

MULTINATIONAL ANDEAN PROJECT

Canadian International Development Agency, Arrangement: 24846, RC/Project: 540/20080

Commitment: 189086, Supplier: G41000

REPORT #9



Second Quarter Report - October 1, 1998

Geological Survey of Canada, Pacific Division (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, 1998

Prepared by:

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- Chile
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- Peru
- Report Totals

Annex B: Summary Report and Detailed Budget to March 31, 1999

Sorted by Country and Sub-Unit

- Argentina
- Bolivia
- Canada
- Chile
- Multi
- Peru
- Report Totals

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Report Summary

This document reports on the activities that took place during the Second quarter of the 1997/98 fiscal year (July 1-September 30, 1998) and gives a summary of the work plans for 1998/99 fiscal year for the Multinational Andean Project (MAP). A revised budget forecast ending December 31, 2000 is also presented.

Start: Aug. 1996 **Finish:** Fiscal year 2001 (Dec. 31/2000) **Cost limitation:** ^{CDN}\$4,800,000.00

Accomplishments

The second quarter of the 1998/99 fiscal year saw:

- The completion of MAP NEWS Internal Newsletter issues 4-6.
- The Spanish version of MAP News (Boletín PMA) was created (commenced at v.1 - No.4)
- An increase in the amount of traffic on the WEB page (see Annex E).
- Initial contact with participants from Peru and Chile made and initial conference room testing completed
- Volcanology short course (Part 1) completed successfully (See annex C).
- The final flight for the Puna Austral airborne geophysical survey occurred on September 25.
- Initial testing of the electronic conferencing for the Cartographic Standards Committee have been conducted with Peru and Chile.

Management Challenges

- The Ar/Ar lab will be down for at least 6 weeks.
- The UBC K/Ar facility is still not functional.
- Accurate budget forecasting has been difficult because of changes in work plans of several countries. MAP administration will endeavour to provide CIDA with as accurate a forecast as possible following the mid-year Executive Council Meetings

Information Needs from Participating Countries

- Names for attendees at next Executive Council Meetings in Buenos Aires Argentina November 8-15, 1998.
- Names of participants for the Volcanology short course (Part II) to be held in Chile November 23-30, 1998.
- In order to begin planning the next mineral deposits field trip in Argentina and Bolivia management in Argentina, Bolivia, and Canada require a list of participants from each country along with the following information:
 - Full name, Passport information, Home address, Telephone (office), Telephone (home), & Position.
- Verifiable Indicators to Ms. Rocio Lopez.
- Names of attendees at Executive Council Meetings in Toronto March 13-20, 1999.

Planned Activities, April 1, 1998-March 31, 1999

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 denoted as A.96 and, those started in fiscal year 1997/98 are prefixed by "97", and those started in the 1998/99 fiscal year are prefixed "98". 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 initial detailed budget information by Country, Purpose and Sub-unit is presented in Annex A and B.

- Indicates initial work on the Activity.
- ◆ Indicates work completed on Activity in first quarter (April 1-June 31, 1998) or action required in the second quarter.
- ▶ Indicates work completed on Activity in the second quarter (July 1-September 30, 1998) or action items for the third quarter.
- ★ Indicates work completed on Activity in third quarter (October 1-December 31, 1998) or action items for the fourth quarter.
- ◇ Indicates the status of the Activity for the conclusion of the 1998/99 fiscal year.

Purpose A

Quarter	Summary of Activities	Budget changes	Current Budget
A	Geological work leading to more compatible geoscience data within the four National Geoscience Surveys		\$161,650.00
1 st Quarter	Budget change	-\$435.63	\$161,214.37
2 nd Quarter	Budget change (Correction & Change) see note***	-\$83764.33	\$77,450.00
3 rd Quarter	Budget change		
4 th Quarter	Budget change		

Note:*** Second quarter correction reflects an error made on budget change in first quarter plus a reduction of \$84,200.00 in the Budget. (\$435.67 - \$84,200.00= -\$83764.33)

Budget changes reflect postponement of the following activities by both Argentina and Bolivia: A.96/A-2, A.96/A-3 A.98/A-1, A.98/A-2, A.98/B-1, A.96/P-4.

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
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This activity will enhance the overall ability of SEGEMAR in an 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 a 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:

- None.

A.96/A-2	In-field training in regional mapping techniques, volcanology, and metallogeny	Argentina	\$18,500.00
1 st Quarter	Budget change		
2 nd Quarter	Budget change	-\$10,000.00	\$8,500.00
3 rd Quarter	Budget change		
4 th Quarter	Budget change		

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).

The in-field training done by Dr. Carol Evenchick (structure) and Dr. Andre Panteleyev (metallogeny) in 1996/97 was followed-up by field work done in 1997/98 fiscal year by Panteleyev and volcanology specialists Hickson and Edwards. In 1998/99 Panteleyev will do further metallogenic work with SEGEMAR scientific staff.

First Quarter Action Items:

- Set tentative dates for field work of Panteleyev.
- Panteleyev to begin work on updating the national mineral inventory data base using information available in Canada. It is anticipated this work would be concluded by the end of the first quarter (June 30).

Second Quarter Action Items:

- ◆ *The field work of Dr. Panteleyev in Argentina has been postponed until the 1999/2000 fiscal year.*
- ◆ *Panteleyev to begin preliminary mineral inventory data base work.*

Third Quarter Action Items:

- ▶ Initial Contract has been let to Dr. Panteleyev and initial work has commenced on mineral inventory database.
- ▶ A \$10,00.00 reduction is shown in the budget because Dr. Panteleyev will not be travelling to Argentina for this activity, and there will be no field work in Argentina.

A.96/A-3	Interpretation and integration of satellite data	Argentina	\$5,000.00
1 st Quarter	Budget change		
2 nd Quarter	Budget change	-\$5,000.00	\$0.00
3 rd Quarter	Budget change		
4 th Quarter	Budget change		

This activity will enhance the overall ability of the Argentinean Survey to deal with digital satellite images in a number of formats. 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. This activity will build on the expertise gained under the GLOBESar II project on PCI software, using images acquired under MAP. This training has also been made available to the Bolivians and Peruvians, thereby helping standardize the way each of the countries deals with satellite data.

In this fiscal year a radar module for either PCI or ER Mapper will be purchased.

First Quarter Action Items:

- Decide if module is necessary.

Second Quarter Action Items:

- ◆ *Activity postponed until 1999/2000 fiscal year.*
- ◆ *The following software is available at the University of Buenos Aires. The software was acquired through GLOBESAR and it is to be shared with other institutions who may need it.*

Third Quarter Action Items:

- ▶ The budget has been reduced to zero as the software is not required.

A.98/A-1	Multiparameter geophysical and geochemical interpretation and integration	Argentina	\$8,000.00
1 st Quarter	Budget change		
2 nd Quarter	Budget change	-\$8,000.00	\$0.00
3 rd Quarter	Budget change		
4 th Quarter	Budget change		

Regional geophysical and geochemical information is extremely valuable for exploration work and regional mapping. Tools such as regional gravity, aeromagnetic and geochemistry 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 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:

- Arrange for participation of Jeff Harris or alternative if he is unavailable.
- Finalize requirements regarding geophysical interpretation needs.

Second Quarter Action Items:

- ◆ *Activity postponed until 1999/2000 fiscal year.*

Third Quarter Action Items:

- ▶ This activity has been postponed and the budget therefore has been reduced to zero.

A.98/A-2	Geological, geophysical, geochemical data integration and digital data presentation (CD-ROM)	Argentina	\$6,700.00
1 st Quarter	Budget change		
2 nd Quarter	Budget change	-\$6,700.00	\$0.00
3 rd Quarter	Budget change		
4 th Quarter	Budget change		

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, which 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.

First Quarter Action Items:

- Arrange time and duration of visit of Argentinean scientist to GSC Vancouver office.

Second Quarter Action Items:

- ◆ *Activity postponed until 1999/2000 fiscal year.*

Third Quarter Action Items:

- ▶ This activity has been postponed and therefore the budget has accordingly been reduced to zero.

A.96/B-3	Training in regional mapping, volcanology and metallogenic studies	Bolivia	\$15,500.00
1 st Quarter	Budget change		
2 nd Quarter	Budget change	-\$15,500.00	\$0.00
3 rd Quarter	Budget change		
4 th Quarter	Budget change		

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 in volcanic terrain and gain increased abilities in the regional interpretation of metallogenic studies.

A field visit during 1997/98 by Dr. Glenn Woodsworth commenced work in this activity. During 1998/99 collaborative field work will be carried out by Hickson, specifically in volcanology. This will most likely take place in October or November.

First Quarter Action Items:

- Arrange dates and tentative schedule for field visit of Hickson in October or November.

Second Quarter Action Items:

- ◆ *Activity on hold pending financial status of Bolivian Survey.*

Third Quarter Action Items:

- ▶ Dr. C.J. Hickson has received an invitation to visit Bolivia in January or February.
- ▶ Hickson to discuss funding and staff issues with SERGEOMIN during Executive Council Meetings in Buenos Aires.
- ▶ Will need to re-budget if this activity is to go ahead.

A.97/B-1	Training in digital data capture in the field (FieldLog) and PC based GIS for map production	Bolivia	0.00
1 st Quarter	Budget change	-\$400.00	-\$400.00
2 nd Quarter	Budget change (Correction)	+\$400.00	\$0.00
3 rd Quarter	Budget change		
4 th Quarter	Budget change		

This activity will enhance the ability of SERGEOMIN to capture digital data in the field and standardize their data. FieldLog will assist the Bolivians in digital capture of data while in the field and assist in producing maps using CAD programs (MapInfo/Vertical Mapper). This work will facilitate the rapid output of field maps upon completion of field work.

During 1997/98 fiscal year emphasis was placed on database structures and training in FieldLog to help standardize data acquisition within each country and between the countries. This fiscal year no specific activity is planned, although follow-up work may be requested.

First Quarter Action Items:

- None.

Second Quarter Completed and Third Quarter Action Items:

- ▶ Unforeseeable expense occurred during second quarter (Budget change in first quarter was incorrect, for good accounting a correction is reflected in third quarter).

A.98/B-1	Interpretation and integration of satellite data	Bolivia	\$21,900.00
1 st Quarter	Budget change		
2 nd Quarter	Budget change	-\$21,900.00	\$0.00
3 rd Quarter	Budget change		
4 th Quarter	Budget change		

This activity will enhance the overall ability of the Bolivian Survey to deal with digital satellite images in a number of formats. 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. This activity will build on the expertise gained under the GLOBESar II project on PCI software, using images acquired under MAP. This training has also been made available to the Argentinians and Peruvians, thereby helping standardize the way each of the countries deals with satellite data.

In this fiscal year it is planned that a Bolivian scientist travel to GSC Vancouver and participate in training in satellite image interpretation (Advanced ER Mapper).

First Quarter Action Items:

- Arrange time for visit and training in GSC Vancouver office.
- Arrange for acquisition of two Radarsat images.

Second Quarter Action Items:

- ◆ *Activity postponed until 1999/2000 fiscal year.*

Third Quarter Action Items:

- ▶ This activity has been postponed and therefore there has been a budget reduction.

A.97/C-2	Field digital data capture (FieldLog) and PC based GIS for map production	Chile	0.00
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This activity will enhance the ability of SERNAGEOMIN to capture digital data in the field and standardize their data. Emphasis will be placed on database structures and training in FieldLog to assist standardization of data within each country and between the countries. FieldWorker will further aid the Chileans in digital capture of data while in the field and assist in producing maps using CAD software (MapInfo/Vertical Mapper).

During 1997/98 fiscal year emphasis was placed on database structures and training in FieldLog to help standardize data acquisition within each country and between the countries. This fiscal year no specific activity is planned, although follow-up work may be requested.

First Quarter Action Items:

- None.

A.97/C-3	Fission track studies to determine uplift and denudation and its relation to supergene processes	Chile	\$33,450.00
1 st Quarter	Budget change		
2 nd Quarter	Budget change		
3 rd Quarter	Budget change		

4 th Quarter	Budget change		
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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 collection fission track samples.

In 1998/99 a Chilean scientist will travel to GSC Calgary to work with Dr. Lisel Currie. These two scientists will work collaboratively to analyse data collected by them in 1997/98 fiscal year.

First Quarter Action Items:

- Complete fission track analysis of samples collected in 1997/98.
- Arrange for a mutually agreeable time (after sample analyses) for the visit of the Chilean scientist to Canada.

Second Quarter Action Items:

- ◆ *Preliminary contact between Currie and SERNAGEOMIN initiated.*

Third Quarter Action Items:

- ▶ Work being planned for early 1999. Date to be set as soon as possible.

A.97/C-4	Training in petrography, petrogenesis, geochemistry, volcanic stratigraphy and mapping, field applications	Chile	\$0.00
1 st Quarter	Budget change	-\$35.63	-\$35.63
2 nd Quarter	Budget change (Correction)	+\$35.63	\$0.00
3 rd Quarter	Budget change		
4 th Quarter	Budget change		

This activity has been superseded by the multinational activity under B.98/M.3.

Third Quarter Action Items:

- ▶ Unforeseeable expense occurred during second quarter (Budget change in first quarter was incorrect, for good accounting a correction is reflected in second quarter).

A.96/P-4	Training in Paleozoic stratigraphy and regional mapping	Peru	\$14,000.00
1 st Quarter	Budget change		
2 nd Quarter	Budget change	-\$10,500.00	\$3,500.00
3 rd Quarter	Budget change		
4 th Quarter	Budget change		

Accurate and systematic geological mapping requires experience and ability. Geologists must be able to unravel the stratigraphy in structurally complex regions that are sometimes poorly exposed. Additionally, the production of high quality regional maps requires accurate data (radiometric and fossil dating) for stratigraphic analyses and interpretation. The goal of this activity is to enhance the mapping skills of Peruvian scientists through collaborative work with a Canadian expert in Paleozoic stratigraphy.

Under this activity Dr. Steve Gordey has worked in the field with Peruvian geologists and been able to discuss the needs for Palaeontologic investigations and input into map products, evaluated the requirements for radiometric control for mapping and had made recommendations for future field work. In this fiscal year, Gordey will continue

collaborative field work with Peruvian scientists.

First Quarter Action Items:

- Arrange best timing for field work of Gordey.

Second Quarter Action Items:

- ◆ *INGEMMET has been contacted and is organizing dates for Gordey's field work.*

Third Quarter Action Items:

- ▶ Dr. Gordey's trip and fieldwork postponed pending coordination with Bolivia.
- ▶ Budget revised to reflect postponement of joint Peru / Bolivia field work.

A.97/P-5	Training in TM and RadarSat imaging and structural/alteration interpretation of imaging, alteration zones, digital data capture (FieldLog)	Peru	\$8,000.00
1 st Quarter	Budget change		
2 nd Quarter	Budget change		
3 rd Quarter	Budget change		
4 th Quarter	Budget change		

This activity will enhance the ability of INGEMMET to capture digital data in the field and standardize their data collection using Fieldworker. Training in FieldLog will assist the Peruvians in producing maps using CAD or GIS software (ArcInfo, MapInfo/Vertical Mapper). This work will facilitate the rapid output of field maps upon completion of field work. In addition to the work on digital data capture and standardization, 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. This activity will build on the expertise gained under the GLOBESar II project using PCI software, and images acquired under MAP. This is training that has also been made available to the Argentinians and Peruvians, thereby helping standardize the way each of the countries deals with satellite data. There is some overlap in this activity with Purpose D (Institutional Strengthening).

First Quarter Action Items:

- Determine area and timing of two additional Radar images requested.

Second Quarter Action Items:

- ◆ *Two satellite images were acquired for Peru. At the moment we are obtaining copies of the digital data and prints of the images. Upon their completion they will be sent to Peru.*

Third Quarter Action Items:

- ▶ Images sent to Peru - activity complete

A.97/P-6	Training in petrography, petrogenesis, geochemistry, volcanic stratigraphy and mapping, field applications	Peru	0.00
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This activity has been superseded by the multinational activity under B.98/M.3.

A.98/P-1	Metallogenic resource evaluation and mineral deposit modelling and applications	Peru	\$24,000.00
1 st Quarter	Budget change		
2 nd Quarter	Budget change		
3 rd Quarter	Budget change		
4 th Quarter	Budget change		

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 metallogenic projects which produce useful products. There is some overlap in this activity with Purpose D (Institutional Strengthening). The in-field training will commence in 1998/99 with a visit by Dr. Andre Panteleyev.

First Quarter Action Items:

- Set tentative dates for field work of Panteleyev.

Second Quarter Action Items:

- ◆ *Tentative dates from mid-September to end of October for Panteleyev field work.*

Third Quarter Action Items:

- ▶ Dr. Panteleyev has been contracted to go to Peru from October 19, 1998 through November 13, 1998.
- ▶ Dr. Panteleyev will give a 3 to 4 day short course in the geology of mineral deposits and metallogeny at INGEMMET.
- ▶ He will then travel to the field with INGEMMET geologists to conduct field work.

Purpose B

Quarter	Summary of Activities	Budget changes	Current Budget
B	Increase cooperation between Geoscience institutions in all five countries (Horizontal Integration) geological work leading to more		\$154,500.00
1 st Quarter	Budget change	-\$3,890.16	\$150,609.84
2 nd Quarter	Budget change (Correction & Change) ***	-\$18,209.84	\$132,400.00
3 rd Quarter	Budget change		
4 th Quarter	Budget change		

Note:*** Second quarter correction reflects an error made on budget change in first quarter minus a change of \$22,100.00 as a budget change (\$3,890.16 - \$22,100.00 = \$18,209.84)

Budget changes reflect completion of the following activity for the current fiscal year :B.97/M-2

Details by Activities

B.96/M-1	Collaboration on display and participation at a North American international geoscience conference held in Canada	all	\$19,600.00
1 st Quarter	Budget change		
2 nd Quarter	Budget change		
3 rd Quarter	Budget change		
4 th Quarter	Budget change		

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 B (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 Conference (PDAC) in Toronto and in 1997/98 the joint meeting of the Society of Economic Geologists and the BC Yukon Chamber of Mines annual meeting was the venue. This fiscal year MAP participants will again meet at the Toronto based Prospectors and Developers Association conference.

First Quarter Action Items:

- Book booth space at the conference and a block of hotel rooms.

Second Quarter Action Items:

- ◆ 15 rooms booked at Crown Plaza hotel from March 13-20, 1999.
- ◆ Book booth at PDAC and reserve meeting room.

Third Quarter Action Items:

- ▶ Booth and meeting room booked at PDAC.
- ▶ Display material needs to be identified for booth.
- ▶ Names of participants are required by MAP administrative staff.

B.96/M-2	Discussions in Regional Metallogeny and Project goals relative to Regional synthesis and future project goals	all	\$0.00
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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, more thought will be put into this activity.

First Quarter Action Items:

- None.

B.97/M-1	Mineral Deposits field trip through portions of the four participating countries		\$41,800.00
1 st Quarter	Budget change	-\$714.32	\$41,085.68
2 nd Quarter	Budget change (corrections)	+\$714.32	\$41,800.00
3 rd Quarter	Budget change		
4 th Quarter	Budget change		

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 (Dr. Orlando Sanjines). Canadian technical experts will accompany the group to provide background and regional metallogenetic and mineral deposit information.

First Quarter Action Items:

- Work with Zappettini and Sanjines to begin planning for the trip slated to run in October/November. Booking of transportation and letters to mine officials must start early.
- Sangster and Panteleyev to provide outline of teaching material they plan to provide to trip participants and planning for insertion of this information into the trip itinerary begins.
- Countries to provide list of participants.

Second Quarter Action Items:

- ◆ *SEGEMAR and SERGEOMIN have both identified a possible itinerary for their respective countries (however, Bolivia's financial ability to participate in this activity is presently in question and it is anticipated that SERGEOMIN management will soon inform MAP management of their situation and how it will effect*

Bolivia's participation for this and other joint activities this fiscal year).

- ◆ *Both Sangster and Panteleyev have been compiling list of material to be used during the trip.*
- ◆ *Member countries have begun to provide lists of participants.*
- ◆ *Mines to be visited in Argentina have been identified. A letter to written and dates of visits to be confirmed.*
- ◆ *Booking of vans for travel and other logistic requirements need to be identified.*

Third Quarter Action Items:

- ▶ Trip has tentatively been postponed until January or February.
- ▶ Decision to be made at Executive Council Meetings in Buenos Aires.
- ▶ Second quarter correction reflects an error made on budget change in first quarter.

B.97/M-2	Use and application of in-field hand-held spectrometer (PIMA) for mineral deposit studies		\$26,000.00
1 st Quarter	Budget change		
2 nd Quarter	Budget change	-\$22,100.00	\$3,900.00
3 rd Quarter	Budget change		
4 th Quarter	Budget change		

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, the countries will be able to study alteration zone mineralization and mineral deposits in the field, greatly enhancing their overall understanding of mineral deposits in a region.

First Quarter Action Items:

- Organize training session giving introduction to PIMA technology and field use.

Second Quarter Action Items:

- ◆ *Preliminary contact has been made with Spectra International to organize training early 1999.*
- ◆ *Panteleyev will take training and provide information on equipment to countries.*

Third Quarter Action Items:

- ▶ Dr. Panteleyev took three day training course from Spectra International. He will bring the PIMA with him on field work in Peru (October 1998) and begin demonstrating its capabilities.
- ▶ Budget has been re-forecast downward to reflect completion of planned activities for this fiscal year.

B.98/M-1	Development of rock and lithogeochemical standards		\$16,400.00
1 st Quarter	Budget change		
2 nd Quarter	Budget change		
3 rd Quarter	Budget change		
4 th Quarter	Budget change		

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 two standards (one rock and one lithogeochemical standard) 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 beyond the end of the project. For this activity a database will also be developed to store sample information.

First Quarter Action Items:

- Identify appropriate material that can be collected in bulk and relatively easily from each country.
- Begin work on modification of existing database.

Second Quarter Action Items:

- ◆ *This activity has been put on hold pending replacement of Dr. Edwards who finishes his work with the GSC June 26, 1998.*
- ◆ *Hiring initiated for a replacement for Dr. Edwards. It is expected that hiring will be completed this quarter.*

Third Quarter Action Items:

- ▶ Interviews were conducted for replacement for Dr. Edwards however, none of the candidates proved suitable to the requirements of the position.
- ▶ The position will be reposted during the third quarter.
- ▶ Dr. Paul Metcalfe has been contracted in the interim to cover basic duties required by this activity.

B.98/M-2	Development of cartographic standards for application to 1:500,000 geology and mineral resource map		\$10,200.00
1 st Quarter	Budget change	-\$362.00	\$9,838.00
2 nd Quarter	Budget change (correction)	+\$362.00	\$10,200.00
3 rd Quarter	Budget change		
4 th Quarter	Budget change		

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.

First Quarter Action Items:

- Meeting of designated country representatives.
- Distribution of Geological Survey of Canada digital and cartographic standards.

Second Quarter Action Items:

- ◆ *First meeting of the Cartographic standards committee will be held digitally via the MAP Web Page virtual conference room during the second quarter (date yet to be decided). All countries have been informed and initial contact is being made with the designated committee members.*
- ◆ *The Geological Survey of Canada digital and cartographic standards have been printed, bound and sent to the committee members as well as the project leaders.*

Third Quarter Action Items:

- ▶ Second quarter budget correction reflects an error made on budget change in first quarter.
- ▶ Initial contact has been made with designated people from Chile and Peru.
- ▶ Initial on-line testing also completed.
- ▶ Planning underway to hold first electronic conference during third quarter.
- ▶ Possibility to hold first meeting of committee at International Cartographic Association Conference in Ottawa in August, 1999 (decision to made at Buenos Aires Executive Council Meetings).

B.98/M-3	Volcanology field studies and workshops		\$40,500.00
1 st Quarter	Budget change	-\$3,890.16	\$36,609.84
2 nd Quarter	Budget change (Correction)	+\$3,890.16	\$40,500.00

3 rd Quarter	Budget change		
4 th Quarter	Budget change		

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.

First Quarter Action Items:

- Make arrangements and set date for two week field studies course in Canada (August).

