P-1)

On-site training on the MAP portable infrared mineral analyser (PIMA) will be held in Peru from November 1st to 5th and in Bolivia from November 22 to 27. PIMA training at SERNAGEOMIN facilities in Chile has been postponed until March 2000. The course instructor will be Dr. Anne Thompson of PetraScience Consultants Inc. of Vancouver.

Fluid Inclusion Training (Activity: D.97/C-5, D.96/B-7, D.98/P-2)

Dr. Jim Reynolds of Fluid Inc. in Colorado will be in Bolivia from November 29 to December 3 and in Peru from December 6 to 10 to give a course on Fluid Inclusions. Both countries as well as Chile have acquired fluid inclusion equipment through MAP. Dr. Reynolds will also make a brief stop in Chile to review the Chilean fluid inclusion equipment that is already in operation.

The Web Page

The latest Web page statistics (hits) are as follows:

	1999	1998
June	3,741	2,315
July	4,411	2,197
August	2,897	1,882

There has been a steady increase in our traffic and we have almost doubled it from the same period a year ago. A record number of visits occurred during the month of July and a large portion was focused on the Airborne Survey Page. From June to August we have had visits from more than 38 countries around the world with USA, Canada, Argentina, Australia, Mexico, Chile, Italy, France, United Kingdom and Peru in the top 10. Changes to page are ongoing and we encourage country members to review their sections on the site.

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