Second Quarter Action Items:

Field Course Trip Itinerary

- Aug. 9: Participants arrive in Vancouver
- Aug. 10: Fly to Seattle Washington. Mt. Rainier - ice contact deposits, flows (overnight in Randall).
- Aug. 11: Mt. Rainier Ocoela mud flow deposit (overnight in Castle Rock).
- Aug. 12: Mt. St. Helens east side (overnight in Paradise or Packwood).
- Aug. 13: Mt. St. Helens west side - avalanche debris, lahar deposits, surge deposits. Fly back to Vancouver (overnight at Delta Airport Inn).
- Aug. 14: Drive to Wells Gray area. Dr. Murray Journeay and field assistant join the group (overnight at Wells Gray Inn, camping).
- Aug. 15: Wells Gray - ice contact volcanism, subaqueous processes (overnight at the Wells Gray Inn, camping).
- Aug. 16: Wells Gray - ice contact volcanism, subaqueous processes. Drive to Lillooet (overnight in Lillooet - hotel not yet known).
- Aug. 17: Drive to Meager - Coast Plutonic Belt, volcanically triggered catastrophic flood deposits, welded "Merapi" style breccia (overnight at camp ground).
- Aug. 18: Drive to Whistler Mountain. Coast Plutonic Belt, volcanically triggered catastrophic flood deposits, welded "Merapi" style breccia (overnight at Whistler, camping).
- Aug. 19: Fly from Squamish to Mt. Cayley (dacitic complex) - overview of Garibaldi Belt, sample collection, stratigraphy, ice contact features and evidence of recent tectonism (overnight at Whistler, camping).
- Aug. 20: Fly from Whistler to Mt. Cayley (work as Aug. 19), (overnight at Whistler, camping).
- Aug. 21: Fly from Whistler to Mt. Cayley (work as Aug. 19). Drive to Vancouver (overnight Delta Airport Inn). Trip over.
- Aug.22: Participants begin return trip home.

Third Quarter Action Items:

- ▶ Second quarter correction reflects an error made on budget change in first quarter.
- ▶ Volcanology Field Course (part 1 in Canada) completed. (see Annex C).
- ▶ Volcanology Field Course (Part 2 in Chile) plans underway: The dates have been chosen (November 23-30, 1998).

Tentative Itinerary

- Monday 23: Theoretical course in Santiago, at SERNAGEOMIN facilities (9:00am - 18:00pm)
- Tuesday 24: travel Santiago - Calama - San Pedro de Atacama. Familiarization with surrounding in the evening.
- Wednesday 25, Thursday 26, Friday, 27, Saturday, 28: Field work.
- Sunday 29: return to Santiago.

Participants must arrive in Santiago no later than Sunday November 22. Chile is planning on sending 6 participants as well as Dr. Moyra Gardeweg as trip leader and Ing. Jorge Clavero who will be the coordinator and assistant. It is anticipated that each country (Peru, Bolivia, Argentina) will send 2 participants as well as Dr. Hickson from Canada and 4 drivers for a total of 19 people.

Purpose C

Quarter	Summary of Activities	Budget changes	Current Budget
C	Enhance institutional relationships with Private Sector (mineral exploration and mining companies)		\$44,640.00
1 st Quarter	Budget change	-\$11,093.12	\$33,546.88
2 nd Quarter	Budget change (Correction)	+\$11,093.12	\$44,640.00
3 rd Quarter	Budget change		
4 th Quarter	Budget change		

Note: Second quarter correction reflects an error made on budget change in first quarter.

Details by Activities

C.96/M-1	Post "News Release" and other information for participants and Private Sector Companies through WEB Page		\$13,500.00
1 st Quarter	Budget change	-\$1,759.80	\$11,740.20
2 nd Quarter	Budget change (Correction)	+\$1,759.80	\$13,500.00
3 rd Quarter	Budget change		
4 th Quarter	Budget change		

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 report #7 in internal area.
- Develop a "What's New" section for public access.
- Create a newsletter for the internal users.

Second Quarter Action Items:

- ◆ *Web Page updated.*
- ◆ *Monthly newsletter (MAP News) created, and three issues have been distributed.*
- ◆ *Monthly newsletter is published on the Web Page.*

Third Quarter Action Items:

- ▶ Second quarter correction reflects an error made on budget change in first quarter.
- ▶ WEB Page has been updated
- ▶ Further updates required during third quarter to individual country descriptions.
- ▶ Newsletters #1 through #6 completed.
- ▶ Addition of Spanish version of Newsletter started at Vol.1 No.4

C.97/M-1	Technical Liaison Committee with Industry Representatives.		\$4,440.00
1 st Quarter	Budget change		
2 nd Quarter	Budget change		
3 rd Quarter	Budget change		
4 th Quarter	Budget change		

In order to help the countries understand Canadian practices in terms of our relationship with the private sector, a "Technical Liaison Committee" made up of representatives from the private sector was implemented in 1997/98. This committee will review 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 countries 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.

First Quarter Action Items:

- Project Manager to meet with Dr. Art Soregaroli and review project work plans for 1998/99.

Second Quarter Action Items:

- ◆ *Meeting with Dr. Soregaroli set for July 16.*

Third Quarter Action Items:

- ▶ Project management met with Dr. Soregaroli three times during second quarter.

C.98/M-1	Technical review by Private Sector		\$10,700.00
1 st Quarter	Budget change		
2 nd Quarter	Budget change		
3 rd Quarter	Budget change		
4 th Quarter	Budget change		

High quality geoscience information is one of the goals of the project. In order to achieve this goal both internal and external reviews of products and practices are necessary. Peer reviews within the country are very important, but can sometimes be enhanced by an independent, external reviews. The goal of this activity is to provide the countries with help in the review process.

First Quarter Action Items:

- Formalize request from Bolivia for review.

Second Quarter Action Items:

- ◆ *Dr. Soregaroli's trip to Bolivia is on hold pending financial update from SERGEOMIN.*

Third Quarter Action Items:

- ▶ Dr. Soregaroli contracted to visit Bolivia.
- ▶ Dr. Soregaroli scheduled to visit Bolivia November 18 to 29, 1998.

C.98/M-2	Project information and profile enhancement		\$16,000.00
1 st Quarter	Budget change	-\$9,333.32	\$6,666.68
2 nd Quarter	Budget change	+\$9,333.32	\$16,000.00
3 rd Quarter	Budget change		
4 th Quarter	Budget change		

In order to increase the profile of the National Geoscience Surveys with the private sector, the work of the Surveys 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.

First Quarter Action Items:

- Update and correct English language brochure and create a Spanish language one.

- Provide material for an information package for presentation to mine officials, for mines tour.
- Hickson to participate in mineral industry organized Andean Conference and field trip (Mendoza, Argentina, June 3-8).

Second Quarter Action Items:

- ◆ *Project "three-fold" bilingual (English/Spanish) pamphlet has been created and is being sent to all member organizations for editing and approval.*
- ◆ *Material for Information package being compiled.*
- ◆ *Dr. Hickson participated in Andean Conference, Mendoza, Argentina (see report #8 Annex C).*

Third Quarter Action Items:

- ▶ Second quarter correction reflects an error made on budget change in first quarter.
- ▶ Project pamphlet completed and approved by all member countries.
- ▶ Multiple copies for general distribution to be made during third quarter

Purpose D

Quarter	Summary of Activities	Budget changes	Current Budget
D	Institutional strengthening		\$798,899.00
1 st Quarter	Budget change	-\$65,228.25	\$733,670.75
2 nd Quarter	Budget change (Correction & Change) Note:***	-\$105,634.75	\$628,036.00
3 rd Quarter	Budget change		
4 th Quarter	Budget change		

Note:*** Second quarter correction reflects error and change (\$65,228.25-\$170,863.00=\$105,634.75)

Second quarter correction reflects an error made on budget change in first quarter.

Budget changes reflect postponement and modification of the following activities by both Argentina and Bolivia: D.96/A-1, D.96/A-4, D.96/B-10, D.96/B-11.

Details by Activities

D.96/A-1	Geochemical Exploration techniques, sample handling and data analysis	Argentina	\$51,200.00
1 st Quarter	Budget change		
2 nd Quarter	Budget change	-\$47,000.00	\$4,200.00
3 rd Quarter	Budget change		
4 th Quarter	Budget change		

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:

- Obtain time schedule for receipt of samples and estimate of numbers of samples to be sent at various times.
- Ensure sufficient funds are available in the Standing Offer to complete anticipated number of analyses.
- Arrange timing of training in geochemical interpretation (Peter Friske).

Second Quarter Action Items:

- ◆ *SEGEMAR to forward sample delivery schedule to GSC Vancouver (MAP Admin).*

Third Quarter Action Items:

- ▶ Dr. Metcalfe has been contracted at GSC Vancouver to handle delivery schedule until replacement for Dr. Edwards is found.
- ▶ Samples not expected until February 1999, and analysis will not occur until the following fiscal year.

D.96/A-2	Airborne geophysics acquisition and interpretation	Argentina	*\$244,000.00
1 st Quarter	Budget change	-\$62,731.75	\$231,268.25
2 nd Quarter	Budget change (Correction)	+\$62,731.75	\$244,000.00
3 rd Quarter	Budget change		
4 th Quarter	Budget change		

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 will be flown. This airborne geophysics will be acquired through a multi-company-government consortium. This multi-company-government consortium will also enhance the relationship of SEGEMAR with the private sector. It is expected that the airborne geophysics and accompanying radiometrics will enhance exploration activity in the project area in a similar way to the acquisition of the regional geochemical data.

In fiscal year 1997/98 a contract was awarded to SIAL geophysics for a combined regional airborne aeromagnetic and radiometric survey. In this fiscal year focus will be on completion of the survey and interpretation of survey results.

First Quarter Action Items:

- Continue the work of Dr. Dennis Teskey in final inspection of survey results.
- Prepare for interpretation of airborne aeromagnetic and radiometric survey.

Second Quarter Action Items:

- ◆ *One more company paid its contribution assuring the financial success of the survey.*
 - ◆ *Co-operative agreement for data interpretation to be signed between GSC and SEGEMAR.*
- *with the additional company contributing \$50,000.00, the original budget was reduced to \$244,000.00 for this activity.**

Third Quarter Action Items:

- ▶ Second quarter correction reflects an error made on budget change in first quarter.
- ▶ Flying completed on September 25, 1998.
- ▶ Compilation and interpretation of data to be completed in third quarter prior to distributing results to private sector participants.
- ▶ Preliminary Aeromagnetic paper maps released to participating countries (October 14, 1998).

D.96/A-3	Precision analytical whole rock analyses for major, trace and rare earth elements	Argentina	\$8,500.00
1 st Quarter	Budget change		
2 nd Quarter	Budget change		
3 rd Quarter	Budget change		
4 th Quarter	Budget change		

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 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.

First Quarter Action Items:

- Obtain time schedule for receipt of samples and estimate of numbers of samples to be sent at various times.
- Set up new standing offer for petrogenetic quality geochemical analyses and ensure sufficient funds are available in the Standing Offer to complete anticipated number of analyses.

Second Quarter Action Items:

- ◆ *Samples being prepared to be sent for analysis.*
- ◆ *New Standing Offer is to be tendered.*

Third Quarter Action Items:

- ▶ Standing offer tendered and smaller bridging one in place for interim.
- ▶ Samples have been sent for analysis.

D.96/A-4	Precision dating by Ar-Ar or other techniques as applicable	Argentina	\$107,428.00
1 st Quarter	Budget change	-\$83.37	\$107,344.63
2 nd Quarter	Budget change (Correction & Change) Note:***	-\$46,916.64	\$60,428.00
3 rd Quarter	Budget change		
4 th Quarter	Budget change		

Note:*** Second quarter correction reflects an error made on budget change in first quarter minus a change (\$83.37 - \$47,000.00 = - \$46,916.64).

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:

- Obtain time schedule for receipt of samples and estimate of numbers of samples to be sent at various times and type of dating required (K-Ar, Ar-Ar, Zircon).
- Set up new standing offer for K-Ar analyses through Geochronology Laboratory, University of British Columbia and ensure sufficient funds are available in the Standing Offer to complete anticipated type and number of analyses.
- Provide Argentina with a schedule of when radiometric dates will be completed.

Second Quarter Action Items:

- ◆ *Some samples have been sent to Mike Villeneuve for dating. It is projected that these samples will be irradiated in July 1998 with sample analysis completed by September.*

Third Quarter Action Items:

- ▶ Second quarter correction reflects an error made on budget change in first quarter.
- ▶ Samples being processed at GSC Ottawa lab.
- ▶ New Standing Offer to be tendered for K/Ar analysis.
- ▶ UBC Geochron Lab still not operational. They hope to be online in a month or so.
- ▶ Ottawa Ar/Ar facility is down for six weeks due to a broken lazer.
- ▶ Budget reduced to reflect processing of samples on hand (See Annex F).

D.97/A-1	Radiogenic isotope analysis (Nd, Sr, Os)	Argentina	0.00
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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. Through many types of analytical work, such as radiometric dating and geochemistry geologists will gain a greater understanding of the geological evolution of the region. These data sets will be enhanced by obtaining initial isotopic signatures of rocks. These data shed light on

regional evolution and magmatic history. This enhanced information can lead to greater understanding of the spatial and temporal evolution of volcanic rocks hosting mineralization that in turn can enhance exploration efforts by helping to focus exploration on specific areas and times.

No activity is forecast for this fiscal year.

First Quarter Action Items:

- None.

D.97/A-2	Stable isotopic analysis for O, D	Argentina	0.00
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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. Through many types of analytical work, such as radiometric dating and geochemistry, a greater understanding of the geological evolution is possible. These data sets will be enhanced through the additional information gained by stable isotopic analyses of mineralized material. These analyses can give an indication of the type and timing of ore forming fluids and enhance understanding of the timing and type of mineralization. This information can in turn be used to enhance exploration efforts by helping to focus exploration on specific types of mineralization, mineralized areas and timing of mineralization.

First Quarter Action Items:

- No activity forecast.

D.98/A-1	Paleontological training and age determination	Argentina	\$7,315.00
1 st Quarter	Budget change		
2 nd Quarter	Budget change		
3 rd Quarter	Budget change		
4 th Quarter	Budget change		

Age control is of paramount importance when producing geological maps. Many ore deposits are associated with rock of a specific type or age. In order to make these correlations, lithological, geochemical and age dating must be carried out simultaneously. In regions that contain igneous and volcanic rocks age determinations are obtained through radiometric dating techniques. In regions that contain significant amounts of sediments the most cost effective way to obtain age control is through Paleontological means. Under this activity samples containing microfossils will be analysed and training will be given in the interpretation and laboratory techniques employed to obtain microfossils.

First Quarter Action Items:

- Obtain time schedule for receipt of samples and estimate of numbers of samples to be sent at various times.

Second Quarter Action Items:

- ◆ *Samples have been submitted to GSC Paleontology laboratory for analysis.*

Third Quarter Action Items:

- ▶ Samples being analysed at GSC Pacific Palaeontology lab.

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:

- None.

D.96/B-6	Precision analytical whole rock analyses for major, trace and rare earth elements	Bolivia	\$22,129.00
1 st Quarter	Budget change		
2 nd Quarter	Budget change		
3 rd Quarter	Budget change		
4 th Quarter	Budget change		

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. Assistance in interpretation of the results will be through the multi-country activity B.98/M.3 (Volcanic field studies and workshops).

First Quarter Action Items:

- Obtain time schedule for receipt of samples and estimate of numbers of samples to be sent at various times.
- Set up new Standing Offer for petrogenetic quality geochemical analyses and ensure sufficient funds are available in the Standing Offer to complete anticipated number of analyses.

Second Quarter Action Items:

- ◆ *Activity on hold pending update on fiscal situation.*

Third Quarter Action Items:

- ▶ Activity on hold pending discussions with Project Leader for Bolivia at Executive Council Meetings in Buenos Aires

D.96/B-7	On-site training in fluid inclusion analyses	Bolivia	\$6,200.00
1 st Quarter	Budget change		
2 nd Quarter	Budget change		
3 rd Quarter	Budget change		
4 th Quarter	Budget change		

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.

First Quarter Action Items:

- Arrange for training by J. Reynolds, Fluid Inc.

Second Quarter Action Items:

- ◆ *Activity on hold pending update on fiscal situation.*

Third Quarter Action Items:

- ▶ Activity on hold pending discussions with Project Leader for Bolivia at Executive Council Meetings in Buenos Aires

D.96/B-8	Geochemical exploration techniques, sample handling and data analysis	Bolivia	\$14,950.00
1 st Quarter	Budget change		
2 nd Quarter	Budget change		
3 rd Quarter	Budget change		
4 th Quarter	Budget change		

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 spectrometers (under activity B.97/M-2).

First Quarter Action Items:

- Obtain time schedule for receipt of samples and estimate of numbers of samples to be sent at various times.
- Ensure sufficient funds are available in the Standing Offer to complete anticipated number of analyses.

Second Quarter Action Items:

- ◆ *Activity on hold pending update on fiscal situation.*

Third Quarter Action Items:

- ▶ Activity on hold pending discussions with Project Leader for Bolivia at Executive Council Meetings in Buenos Aires

D.96/B-9	On-site training in petrographic techniques (binocular, reflected and transmitted)	Bolivia	\$11,300.00
1 st Quarter	Budget change		
2 nd Quarter	Budget change		
3 rd Quarter	Budget change		
4 th Quarter	Budget change		

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 in this fiscal year on petrographic techniques. No equipment funds remain to upgrade these facilities.

First Quarter Action Items:

- Arrange for on-site training at SERGEOMIN facilities.

Second Quarter Action Items:

- ◆ *Activity on hold pending update on fiscal situation.*

Third Quarter Action Items:

- ▶ Activity on hold pending discussions with Project Leader for Bolivia at Executive Council Meetings in Buenos Aires

D.96/B-10	Precision dating by Ar-Ar or other techniques as applicable	Bolivia	\$26,000.00
1 st Quarter	Budget change	-\$204.77	\$25,795.23
2 nd Quarter	Budget change (Correction & Change)Note:***	-\$23,795.23	\$2,000.00
3 rd Quarter	Budget change		
4 th Quarter	Budget change		

Note:*** Second quarter correction reflects an error made on budget change in first quarter minus a change (\$204.77 - \$24,000.00 = - \$23,795.23).

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:

- Obtain time schedule for receipt of samples and estimate of numbers of samples to be sent at various times and type of dating required (K-Ar, Ar-Ar, Zircon).
- Provide Bolivian's with update on samples submitted in past fiscal years.

Second Quarter Action Items:

- ◆ *Samples on hand will be submitted for K-Ar analysis. New submissions on hold pending update on fiscal situation.*

Third Quarter Action Items:

- ▶ Activity on hold pending discussions with Project Leader for Bolivia at Executive Council Meetings in Buenos Aires
- ▶ Samples at GSC Ottawa lab temporarily on hold, will not be done this fiscal year due to lazer breakdown.

D.96/B-11	On-site training in digital manipulation, large format printing and map production	Bolivia	\$3,863.00
1 st Quarter	Budget change		
2 nd Quarter	Budget change	-\$2,863.00	\$1,000.00
3 rd Quarter	Budget change		
4 th Quarter	Budget change		

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 on 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:

- Finalize details of work under this activity.

Second Quarter Action Items:

- ◆ *Activity on hold pending update on fiscal situation.*

Third Quarter Action Items:

- ▶ Activity on hold pending discussions with Project Leader for Bolivia at Executive Council Meetings in Buenos Aires

D.98/B-1	Paleontological training and age determination	Bolivia	\$7,315.00
1 st Quarter	Budget change		
2 nd Quarter	Budget change		
3 rd Quarter	Budget change		
4 th Quarter	Budget change		

Age control is of paramount importance when producing geological maps. Many ore deposits are associated with rock of a specific type or age. In order to make these correlations, lithological, geochemical and age dating must be carried out simultaneously. In regions that contain igneous and volcanic rocks age determinations are obtained through radiometric dating techniques. In regions that contain significant amounts of sediments the most cost effective way to obtain age control is through Paleontological means. Under this activity samples containing microfossils will be analysed and training will be given in the interpretation and laboratory techniques employed to obtain microfossils.

First Quarter Action Items:

- Obtain time schedule for receipt of samples and estimate of numbers of samples to be sent at various times.

Second Quarter Action Items:

- ◆ *Activity on hold pending update on fiscal situation.*

Third Quarter Action Items:

- ▶ Activity on hold pending discussions with Project Leader for Bolivia at Executive Council Meetings in Buenos Aires

D.98/B-2	Radiogenic isotope analyses (Nd and Sr)	Bolivia	\$9,200.00
1 st Quarter	Budget change		
2 nd Quarter	Budget change		
3 rd Quarter	Budget change		
4 th Quarter	Budget change		

As with precise analytical whole-rock chemistry, the isotopic signature of rocks is of importance in understanding their tectonic evolution and the origin of the magmatic fluids. This enhanced information will lead to greater understanding of the spatial and temporal evolution of volcanic rocks hosting mineralization that in turn can enhance exploration efforts by helping to focus exploration on specific areas and rock formations.

First Quarter Action Items:

- Obtain time schedule for receipt of samples and estimate of numbers of samples to be sent at various times.

Second Quarter Action Items:

- ◆ *Activity on hold pending update on fiscal situation.*

Third Quarter Action Items:

- ▶ Activity on hold pending discussions with Project Leader for Bolivia at Executive Council Meetings in Buenos Aires

D.96/C-12	Radiogenic isotope analyses (Nd and Sr)	Chile	\$30,300.00
1 st Quarter	Budget change		
2 nd Quarter	Budget change		
3 rd Quarter	Budget change		
4 th Quarter	Budget change		

As with precise analytical whole-rock chemistry, the isotopic signature of rocks is of importance in understanding their tectonic evolution and the origin of the magmatic fluids. This enhanced information will lead to greater understanding of the spatial and temporal evolution of volcanic rocks hosting mineralization that in turn can enhance exploration efforts by helping to focus exploration on specific areas and rock formations.

First Quarter Action Items:

- Obtain time schedule for receipt of samples and estimate of numbers of samples to be sent at various times.

Second Quarter Action Items:

- ◆ *No samples received to date*

Third Quarter Action Items:

- ▶ No samples received to date.

D.96/C-13	Ar ³⁹ -Ar ⁴⁰ dating in GSC Ottawa	Chile	\$29,249.00
1 st Quarter	Budget change		
2 nd Quarter	Budget change		
3 rd Quarter	Budget change		
4 th Quarter	Budget change		

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 Ar³⁹-Ar⁴⁰ method. Additional expertise, training or other assistance will be available as needed by the Chileans to help them establish an Ar³⁹-Ar⁴⁰ facility in Chile.

First Quarter Action Items:

- Obtain time schedule for receipt of samples and estimate of numbers of samples to be sent.
- Make arrangement for Chilean scientist to work in GSC Ottawa Ar³⁹-Ar⁴⁰ facility.

Second Quarter Action Items:

- ◆ *Samples have arrived*
- ◆ *Arrangements have been made for Carlos Perez de Arce to work at the Ar³⁹-Ar⁴⁰ facility in Ottawa from July 6 to July 18, 1998.*

Third Quarter Action Items:

- ▶ Perez de Arce worked at the GSC Ottawa Ar³⁹/Ar⁴⁰ facility with Mike Villeneuve in July 6 - 18, 1998 (see Annex D).

D.96/C-14	Hydrogeology Project Development	Chile	\$30,950.00
1 st Quarter	Budget change		
2 nd Quarter	Budget change		
3 rd Quarter	Budget change		
4 th Quarter	Budget change		

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.

First Quarter Action Items:

- Arrange for additional fieldwork and workshops in hydrogeology.

Second Quarter Action Items:

- ◆ *Initial discussion of fieldwork to be carried Aravana and Rudolf has commenced.*

Third Quarter Action Items:

- ▶ Ing. Sergio Iriarte of SERNAGEOMIN was at the University of Waterloo Ontario facilities working with Dr.'s Aravana and Rudolf as part of the Hydrogeology Project Development (See Annex E).
- ▶ Plan fourth quarter activities.

D.96/C-15	Precision analytical whole rock analyses for major, trace and rare earth elements	Chile	\$1,600.00
1 st Quarter	Budget change		
2 nd Quarter	Budget change		
3 rd Quarter	Budget change		
4 th Quarter	Budget change		

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 Chileans have excellent analytical facilities and will be doing most of their own analyses.

First Quarter Action Items:

- None.

Second Quarter Action Items:

- ◆ *SERNAGEOMIN to verify if it will be sending samples.*

Third Quarter Action Items:

- ▶ Several samples are being analysed at present.

D.97/C-3	Zircon or other types of radiometric dating	Chile	\$44,200.00
1 st Quarter	Budget change	-\$2,144.82	\$42,055.18
2 nd Quarter	Budget change (Correction)	+\$2,144.82	\$44,200.00
3 rd Quarter	Budget change		
4 th Quarter	Budget change		

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 Ar³⁹-Ar⁴⁰ (activity D.96/C-13). Some critical stratigraphic units are beyond the age range for which Ar³⁹-Ar⁴⁰ 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.

First Quarter Action Items:

- Obtain time schedule for receipt of samples and estimate of numbers of samples to be sent at various times and type of dating required (e.g. Zircon).

Second Quarter Action Items:

- ◆

Third Quarter Action Items:

- ▶ 10 samples budgeted for, 3 received. Confirm additional sample to be sent.

D.97/C-4	Geophysical training in 3-dimensional modelling or gravity and aeromagnetic using Magi XL and oasis (GeoSoft)	Chile	\$20,700.00
1 st Quarter	Budget change		
2 nd Quarter	Budget change		
3 rd Quarter	Budget change		
4 th Quarter	Budget change		

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:

- Arrange for a workshop to be given by a specialist in aeromagnetic and in gravity interpretations.
- Determine involvement of Lowe (timing and number of days).

Second Quarter Action Items:

- ◆ *It is projected that Dr.s' Dennis Teskey and Carmel Lowe will be giving the workshop at SERNAGEOMIN in October of 1998. Dates for workshop must be finalized this quarter.*

Third Quarter Action Items:

- ▶ Dr. Lowe will be travelling to give the short course (an introduction to geophysical modelling) from November 2 through 4, 1998.
- ▶ Dr. Teskey will provide support to Dr. Lowe, but will not participate in the training.

D.97/C-5	Fluid inclusion training and equipment	Chile	\$0.00
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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:

- None.

D.97/C-6	Laboratory Equipment	Chile	\$0.00
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SERNAGEOMIN laboratories operate at a high level of international standards. However, there are some shortcomings in their operational capacity and ability that will be addressed by the acquisition of specific analytical equipment and possibly additional training. Most of this equipment was purchased in 1997/98 fiscal year.

First Quarter Action Items:

- None.

D.96/P-16	Paleontological training and age determinations	Peru	\$8,000.00
1 st Quarter	Budget change		
2 nd Quarter	Budget change		
3 rd Quarter	Budget change		
4 th Quarter	Budget change		

When producing geological maps age control is of paramount importance. Many ore deposits are associated with rock of a specific type or age. In order to make these correlations, lithological, geochemical and age dating must be carried out simultaneously. In regions that contain igneous and volcanic rocks age determinations are obtained through radiometric dating techniques. In regions that contain significant amounts of sediments the most cost effective way to obtain age control is through Paleontological means. Under this activity samples containing microfossils will be analysed and training will be given in the interpretation and laboratory techniques employed to obtain microfossils.

First Quarter Action Items:

- Obtain time schedule for receipt of samples and estimate of numbers of samples to be sent at various times and types of fossils.
- Dependent on fossil types to be sent, set up appropriate contracts.

Second Quarter Action Items:

- ◆ Obtain time schedule for receipt of samples.
- ◆ Dependent on fossil types to be sent, set up appropriate contracts.

Third Quarter Action Items:

- ▶ Sample receipt schedule not obtained.
- ▶ One conodont was found in a Peruvian sample analysed during the second quarter (a report will be sent).

D.96/P-17	On-site training in digital manipulation, large format printing and map production	Peru	\$200.00
1 st Quarter	Budget change		
2 nd Quarter	Budget change		

3 rd Quarter	Budget change		
4 th Quarter	Budget change		

Digital manipulation of data is a prime importance in the production of new and modern geological maps. The ability of the Peruvians to handle digital data will be upgraded through the purchase of equipment and through specific focussed training on the use of the equipment to be purchased.

First Quarter Action Items:

- None.

D.96/P-18	Laboratory training and upgrading of laboratory (Hg environmental detection)	Peru	\$0.00
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The INGEMMET has indicated a need to upgrade their laboratory facilities in Lima, Peru. They have also expressed a desire to increase their ability to detect mercury. Mercury is a prime environmental contaminant. Initially assistance will be given in the interpretation of geochemical results.

First Quarter Action Items:

- None.

D.96/P-19	Precision dating by Zircon, Ar-Ar or other techniques as applicable	Peru	\$35,600.00
1 st Quarter	Budget change	-\$63.54	\$35,536.46
2 nd Quarter	Budget change (Correction)	+\$63.54	\$35,600.00
3 rd Quarter	Budget change		
4 th Quarter	Budget change		

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).

First Quarter Action Items:

- Obtain time schedule for receipt of samples and estimate of numbers of samples to be sent at various times and type of dating required (K-Ar, Ar-Ar, Zircon).
- Set up new standing offer for K-Ar analyses through Geochronology Laboratory, University of British Columbia and ensure sufficient funds are available in the Standing Offer to complete anticipated type and number of analyses.

Second Quarter Action Items:

- ◆ *INGEMMET will have a better idea of numbers of samples and delivery schedule in the third quarter after field work of Dr. Panteleyev and INGEMMET geologists is completed.*

Third Quarter Action Items:

- ▶ Dr. Panteleyev scheduled to work in Peru from October 19 through November 13, 1998.
- ▶ 3 U-Pb samples complete, and 15 Ar³⁹-Ar⁴⁰ being analysed.
- ▶ Lazer in Ar³⁹-Ar⁴⁰ lab is down for at least six weeks.

D.96/P-20	Precision analytical whole rock analyses for major, trace and rare earth elements	Peru	\$5,500.00
1 st Quarter	Budget change		
2 nd Quarter	Budget change		
3 rd Quarter	Budget change		
4 th Quarter	Budget change		

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 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.

First Quarter Action Items:

- Obtain time schedule for receipt of samples and estimate of numbers of samples to be sent at various times.
- Set up new standing offer for petrogenetic quality geochemical analyses and ensure sufficient funds are available in the Standing Offer to complete anticipated number of analyses.

Second Quarter Action Items:

- ◆ *INGEMMET will have a better idea of numbers of samples and delivery schedule in the third quarter after field work of Dr. Panteleyev.*

Third Quarter Action Items:

- ▶ Dr. Panteleyev scheduled to work in Peru from October 19 through November 13, 1998.

D.98/P-1	Geophysical training in 3-dimensional modelling or gravity and aeromagnetic using Magi XL and oasis (GeoSoft)	Peru	\$23,200.00
1 st Quarter	Budget change		
2 nd Quarter	Budget change		
3 rd Quarter	Budget change		
4 th Quarter	Budget change		

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:

- None.

Second Quarter Action Items:

- ◆ *Arrange for the procurement of requested software.*

Third Quarter Action Items:

- ▶ Preliminary discussions with INGEMMET on software procurement have been conducted.
- ▶ Software to be procured during the third quarter.

Project Management

Quarter	Summary of Activities	Budget changes	Initial Budget
PM	Project Management		\$141,237.00
1 st Quarter	Budget change	-\$17,907.40	\$123,329.60
2 nd Quarter	Budget change (Correction & Change) ***	+\$15,907.40	\$139,237.00

Quarter	Summary of Activities	Budget changes	Initial Budget
3 rd Quarter	Budget change		
4 th Quarter	Budget change		

Note:*** Correction and change to budget total (\$17,907.40 - \$2,000.00=\$15,907.40)

Budget changes reflect completion of activity PM.98/M-1.

PM.98/M-1	Preparation of final report (1997/98) and 1st quarter forecast (1998/99)	Canada		\$6,600.00
1 st Quarter	Budget change		-\$13,051.89	-\$6,451.89
2 nd Quarter	Budget change (Correction & Change) ***		+\$11,051.89	\$4,600.00
3 rd Quarter	Budget change			
4 th Quarter	Budget change			

Note:*** Correction and change to budget total (\$13,051.89 - \$2,000.00=\$11,051.89)

PM.98/M-2	Preparation of 1st quarter financial report (April-June) and 2nd quarter forecast (July-Sept.)	Canada		\$1,600.00
1 st Quarter	Budget change			
2 nd Quarter	Budget change			
3 rd Quarter	Budget change (Complete)			
4 th Quarter	Budget change			

PM.98/M-3	Preparation and attendance at mid-year Executive Council Meeting	Canada		\$14,458.00
1 st Quarter	Budget change			
2 nd Quarter	Budget change			
3 rd Quarter	Budget change			
4 th Quarter	Budget change			

PM.98/M-4	Preparation of mid-year report and 2nd quarter financial report (July-Sept.) and 3rd quarter forecast (Oct.-Dec.)	Canada		\$1,900.00
1 st Quarter	Budget change			
2 nd Quarter	Budget change			
3 rd Quarter	Budget change			
4 th Quarter	Budget change			

PM.98/M-5	Preparation of 3rd quarter (Oct.-Dec.) financial report and 4th quarter forecast (Jan.-March)	Canada		\$2,600.00
1 st Quarter	Budget change			
2 nd Quarter	Budget change			
3 rd Quarter	Budget change			
4 th Quarter	Budget change			

PM.98/M-6	Preparation and attendance at end-of-year Executive Council Meeting, preparation of Annual Work Plan (including 5-year budget projection)	Canada		\$8,800.00
1 st Quarter	Budget change			
2 nd Quarter	Budget change			

3 rd Quarter	Budget change			
4 th Quarter	Budget change			

PM.98/M-7	Database management	Canada		\$9,500.00
1 st Quarter	Budget change			
2 nd Quarter	Budget change			
3 rd Quarter	Budget change			
4 th Quarter	Budget change			

PM.98/M-8	Annual Work Plan 1999-2000 (March 15, 1999) including financial forecasts for project	Canada		\$4,000.00
1 st Quarter	Budget change			
2 nd Quarter	Budget change			
3 rd Quarter	Budget change			
4 th Quarter	Budget change			

PM.98/M-9	Project Administration and Management	Canada		\$91,779.00
1 st Quarter	Budget change		-\$4,855.51	\$86,923.49
2 nd Quarter	Budget change		+\$4,855.51	\$91,779.00
3 rd Quarter	Budget change			
4 th Quarter	Budget change			

Project management will be carried out by the Geological Survey of Canada under the direction of Project Manager, Dr. Catherine Hickson. The goal of project management will be 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:

- Year end report to be completed and 1998/99 workplans reviewed and project activities modified for new fiscal year.
- New database system to be implemented and training taken.

Second Quarter Action Items:

- ◆ Hire replacement for technical support position (PC-02).
- ◆ Coordinate backup during Mike Ellerbeck's absence. Rocio Lopez to be Acting Project Administrator July 13 - August 17.
- ◆ Maintain and keep current financial database.

Third Quarter Action Items:

- ▶ Interviews conducted for PC -02 position, however no suitable candidate was found. The position is to be reposted during the third quarter.
- ▶ MAP management to coordinate Executive Council Meetings in Buenos Aires in November 1998.

Multiyear Project Financial Profile (reprofiled to 2001)

	CIDA Initial Funding Profile	Total Expenditures 1996/97	Total Expenditures 1997/98	Total Expenditures to Date	1998/99 Expenditure Forecast	Expected Total Funds Remaining	Forecast		
							1999/00 Expenditure Forecast	2000/2001 Expenditure Forecast	2001/2002 Expenditure Forecast (Ends Dec. 31 2001)
Argentina									
Personal GSC (01)	\$195,000.00	\$14,789.06	\$26,611.79	\$41,400.85	\$34,000.00	\$119,599.15			
Personnel Non-GSC (02)	\$200,000.00	\$41,755.05	\$113,033.54	\$154,788.59	\$55,500.00	-\$10,288.59			
Local Consultants (03)	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00			
Travel (04)	\$87,000.00	\$15,472.11	\$31,660.73	\$47,132.84	\$10,000.00	\$29,867.16			
Geoscience Services (05)	\$390,000.00	\$47,887.22	\$200,167.61	\$248,054.83	\$231,500.00	-\$89,554.83			
Equipment & Software (06)	\$70,000.00	\$69,228.50	\$54,988.71	\$124,217.21	\$0.00	-\$54,217.21			
Other (07)	\$110,000.00	\$2,998.82	\$6,466.17	\$9,464.99	\$1,943.00	\$98,592.01			
Total Argentina	\$1,052,000.00	\$182,120.76	\$432,928.55	\$685,056.31	\$332,943.00	\$83,697.60			
Bolivia									
Personal GSC (01)	\$250,000.00	\$1,171.98	\$11,871.86	\$13,043.84	\$19,250.00	\$217,706.16			
Personnel Non-GSC (02)	\$245,000.00	\$4,209.70	\$1,406.30	\$5,616.00	\$13,000.00	\$226,384.00			
Local Consultants (03)	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00			
Travel (04)	\$87,000.00	\$0.00	\$8,444.05	\$8,444.05	\$3,200.00	\$75,355.95			
Geoscience Services (05)	\$240,000.00	\$18,742.88	\$24,317.84	\$43,060.72	\$36,800.00	\$160,139.28			
Equipment & Software (06)	\$120,000.00	\$157,500.98	\$13,976.54	\$171,477.52	\$0.00	-\$51,477.52			
Other (07)	\$110,000.00	\$1,250.01	\$1,968.79	\$3,218.80	\$1,844.00	\$104,937.20			
Total Bolivia	\$1,052,000.00	\$182,973.55	\$61,565.35	\$24,460.93	\$74,094.00	\$733,045.07			
Chile									
Personal GSC (01)	\$250,000.00	\$5,522.66	\$12,436.48	\$17,959.12	\$106,500.00	\$125,540.88			
Personnel Non-GSC (02)	\$245,000.00	\$1,453.20	\$23,015.20	\$24,468.40	\$24,750.00	\$195,781.60			
Local Consultants (03)	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00			
Travel (04)	\$87,000.00	\$3,924.27	\$12,829.51	\$16,753.78	\$15,500.00	\$54,746.22			
Geoscience Services (05)	\$240,000.00	\$79.85	\$37,532.86	\$37,612.71	\$41,000.00	\$161,387.29			
Equipment & Software (06)	\$120,000.00	\$14,613.85	\$90,181.22	\$104,795.07	\$0.00	\$15,204.93			
Other (07)	\$110,000.00	\$710.15	\$1,422.34	\$2,132.49	\$2,699.00	\$105,168.51			
Total Chile	\$1,052,000.00	\$26,303.96	\$177,417.99	\$219,721.97	\$190,449.00	\$657,529.49			
Peru									
Personal GSC (01)	\$250,000.00	\$5,968.76	\$14,097.63	\$20,066.39	\$38,500.00	\$191,433.61			
Personnel Non-GSC (02)	\$245,000.00	\$2,537.88	\$2,935.00	\$5,472.88	\$20,000.00	\$219,527.12			
Local Consultants (03)	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00			
Travel (04)	\$87,000.00	\$7,263.29	2866.54	\$10,129.83	\$3,500.00	\$73,370.17			
Geoscience Services (05)	\$240,000.00	\$99.08	\$22,484.93	\$22,584.01	\$22,100.00	\$195,315.99			
Equipment & Software (06)	\$120,000.00	\$60,018.98	10990.51	\$71,009.49	\$23,000.00	\$25,990.51			
Other (07)	\$110,000.00	\$1,489.32	\$951.69	\$2,441.01	\$900.00	\$106,658.99			
Total Peru	\$1,052,000.00	\$77,377.51	\$54,566.30	\$101,706.61	\$108,000.00	\$612,286.30			
Canada									
Personal GSC (01)	\$240,000.00	\$40,634.27	\$68,366.40	\$109,000.67	\$73,061.00	\$57,938.33			
Personnel Non-GSC (02)	\$80,000.00	\$19,118.00	\$29,281.01	\$48,399.01	\$40,600.00	-\$8,999.01			
Local Consultants (03)	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00			
Travel (04)	\$15,000.00	\$21,774.05	\$13,121.12	\$34,895.17	\$14,476.00	-\$34,371.17			
Geoscience Services (05)	\$0.00	\$41.53	\$11,671.80	\$11,713.33	\$5,900.00	-\$17,613.33			
Equipment & Software (06)	\$0.00	\$4,963.38	\$210.00	\$5,173.38	\$100.00	-\$5,273.38			
Other (07)	\$0.00	\$3,162.26	\$18,068.88	\$21,231.14	\$5,100.00	-\$26,331.14			
Total Canada	\$300,000.00	\$83,933.33	\$127,448.21	\$224,830.22	\$139,237.00	\$17,072.70			
Multl									
Personal GSC (01)	\$55,000.00	\$1,649.00	\$20,706.93	\$22,355.93	\$44,740.00	-\$12,095.93			
Personnel Non-GSC (02)	\$30,000.00	\$2,500.00	\$0.00	\$2,500.00	\$36,500.00	-\$9,000.00			
Local Consultants (03)	\$1,000.00	\$0.00	\$0.00	\$0.00	\$0.00	\$1,000.00			
Travel (04)	\$151,000.00	\$18,000.00	\$53,403.25	\$71,403.25	\$67,500.00	\$12,096.75			
Geoscience Services (05)	\$0.00	\$0.00	\$1,450.87	\$1,450.87	\$10,000.00	-\$11,450.87			
Equipment & Software (06)	\$0.00	\$0.00	\$45,906.80	\$45,906.80	\$0.00	-\$45,906.80			
Other (07)	\$20,000.00	\$1,000.00	\$4,053.70	\$5,053.70	\$18,300.00	-\$3,353.70			
Total Multl	\$206,000.00	\$13,149.00	\$82,160.68	\$87,263.65	\$177,040.00	\$62,740.55			
	CIDA Initial Funding Profile	Total Expenditures 1996/97	Total Expenditures 1997/98	Total Expenditures to Date	1998/99 Expenditure Forecast	Expected Total Funds Remaining	1999/00 Expenditure Forecast	2000/2001 Expenditure Forecast	
	\$1,052,000.00	\$263,500.00	\$622,988.54	\$1,184,228.97	\$1,021,783.00	\$2,163,011.33			
Project									
Personal GSC (01)	\$1,260,000.00	\$69,735.73	\$154,091.07	\$223,826.80	\$316,051.00	\$720,122.20			
Personnel Non-GSC (02)	\$1,080,000.00	\$71,573.83	\$169,671.05	\$241,244.88	\$190,350.00	\$648,405.12			
Local Consultants (03)	\$1,000.00	\$0.00	\$0.00	\$0.00	\$0.00	\$1,000.00			
Travel (04)	\$479,000.00	\$66,433.72	\$122,325.20	\$188,758.92	\$114,176.00	\$176,065.08			
Geoscience Services (05)	\$1,110,000.00	\$66,850.56	\$297,625.91	\$364,476.47	\$347,300.00	\$398,223.53			
Equipment & Software (06)	\$430,000.00	\$306,325.69	\$216,253.78	\$522,579.47	\$23,100.00	-\$115,679.47			
Other (07)	\$440,000.00	\$10,610.56	\$32,931.57	\$43,542.13	\$30,786.00	\$365,671.87			
Total Project	\$4,389,000.00	\$1,557,535.09	\$1,086,948.63	\$1,584,426.67	\$1,021,783.00	\$2,763,500.33			

Annex A

Summary Financial Report and Detailed Expenditures to March 31, 1999
Sorted by Country and Activity

Argentina
Bolivia
Canada
Chile
Multi
Peru
Report Totals

Summary Report - 98/99 Budget - MAP Project Sorted by Country and Activity

Sub-unit

Description

Argentina

Compatible Geoscience Data

A.96/A-2 In-field training in regional mapping techniques, volcanology and metallogeny

1 - Personnel (GSC)	No activity forecast this budget year	\$0.00	\$0.00	\$0.00
2 - Personnel (non GSC)	Panteleyev for metallogeny/mineral deposits work (30 days)	\$8,500.00	\$0.00	\$118.75
3 - Local Consultants	No activity forecast this budget year	\$0.00	\$0.00	\$0.00
4 - Travel	Panteleyev to Salta	\$0.00	\$0.00	\$2,313.38
5 - Geoscience Services	Phone, fax, courier & copies	\$0.00	\$0.00	\$21.51
6 - Equipment	No activity forecast this budget year	\$0.00	\$0.00	\$0.00
7 - Other	publications	\$0.00	\$0.00	\$0.00
Totals for above Activity (budget, commit, actual)		\$8,500.00	\$0.00	\$2,453.64

A.96/A-3 Interpretation and integration of satellite data

1 - Personnel (GSC)	No activity forecast this budget year	\$0.00	\$0.00	\$0.00
2 - Personnel (non GSC)	No activity forecast this budget year	\$0.00	\$0.00	\$0.00
3 - Local Consultants	No activity forecast this budget year	\$0.00	\$0.00	\$0.00
4 - Travel	No activity forecast this budget year	\$0.00	\$0.00	\$0.00
5 - Geoscience Services	No activity forecast this budget year	\$0.00	\$0.00	\$0.00
6 - Equipment	Purchase of radar module for PCI or ERMapper	\$0.00	\$0.00	\$0.00
7 - Other	No activity forecast this budget year	\$0.00	\$0.00	\$0.00
Totals for above Activity (budget, commit, actual)		\$0.00	\$0.00	\$0.00

A.98/A-1 Multiparameter geophysical and geochemical interpretation and integration

1 - Personnel (GSC)	GSC geophysicist and/or geochemist (Jeff Harris) (20 days)	\$0.00	\$0.00	\$0.00
2 - Personnel (non GSC)	No activity forecast this budget year.	\$0.00	\$0.00	\$0.00
3 - Local Consultants	No activity forecast this budget year	\$0.00	\$0.00	\$0.00
4 - Travel	Argentinian geologist in Ottawa (14 days) 150/day + extras (Vargas?)	\$0.00	\$0.00	\$0.00
5 - Geoscience Services	phone, copy, fax, courier	\$0.00	\$0.00	\$0.00
6 - Equipment	No activity forecast this budget year	\$0.00	\$0.00	\$0.00
7 - Other	publications	\$0.00	\$0.00	\$0.00
Totals for above Activity (budget, commit, actual)		\$0.00	\$0.00	\$0.00

A.98/A-2 Geological, geophysical, geochemical data archiving, integration and digital data presentation (CD-ROM)

1 - Personnel (GSC)	GSC personnel (Robert Cocking/John Grant) - 40 days	\$0.00	\$0.00	\$0.00
2 - Personnel (non GSC)	No activity forecast this budget year	\$0.00	\$0.00	\$0.00
3 - Local Consultants	No activity forecast this budget year	\$0.00	\$0.00	\$0.00
4 - Travel	Argentinian geologist in Vancouver (14 days) @ \$150 + extras, plus possible trip to BA by GSC scientist	\$0.00	\$0.00	\$0.00
5 - Geoscience Services	Phone, fax, courier & copies	\$0.00	\$0.00	\$23.50
6 - Equipment	No activity forecast this budget year	\$0.00	\$0.00	\$0.00
7 - Other	publications	\$0.00	\$0.00	\$0.00

Summary Report - 98/99 Budget - MAP Project Sorted by Country and Activity

Sub-unit	Description			
	Totals for above Activity (budget, commit, actual)	\$0.00	\$0.00	\$23.50
	Total budget for above Purpose (budget, commit, actual)	\$8,500.00	\$0.00	\$2,477.14

Institutional Strengthening

D.96/A-1 Geochemical Exploration techniques, samples handling and data analysis.

1 - Personnel (GSC)	Regional geochemical expert to work Peter Friske (20 days); Edwards (10 days); sample processing & control	\$2,000.00	\$0.00	\$0.00
2 - Personnel (non GSC)	No activity forecast this budget year	\$2,000.00	\$0.00	\$0.00
3 - Local Consultants	No activity forecast this budget year	\$0.00	\$0.00	\$0.00
4 - Travel	Argentinian geologist in Ottawa (21 days) @\$150 + extras (Ferpozzi)	\$0.00	\$0.00	\$0.00
5 - Geoscience Services	1500 multi-element samples for RGC (contract) @\$25; phone, copy, fax, courier	\$0.00	\$0.00	\$1,956.98
6 - Equipment	No activity forecast this budget year	\$0.00	\$0.00	\$0.00
7 - Other	Publications, textbooks	\$200.00	\$0.00	\$0.00
	Totals for above Activity (budget, commit, actual)	\$4,200.00	\$0.00	\$1,956.98

D.96/A-2 Airborne Geophysics acquisition and interpretation.

1 - Personnel (GSC)	GSC Geophysist	\$2,000.00	\$0.00	\$0.00
2 - Personnel (non GSC)	Detailed parameter contract for aeromagnetic and training in data acquisition and manipulation (Teskey)	\$45,000.00	\$0.00	\$46,625.00
3 - Local Consultants	No activity forecast this budget year	\$0.00	\$0.00	\$0.00
4 - Travel	1 trip to Vancouver, 3 trips to Buenos Aires, 2 trips to Montreal	\$10,000.00	\$0.00	\$3,436.21
5 - Geoscience Services	Additional survey costs carried over from 1997/98, phone, fax, copy, courier. Survey was higher in cost than expected and private sector involvement was lower than anticipated	\$186,000.00	\$0.00	\$159,353.99
6 - Equipment	No activity forecast this budget year	\$0.00	\$0.00	\$0.00
7 - Other	Information notices for airborne geophysics	\$1,000.00	\$0.00	\$0.00
	Totals for above Activity (budget, commit, actual)	\$244,000.00	\$0.00	\$209,415.20

D.96/A-3 Precision analytical whole rock analysis for major, trace and rare earth elements.

1 - Personnel (GSC)	Ben Edwards - petrologic interpretation and report of trace and REE chemistry (10 days); Edwards sample processing and control (2 days)	\$1,000.00	\$0.00	\$0.00
2 - Personnel (non GSC)	No activity forecast this budget year	\$0.00	\$0.00	\$3,850.00
3 - Local Consultants	No activity forecast this budget year	\$0.00	\$0.00	\$0.00
4 - Travel	No activity forecast this budget year	\$0.00	\$0.00	\$0.00
5 - Geoscience Services	100 samples @\$70; phone, copy, fax, courier	\$7,500.00	\$0.00	\$2,685.66
6 - Equipment	No activity forecast this budget year	\$0.00	\$0.00	\$0.00
7 - Other	No activity forecast this budget year	\$0.00	\$0.00	\$0.00
	Totals for above Activity (budget, commit, actual)	\$8,500.00	\$0.00	\$6,535.66

Summary Report - 98/99 Budget - MAP Project Sorted by Country and Activity

Sub-unit	Description			
D.96/A-4 Precision dating by Ar-Ar or other techniques as applicable.				
1 - Personnel (GSC)	Salary dollars to be charged for Villeneuve; sample preparation; lab technician (\$ value of 80,000-7 consumables); Edwards sample processing and control (4 days)	\$27,000.00	\$0.00	\$3,490.32
2 - Personnel (non GSC)	No activity forecast this budget year	\$0.00	\$0.00	\$0.00
3 - Local Consultants	No activity forecast this budget year	\$0.00	\$0.00	\$0.00
4 - Travel	No activity forecast this budget year	\$0.00	\$0.00	\$0.00
5 - Geoscience Services	25 Ar-Ar @\$1,500 (GSC) + 10 Zircon ages @\$4,000 (some of this as salary time) + 35 K-Ar @\$550; phone, fax, courier, copies	\$33,000.00	\$0.00	\$83.37
6 - Equipment	No activity forecast this budget year	\$0.00	\$0.00	\$0.00
7 - Other		\$428.00	\$0.00	\$342.36
Totals for above Activity (budget, commit, actual)		\$60,428.00	\$0.00	\$3,916.05
D.97/A-1 Radiogenic isotope analysis (Nd,Sr,Os)				
1 - Personnel (GSC)	No activity forecast this budget year	\$0.00	\$0.00	\$0.00
2 - Personnel (non GSC)	No activity forecast this budget year	\$0.00	\$0.00	\$0.00
3 - Local Consultants	No activity forecast this budget year	\$0.00	\$0.00	\$0.00
4 - Travel	No activity forecast this budget year	\$0.00	\$0.00	\$0.00
5 - Geoscience Services	No activity forecast this budget year	\$0.00	\$0.00	\$0.00
6 - Equipment	No activity forecast this budget year	\$0.00	\$0.00	\$0.00
7 - Other	No activity forecast this budget year	\$0.00	\$0.00	\$0.00
Totals for above Activity (budget, commit, actual)		\$0.00	\$0.00	\$0.00
D.97/A-2 Stable isotopic analysis for O, D.				
1 - Personnel (GSC)	No activity forecast this budget year	\$0.00	\$0.00	\$0.00
2 - Personnel (non GSC)	No activity forecast this budget year	\$0.00	\$0.00	\$0.00
3 - Local Consultants	No activity forecast this budget year	\$0.00	\$0.00	\$0.00
4 - Travel	No activity forecast this budget year	\$0.00	\$0.00	\$0.00
5 - Geoscience Services	No activity forecast this budget year	\$0.00	\$0.00	\$0.00
6 - Equipment	No activity forecast this budget year	\$0.00	\$0.00	\$0.00
7 - Other	No activity forecast this budget year	\$0.00	\$0.00	\$0.00
Totals for above Activity (budget, commit, actual)		\$0.00	\$0.00	\$0.00
D.98/A-1 Paleontological training and age determinations				
1 - Personnel (GSC)	Orchard (for area in Bolivia which is in Paleozoic stratigraphy)	\$2,000.00	\$0.00	\$0.00
2 - Personnel (non GSC)	No activity forecast this budget year	\$0.00	\$0.00	\$0.00
3 - Local Consultants	No activity forecast this budget year	\$0.00	\$0.00	\$0.00
4 - Travel	No activity forecast this budget year	\$0.00	\$0.00	\$0.00
5 - Geoscience Services	5 conodont samples (GSC); 10 radiolarian samples (GSC); phone, copy, fax, courier	\$5,000.00	\$0.00	\$0.00
6 - Equipment	No activity forecast this budget year	\$0.00	\$0.00	\$0.00
7 - Other	No activity forecast this budget year	\$315.00	\$0.00	\$0.00
Totals for above Activity (budget, commit, actual)		\$7,315.00	\$0.00	\$0.00

Summary Report - 98/99 Budget - MAP Project Sorted by Country and Activity

Sub-unit	Description			
Total budget for above Purpose (budget, commit, actual)		\$324,443.00	\$0.00	\$221,823.89
Totals for country (budget, commit, actual)	\$332,943.00		\$0.00	\$224,301.03

Summary Report - 98/99 Budget - MAP Project Sorted by Country and Activity

Sub-unit

Description

Bolivia

Compatible Geoscience Data

A.96/B-3 Training in regional mapping, volcanology and metallogenic studies

1 - Personnel (GSC)	Hickson (10 days) & Edwards (10 days) on Chilean course; longer course in the fall?; Hickson to La Paz (November? (20 days)	\$0.00	\$0.00	\$0.00
2 - Personnel (non GSC)	No activity forecast this budget year	\$0.00	\$0.00	\$0.00
3 - Local Consultants	No activity forecast this budget year	\$0.00	\$0.00	\$0.00
4 - Travel	Hickson to La Paz (November)	\$0.00	\$0.00	\$0.00
5 - Geoscience Services	Phone, fax, courier & copies	\$0.00	\$0.00	\$0.00
6 - Equipment	No activity forecast this budget year	\$0.00	\$0.00	\$0.00
7 - Other	publications	\$0.00	\$0.00	\$0.00
Totals for above Activity (budget, commit, actual)		\$0.00	\$0.00	\$0.00

A.97/B-1 Training in digital data capture in the field (Fieldlog) and PC-based GIS for map production.

1 - Personnel (GSC)	No activity forecast this budget year	\$0.00	\$0.00	\$0.00
2 - Personnel (non GSC)	No activity forecast this budget year	\$0.00	\$0.00	\$0.00
3 - Local Consultants	No activity forecast this budget year	\$0.00	\$0.00	\$0.00
4 - Travel	No activity forecast this budget year	\$0.00	\$0.00	\$0.00
5 - Geoscience Services	No activity forecast this budget year	\$0.00	\$0.00	\$451.00
6 - Equipment	No activity forecast this budget year	\$0.00	\$0.00	\$0.00
7 - Other	No activity forecast this budget year	\$0.00	\$0.00	\$0.00
Totals for above Activity (budget, commit, actual)		\$0.00	\$0.00	\$451.00

A.98/B-1 Interpretation and integration of satellite data

1 - Personnel (GSC)	GSC/Geomatics Personnel (14 days)	\$0.00	\$0.00	\$0.00
2 - Personnel (non GSC)	RadarSat training - Level II	\$0.00	\$0.00	\$0.00
3 - Local Consultants	No activity forecast this budget year	\$0.00	\$0.00	\$0.00
4 - Travel	Bolivian geologist in Vancouver (14 days) @\$150 + extras	\$0.00	\$0.00	\$0.00
5 - Geoscience Services	two radar images; phone, copy, fax, courier	\$0.00	\$0.00	\$0.00
6 - Equipment	No activity forecast this budget year	\$0.00	\$0.00	\$0.00
7 - Other	publications, course notes	\$0.00	\$0.00	\$0.00
Totals for above Activity (budget, commit, actual)		\$0.00	\$0.00	\$0.00

Total budget for above Purpose (budget, commit, actual)	\$0.00	\$0.00	\$451.00
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Institutional Strengthening

D.96/B-10 Precision dating by Ar-Ar or other techniques as applicable.

1 - Personnel (GSC)	Salary dollars to be charged for Villeneuve; sample preparation; lab technician; (\$value of \$80,000); Edwards sample processing and control (2 days)	\$1,000.00	\$0.00	\$0.00
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Summary Report - 98/99 Budget - MAP Project Sorted by Country and Activity

Sub-unit	Description			
2 - Personnel (non GSC)	No activity forecast this budget year	\$1,000.00	\$0.00	\$0.00
3 - Local Consultants	No activity forecast this budget year	\$0.00	\$0.00	\$0.00
4 - Travel	No activity forecast this budget year	\$0.00	\$0.00	\$0.00
5 - Geoscience Services	15 Ar-Ar samples @\$1,500 (\$200 per sample for consumables and rest as salary time); phone, copy, fax, courier	\$0.00	\$0.00	\$204.77
6 - Equipment	No activity forecast this budget year	\$0.00	\$0.00	\$0.00
7 - Other	No activity forecast this budget year	\$0.00	\$0.00	\$0.00
Totals for above Activity (budget, commit, actual)		\$2,000.00	\$0.00	\$204.77

D.96/B-11 On-site training in digital manipulation, large format printing and map production.

1 - Personnel (GSC)	Woodworth, Cocking, Stanley (Unix/SGI/PC integration and networking)	\$1,000.00	\$0.00	\$0.00
2 - Personnel (non GSC)	No activity forecast this budget year	\$0.00	\$0.00	\$0.00
3 - Local Consultants	No activity forecast this budget year	\$0.00	\$0.00	\$0.00
4 - Travel	Teleconferencing	\$0.00	\$0.00	\$0.00
5 - Geoscience Services	No activity forecast this budget year	\$0.00	\$0.00	\$0.00
6 - Equipment	2 copies MapInfo (cancelled)	\$0.00	\$0.00	\$0.00
7 - Other	No activity forecast this budget year	\$0.00	\$0.00	\$0.00
Totals for above Activity (budget, commit, actual)		\$1,000.00	\$0.00	\$0.00

D.96/B-5 On-site assessment and training in laboratory techniques.

2 - Personnel (non GSC)	No activity forecast this budget year	\$0.00	\$0.00	\$0.00
3 - Local Consultants	No activity forecast this budget year	\$0.00	\$0.00	\$0.00
3 - Local Consultants	No activity forecast this budget year	\$0.00	\$0.00	\$0.00
4 - Travel	No activity forecast this budget year	\$0.00	\$0.00	\$0.00
5 - Geoscience Services	No activity forecast this budget year	\$0.00	\$0.00	\$0.00
6 - Equipment	No activity forecast this budget year	\$0.00	\$0.00	\$0.00
7 - Other	No activity forecast this budget year	\$0.00	\$0.00	\$0.00
Totals for above Activity (budget, commit, actual)		\$0.00	\$0.00	\$0.00

D.96/B-6 Precision analytical whole rock analyses for major, trace and rare earth elements

1 - Personnel (GSC)	Edwards: request samples with low totals be re-analyzed by Chemex (6 days); sample processing & control (2 days); M. Villeneuve to do radiogenic isotopic analyses; Edwards to help in interpretation of Nd and Sr initials and comparison with results from neighbouring parts of Chile (15 days)	\$2,500.00	\$0.00	\$0.00
2 - Personnel (non GSC)	No activity forecast this budget year	\$0.00	\$0.00	\$0.00
3 - Local Consultants	No activity forecast this budget year	\$0.00	\$0.00	\$0.00
4 - Travel	No activity forecast this budget year	\$0.00	\$0.00	\$0.00
5 - Geoscience Services	120 samples for trace and REE @\$82 (confirmed); 9 for Sr and Nd initials @\$1,000; phone, copy, fax, courier	\$19,000.00	\$0.00	\$26.60
6 - Equipment	No activity forecast this budget year	\$0.00	\$0.00	\$0.00
7 - Other		\$629.00	\$0.00	\$0.00
Totals for above Activity (budget, commit, actual)		\$22,129.00	\$0.00	\$26.60

Summary Report - 98/99 Budget - MAP Project Sorted by Country and Activity

Sub-unit	Description			
D.96/B-7 On-site training in fluid inclusion analyses				
1 - Personnel (GSC)	No activity forecast this budget year	\$0.00	\$0.00	\$0.00
2 - Personnel (non GSC)	5 days - fluid inclusion expert training (J. Reynolds)	\$5,000.00	\$0.00	\$0.00
3 - Local Consultants	No activity forecast this budget year	\$0.00	\$0.00	\$0.00
4 - Travel	La Paz, Bolivia - included in 5K figure	\$0.00	\$0.00	\$0.00
5 - Geoscience Services	XRD samples, 50 @\$20; phone, fax, copy, courier	\$1,000.00	\$0.00	\$0.00
6 - Equipment	No activity forecast this budget year	\$0.00	\$0.00	\$0.00
7 - Other	Publications, course notes and guide, textbooks	\$200.00	\$0.00	\$0.00
Totals for above Activity (budget, commit, actual)		\$6,200.00	\$0.00	\$0.00

D.96/B-8 Geochemical exploration techniques, sample handling and data analyses.

1 - Personnel (GSC)	Edwards - sample processing and control	\$3,750.00	\$0.00	\$0.00
2 - Personnel (non GSC)	No activity forecast this budget year	\$0.00	\$0.00	\$0.00
3 - Local Consultants	No activity forecast this budget year	\$0.00	\$0.00	\$0.00
4 - Travel	No activity forecast this budget year	\$0.00	\$0.00	\$0.00
5 - Geoscience Services	400 (98/99) multi-element samples for RGC (contract) @\$25; phone, copy, fax, courier	\$11,000.00	\$0.00	\$1,134.48
6 - Equipment	No activity forecast this budget year	\$0.00	\$0.00	\$0.00
7 - Other	Publications, textbooks	\$200.00	\$0.00	\$0.00
Totals for above Activity (budget, commit, actual)		\$14,950.00	\$0.00	\$1,134.48

D.96/B-9 On-site training in petrographic techniques (binocular, reflected and transmitted)

1 - Personnel (GSC)	Emeritus scientist (see 2)	\$0.00	\$0.00	\$0.00
2 - Personnel (non GSC)	Translation of course notes (Lopez), Woodsworth (2 weeks in office); 2 weeks course preparation	\$7,000.00	\$0.00	\$0.00
3 - Local Consultants	No activity forecast this budget year	\$0.00	\$0.00	\$0.00
4 - Travel	La Paz	\$3,200.00	\$0.00	\$0.00
5 - Geoscience Services	Phone, copy, fax, courier; large thin sections	\$600.00	\$0.00	\$0.00
6 - Equipment	No activity forecast this budget year	\$0.00	\$0.00	\$0.00
7 - Other	Publications, course notes and guide, textbooks	\$500.00	\$0.00	\$0.00
Totals for above Activity (budget, commit, actual)		\$11,300.00	\$0.00	\$0.00

D.98/B-1 Paleontological training and age determinations

1 - Personnel (GSC)	Orchard (for area adjacent to Peru which is in Paleozoic stratigraphy)	\$2,000.00	\$0.00	\$0.00
2 - Personnel (non GSC)	No activity forecast this budget year	\$0.00	\$0.00	\$0.00
3 - Local Consultants	No activity forecast this budget year	\$0.00	\$0.00	\$0.00
4 - Travel	No activity forecast this budget year	\$0.00	\$0.00	\$0.00
5 - Geoscience Services	5 conodont samples (GSC); 10 radiolarian samples (GSC); phone, copy, fax, courier	\$5,000.00	\$0.00	\$0.00
6 - Equipment	No activity forecast this budget year	\$0.00	\$0.00	\$0.00
7 - Other		\$315.00	\$0.00	\$0.00
Totals for above Activity (budget, commit, actual)		\$7,315.00	\$0.00	\$0.00

Summary Report - 98/99 Budget - MAP Project Sorted by Country and Activity

Sub-unit	Description			
D.98/B-2 Radiogenic isotope analyses (Nd and Sr)				
1 - Personnel (GSC)	Villeneuve; Edwards sample processing and control	\$9,000.00	\$0.00	\$0.00
2 - Personnel (non GSC)	No activity forecast this budget year	\$0.00	\$0.00	\$0.00
3 - Local Consultants	No activity forecast this budget year	\$0.00	\$0.00	\$0.00
4 - Travel	No activity forecast this budget year	\$0.00	\$0.00	\$0.00
5 - Geoscience Services	9 Sr initials; 9 Nd initials; phone, copy, fax, courier	\$200.00	\$0.00	\$0.00
6 - Equipment	No activity forecast this budget year	\$0.00	\$0.00	\$0.00
7 - Other	No activity forecast this budget year	\$0.00	\$0.00	\$0.00
Totals for above Activity (budget, commit, actual)		\$9,200.00	\$0.00	\$0.00
Total budget for above Purpose (budget, commit, actual)		\$74,094.00	\$0.00	\$1,365.85
Totals for country (budget, commit, actual)		\$74,094.00	\$0.00	\$1,816.85

Summary Report - 98/99 Budget - MAP Project Sorted by Country and Activity

Sub-unit

Description

Canada

Project Management

PM.98/M-1 Preparation of final report (97/98) and 1st quarter forecast (1998/99).

1 - Personnel (GSC)	Hickson, Edwards (budget changed from \$4,400.00 to \$2,400.00 end of 2nd qtr).	\$2,400.00	\$0.00	\$335.82
2 - Personnel (non GSC)	Krauth, Lopez, Nagel	\$700.00	\$0.00	\$400.00
3 - Local Consultants	No activity forecast this budget year	\$0.00	\$0.00	\$0.00
4 - Travel	Local travel only	\$200.00	\$0.00	\$0.00
5 - Geoscience Services	Phone, fax, courier & copies	\$200.00	\$0.00	\$1,634.72
6 - Equipment	No activity forecast this budget year	\$0.00	\$0.00	\$0.00
7 - Other	Meeting room, overhead projector, rental misc.	\$1,100.00	\$1,059.01	\$1,059.01
Totals for above Activity (budget, commit, actual)		\$4,600.00	\$1,059.01	\$3,429.55

PM.98/M-2 Preparation of 1st quarter financial report (April - June) and 2nd quarter forecast (July- September).

1 - Personnel (GSC)	Hickson, Edwards	\$800.00	\$0.00	\$0.00
2 - Personnel (non GSC)	Krauth, Lopez	\$200.00	\$0.00	\$325.00
3 - Local Consultants	No activity forecast this budget year	\$0.00	\$0.00	\$0.00
4 - Travel	No activity forecast this budget year	\$0.00	\$0.00	\$0.00
5 - Geoscience Services	Phone, fax, copy, courier	\$200.00	\$0.00	\$1,428.80
6 - Equipment	No activity forecast this budget year	\$0.00	\$0.00	\$0.00
7 - Other	Meeting room, overhead projector, rental misc.	\$400.00	\$0.00	\$0.00
Totals for above Activity (budget, commit, actual)		\$1,600.00	\$0.00	\$1,753.80

PM.98/M-3 Preparation and attendance at mid-year Executive Council Meeting

1 - Personnel (GSC)	Hickson, Edwards	\$4,300.00	\$0.00	\$0.00
2 - Personnel (non GSC)	Lopez, Krauth	\$300.00	\$0.00	\$0.00
3 - Local Consultants	No activity forecast this budget year	\$0.00	\$0.00	\$0.00
4 - Travel	Hickson, Ellerbeck to Buenos Aires (November)	\$9,058.00	\$0.00	\$0.00
5 - Geoscience Services	Phone, copy, fax, courier	\$400.00	\$0.00	\$0.00
6 - Equipment	No activity forecast this budget year	\$0.00	\$0.00	\$0.00
7 - Other	Meeting room, overhead projector, rental misc.	\$400.00	\$0.00	\$0.00
Totals for above Activity (budget, commit, actual)		\$14,458.00	\$0.00	\$0.00

PM.98/M-4 Preparation of mid-year report and 2nd quarter financial report (July - Sept.) and 3rd quarter forecast (Oct. -Dec.)

1 - Personnel (GSC)	Hickson, Edwards	\$1,000.00	\$0.00	\$0.00
2 - Personnel (non GSC)	Lopez, Krauth	\$300.00	\$0.00	\$0.00
3 - Local Consultants	No activity forecast this budget year	\$0.00	\$0.00	\$0.00
4 - Travel	No activity forecast this budget year	\$0.00	\$0.00	\$0.00
5 - Geoscience Services	Phone, copy, fax, courier	\$400.00	\$0.00	\$0.00
6 - Equipment	No activity forecast this budget year	\$0.00	\$0.00	\$0.00
7 - Other	meeting room, overhead projector, rental misc	\$200.00	\$0.00	\$0.00

Summary Report - 98/99 Budget - MAP Project Sorted by Country and Activity

Sub-unit	Description			
Totals for above Activity (budget, commit, actual)		\$1,900.00	\$0.00	\$0.00
PM.98/M-5 Preparation of 3rd quarter (Oct-Dec) financial report and fourth quarter forecast (Jan-March).				
1 - Personnel (GSC)	Hickson, Edwards	\$1,400.00	\$0.00	\$0.00
2 - Personnel (non GSC)	Lopez, Krauth	\$300.00	\$0.00	\$0.00
3 - Local Consultants	No activity forecast this budget year	\$0.00	\$0.00	\$0.00
4 - Travel	No activity forecast this budget year	\$0.00	\$0.00	\$0.00
5 - Geoscience Services	Phone, copy, fax, courier	\$400.00	\$0.00	\$0.00
6 - Equipment	No activity forecast this budget year	\$0.00	\$0.00	\$0.00
7 - Other	overhead projector, rental misc	\$500.00	\$0.00	\$0.00
Totals for above Activity (budget, commit, actual)		\$2,600.00	\$0.00	\$0.00
PM.98/M-6 Preparation and Attendance at End-of Year Executive Council Meeting, preparation of Annual Work Plan (including 5-year budget protection)				
1 - Personnel (GSC)	Hickson, Edwards	\$2,600.00	\$0.00	\$0.00
2 - Personnel (non GSC)	Lopez, Krauth	\$300.00	\$0.00	\$0.00
3 - Local Consultants	No activity forecast this budget year	\$0.00	\$0.00	\$0.00
4 - Travel	Ellerbeck and Hickson to Toronto	\$5,000.00	\$0.00	\$0.00
5 - Geoscience Services	Phone, copy, fax, courier	\$400.00	\$0.00	\$0.00
6 - Equipment	No activity forecast this budget year	\$0.00	\$0.00	\$0.00
7 - Other	meeting room, overhead projector, rental misc	\$500.00	\$0.00	\$0.00
Totals for above Activity (budget, commit, actual)		\$8,800.00	\$0.00	\$0.00
PM.98/M-7 Database Management				
1 - Personnel (GSC)	Hickson	\$500.00	\$0.00	\$0.00
2 - Personnel (non GSC)	Nagel	\$8,000.00	\$0.00	\$0.00
3 - Local Consultants	No activity forecast this budget year	\$0.00	\$0.00	\$0.00
4 - Travel	No activity forecast this budget year	\$0.00	\$0.00	\$0.00
5 - Geoscience Services	courier, fax, etc.	\$500.00	\$0.00	\$0.00
6 - Equipment	No activity forecast this budget year	\$0.00	\$0.00	\$0.00
7 - Other	meeting room, overhead projector, rental misc	\$500.00	\$0.00	\$0.00
Totals for above Activity (budget, commit, actual)		\$9,500.00	\$0.00	\$0.00
PM.98/M-8 Annual Work plan 1999/00 (March 15, 1999) including financial forecasts for and revised forecasts for project.				
1 - Personnel (GSC)	Hickson, Edwards	\$2,600.00	\$0.00	\$0.00
2 - Personnel (non GSC)	Lopez, Krauth	\$500.00	\$0.00	\$0.00
3 - Local Consultants	No activity forecast this budget year	\$0.00	\$0.00	\$0.00
4 - Travel	Local travel	\$0.00	\$0.00	\$0.00
5 - Geoscience Services	Phone, copy, fax, courier	\$400.00	\$0.00	\$0.00
6 - Equipment	No activity forecast this budget year	\$0.00	\$0.00	\$0.00
7 - Other	meeting room, overhead projector, rental misc	\$500.00	\$0.00	\$0.00
Totals for above Activity (budget, commit, actual)		\$4,000.00	\$0.00	\$0.00
PM.98/M-9 Project Administration & management				

Summary Report - 98/99 Budget - MAP Project Sorted by Country and Activity

Sub-unit	Description			
1 - Personnel (GSC)	Hickson, computer support (Stanley); drafting support, project admin (AS-02), clerical support	\$57,461.00	\$0.00	\$35,114.97
2 - Personnel (non GSC)	Project administrative support; specialized Spanish geoscience support, Web support, database support	\$30,000.00	\$0.00	\$7,978.75
3 - Local Consultants	No activity forecast this budget year	\$0.00	\$0.00	\$0.00
4 - Travel	local travel only	\$218.00	\$0.00	\$0.00
5 - Geoscience Services	Phone, copy, fax, courier	\$3,000.00	\$1,117.20	\$525.85
6 - Equipment	No expenditure forecast	\$100.00	\$0.00	\$0.00
7 - Other	Container shipping of equipment	\$1,000.00	\$0.00	\$0.00
Totals for above Activity (budget, commit, actual)		\$91,779.00	\$1,117.20	\$43,619.57
Total budget for above Purpose (budget, commit, actual)		\$139,237.00	\$2,176.21	\$48,802.92
Totals for country (budget, commit, actual)		\$139,237.00	\$2,176.21	\$48,802.92

Summary Report - 98/99 Budget - MAP Project Sorted by Country and Activity

Sub-unit	Description			
5 - Geoscience Services	30 Sr initials; 20 Nd initials; phone, copy, fax, courier	\$300.00	\$0.00	\$0.00
6 - Equipment	No activity forecast this budget year	\$0.00	\$0.00	\$0.00
7 - Other	No activity forecast this budget year	\$0.00	\$0.00	\$0.00
Totals for above Activity (budget, commit, actual)		\$30,300.00	\$0.00	\$0.00

D.96/C-13 Ar-Ar dating in Ottawa

1 - Personnel (GSC)	Salary dollars to be charged for Villeneuve; sample preparation; lab technician (\$value \$15,000 - \$2,000 consumables); Edwards sample processing and control	\$23,000.00	\$0.00	\$1,454.30
2 - Personnel (non GSC)	No activity forecast this budget year	\$0.00	\$0.00	\$0.00
3 - Local Consultants	No activity forecast this budget year	\$0.00	\$0.00	\$0.00
4 - Travel	Chilean (Carlos Perezor) working in Ar-Ar facility (14 days @\$150 + extras)	\$2,250.00	\$0.00	\$1,277.45
5 - Geoscience Services	10 samples @\$1,500 (@\$200 for consumables and rest as salary time); phone, fax, copy, courier	\$2,200.00	\$0.00	\$119.94
6 - Equipment	No activity forecast this budget year	\$0.00	\$0.00	\$0.00
7 - Other		\$1,799.00	\$0.00	\$0.00
Totals for above Activity (budget, commit, actual)		\$29,249.00	\$0.00	\$2,851.69

D.96/C-14 Hydrogeology Project Development

1 - Personnel (GSC)	No activity forecast this budget year	\$0.00	\$0.00	\$0.00
2 - Personnel (non GSC)	University of Waterloo (Aravena & Rudolf)	\$14,750.00	\$0.00	\$2,100.00
3 - Local Consultants	No activity forecast this budget year	\$0.00	\$0.00	\$0.00
4 - Travel	Santiago, Chile (one trip - two people)	\$6,000.00	\$0.00	\$639.72
5 - Geoscience Services	40 deuterium and 40 O analyses (Univ Waterloo); phone, copy, fax, courier	\$10,000.00	\$0.00	\$3,900.71
6 - Equipment	No activity forecast this budget year	\$0.00	\$0.00	\$0.00
7 - Other	Publications, course notes and guide, textbooks	\$200.00	\$0.00	\$24.56
Totals for above Activity (budget, commit, actual)		\$30,950.00	\$0.00	\$6,664.99

D.96/C-15 Precision analytical whole rock analyses for major, trace and rare earth elements.

1 - Personnel (GSC)	No activity forecast this fiscal year	\$0.00	\$0.00	\$0.00
2 - Personnel (non GSC)	No activity forecast this fiscal year	\$0.00	\$0.00	\$0.00
3 - Local Consultants	No activity forecast this fiscal year	\$0.00	\$0.00	\$0.00
4 - Travel	No activity forecast this fiscal year	\$0.00	\$0.00	\$0.00
5 - Geoscience Services	20 samples requested @ \$70.00 REE and Traces, Fax, courier, etc.	\$1,600.00	\$0.00	\$0.00
6 - Equipment	No activity forecast this fiscal year	\$0.00	\$0.00	\$0.00
7 - Other	No activity forecast this fiscal year	\$0.00	\$0.00	\$0.00
Totals for above Activity (budget, commit, actual)		\$1,600.00	\$0.00	\$0.00

D.97/C-3 Zircon or other types of radiometric dating.

1 - Personnel (GSC)	Salary dollars to be charged for Villeneuve; sample preparation; lab technician (\$value of \$40,000 - \$2,000 consumables); Edwards sample processing and control (3 days)	\$42,000.00	\$0.00	\$0.00
2 - Personnel (non GSC)	No activity forecast this budget year	\$0.00	\$0.00	\$0.00

Summary Report - 98/99 Budget - MAP Project Sorted by Country and Activity

Sub-unit	Description			
3 - Local Consultants	No activity forecast this budget year	\$0.00	\$0.00	\$0.00
4 - Travel	No activity forecast this budget year	\$0.00	\$0.00	\$0.00
5 - Geoscience Services	10 samples for zircon dating @\$4,000 (\$200 consumables & salary expenses); phone, copy, fax, courier	\$2,200.00	\$0.00	\$2,144.82
6 - Equipment	No activity forecast this budget year	\$0.00	\$0.00	\$0.00
7 - Other	No activity forecast this budget year	\$0.00	\$0.00	\$0.00
Totals for above Activity (budget, commit, actual)		\$44,200.00	\$0.00	\$2,144.82

D.97/C-4 Geophysical training in 3 dimensional modelling or gravity and aeromagnetic using Magi xi and Oasis (GeoSoft).

1 - Personnel (GSC)	GSC Pacific personnel yet to be named for modelling geophysical (Carmel Lowe)	\$4,000.00	\$0.00	\$0.00
2 - Personnel (non GSC)	Teskey	\$10,000.00	\$0.00	\$3,000.00
3 - Local Consultants	No activity forecast this budget year	\$0.00	\$0.00	\$0.00
4 - Travel	work in office in Santiago (two people to Santiago)	\$6,000.00	\$0.00	\$0.00
5 - Geoscience Services	Phone, copy, fax, courier	\$200.00	\$0.00	\$0.00
6 - Equipment	No activity forecast this budget year	\$0.00	\$0.00	\$0.00
7 - Other	Publications, course notes and guide; textbooks	\$500.00	\$0.00	\$0.00
Totals for above Activity (budget, commit, actual)		\$20,700.00	\$0.00	\$3,000.00

D.97/C-5 Fluid Inclusion training and equipment.

1 - Personnel (GSC)	No training requested	\$0.00	\$0.00	\$0.00
2 - Personnel (non GSC)	No activity forecast this budget year	\$0.00	\$0.00	\$0.00
3 - Local Consultants	No activity forecast this budget year	\$0.00	\$0.00	\$0.00
4 - Travel	No activity forecast this budget year	\$0.00	\$0.00	\$0.00
5 - Geoscience Services	No activity forecast this budget year	\$0.00	\$0.00	\$0.00
6 - Equipment	No activity forecast this budget year	\$0.00	\$0.00	\$0.00
7 - Other	No activity forecast this budget year	\$0.00	\$0.00	\$0.00
Totals for above Activity (budget, commit, actual)		\$0.00	\$0.00	\$0.00

D.97/C-6 Laboratory Equipment

1 - Personnel (GSC)	No training requested	\$0.00	\$0.00	\$0.00
2 - Personnel (non GSC)	No activity forecast this budget year	\$0.00	\$0.00	\$0.00
3 - Local Consultants	No activity forecast this budget year	\$0.00	\$0.00	\$0.00
4 - Travel	No activity forecast this budget year	\$0.00	\$0.00	\$0.00
5 - Geoscience Services	No activity forecast this budget year	\$0.00	\$0.00	\$0.00
6 - Equipment	No activity forecast this budget year	\$0.00	\$0.00	\$0.00
7 - Other	No activity forecast this budget year	\$0.00	\$0.00	\$0.00
Totals for above Activity (budget, commit, actual)		\$0.00	\$0.00	\$0.00

Total budget for above Purpose (budget, commit, actual)	\$156,999.00	\$0.00	\$14,661.50
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Totals for country (budget, commit, actual)	\$190,449.00	\$0.00	\$14,697.13
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Summary Report - 98/99 Budget - MAP Project Sorted by Country and Activity

Sub-unit	Description			
	Total budget for above Purpose (budget, commit, actual)	\$44,640.00	\$0.00	\$15,181.98

Increased Cooperation

B.96/M-1 Collaboration on display and participation at a North American international geoscience conference held in Canada.

1 - Personnel (GSC)	Drafting support	\$1,500.00	\$0.00	\$0.00
2 - Personnel (non GSC)	No activity forecast this budget year	\$0.00	\$0.00	\$0.00
3 - Local Consultants	No activity forecast this budget year	\$0.00	\$0.00	\$0.00
4 - Travel	12 people to Toronto (8 days)	\$14,000.00	\$0.00	\$0.00
5 - Geoscience Services	Phone, fax, courier & copies	\$600.00	\$0.00	\$0.00
6 - Equipment	No activity forecast this budget year	\$0.00	\$0.00	\$0.00
7 - Other	Registration for PDA (14 people @ \$300)	\$3,500.00	\$0.00	\$0.00
Totals for above Activity (budget, commit, actual)		\$19,600.00	\$0.00	\$0.00

B.96/M-2 Discussions in regional metallogeny and project goals relative to regional syntheses and future project goals.

1 - Personnel (GSC)	No activity forecast this budget year	\$0.00	\$0.00	\$0.00
2 - Personnel (non GSC)	No activity forecast this budget year	\$0.00	\$0.00	\$0.00
3 - Local Consultants	No activity forecast this budget year	\$0.00	\$0.00	\$0.00
4 - Travel	No activity forecast this budget year	\$0.00	\$0.00	\$0.00
5 - Geoscience Services	No activity forecast this budget year	\$0.00	\$0.00	\$0.00
6 - Equipment	No activity forecast this budget year	\$0.00	\$0.00	\$0.00
7 - Other	No activity forecast this budget year	\$0.00	\$0.00	\$0.00
Totals for above Activity (budget, commit, actual)		\$0.00	\$0.00	\$0.00

B.97/M-1 Mineral deposits field trip through portions of the four participating countries.

1 - Personnel (GSC)	Sangster (20 days)	\$6,000.00	\$0.00	\$5,000.18
2 - Personnel (non GSC)	Panteleyev (20 days)	\$10,000.00	\$0.00	\$0.00
3 - Local Consultants	No activity forecast this budget year	\$0.00	\$0.00	\$0.00
4 - Travel	Buses, logistics, etc. for 25 people (20 days); airfare - 2 people	\$25,000.00	\$0.00	\$0.00
5 - Geoscience Services	Phone, fax, copy, courier	\$600.00	\$0.00	\$211.88
6 - Equipment	No activity forecast this budget year	\$0.00	\$0.00	\$0.00
7 - Other	Field guides, misc.	\$200.00	\$0.00	\$0.00
Totals for above Activity (budget, commit, actual)		\$41,800.00	\$0.00	\$5,212.06

B.97/M-2 Use and application of in-field handheld spectrometer (PIMA) to mineral deposit studies

1 - Personnel (GSC)	No activity forecast this budget year	\$0.00	\$0.00	\$0.00
2 - Personnel (non GSC)	PIMA contractor to be determined (20 days); Panteleyev (20 days)	\$1,500.00	\$0.00	\$1,564.20
3 - Local Consultants	No activity forecast this budget year	\$0.00	\$0.00	\$0.00
4 - Travel	No activity forecast this budget year	\$0.00	\$0.00	\$0.00
5 - Geoscience Services	Chemistry, courier, copies, phone, fax	\$2,000.00	\$0.00	\$0.00
6 - Equipment	No activity forecast this budget year	\$0.00	\$0.00	\$0.00
7 - Other	Publications, course notes, textbooks	\$400.00	\$0.00	\$0.00

Summary Report - 98/99 Budget - MAP Project Sorted by Country and Activity

Sub-unit	Description			
Totals for above Activity (budget, commit, actual)		\$3,900.00	\$0.00	\$1,564.20
B.98/M-1 Development of rock and lithogeochemical standards				
1 - Personnel (GSC)	Edwards (40 days)	\$8,400.00	\$0.00	\$0.00
2 - Personnel (non GSC)	Specimen database (Nagel)	\$2,000.00	\$0.00	\$0.00
3 - Local Consultants	No activity forecast this budget year	\$0.00	\$0.00	\$0.00
4 - Travel	No activity forecast this budget year	\$0.00	\$0.00	\$0.00
5 - Geoscience Services	Thin sections, wet chemistry, courier, phone	\$4,000.00	\$0.00	\$0.00
6 - Equipment	No activity forecast this budget year	\$0.00	\$0.00	\$0.00
7 - Other	Publications, process notes and guide, textbooks	\$2,000.00	\$0.00	\$0.00
Totals for above Activity (budget, commit, actual)		\$16,400.00	\$0.00	\$0.00
B.98/M-2 Development of cartographic standards for application to 1:500,000 geology and mineral resources map				
1 - Personnel (GSC)	Robert Cocking (10 days)	\$2,000.00	\$0.00	\$362.14
2 - Personnel (non GSC)	translation of documents (Lopez)	\$2,000.00	\$0.00	\$0.00
3 - Local Consultants	No activity forecast this budget year	\$0.00	\$0.00	\$0.00
4 - Travel	Cocking to South America	\$4,000.00	\$0.00	\$0.00
5 - Geoscience Services	Phone, copies, fax, courier	\$200.00	\$0.00	\$0.00
6 - Equipment	No activity forecast this budget year	\$0.00	\$0.00	\$0.00
7 - Other	Cartographic guides, textbooks, publications	\$2,000.00	\$0.00	\$173.28
Totals for above Activity (budget, commit, actual)		\$10,200.00	\$0.00	\$535.42
B.98/M-3 Volcanology short course, fieldwork and theory				
1 - Personnel (GSC)	Edwards & Hickson field studies in physical volcanology	\$10,500.00	\$0.00	\$18,957.83
2 - Personnel (non GSC)	Russell (20 days)	\$10,000.00	\$0.00	\$0.00
3 - Local Consultants	No activity forecast this budget year	\$0.00	\$0.00	\$0.00
4 - Travel	Buses, helicopter, logistical support, etc. for 10 people (10 days); airfare 2 people	\$16,000.00	\$0.00	\$21,299.70
5 - Geoscience Services	Thin sections, phone, copies, courier, fax	\$2,000.00	\$0.00	\$377.78
6 - Equipment	No activity forecast this budget year	\$0.00	\$0.00	\$0.00
7 - Other	Field guides, textbooks, publications	\$2,000.00	\$0.00	\$521.26
Totals for above Activity (budget, commit, actual)		\$40,500.00	\$0.00	\$41,156.57
Total budget for above Purpose (budget, commit, actual)		\$132,400.00	\$0.00	\$48,468.25
Totals for country (budget, commit, actual)		\$177,040.00	\$0.00	\$63,650.23

Summary Report - 98/99 Budget - MAP Project Sorted by Country and Activity

Sub-unit	Description			
Total budget for above Purpose (budget, commit, actual)		\$35,500.00	\$0.00	\$43.12

Institutional Strengthening

D.96/P-16 Paleontologic training and age determination.

1 - Personnel (GSC)	Orchard	\$3,000.00	\$0.00	\$0.00
2 - Personnel (non GSC)	No activity forecast this budget year	\$0.00	\$0.00	\$0.00
3 - Local Consultants	No activity forecast this budget year	\$0.00	\$0.00	\$0.00
4 - Travel	No activity forecast this budget year	\$0.00	\$0.00	\$0.00
5 - Geoscience Services	25 conodont samples (GSC) and/or radiolarian samples (GSC); phone, fax, copy, courier	\$5,000.00	\$0.00	\$0.00
6 - Equipment	No activity forecast this budget year	\$0.00	\$0.00	\$0.00
7 - Other	No activity forecast this budget year	\$0.00	\$0.00	\$0.00
Totals for above Activity (budget, commit, actual)		\$8,000.00	\$0.00	\$0.00

D.96/P-17 On-site training in Digital manipulation, large format printing and map production.

1 - Personnel (GSC)	Cocking (teleconferencing)	\$0.00	\$0.00	\$0.00
2 - Personnel (non GSC)	No activity forecast this budget year	\$0.00	\$0.00	\$0.00
3 - Local Consultants	No activity forecast this budget year	\$0.00	\$0.00	\$0.00
4 - Travel	No activity forecast this budget year	\$0.00	\$0.00	\$0.00
5 - Geoscience Services	Phone, copy, fax, courier	\$200.00	\$0.00	\$0.00
6 - Equipment	No activity forecast this budget year	\$0.00	\$0.00	\$0.00
7 - Other	No activity forecast this budget year	\$0.00	\$0.00	\$0.00
Totals for above Activity (budget, commit, actual)		\$200.00	\$0.00	\$0.00

D.96/P-18 Laboratory training and upgrading of laboratory (Hg environmental detection)

1 - Personnel (GSC)	No activity forecast this budget year	\$0.00	\$0.00	\$0.00
2 - Personnel (non GSC)	No activity forecast this budget year	\$0.00	\$0.00	\$0.00
3 - Local Consultants	No activity forecast this budget year	\$0.00	\$0.00	\$0.00
4 - Travel	No activity forecast this budget year	\$0.00	\$0.00	\$0.00
5 - Geoscience Services	No activity forecast this budget year	\$0.00	\$0.00	\$0.00
6 - Equipment	No activity forecast this budget year	\$0.00	\$0.00	\$0.00
7 - Other	No activity forecast this budget year	\$0.00	\$0.00	\$0.00
Totals for above Activity (budget, commit, actual)		\$0.00	\$0.00	\$0.00

D.96/P-19 Precision dating by Zircon, Ar-Ar or other techniques as applicable.

1 - Personnel (GSC)	Salary dollars to be charged for Villeneuve; sample preparation; lab technician (\$value \$40,000 - \$2,000 consumables); Edwards sample processing and control	\$32,000.00	\$0.00	\$0.00
2 - Personnel (non GSC)	No activity forecast this budget year	\$0.00	\$0.00	\$0.00
3 - Local Consultants	No activity forecast this budget year	\$0.00	\$0.00	\$0.00
4 - Travel	No activity forecast this budget year	\$0.00	\$0.00	\$0.00
5 - Geoscience Services *	15 Ar-Ar (GSC \$1,500); 3 zircon dates @ \$4,000 (\$200 consumables + salary expenses); phone, copy, fax, courier	\$3,600.00	\$0.00	\$63.54
6 - Equipment	No activity forecast this budget year	\$0.00	\$0.00	\$0.00

Summary Report - 98/99 Budget - MAP Project Sorted by Country and Activity

Sub-unit	Description			
7 - Other	No activity forecast this budget year	\$0.00	\$0.00	\$0.00
Totals for above Activity (budget, commit, actual)		\$35,600.00	\$0.00	\$63.54

D.96/P-20 Precision analytical whole rock analyses for amjor, trace and rare earth elements.

1 - Personnel (GSC)	Ben Edwards - petrologic interpretation of trace and REE chemistry; Edwards sample processing and control	\$500.00	\$0.00	\$0.00
2 - Personnel (non GSC)	No activity forecast this budget year	\$0.00	\$0.00	\$0.00
3 - Local Consultants	No activity forecast this budget year	\$0.00	\$0.00	\$0.00
4 - Travel	No activity forecast this budget year	\$0.00	\$0.00	\$0.00
5 - Geoscience Services	20 samples major and trace; 50 samples REE (contract) @\$82; phone, copy, fax, courier	\$4,500.00	\$0.00	\$0.00
6 - Equipment	No activity forecast this budget year	\$0.00	\$0.00	\$0.00
7 - Other	Publications and textbooks	\$500.00	\$0.00	\$0.00
Totals for above Activity (budget, commit, actual)		\$5,500.00	\$0.00	\$0.00

D.98/P-1 Geophysical training in 3 dimensional modelling or gravity and aeromagnetic using Magi xi and Oasis (GeoSoft).

1 - Personnel (GSC)	No forecast activity this fiscal year	\$0.00	\$0.00	\$0.00
2 - Personnel (non GSC)	No activity forecast this fiscal year	\$0.00	\$0.00	\$0.00
3 - Local Consultants	No activity forecast this budget year	\$0.00	\$0.00	\$0.00
4 - Travel	No activity forecast this fiscal year	\$0.00	\$0.00	\$0.00
5 - Geoscience Services	Phone, copy, fax, courier	\$200.00	\$0.00	\$0.00
6 - Equipment	Buy software	\$23,000.00	\$0.00	\$0.00
7 - Other	No activity forecast this fiscal year	\$0.00	\$0.00	\$0.00
Totals for above Activity (budget, commit, actual)		\$23,200.00	\$0.00	\$0.00

Total budget for above Purpose (budget, commit, actual) \$72,500.00 \$0.00 \$63.54

Totals for country (budget, commit, actual) \$108,000.00 \$0.00 \$106.66

Budget	Commit	? Actual	? Balance
\$1,021,763.00	\$2,176.21	\$353,374.82	\$666,211.97

Annex B

Summary Financial Report and Detailed Expenditures to March 31, 1999
Sorted by Country and Sub-Unit

Argentina

Bolivia

Canada

Chile

Multi

Peru

Report Totals

MAP SUMMARY REPORT 1998/99

Sorted by Country and Sub Unit

Argentina

1 - Personnel (GSC)

Activity	Description	Budget	Commit	Actual
A.96/A-1	No activity forecast this budget year	\$0.00	\$0.00	\$0.00
A.96/A-2	No activity forecast this budget year	\$0.00	\$0.00	\$0.00
A.96/A-3	No activity forecast this budget year	\$0.00	\$0.00	\$0.00
A.98/A-1	GSC geophysicist and/or geochemist (Jeff Harris) (20 days)	\$0.00	\$0.00	\$0.00
A.98/A-2	GSC personnel (Robert Cocking/John Grant) - 40 days	\$0.00	\$0.00	\$0.00
D.96/A-1	Regional geochemical expert to work Peter Friske (20 days); Edwards (10 days); sample processing & control	\$2,000.00	\$0.00	\$0.00
D.96/A-2	GSC Geophysist	\$2,000.00	\$0.00	\$0.00
D.96/A-3	Ben Edwards - petrologic interpretation and report of trace and REE chemistry (10 days); Edwards sample processing and control (2 days)	\$1,000.00	\$0.00	\$0.00
D.96/A-4	Salary dollars to be charged for Villeneuve; sample preparation; lab technician (\$ value of 80,000-7 consumables); Edwards sample processing and control (4 days)	\$27,000.00	\$0.00	\$3,490.32
D.97/A-1	No activity forecast this budget year	\$0.00	\$0.00	\$0.00
D.97/A-2	No activity forecast this budget year	\$0.00	\$0.00	\$0.00
D.98/A-1	Orchard (for area in Bolivia which is in Paleozoic stratigraphy)	\$2,000.00	\$0.00	\$0.00
Total - 1 - Personnel (GSC)		Budget \$34,000.00	Commit \$0.00	Actual \$3,490.32

2 - Personnel (non GSC)

Activity	Description	Budget	Commit	Actual
A.96/A-1	No activity forecast this budget year	\$0.00	\$0.00	\$0.00
A.96/A-2	Panteleyev for metallogeny/mineral deposits work (30 days)	\$8,500.00	\$0.00	\$118.75
A.96/A-3	No activity forecast this budget year	\$0.00	\$0.00	\$0.00
A.98/A-1	No activity forecast this budget year.	\$0.00	\$0.00	\$0.00
A.98/A-2	No activity forecast this budget year	\$0.00	\$0.00	\$0.00
D.96/A-1	No activity forecast this budget year	\$2,000.00	\$0.00	\$0.00
D.96/A-2	Detailed parameter contract for aeromagnetic and training in data acquisition and manipulation (Teskey)	\$45,000.00	\$0.00	\$46,625.00
D.96/A-3	No activity forecast this budget year	\$0.00	\$0.00	\$3,850.00
D.96/A-4	No activity forecast this budget year	\$0.00	\$0.00	\$0.00
D.97/A-1	No activity forecast this budget year	\$0.00	\$0.00	\$0.00
D.97/A-2	No activity forecast this budget year	\$0.00	\$0.00	\$0.00
D.98/A-1	No activity forecast this budget year	\$0.00	\$0.00	\$0.00

MAP SUMMARY REPORT 1998/99

Sorted by Country and Sub Unit

Total - 2 - Personnel (non GSC)	Budget \$55,500.00	Commit \$0.00	Actual \$50,593.75
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3 - Local Consultants

Activity	Description	Budget	Commit	Actual
A.96/A-1	No activity forecast this budget year	\$0.00	\$0.00	\$0.00
A.96/A-2	No activity forecast this budget year	\$0.00	\$0.00	\$0.00
A.96/A-3	No activity forecast this budget year	\$0.00	\$0.00	\$0.00
A.98/A-1	No activity forecast this budget year	\$0.00	\$0.00	\$0.00
A.98/A-2	No activity forecast this budget year	\$0.00	\$0.00	\$0.00
D.96/A-1	No activity forecast this budget year	\$0.00	\$0.00	\$0.00
D.96/A-2	No activity forecast this budget year	\$0.00	\$0.00	\$0.00
D.96/A-3	No activity forecast this budget year	\$0.00	\$0.00	\$0.00
D.96/A-4	No activity forecast this budget year	\$0.00	\$0.00	\$0.00
D.97/A-1	No activity forecast this budget year	\$0.00	\$0.00	\$0.00
D.97/A-2	No activity forecast this budget year	\$0.00	\$0.00	\$0.00
D.98/A-1	No activity forecast this budget year	\$0.00	\$0.00	\$0.00
Total - 3 - Local Consultants		Budget \$0.00	Commit \$0.00	Actual \$0.00

4 - Travel

Activity	Description	Budget	Commit	Actual
A.96/A-1	No activity forecast this budget year	\$0.00	\$0.00	\$0.00
A.96/A-2	Panteleyev to Salta	\$0.00	\$0.00	\$2,313.38
A.96/A-3	No activity forecast this budget year	\$0.00	\$0.00	\$0.00
A.98/A-1	Argentinian geologist in Ottawa (14 days) 150/day + extras (Vargas?)	\$0.00	\$0.00	\$0.00
A.98/A-2	Argentinian geologist in Vancouver (14 days @\$150 + extras), plus possible trip to BA by GSC scientist	\$0.00	\$0.00	\$0.00
D.96/A-1	Argentinian geologist in Ottawa (21 days) @\$150 + extras (Ferpozzi)	\$0.00	\$0.00	\$0.00
D.96/A-2	1 trip to Vancouver, 3 trips to Buenos Aires, 2 trips to Montreal	\$10,000.00	\$0.00	\$3,436.21
D.96/A-3	No activity forecast this budget year	\$0.00	\$0.00	\$0.00
D.96/A-4	No activity forecast this budget year	\$0.00	\$0.00	\$0.00
D.97/A-1	No activity forecast this budget year	\$0.00	\$0.00	\$0.00
D.97/A-2	No activity forecast this budget year	\$0.00	\$0.00	\$0.00
D.98/A-1	No activity forecast this budget year	\$0.00	\$0.00	\$0.00
Total - 4 - Travel		Budget \$10,000.00	Commit \$0.00	Actual \$5,749.59

MAP SUMMARY REPORT 1998/99

Sorted by Country and Sub Unit

5 - Geoscience Services

Activity	Description	Budget	Commit	Actual
A.96/A-1	No activity forecast this budget year	\$0.00	\$0.00	\$0.00
A.96/A-2	Phone, fax, courier & copies	\$0.00	\$0.00	\$21.51
A.96/A-3	No activity forecast this budget year	\$0.00	\$0.00	\$0.00
A.98/A-1	phone, copy, fax, courier	\$0.00	\$0.00	\$0.00
A.98/A-2	Phone, fax, courier & copies	\$0.00	\$0.00	\$23.50
D.96/A-1	1500 multi-element samples for RGC (contract) @\$25; phone, copy, fax, courier	\$0.00	\$0.00	\$1,956.98
D.96/A-2	Additional survey costs carried over from 1997/98, phone, fax, copy, courier. Survey was higher in cost than expected and private sector involvement was lower than anticipated	\$186,000.00	\$0.00	\$159,353.99
D.96/A-3	100 samples @\$70; phone, copy, fax, courier	\$7,500.00	\$0.00	\$2,685.66
D.96/A-4	25 Ar-Ar @\$1,500 (GSC) + 10 Zircon ages @\$4,000 (some of this as salary time) + 35 K-Ar @\$550; phone, fax, courier, copies	\$33,000.00	\$0.00	\$83.37
D.97/A-1	No activity forecast this budget year	\$0.00	\$0.00	\$0.00
D.97/A-2	No activity forecast this budget year	\$0.00	\$0.00	\$0.00
D.98/A-1	5 conodont samples (GSC); 10 radiolarian samples (GSC); phone, copy, fax, courier	\$5,000.00	\$0.00	\$0.00
Total - 5 - Geoscience Services		Budget \$231,500.00	Commit \$0.00	Actual \$164,125.01

6 - Equipment

Activity	Description	Budget	Commit	Actual
A.96/A-1	No activity forecast this budget year	\$0.00	\$0.00	\$0.00
A.96/A-2	No activity forecast this budget year	\$0.00	\$0.00	\$0.00
A.96/A-3	Purchase of radar module for PCI or ERMapper	\$0.00	\$0.00	\$0.00
A.98/A-1	No activity forecast this budget year	\$0.00	\$0.00	\$0.00
A.98/A-2	No activity forecast this budget year	\$0.00	\$0.00	\$0.00
D.96/A-1	No activity forecast this budget year	\$0.00	\$0.00	\$0.00
D.96/A-2	No activity forecast this budget year	\$0.00	\$0.00	\$0.00
D.96/A-3	No activity forecast this budget year	\$0.00	\$0.00	\$0.00
D.96/A-4	No activity forecast this budget year	\$0.00	\$0.00	\$0.00
D.97/A-1	No activity forecast this budget year	\$0.00	\$0.00	\$0.00
D.97/A-2	No activity forecast this budget year	\$0.00	\$0.00	\$0.00
D.98/A-1	No activity forecast this budget year	\$0.00	\$0.00	\$0.00
Total - 6 - Equipment		Budget \$0.00	Commit \$0.00	Actual \$0.00

MAP SUMMARY REPORT 1998/99

Sorted by Country and Sub Unit

7 - Other

Activity	Description	Budget	Commit	Actual
A.96/A-1	No activity forecast this budget year	\$0.00	\$0.00	\$7.82
A.96/A-2	publications	\$0.00	\$0.00	\$0.00
A.96/A-3	No activity forecast this budget year	\$0.00	\$0.00	\$0.00
A.98/A-1	publications	\$0.00	\$0.00	\$0.00
A.98/A-2	publications	\$0.00	\$0.00	\$0.00
D.96/A-1	Publications, textbooks	\$200.00	\$0.00	\$0.00
D.96/A-2	Information notices for airborne geophysics	\$1,000.00	\$0.00	\$0.00
D.96/A-3	No activity forecast this budget year	\$0.00	\$0.00	\$0.00
D.96/A-4		\$428.00	\$0.00	\$342.36
D.97/A-1	No activity forecast this budget year	\$0.00	\$0.00	\$0.00
D.97/A-2	No activity forecast this budget year	\$0.00	\$0.00	\$0.00
D.98/A-1	No activity forecast this budget year	\$315.00	\$0.00	\$0.00
Total - 7 - Other		Budget \$1,943.00	Commit \$0.00	Actual \$350.18
Total - Argentina		Budget \$332,943.00	Commit \$0.00	Actual \$224,308.85

MAP SUMMARY REPORT 1998/99

Sorted by Country and Sub Unit

Bolivia

1 - Personnel (GSC)

Activity	Description	Budget	Commit	Actual
A.96/B-3	Hickson (10 days) & Edwards (10 days) on Chilean course; longer course in the fall?; Hickson to La Paz (November? (20 days)	\$0.00	\$0.00	\$0.00
A.97/B-1	No activity forecast this budget year	\$0.00	\$0.00	\$0.00
A.98/B-1	GSC/Geomatics Personnel (14 days)	\$0.00	\$0.00	\$0.00
D.96/B-10	Salary dollars to be charged for Villeneuve; sample preparation; lab technician; (\$value of \$80,000); Edwards sample processing and control (2 days)	\$1,000.00	\$0.00	\$0.00
D.96/B-11	Woodworth, Cocking, Stanley (Unix/SGI/PC integration and networking)	\$1,000.00	\$0.00	\$0.00
D.96/B-6	Edwards: request samples with low totals be re-analyzed by Chemex (6 days); sample processing & control (2 days); M. Villeneuve to do radiogenic isotopic analyses; Edwards to help in interpretation of Nd and Sr initials and comparison with results from neighbouring parts of Chile (15 days)	\$2,500.00	\$0.00	\$0.00
D.96/B-7	No activity forecast this budget year	\$0.00	\$0.00	\$0.00
D.96/B-8	Edwards - sample processing and control	\$3,750.00	\$0.00	\$0.00
D.96/B-9	Emeritus scientist (see 2)	\$0.00	\$0.00	\$0.00
D.98/B-1	Orchard (for area adjacent to Peru which is in Paleozoic stratigraphy)	\$2,000.00	\$0.00	\$0.00
D.98/B-2	Villeneuve; Edwards sample processing and control	\$9,000.00	\$0.00	\$0.00
Total - 1 - Personnel (GSC)		Budget \$19,250.00	Commit \$0.00	Actual \$0.00

2 - Personnel (non GSC)

Activity	Description	Budget	Commit	Actual
A.96/B-3	No activity forecast this budget year	\$0.00	\$0.00	\$0.00
A.97/B-1	No activity forecast this budget year	\$0.00	\$0.00	\$0.00
A.98/B-1	RadarSat training - Level II	\$0.00	\$0.00	\$0.00
D.96/B-10	No activity forecast this budget year	\$1,000.00	\$0.00	\$0.00
D.96/B-11	No activity forecast this budget year	\$0.00	\$0.00	\$0.00
D.96/B-5	No activity forecast this budget year	\$0.00	\$0.00	\$0.00
D.96/B-6	No activity forecast this budget year	\$0.00	\$0.00	\$0.00
D.96/B-7	5 days - fluid inclusion expert training (J. Reynolds)	\$5,000.00	\$0.00	\$0.00
D.96/B-8	No activity forecast this budget year	\$0.00	\$0.00	\$0.00
D.96/B-9	Translation of course notes (Lopez), Woodsworth (2 weeks in office); 2 weeks course preparation	\$7,000.00	\$0.00	\$0.00
D.98/B-1	No activity forecast this budget year	\$0.00	\$0.00	\$0.00
D.98/B-2	No activity forecast this budget year	\$0.00	\$0.00	\$0.00

MAP SUMMARY REPORT 1998/99

Sorted by Country and Sub Unit

Total - 2 - Personnel (non GSC)	Budget \$13,000.00	Commit \$0.00	Actual \$0.00
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3 - Local Consultants

Activity	Description	Budget	Commit	Actual
A.96/B-3	No activity forecast this budget year	\$0.00	\$0.00	\$0.00
A.97/B-1	No activity forecast this budget year	\$0.00	\$0.00	\$0.00
A.98/B-1	No activity forecast this budget year	\$0.00	\$0.00	\$0.00
D.96/B-10	No activity forecast this budget year	\$0.00	\$0.00	\$0.00
D.96/B-11	No activity forecast this budget year	\$0.00	\$0.00	\$0.00
D.96/B-5	No activity forecast this budget year	\$0.00	\$0.00	\$0.00
D.96/B-5	No activity forecast this budget year	\$0.00	\$0.00	\$0.00
D.96/B-6	No activity forecast this budget year	\$0.00	\$0.00	\$0.00
D.96/B-7	No activity forecast this budget year	\$0.00	\$0.00	\$0.00
D.96/B-8	No activity forecast this budget year	\$0.00	\$0.00	\$0.00
D.96/B-9	No activity forecast this budget year	\$0.00	\$0.00	\$0.00
D.98/B-1	No activity forecast this budget year	\$0.00	\$0.00	\$0.00
D.98/B-2	No activity forecast this budget year	\$0.00	\$0.00	\$0.00
Total - 3 - Local Consultants		Budget \$0.00	Commit \$0.00	Actual \$0.00

4 - Travel

Activity	Description	Budget	Commit	Actual
A.96/B-3	Hickson to La Paz (November)	\$0.00	\$0.00	\$0.00
A.97/B-1	No activity forecast this budget year	\$0.00	\$0.00	\$0.00
A.98/B-1	Bolivian geologist in Vancouver (14 days) @ \$150 + extras	\$0.00	\$0.00	\$0.00
D.96/B-10	No activity forecast this budget year	\$0.00	\$0.00	\$0.00
D.96/B-11	Teleconferencing	\$0.00	\$0.00	\$0.00
D.96/B-5	No activity forecast this budget year	\$0.00	\$0.00	\$0.00
D.96/B-6	No activity forecast this budget year	\$0.00	\$0.00	\$0.00
D.96/B-7	La Paz, Bolivia - included in 5K figure	\$0.00	\$0.00	\$0.00
D.96/B-8	No activity forecast this budget year	\$0.00	\$0.00	\$0.00
D.96/B-9	La Paz	\$3,200.00	\$0.00	\$0.00
D.98/B-1	No activity forecast this budget year	\$0.00	\$0.00	\$0.00
D.98/B-2	No activity forecast this budget year	\$0.00	\$0.00	\$0.00
Total - 4 - Travel		Budget \$3,200.00	Commit \$0.00	Actual \$0.00

5 - Geoscience Services

Activity	Description	Budget	Commit	Actual
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MAP SUMMARY REPORT 1998/99

Sorted by Country and Sub Unit

A.96/B-3	Phone, fax, courier & copies	\$0.00	\$0.00	\$0.00
A.97/B-1	No activity forecast this budget year	\$0.00	\$0.00	\$451.00
A.98/B-1	two radar images; phone, copy, fax, courier	\$0.00	\$0.00	\$0.00
D.96/B-10	15 Ar-Ar samples @\$1,500 (\$200 per sample for consumables and rest as salary time); phone, copy, fax, courier	\$0.00	\$0.00	\$204.77
D.96/B-11	No activity forecast this budget year	\$0.00	\$0.00	\$0.00
D.96/B-5	No activity forecast this budget year	\$0.00	\$0.00	\$0.00
D.96/B-6	120 samples for trace and REE @\$82 (confirmed); 9 for Sr and Nd initials @\$1,000; phone, copy, fax, courier	\$19,000.00	\$0.00	\$26.60
D.96/B-7	XRD samples, 50 @\$20; phone, fax, copy, courier	\$1,000.00	\$0.00	\$0.00
D.96/B-8	400 (98/99) multi-element samples for RGC (contract) @\$25; phone, copy, fax, courier	\$11,000.00	\$0.00	\$1,134.48
D.96/B-9	Phone, copy, fax, courier; large thin sections	\$600.00	\$0.00	\$0.00
D.98/B-1	5 conodont samples (GSC); 10 radiolarian samples (GSC); phone, copy, fax, courier	\$5,000.00	\$0.00	\$0.00
D.98/B-2	9 Sr initials; 9 Nd initials; phone, copy, fax, courier	\$200.00	\$0.00	\$0.00
Total - 5 - Geoscience Services		Budget \$36,800.00	Commit \$0.00	Actual \$1,816.85

6 - Equipment

Activity	Description	Budget	Commit	Actual
A.96/B-3	No activity forecast this budget year	\$0.00	\$0.00	\$0.00
A.97/B-1	No activity forecast this budget year	\$0.00	\$0.00	\$0.00
A.98/B-1	No activity forecast this budget year	\$0.00	\$0.00	\$0.00
D.96/B-10	No activity forecast this budget year	\$0.00	\$0.00	\$0.00
D.96/B-11	2 copies MapInfo (cancelled)	\$0.00	\$0.00	\$0.00
D.96/B-5	No activity forecast this budget year	\$0.00	\$0.00	\$0.00
D.96/B-6	No activity forecast this budget year	\$0.00	\$0.00	\$0.00
D.96/B-7	No activity forecast this budget year	\$0.00	\$0.00	\$0.00
D.96/B-8	No activity forecast this budget year	\$0.00	\$0.00	\$0.00
D.96/B-9	No activity forecast this budget year	\$0.00	\$0.00	\$0.00
D.98/B-1	No activity forecast this budget year	\$0.00	\$0.00	\$0.00
D.98/B-2	No activity forecast this budget year	\$0.00	\$0.00	\$0.00
Total - 6 - Equipment		Budget \$0.00	Commit \$0.00	Actual \$0.00

7 - Other

Activity	Description	Budget	Commit	Actual
A.96/B-3	publications	\$0.00	\$0.00	\$0.00
A.97/B-1	No activity forecast this budget year	\$0.00	\$0.00	\$0.00
A.98/B-1	publications, course notes	\$0.00	\$0.00	\$0.00

MAP SUMMARY REPORT 1998/99

Sorted by Country and Sub Unit

D.96/B-10	No activity forecast this budget year	\$0.00	\$0.00	\$0.00
D.96/B-11	No activity forecast this budget year	\$0.00	\$0.00	\$0.00
D.96/B-5	No activity forecast this budget year	\$0.00	\$0.00	\$0.00
D.96/B-6		\$629.00	\$0.00	\$0.00
D.96/B-7	Publications, course notes and guide, textbooks	\$200.00	\$0.00	\$0.00
D.96/B-8	Publications, textbooks	\$200.00	\$0.00	\$0.00
D.96/B-9	Publications, course notes and guide, textbooks	\$500.00	\$0.00	\$0.00
D.98/B-1		\$315.00	\$0.00	\$0.00
D.98/B-2	No activity forecast this budget year	\$0.00	\$0.00	\$0.00
		Budget	Commit	Actual
Total - 7 - Other		\$1,844.00	\$0.00	\$0.00
		Budget	Commit	Actual
Total - Bolivia		\$74,094.00	\$0.00	\$1,816.85

MAP SUMMARY REPORT 1998/99

Sorted by Country and Sub Unit

Canada

1 - Personnel (GSC)

Activity	Description	Budget	Commit	Actual
PM.98/M-1	Hickson, Edwards (budget changed from \$4,400.00 to \$2,400.00 end of 2nd qrtr).	\$2,400.00	\$0.00	\$335.82
PM.98/M-2	Hickson, Edwards	\$800.00	\$0.00	\$0.00
PM.98/M-3	Hickson, Edwards	\$4,300.00	\$0.00	\$0.00
PM.98/M-4	Hickson, Edwards	\$1,000.00	\$0.00	\$0.00
PM.98/M-5	Hickson, Edwards	\$1,400.00	\$0.00	\$0.00
PM.98/M-6	Hickson, Edwards	\$2,600.00	\$0.00	\$0.00
PM.98/M-7	Hickson	\$500.00	\$0.00	\$0.00
PM.98/M-8	Hickson, Edwards	\$2,600.00	\$0.00	\$0.00
PM.98/M-9	Hickson, computer support (Stanley); drafting support, project admin (AS-02), clerical support	\$57,461.00	\$0.00	\$35,114.97
Total - 1 - Personnel (GSC)		Budget \$73,061.00	Commit \$0.00	Actual \$35,450.79

2 - Personnel (non GSC)

Activity	Description	Budget	Commit	Actual
PM.98/M-1	Krauth, Lopez, Nagel	\$700.00	\$0.00	\$400.00
PM.98/M-2	Krauth, Lopez	\$200.00	\$0.00	\$325.00
PM.98/M-3	Lopez, Krauth	\$300.00	\$0.00	\$0.00
PM.98/M-4	Lopez, Krauth	\$300.00	\$0.00	\$0.00
PM.98/M-5	Lopez, Krauth	\$300.00	\$0.00	\$0.00
PM.98/M-6	Lopez, Krauth	\$300.00	\$0.00	\$0.00
PM.98/M-7	Nagel	\$8,000.00	\$0.00	\$0.00
PM.98/M-8	Lopez, Krauth	\$500.00	\$0.00	\$0.00
PM.98/M-9	Project administrative support; specialized Spanish geoscience support, Web support, database support	\$30,000.00	\$0.00	\$7,978.75
Total - 2 - Personnel (non GSC)		Budget \$40,600.00	Commit \$0.00	Actual \$8,703.75

3 - Local Consultants

Activity*	Description	Budget	Commit	Actual
PM.98/M-1	No activity forecast this budget year	\$0.00	\$0.00	\$0.00
PM.98/M-2	No activity forecast this budget year	\$0.00	\$0.00	\$0.00
PM.98/M-3	No activity forecast this budget year	\$0.00	\$0.00	\$0.00
PM.98/M-4	No activity forecast this budget year	\$0.00	\$0.00	\$0.00
PM.98/M-5	No activity forecast this budget year	\$0.00	\$0.00	\$0.00
PM.98/M-6	No activity forecast this budget year	\$0.00	\$0.00	\$0.00

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PM.98/M-7	No activity forecast this budget year	\$0.00	\$0.00	\$0.00
PM.98/M-8	No activity forecast this budget year	\$0.00	\$0.00	\$0.00
PM.98/M-9	No activity forecast this budget year	\$0.00	\$0.00	\$0.00
Total - 3 - Local Consultants		Budget \$0.00	Commit \$0.00	Actual \$0.00

4 - Travel

Activity	Description	Budget	Commit	Actual
PM.98/M-1	Local travel only	\$200.00	\$0.00	\$0.00
PM.98/M-2	No activity forecast this budget year	\$0.00	\$0.00	\$0.00
PM.98/M-3	Hickson, Ellerbeck to Buenos Aires (November)	\$9,058.00	\$0.00	\$0.00
PM.98/M-4	No activity forecast this budget year	\$0.00	\$0.00	\$0.00
PM.98/M-5	No activity forecast this budget year	\$0.00	\$0.00	\$0.00
PM.98/M-6	Ellerbeck and Hickson to Toronto	\$5,000.00	\$0.00	\$0.00
PM.98/M-7	No activity forecast this budget year	\$0.00	\$0.00	\$0.00
PM.98/M-8	Local travel	\$0.00	\$0.00	\$0.00
PM.98/M-9	local travel only	\$218.00	\$0.00	\$0.00
Total - 4 - Travel		Budget \$14,476.00	Commit \$0.00	Actual \$0.00

5 - Geoscience Services

Activity	Description	Budget	Commit	Actual
PM.98/M-1	Phone, fax, courier & copies	\$200.00	\$0.00	\$1,634.72
PM.98/M-2	Phone, fax, copy, courier	\$200.00	\$0.00	\$1,428.80
PM.98/M-3	Phone, copy, fax, courier	\$400.00	\$0.00	\$0.00
PM.98/M-4	Phone, copy, fax, courier	\$400.00	\$0.00	\$0.00
PM.98/M-5	Phone, copy, fax, courier	\$400.00	\$0.00	\$0.00
PM.98/M-6	Phone, copy, fax, courier	\$400.00	\$0.00	\$0.00
PM.98/M-7	courier, fax, etc.	\$500.00	\$0.00	\$0.00
PM.98/M-8	Phone, copy, fax, courier	\$400.00	\$0.00	\$0.00
PM.98/M-9	Phone, copy, fax, courier	\$3,000.00	\$1,117.20	\$525.85
Total - 5 - Geoscience Services		Budget \$5,900.00	Commit \$1,117.20	Actual \$3,589.37

6 - Equipment

Activity	Description	Budget	Commit	Actual
PM.98/M-1	No activity forecast this budget year	\$0.00	\$0.00	\$0.00
PM.98/M-2	No activity forecast this budget year	\$0.00	\$0.00	\$0.00
PM.98/M-3	No activity forecast this budget year	\$0.00	\$0.00	\$0.00
PM.98/M-4	No activity forecast this budget year	\$0.00	\$0.00	\$0.00

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PM.98/M-5	No activity forecast this budget year	\$0.00	\$0.00	\$0.00
PM.98/M-6	No activity forecast this budget year	\$0.00	\$0.00	\$0.00
PM.98/M-7	No activity forecast this budget year	\$0.00	\$0.00	\$0.00
PM.98/M-8	No activity forecast this budget year	\$0.00	\$0.00	\$0.00
PM.98/M-9	No expenditure forecast	\$100.00	\$0.00	\$0.00
Total - 6 - Equipment		Budget \$100.00	Commit \$0.00	Actual \$0.00

7 - Other

Activity	Description	Budget	Commit	Actual
PM.98/M-1	Meeting room, overhead projector, rental misc.	\$1,100.00	\$1,059.01	\$1,059.01
PM.98/M-2	Meeting room, overhead projector, rental misc.	\$400.00	\$0.00	\$0.00
PM.98/M-3	Meeting room, overhead projector, rental misc.	\$400.00	\$0.00	\$0.00
PM.98/M-4	meeting room, overhead projector, rental misc	\$200.00	\$0.00	\$0.00
PM.98/M-5	overhead projector, rental misc	\$500.00	\$0.00	\$0.00
PM.98/M-6	meeting room, overhead projector, rental misc	\$500.00	\$0.00	\$0.00
PM.98/M-7	meeting room, overhead projector, rental misc	\$500.00	\$0.00	\$0.00
PM.98/M-8	meeting room, overhead projector, rental misc	\$500.00	\$0.00	\$0.00
PM.98/M-9	Container shipping of equipment	\$1,000.00	\$0.00	\$0.00
Total - 7 - Other		Budget \$5,100.00	Commit \$1,059.01	Actual \$1,059.01
Total - Canada		Budget \$139,237.00	Commit \$2,176.21	Actual \$48,802.92

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Chile

1 - Personnel (GSC)

Activity	Description	Budget	Commit	Actual
A.97/C-2	No activity forecast this budget year	\$0.00	\$0.00	\$0.00
A.97/C-3	Currie (25 days); Edwards, sample processing & control	\$7,500.00	\$0.00	\$0.00
A.97/C-4	No activity forecast this budget year	\$0.00	\$0.00	\$0.00
D.96/C-12	Villeneuve; Edwards sample processing and control	\$30,000.00	\$0.00	\$0.00
D.96/C-13	Salary dollars to be charged for Villeneuve; sample preparation; lab technician (\$value \$15,000 - \$2,000 consumables); Edwards sample processing and control	\$23,000.00	\$0.00	\$1,454.30
D.96/C-14	No activity forecast this budget year	\$0.00	\$0.00	\$0.00
D.96/C-15	No activity forecast this fiscal year	\$0.00	\$0.00	\$0.00
D.97/C-3	Salary dollars to be charged for Villeneuve; sample preparation; lab technician (\$value of \$40,000 - \$2,000 consumables); Edwards sample processing and control (3 days)	\$42,000.00	\$0.00	\$0.00
D.97/C-4	GSC Pacific personnel yet to be named for modelling geophysical (Carmel Lowe)	\$4,000.00	\$0.00	\$0.00
D.97/C-5	No training requested	\$0.00	\$0.00	\$0.00
D.97/C-6	No training requested	\$0.00	\$0.00	\$0.00
Total - 1 - Personnel (GSC)		\$106,500.00	\$0.00	\$1,454.30

2 - Personnel (non GSC)

Activity	Description	Budget	Commit	Actual
A.97/C-2	No activity forecast this budget year	\$0.00	\$0.00	\$0.00
A.97/C-3	No activity forecast this budget year	\$0.00	\$0.00	\$0.00
A.97/C-4	No activity forecast this budget year	\$0.00	\$0.00	\$0.00
D.96/C-12	No activity forecast this budget year	\$0.00	\$0.00	\$0.00
D.96/C-13	No activity forecast this budget year	\$0.00	\$0.00	\$0.00
D.96/C-14	University of Waterloo (Aravena & Rudolf)	\$14,750.00	\$0.00	\$2,100.00
D.96/C-15	No activity forecast this fiscal year	\$0.00	\$0.00	\$0.00
D.97/C-3	No activity forecast this budget year	\$0.00	\$0.00	\$0.00
D.97/C-4	Teskey	\$10,000.00	\$0.00	\$3,000.00
D.97/C-5	No activity forecast this budget year	\$0.00	\$0.00	\$0.00
D.97/C-6	No activity forecast this budget year	\$0.00	\$0.00	\$0.00
Total - 2 - Personnel (non GSC)		\$24,750.00	\$0.00	\$5,100.00

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3 - Local Consultants

Activity	Description	Budget	Commit	Actual
A.97/C-2	No activity forecast this budget year	\$0.00	\$0.00	\$0.00
A.97/C-3	No activity forecast this budget year	\$0.00	\$0.00	\$0.00
A.97/C-4	No activity forecast this budget year	\$0.00	\$0.00	\$0.00
D.96/C-12	No activity forecast this budget year	\$0.00	\$0.00	\$0.00
D.96/C-13	No activity forecast this budget year	\$0.00	\$0.00	\$0.00
D.96/C-14	No activity forecast this budget year	\$0.00	\$0.00	\$0.00
D.96/C-15	No activity forecast this fiscal year	\$0.00	\$0.00	\$0.00
D.97/C-3	No activity forecast this budget year	\$0.00	\$0.00	\$0.00
D.97/C-4	No activity forecast this budget year	\$0.00	\$0.00	\$0.00
D.97/C-5	No activity forecast this budget year	\$0.00	\$0.00	\$0.00
D.97/C-6	No activity forecast this budget year	\$0.00	\$0.00	\$0.00
Total - 3 - Local Consultants		Budget \$0.00	Commit \$0.00	Actual \$0.00

4 - Travel

Activity	Description	Budget	Commit	Actual
A.97/C-2	No activity forecast this budget year	\$0.00	\$0.00	\$0.00
A.97/C-3	7 days Chilean in Calgary @\$150 + extras	\$1,250.00	\$0.00	\$0.00
A.97/C-4	No activity forecast this budget year	\$0.00	\$0.00	\$0.00
D.96/C-12	No activity forecast this budget year	\$0.00	\$0.00	\$0.00
D.96/C-13	Chilean (Carlos Perezor) working in Ar-Ar facility (14 days @\$150 + extras)	\$2,250.00	\$0.00	\$1,277.45
D.96/C-14	Santiago, Chile (one trip - two people)	\$6,000.00	\$0.00	\$639.72
D.96/C-15	No activity forecast this fiscal year	\$0.00	\$0.00	\$0.00
D.97/C-3	No activity forecast this budget year	\$0.00	\$0.00	\$0.00
D.97/C-4	work in office in Santiago (two people to Santiago)	\$6,000.00	\$0.00	\$0.00
D.97/C-5	No activity forecast this budget year	\$0.00	\$0.00	\$0.00
D.97/C-6	No activity forecast this budget year	\$0.00	\$0.00	\$0.00
Total - 4 - Travel		Budget \$15,500.00	Commit \$0.00	Actual \$1,917.17

5 - Geoscience Services

Activity	Description	Budget	Commit	Actual
A.97/C-2	No activity forecast this budget year	\$0.00	\$0.00	\$0.00
A.97/C-3	35 samples @\$700	\$24,500.00	\$0.00	\$0.00
A.97/C-4	No activity forecast this budget year	\$0.00	\$0.00	\$35.63
D.96/C-12	30 Sr initials; 20 Nd initials; phone, copy, fax, courier	\$300.00	\$0.00	\$0.00

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D.96/C-13	10 samples @\$1,500 (@\$200 for consumables and rest as salary time); phone, fax, copy, courier	\$2,200.00	\$0.00	\$119.94
D.96/C-14	40 deuterium and 40 O analyses (Univ Waterloo); phone, copy, fax, courier	\$10,000.00	\$0.00	\$3,900.71
D.96/C-15	20 samples requested @ \$70.00 REE and Traces, Fax, courier, etc.	\$1,600.00	\$0.00	\$0.00
D.97/C-3	10 samples for zircon dating @\$4,000 (\$200 consumables & salary expenses); phone, copy, fax, courier	\$2,200.00	\$0.00	\$2,144.82
D.97/C-4	Phone, copy, fax, courier	\$200.00	\$0.00	\$0.00
D.97/C-5	No activity forecast this budget year	\$0.00	\$0.00	\$0.00
D.97/C-6	No activity forecast this budget year	\$0.00	\$0.00	\$0.00
Total - 5 - Geoscience Services		Budget \$41,000.00	Commit \$0.00	Actual \$6,201.10

6 - Equipment

Activity	Description	Budget	Commit	Actual
A.97/C-2	No activity forecast this budget year	\$0.00	\$0.00	\$0.00
A.97/C-3	No activity forecast this budget year	\$0.00	\$0.00	\$0.00
A.97/C-4	No activity forecast this budget year	\$0.00	\$0.00	\$0.00
D.96/C-12	No activity forecast this budget year	\$0.00	\$0.00	\$0.00
D.96/C-13	No activity forecast this budget year	\$0.00	\$0.00	\$0.00
D.96/C-14	No activity forecast this budget year	\$0.00	\$0.00	\$0.00
D.96/C-15	No activity forecast this fiscal year	\$0.00	\$0.00	\$0.00
D.97/C-3	No activity forecast this budget year	\$0.00	\$0.00	\$0.00
D.97/C-4	No activity forecast this budget year	\$0.00	\$0.00	\$0.00
D.97/C-5	No activity forecast this budget year	\$0.00	\$0.00	\$0.00
D.97/C-6	No activity forecast this budget year	\$0.00	\$0.00	\$0.00
Total - 6 - Equipment		Budget \$0.00	Commit \$0.00	Actual \$0.00

7 - Other

Activity	Description	Budget	Commit	Actual
A.97/C-2	No activity forecast this budget year	\$0.00	\$0.00	\$0.00
A.97/C-3	publications	\$200.00	\$0.00	\$0.00
A.97/C-4	No activity forecast this budget year	\$0.00	\$0.00	\$0.00
D.96/C-12	No activity forecast this budget year	\$0.00	\$0.00	\$0.00
D.96/C-13		\$1,799.00	\$0.00	\$0.00
D.96/C-14	Publications, course notes and guide, textbooks	\$200.00	\$0.00	\$24.56
D.96/C-15	No activity forecast this fiscal year	\$0.00	\$0.00	\$0.00
D.97/C-3	No activity forecast this budget year	\$0.00	\$0.00	\$0.00
D.97/C-4	Publications, course notes and guide; textbooks	\$500.00	\$0.00	\$0.00
D.97/C-5	No activity forecast this budget year	\$0.00	\$0.00	\$0.00

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D.97/C-6	No activity forecast this budget year	\$0.00	\$0.00	\$0.00
		Budget	Commit	Actual
	Total - 7 - Other	\$2,699.00	\$0.00	\$24.56
		Budget	Commit	Actual
	Total - Chile	\$190,449.00	\$0.00	\$14,697.13

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Multi

1 - Personnel (GSC)

Activity	Description	Budget	Commit	Actual
B.96/M-1	Drafting support	\$1,500.00	\$0.00	\$0.00
B.96/M-2	No activity forecast this budget year	\$0.00	\$0.00	\$0.00
B.97/M-1	Sangster (20 days)	\$6,000.00	\$0.00	\$5,000.18
B.97/M-2	No activity forecast this budget year	\$0.00	\$0.00	\$0.00
B.98/M-1	Edwards (40 days)	\$8,400.00	\$0.00	\$0.00
B.98/M-2	Robert Cocking (10 days)	\$2,000.00	\$0.00	\$362.14
B.98/M-3	Edwards & Hickson field studies in physical volcanology	\$10,500.00	\$0.00	\$18,957.83
C.96/M-1	Ellerbeck, Hickson (6 days)	\$2,000.00	\$0.00	\$0.00
C.97/M-1	Hickson (4 days)	\$1,340.00	\$0.00	\$0.00
C.98/M-1	Art Soregaroli to Bolivia	\$7,000.00	\$0.00	\$0.00
C.98/M-2	Hickson Argentina conference (16 days)	\$6,000.00	\$0.00	\$2,686.56
Total - 1 - Personnel (GSC)		Budget \$44,740.00	Commit \$0.00	Actual \$27,006.71

2 - Personnel (non GSC)

Activity	Description	Budget	Commit	Actual
B.96/M-1	No activity forecast this budget year	\$0.00	\$0.00	\$0.00
B.96/M-2	No activity forecast this budget year	\$0.00	\$0.00	\$0.00
B.97/M-1	Panteleyev (20 days)	\$10,000.00	\$0.00	\$0.00
B.97/M-2	PIMA contractor to be determined (20 days); Panteleyev (20 days)	\$1,500.00	\$0.00	\$1,564.20
B.98/M-1	Specimen database (Nagel)	\$2,000.00	\$0.00	\$0.00
B.98/M-2	translation of documents (Lopez)	\$2,000.00	\$0.00	\$0.00
B.98/M-3	Russell (20 days)	\$10,000.00	\$0.00	\$0.00
C.96/M-1	Otto Krauth	\$8,000.00	\$0.00	\$2,983.90
C.97/M-1	Soregaroli (6 days)	\$3,000.00	\$0.00	\$0.00
C.98/M-1	No activity forecast this budget year	\$0.00	\$0.00	\$0.00
C.98/M-2	No forecast expenditure	\$0.00	\$0.00	\$0.00
Total - 2 - Personnel (non GSC)		Budget \$36,500.00	Commit \$0.00	Actual \$4,548.10

3 - Local Consultants

Activity	Description	Budget	Commit	Actual
B.96/M-1	No activity forecast this budget year	\$0.00	\$0.00	\$0.00
B.96/M-2	No activity forecast this budget year	\$0.00	\$0.00	\$0.00
B.97/M-1	No activity forecast this budget year	\$0.00	\$0.00	\$0.00

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B.97/M-2	No activity forecast this budget year	\$0.00	\$0.00	\$0.00
B.98/M-1	No activity forecast this budget year	\$0.00	\$0.00	\$0.00
B.98/M-2	No activity forecast this budget year	\$0.00	\$0.00	\$0.00
B.98/M-3	No activity forecast this budget year	\$0.00	\$0.00	\$0.00
C.96/M-1	No activity forecast this budget year	\$0.00	\$0.00	\$0.00
C.97/M-1	No activity forecast this budget year	\$0.00	\$0.00	\$0.00
C.98/M-1	No activity forecast this budget year	\$0.00	\$0.00	\$0.00
C.98/M-2	No activity forecast this budget year	\$0.00	\$0.00	\$0.00
Total - 3 - Local Consultants		Budget	Commit	Actual
		\$0.00	\$0.00	\$0.00

4 - Travel

Activity	Description	Budget	Commit	Actual
B.96/M-1	12 people to Toronto (8 days)	\$14,000.00	\$0.00	\$0.00
B.96/M-2	No activity forecast this budget year	\$0.00	\$0.00	\$0.00
B.97/M-1	Buses, logistics, etc. for 25 people (20 days); airfare - 2 people	\$25,000.00	\$0.00	\$0.00
B.97/M-2	No activity forecast this budget year	\$0.00	\$0.00	\$0.00
B.98/M-1	No activity forecast this budget year	\$0.00	\$0.00	\$0.00
B.98/M-2	Cocking to South America	\$4,000.00	\$0.00	\$0.00
B.98/M-3	Buses, helicopter, logistical support, etc. for 10 people (10 days); airfare 2 people	\$16,000.00	\$0.00	\$21,299.70
C.96/M-1	No activity forecast this budget year	\$0.00	\$0.00	\$0.00
C.97/M-1	No activity forecast this budget year	\$0.00	\$0.00	\$0.00
C.98/M-1	Art Soregaroli to La Paz	\$3,500.00	\$0.00	\$0.00
C.98/M-2	Hickson travel to Argentina	\$5,000.00	\$0.00	\$9,227.94
Total - 4 - Travel		Budget	Commit	Actual
		\$67,500.00	\$0.00	\$30,527.64

5 - Geoscience Services

Activity	Description	Budget	Commit	Actual
B.96/M-1	Phone, fax, courier & copies	\$600.00	\$0.00	\$0.00
B.96/M-2	No activity forecast this budget year	\$0.00	\$0.00	\$0.00
B.97/M-1	Phone, fax, copy, courier	\$600.00	\$0.00	\$211.88
B.97/M-2	Chemistry, courier, copies, phone, fax	\$2,000.00	\$0.00	\$0.00
B.98/M-1	Thin sections, wet chemistry, courier, phone	\$4,000.00	\$0.00	\$0.00
B.98/M-2	Phone, copies, fax, courier	\$200.00	\$0.00	\$0.00
B.98/M-3	Thin sections, phone, copies, courier, fax	\$2,000.00	\$0.00	\$377.78
C.96/M-1	Document preparation, phone, copy, fax, courier	\$500.00	\$0.00	\$225.13
C.97/M-1	Document preparation, phone, copy, fax, courier	\$100.00	\$0.00	\$0.00
C.98/M-1	No activity forecast this budget year	\$0.00	\$0.00	\$0.00

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C.98/M-2	No activity forecast this budget year	\$0.00	\$0.00	\$19.10
Total - 5 - Geoscience Services		Budget \$10,000.00	Commit \$0.00	Actual \$833.89

6 - Equipment

Activity	Description	Budget	Commit	Actual
B.96/M-1	No activity forecast this budget year	\$0.00	\$0.00	\$0.00
B.96/M-2	No activity forecast this budget year	\$0.00	\$0.00	\$0.00
B.97/M-1	No activity forecast this budget year	\$0.00	\$0.00	\$0.00
B.97/M-2	No activity forecast this budget year	\$0.00	\$0.00	\$0.00
B.98/M-1	No activity forecast this budget year	\$0.00	\$0.00	\$0.00
B.98/M-2	No activity forecast this budget year	\$0.00	\$0.00	\$0.00
B.98/M-3	No activity forecast this budget year	\$0.00	\$0.00	\$0.00
C.96/M-1	No activity forecast this budget year	\$0.00	\$0.00	\$0.00
C.97/M-1	No activity forecast this budget year	\$0.00	\$0.00	\$0.00
C.98/M-1	No activity forecast this budget year	\$0.00	\$0.00	\$0.00
C.98/M-2	No activity forecast	\$0.00	\$0.00	\$0.00
Total - 6 - Equipment		Budget \$0.00	Commit \$0.00	Actual \$0.00

7 - Other

Activity	Description	Budget	Commit	Actual
B.96/M-1	Registration for PDA (14 people @\$300)	\$3,500.00	\$0.00	\$0.00
B.96/M-2	No activity forecast this budget year	\$0.00	\$0.00	\$0.00
B.97/M-1	Field guides, misc.	\$200.00	\$0.00	\$0.00
B.97/M-2	Publications, course notes, textbooks	\$400.00	\$0.00	\$0.00
B.98/M-1	Publications, process notes and guide, textbooks	\$2,000.00	\$0.00	\$0.00
B.98/M-2	Cartographic guides, textbooks, publications	\$2,000.00	\$0.00	\$173.28
B.98/M-3	Field guides, textbooks, publications	\$2,000.00	\$0.00	\$521.26
C.96/M-1	Server time rental, computer rental, information notices	\$3,000.00	\$0.00	\$0.00
C.97/M-1	No activity forecast this budget year	\$0.00	\$0.00	\$0.00
C.98/M-1	Courier and fax	\$200.00	\$0.00	\$5.35
C.98/M-2	Conference registration, courier, brochure printing, pins, decals	\$5,000.00	\$0.00	\$34.00
Total - 7 - Other		Budget \$18,300.00	Commit \$0.00	Actual \$733.89

Total - Multi		Budget \$177,040.00	Commit \$0.00	Actual \$63,650.23
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MAP SUMMARY REPORT 1998/99

Sorted by Country and Sub Unit

Peru

1 - Personnel (GSC)

Activity	Description	Budget	Commit	Actual
A.96/P-4	Gordey (26 days) - 21 field days	\$3,000.00	\$0.00	\$0.00
A.97/P-5	No activity forecast this budget year	\$0.00	\$0.00	\$23.12
A.97/P-6	No activity forecast this budget year	\$0.00	\$0.00	\$0.00
A.98/P-1	No activity forecast this budget year	\$0.00	\$0.00	\$0.00
D.96/P-16	Orchard	\$3,000.00	\$0.00	\$0.00
D.96/P-17	Cocking (teleconferencing)	\$0.00	\$0.00	\$0.00
D.96/P-18	No activity forecast this budget year	\$0.00	\$0.00	\$0.00
D.96/P-19	Salary dollars to be charged for Villeneuve; sample preparation; lab technician (\$value \$40,000 - \$2,000 consumables); Edwards sample processing and control	\$32,000.00	\$0.00	\$0.00
D.96/P-20	Ben Edwards - petrologic interpretation of trace and REE chemistry; Edwards sample processing and control	\$500.00	\$0.00	\$0.00
D.98/P-1	No forecast activity this fiscal year	\$0.00	\$0.00	\$0.00
Total - 1 - Personnel (GSC)		\$38,500.00	\$0.00	\$23.12

2 - Personnel (non GSC)

Activity	Description	Budget	Commit	Actual
A.96/P-4	No activity forecast this budget year	\$0.00	\$0.00	\$0.00
A.97/P-5	No activity forecast this budget year	\$0.00	\$0.00	\$0.00
A.97/P-6	No activity forecast this budget year	\$0.00	\$0.00	\$0.00
A.98/P-1	Panteleyev (30 days) for mineral deposits work in southern region plus preparation time (5 days)	\$20,000.00	\$0.00	\$0.00
D.96/P-16	No activity forecast this budget year	\$0.00	\$0.00	\$0.00
D.96/P-17	No activity forecast this budget year	\$0.00	\$0.00	\$0.00
D.96/P-18	No activity forecast this budget year	\$0.00	\$0.00	\$0.00
D.96/P-19	No activity forecast this budget year	\$0.00	\$0.00	\$0.00
D.96/P-20	No activity forecast this budget year	\$0.00	\$0.00	\$0.00
D.98/P-1	No activity forecast this fiscal year	\$0.00	\$0.00	\$0.00
Total - 2 - Personnel (non GSC)		\$20,000.00	\$0.00	\$0.00

3 - Local Consultants

Activity	Description	Budget	Commit	Actual
A.96/P-4	No activity forecast this budget year	\$0.00	\$0.00	\$0.00
A.97/P-5	No activity forecast this budget year	\$0.00	\$0.00	\$0.00

MAP SUMMARY REPORT 1998/99

Sorted by Country and Sub Unit

A.97/P-6	No activity forecast this budget year	\$0.00	\$0.00	\$0.00
A.98/P-1	No activity forecast this budget year	\$0.00	\$0.00	\$0.00
D.96/P-16	No activity forecast this budget year	\$0.00	\$0.00	\$0.00
D.96/P-17	No activity forecast this budget year	\$0.00	\$0.00	\$0.00
D.96/P-18	No activity forecast this budget year	\$0.00	\$0.00	\$0.00
D.96/P-19	No activity forecast this budget year	\$0.00	\$0.00	\$0.00
D.96/P-20	No activity forecast this budget year	\$0.00	\$0.00	\$0.00
D.98/P-1	No activity forecast this budget year	\$0.00	\$0.00	\$0.00

Total - 3 - Local Consultants	Budget	Commit	Actual
	\$0.00	\$0.00	\$0.00

4 - Travel

Activity	Description	Budget	Commit	Actual
A.96/P-4	Gordey to Peru	\$0.00	\$0.00	\$0.00
A.97/P-5	No activity forecast this budget year	\$0.00	\$0.00	\$0.00
A.97/P-6	No activity forecast this budget year	\$0.00	\$0.00	\$0.00
A.98/P-1	Panteleyev to Arequipa	\$3,500.00	\$0.00	\$0.00
D.96/P-16	No activity forecast this budget year	\$0.00	\$0.00	\$0.00
D.96/P-17	No activity forecast this budget year	\$0.00	\$0.00	\$0.00
D.96/P-18	No activity forecast this budget year	\$0.00	\$0.00	\$0.00
D.96/P-19	No activity forecast this budget year	\$0.00	\$0.00	\$0.00
D.96/P-20	No activity forecast this budget year	\$0.00	\$0.00	\$0.00
D.98/P-1	No activity forecast this fiscal year	\$0.00	\$0.00	\$0.00

Total - 4 - Travel	Budget	Commit	Actual
	\$3,500.00	\$0.00	\$0.00

5 - Geoscience Services

Activity	Description	Budget	Commit	Actual
A.96/P-4	Phone, fax, courier & copies	\$300.00	\$0.00	\$0.00
A.97/P-5	Purchase two radarsat images	\$8,000.00	\$0.00	\$0.00
A.97/P-6	No activity forecast this budget year	\$0.00	\$0.00	\$0.00
A.98/P-1	Phone, fax, courier & copies	\$300.00	\$0.00	\$0.00
D.96/P-16	25 conodont samples (GSC) and/or radiolarian samples (GSC); phone, fax, copy, courier	\$5,000.00	\$0.00	\$0.00
D.96/P-17	Phone, copy, fax, courier	\$200.00	\$0.00	\$0.00
D.96/P-18	No activity forecast this budget year	\$0.00	\$0.00	\$0.00
D.96/P-19	15 Ar-Ar (GSC \$1,500); 3 zircon dates @ \$4,000 (\$200 consumables + salary expenses); phone, copy, fax, courier	\$3,600.00	\$0.00	\$63.54
D.96/P-20	20 samples major and trace; 50 samples REE (contract) @ \$82; phone, copy, fax, courier	\$4,500.00	\$0.00	\$0.00
D.98/P-1	Phone, copy, fax, courier	\$200.00	\$0.00	\$0.00

MAP SUMMARY REPORT 1998/99

Sorted by Country and Sub Unit

Total - 5 - Geoscience Services	Budget \$22,100.00	Commit \$0.00	Actual \$63.54
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6 - Equipment

Activity	Description	Budget	Commit	Actual
A.96/P-4	No activity forecast this budget year	\$0.00	\$0.00	\$0.00
A.97/P-5	No activity forecast this budget year	\$0.00	\$0.00	\$0.00
A.97/P-6	No activity forecast this budget year	\$0.00	\$0.00	\$0.00
A.98/P-1	No activity forecast this budget year	\$0.00	\$0.00	\$0.00
D.96/P-16	No activity forecast this budget year	\$0.00	\$0.00	\$0.00
D.96/P-17	No activity forecast this budget year	\$0.00	\$0.00	\$0.00
D.96/P-18	No activity forecast this budget year	\$0.00	\$0.00	\$0.00
D.96/P-19	No activity forecast this budget year	\$0.00	\$0.00	\$0.00
D.96/P-20	No activity forecast this budget year	\$0.00	\$0.00	\$0.00
D.98/P-1	Buy software	\$23,000.00	\$0.00	\$0.00

Total - 6 - Equipment	Budget \$23,000.00	Commit \$0.00	Actual \$0.00
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7 - Other

Activity	Description	Budget	Commit	Actual
A.96/P-4	publications	\$200.00	\$0.00	\$0.00
A.97/P-5	No activity forecast this budget year	\$0.00	\$0.00	\$20.00
A.97/P-6	No activity forecast this budget year	\$0.00	\$0.00	\$0.00
A.98/P-1	publications	\$200.00	\$0.00	\$0.00
D.96/P-16	No activity forecast this budget year	\$0.00	\$0.00	\$0.00
D.96/P-17	No activity forecast this budget year	\$0.00	\$0.00	\$0.00
D.96/P-18	No activity forecast this budget year	\$0.00	\$0.00	\$0.00
D.96/P-19	No activity forecast this budget year	\$0.00	\$0.00	\$0.00
D.96/P-20	Publications and textbooks	\$500.00	\$0.00	\$0.00
D.98/P-1	No activity forecast this fiscal year	\$0.00	\$0.00	\$0.00

Total - 7 - Other	Budget \$900.00	Commit \$0.00	Actual \$20.00
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Total - Peru	Budget \$108,000.00	Commit \$0.00	Actual \$106.66
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MAP SUMMARY REPORT 1998/99

Sorted by Country and Sub Unit

Report Total	Budget	Commit	Actual
	\$1,021,763.00	\$2,176.21	\$353,382.64

Annex C

Volcanology Short Course (Part I)

The volcanology field course led by Catherine Hickson proceeded smoothly between Monday, August 10 and Friday, August 21, 1998. Participants (Patricia Sruoga and Daniel Rubiolo (Argentina), Jorge Clavero (Chile), Michael Valencia (Peru) and special guest Beatrice Coira (Argentina) first flew to Seattle where they were met by debris flow specialist Patrick Pringle (Washington State Geological Survey). Various types of volcanic deposits were reviewed around Mt. Rainier with Patrick. Patrick then left the group as they continued south to Mt. St. Helens (MSH). At MSH the impact of the 1980 eruption was reviewed, focussing on the initial "directed blast" (pyroclastic surge) and debris avalanche deposits. The group returned to Vancouver late Thursday evening and left Friday morning for the Wells Gray region of east-central British Columbia accompanied by igneous petrologist Kelly Russell (University of British Columbia). Ice contact deposits were the focus of the next two days. In Wells Gray the group was joined by 10 lay people as part of the GSC's outreach program through the not-for-profit society "Friends of Wells Gray". On Sunday evening the group headed west and on Monday were joined by structural geologist Murray Journeay. Monday and Tuesday were spent reviewing welded breccia and catastrophic flood deposits from the 2350 .b.p. eruption of Mt. Meager. Journeay provided a review of the tectonics of the western Cordillera and suggested the regional structural context for volcanism in the southern Coast Mountains. On Wednesday and Thursday, sample collection was carried out in the poorly studied Mt. Cayley area of southwestern British Columbia. Course participants collected samples for dating and geochemistry and made observations of volcanic deposits in the area. The volcanic formations ranged from ice contact deposits to subaerial flows and domes. The final day was spent reviewing regional tectonics and volcanism during the drive back to Vancouver.

Annex D

Chilean Geologist Carlos Perez de Arce worked with Mike Villeneuve at GSC Ottawa.

After his arrival in Ottawa on July 6, Carlos spent the first week gaining first-hand experience on methodologies and procedures of Ar^{40}/Ar^{39} analysis at the Geological Survey of Canada. This included how samples are selected for analysis and the methodologies for selection, purification and packaging of hornblende, biotite, whole rock volcanic and K-feldspar. In addition, the amount of material, the length of irradiation and other relevant factors to take into account were discussed. Preparation of a multi-sample planchet, post-irradiation sample loading techniques, safe handling of radioactive material and the placement into vacuum system were covered. Limitations of the system and how this translates into the minimum sample sizes required, the actual analysis and the data reduction techniques rounded out the first week. Finally, introduction to the laboratory database for sample tracking, data reduction and storage were briefly discussed.

The second week primarily consisted of running through type examples of various outcomes of data. Many of these were derived from the literature and acquisition of copies of the research papers and discussion of how these might relate to more general examples was undertaken. Data manipulation beyond the "canned" programs was also done, primarily through examples of GSC data, data from research papers and via problem sets. Finally, the layout of the GSC program and the communication and feedback loops between geochronologists and geologists as a necessary component of Survey-style programs was developed. A strong emphasis was placed on ensuring that the geochronologist's role was not simply returning data (ages) to the geologists, but one of integrating available geological data to aid in the final data interpretation. In this way, both the geological and geochronological information can provide data to arrive at a common, viable result. Carlos returned to Chile on July 18 with data, problem sets and research papers that will provide a solid grounding for the start of a laser-based Ar^{40}/Ar^{39} geochronological facility and program.

Annex E
Summary of Visit by Mr. Sergio Iriarte to the University of Waterloo
August, 1998
Part of the Multinational Andean Project : Chile

David L. Rudolph Associate Professor, Dept. of Earth Sciences, University of Waterloo

During the last week of July and the beginning of August 1998, Mr. Sergio Iriarte, a scientist (geologist) with SERNAGEOMIN in Santiago, Chile, visited the Department of Earth Sciences at the University of Waterloo in Waterloo, Ontario. Drs. Ramon Aravena and David Rudolph within the Department of Earth Sciences are collaborating with scientists at SERNAGEOMIN on a groundwater resource management study in the altiplano region of Chile and they hosted Mr. Iriarte during his visit to Canada.

In January of 1998, Drs. Aravena and Rudolph visited the SERNAGEOMIN office in Santiago and began the first phase of the collaborative work with the Chilean scientists. During this visit, the Canadians worked with personnel at SERNAGEOMIN both in Santiago and at the field site in the altiplano region in order to begin the design of a field investigation into the hydrologic behaviour of the sensitive watersheds within this area of the Andes. Preliminary plans were discussed and general objectives for the fieldwork were proposed.

As a continuation of the planning process for this field work, it was necessary for one of the Chilean scientists to visit our Institute at the University of Waterloo to become familiar with the new field technologies that we have proposed to transfer to SERNAGEOMIN for use in this project. Mr. Iriarte arrived in Waterloo with several primary goals for his visit. The first was to become familiar with the groundwater monitoring techniques that had been proposed for use in the vicinity of the Laguna del Negro Francisco. These included portable drive-point monitoring wells, thin-diameter groundwater sampling devices, field geochemical instrumentation and sediment coring devices. Mr. Iriarte spent considerable time working with our senior field technician discussing and experimenting with all the equipment that we plan to transport to the field site in Chile in 1999. As Mr. Iriarte became more comfortable with the equipment, we were able to design more focussed plans for the execution of the field investigations planned for the following year in Chile. We all found this to be a very valuable exercise and experience.

The second major objective of Mr. Iriarte's visit was to review some of the recent advances being made in the area of surface geophysics. SERNAGEOMIN scientists have been extremely successful in the application of conventional geophysical techniques for defining subsurface geological conditions in the altiplano region. As part of our current research plans, the position of the water table and the electrical conductivity of the subsurface will be of significant importance to us and several new geophysical techniques may prove useful for this aspect of the work. Mr. Iriarte spend several days with our geophysical staff reviewing potential applications of the different instruments and acquainting himself with their use. We are now planning to incorporate Seville of these geophysical techniques into our field program and this would not likely have been

possible without Mr. Iriarte's personal visit.

A final objective of Mr. Iriarte's visit was to review geochemical and isotopic data that were collected during the field session in January 1998. As part of the field program, we had decided to employ some of the new methods in isotope hydrology to assist with the water balance estimates in the altiplano regions. These techniques were known by the SERNAGEOMIN scientists but they did not have direct experience with them. Mr. Iriarte visited the laboratories where these analyses are conducted and collected a series of technical articles on their application in environments similar to that encountered in the altiplano region. Having some preliminary data from the field site for discussion purposes proved extremely useful and it is clear that the isotopic techniques will add substantially to our understanding of the hydrology of the area.

A final aspect of Mr. Iriarte's visit was the development of a detailed work plan for the upcoming field season. We are now in a position to design specific field activities based on the review of the different techniques that we plan to transfer to the SERNAGEOMIN group. Mr. Iriarte's visit proved invaluable for advancing our collaborative project within the Multinational Andean Project and we are looking forward to the next phase of the work in early January 1999 in which Dr.'s Aravena and Rudolf will visit Chile to continue field work.

Annex F
Sample Processing Update
Paul Metcalfe

Argentina

<u>Fiscal Year</u>	<u>Company/Lab</u>	<u>Report No.</u>	<u># of Samples</u>	<u>Received</u>		
				<u>In Vancouver</u>	<u>Sent to Lab</u>	<u>Results</u>
Major Element Geochemistry						
1997-98	Activation Labs	14648	34	Fall 97	Winter 97	2 February 1998
1998-99	Activation Labs	(n.a.)	90	Fall 98	Fall 98	In progress
Trace Element Geochemistry						
1997-98	Activation Labs	14648	34	Fall 97	Winter 97	2 February 1998
1998-99	Activation Labs	(n.a.)	90	Fall 98	Fall 98	In progress
REE Geochemistry						
1997-98	Activation Labs	14648	34	Fall 97	Winter 97	2 February 1998
1998-99	Activation Labs	(n.a.)	90	Fall 98	Fall 98	In progress
Thin Sections						
1998-99	Vancouver Petrographics	(n.a.)	59	Summer 98	Fall 98	Received; description in progress
Paleontological analysis						
1998-99	GSC Calgary	(n.a.)	11	Summer 98	Fall 98	In progress
Lithochemistry						
1996-97	Activation Labs	12832	2143	Spring 97	Winter 97	25 March 1997
1997-98	Activation Labs	15095/15166	1494	Spring 98	Winter 97	30 March 1998
1998-99	Activation Labs	No activity				
U-Pb dating						
1997-98	UBC Geochronology	(n.a.)	1	Spring 97	(n.a.)	Spring 98
1998-99	GSC Ottawa	(n.a.)	4	Spring 98	Summer 98	In progress
Ar-Ar dating						
1997-98	GSC Ottawa (MV)	(n.a.)	5	Spring 97	Spring 97	Spring 98
1998-99	GSC Ottawa (MV)	(n.a.)	13	Fall 97	Spring 98	In progress
K-Ar dating						
1997-98	UBC Geochronology	(n.a.)	12	Spring 97	Spring 97	(K done, awaiting Ar)
1998-99	UBC Geochronology	(n.a.)	33	Fall 98	Fall 98	Mineral separation under way

Bolivia

Received

<u>Fiscal Year</u>	<u>Company/Lab</u>	<u>Report No.</u>	<u># of Samples</u>	<u>In Vancouver</u>	<u>Sent to Lab</u>	<u>Results</u>
Major Element Geochemistry						
1996-97	CHEMEX Labs	A9716596	78	Winter 96	(n.a.)	27 March 1997
1997-98	Activation Labs	14648	75	20 November 1997	(n.a.)	2 February 1998
1998-99	(n.a.)	(n.a.)	98	(n.a.)	On hold	(n.a.)
Trace Element Geochemistry						
1996-97	CHEMEX Labs	A9716596	78	Winter 96	(n.a.)	27 March 1997
1997-98	Activation Labs	14648	75	20 November 1997	(n.a.)	2 February 1998
1998-99	(n.a.)	(n.a.)	98	(n.a.)	On hold	(n.a.)
REE Geochemistry						
1996-97	CHEMEX Labs	A9716596	46	Winter 96	(n.a.)	27 March 1997
1997-98	Activation Labs	14648	75	20 November 1997	(n.a.)	2 February 1998
1998-99	(n.a.)	(n.a.)	98	(n.a.)	On hold	(n.a.)
Litho geochemistry						
1996-97	Activation Labs	12831	699	Spring 97	(n.a.)	25 March 1997
1997-98	Activation Labs	15073	127	Winter 97	(n.a.)	30 March 1998
1998-99	Activation Labs	15884/15834	53	(n.a.)	(n.a.)	(n.a.)
U-Pb dating						
1997-98	UBC Geochronology	(n.a.)	1	Spring 97	(n.a.)	Spring 98
Ar-Ar dating						
1997-98	(n.a.)	(n.a.)	(n.a.)	(n.a.)	(n.a.)	(n.a.)
K-Ar dating						
1996-97	UBC Geochronology	(n.a.)	17	(n.a.)	(n.a.)	(K done, waiting for Ar)

Chile

<u>Fiscal Year</u>	<u>Company/Lab</u>	<u>Report No.</u>	<u># of Samples</u>	<u>Received In Vancouver</u>	<u>Sent to Lab</u>	<u>Results</u>
U-Pb dating						
1997-98	GSC Ottawa	(n.a.)	5	(n.a.)	Spring 97	Winter 97-98
1998-99	GSC Ottawa	(n.a.)	3	(n.a.)	Fall 98	In progress
Ar-Ar dating						
1997-98	GSC Ottawa	(n.a.)	19	Spring 97	(n.a.)	16 complete, 1 unsuitable, 2 in progress
Fission Track dating						
1997-98	GSC Calgary	(n.a.)	20+	Spring 98	(n.a.)	(samples collected for possible future study)

Peru

<u>Fiscal Year</u>	<u>Company/Lab</u>	<u>Report No.</u>	<u># of Samples</u>	<u>Received In Vancouver</u>	<u>Sent to Lab</u>	<u>Results</u>
				U-Pb dating		
1997-98	GSC Ottawa		3	Spring 97		Complete
				Ar-Ar dating		
1997-98	GSC Ottawa		15	Spring 97		Petrographically examined but not yet dated
				Paleontological / Palynological dating		
1997-98	GSC Calgary		14	Winter 96?		Spring 97

Annex G
WEB Page Statistics for 2nd Quarter 1998

Program started at Wed-30-Sep-1998 13:53 local time.
Analysed requests from Tue-30-Jun-1998 22:49 to Wed-30-Sep-1998 08:28 (91.4 days).

Total successful requests: 6,362 (742)
Average successful requests per day: 70 (106)
Total successful requests for pages: 2,569 (287)
Average successful requests for pages per day: 28 (41)
Total failed requests: 247 (33)
Number of distinct files requested: 192 (138)
Number of distinct hosts served: 467 (55)
Number of new hosts served in last 7 days: 40
Corrupt logfile lines: 8
Total data transferred: 60,161 kbytes (6,743 kbytes)
Average data transferred per day: 673,994 bytes (986,469 bytes)
(Figures in parentheses refer to the last 7 days).

Monthly Report

Each unit () represents 30 requests for pages, or part thereof.

month: pages: #reqs: kbytes:

Jun 1998: 1: 4: 28:
Jul 1998: 842: 2197: 23437:
Aug 1998: 775: 1882: 18171:
Sep 1998: 951: 2279: 18524:

Daily Summary

Each unit () represents 20 requests for pages, or part thereof.

day: pages: #reqs: kbytes:

Sun: 147: 372: 3075:
Mon: 356: 969: 8469:
Tue: 397: 1052: 9764:
Wed: 494: 1165: 10339:
Thu: 579: 1506: 16084:
Fri: 345: 794: 8925:
Sat: 251: 504: 3506:

Hourly Summary

Each unit () represents 5 requests for pages, or part thereof.

hr: pages: #reqs: kbytes:

0: 48: 102: 530:
1: 30: 61: 317:
2: 32: 92: 926:
3: 56: 119: 676:
4: 59: 91: 502:
5: 77: 146: 1404:
6: 99: 241: 1850:

7: 100: 272: 2574:
 8: 100: 280: 2719:
 9: 136: 400: 4511:
 10: 165: 476: 7050:
 11: 190: 561: 5188:
 12: 189: 504: 5075:
 13: 153: 418: 3565:
 14: 161: 437: 4675:
 15: 146: 359: 3845:
 16: 156: 351: 2652:
 17: 121: 350: 3507:
 18: 92: 174: 1431:
 19: 137: 234: 1673:
 20: 66: 184: 1666:
 21: 132: 286: 2311:
 22: 77: 148: 1033:
 23: 47: 76: 481:

Domain Report

Printing all domains, sorted by amount of traffic.

pages: %pages: #reqs: %reqs: kbytes: %bytes: domain

819: 31.88%: 2281: 35.85%: 21828: 36.28%: [unresolved numerical addresses]
 858: 33.40%: 1672: 26.28%: 15053: 25.02%: .com (Commercial, mainly USA)
 246: 9.58%: 603: 9.48%: 5249: 8.73%: .ca (Canada)
 206: 8.02%: 539: 8.47%: 5207: 8.66%: .net (Network)
 49: 1.91%: 169: 2.66%: 1795: 2.98%: .ar (Argentina)
 35: 1.36%: 114: 1.79%: 1652: 2.75%: .edu (USA Educational)
 40: 1.56%: 102: 1.60%: 1470: 2.44%: .mil (USA Military)
 23: 0.90%: 66: 1.04%: 816: 1.36%: .nl (Netherlands)
 14: 0.54%: 50: 0.79%: 562: 0.93%: .de (Germany)
 8: 0.31%: 36: 0.57%: 551: 0.92%: .uk (United Kingdom)
 11: 0.43%: 48: 0.75%: 546: 0.91%: .es (Spain)
 6: 0.23%: 20: 0.31%: 540: 0.90%: .hr (Croatia)
 18: 0.70%: 67: 1.05%: 519: 0.86%: .au (Australia)
 44: 1.71%: 62: 0.97%: 421: 0.70%: .jp (Japan)
 10: 0.39%: 36: 0.57%: 388: 0.64%: .br (Brazil)
 12: 0.47%: 52: 0.82%: 356: 0.59%: .pe (Peru)
 15: 0.58%: 46: 0.72%: 354: 0.59%: .cl (Chile)
 33: 1.28%: 45: 0.71%: 329: 0.55%: .arpa (Old style Arpanet)
 12: 0.47%: 40: 0.63%: 309: 0.51%: .il (Israel)
 28: 1.09%: 63: 0.99%: 292: 0.48%: .co (Colombia)
 12: 0.47%: 35: 0.55%: 265: 0.44%: .mx (Mexico)
 6: 0.23%: 26: 0.41%: 214: 0.36%: .us (United States)
 14: 0.54%: 30: 0.47%: 203: 0.34%: .gov (USA Government)
 8: 0.31%: 26: 0.41%: 186: 0.31%: .fr (France)
 4: 0.16%: 18: 0.28%: 173: 0.29%: .ch (Switzerland)
 5: 0.19%: 15: 0.24%: 126: 0.21%: .at (Austria)
 8: 0.31%: 21: 0.33%: 124: 0.21%: .py (Paraguay)
 3: 0.12%: 10: 0.16%: 76: 0.13%: .ie (Ireland)
 1: 0.04%: 5: 0.08%: 63: 0.10%: .it (Italy)
 1: 0.04%: 5: 0.08%: 63: 0.10%: .ve (Venezuela)
 2: 0.08%: 5: 0.08%: 51: 0.08%: .ru (Russian Federation)

2: 0.08%:	8: 0.13%:	50: 0.08%:	.sg (Singapore)
3: 0.12%:	9: 0.14%:	50: 0.08%:	.no (Norway)
1: 0.04%:	3: 0.05%:	41: 0.07%:	.cz (Czech Republic)
1: 0.04%:	3: 0.05%:	41: 0.07%:	.sk (Slovak Republic)
1: 0.04%:	4: 0.06%:	39: 0.06%:	.be (Belgium)
1: 0.04%:	4: 0.06%:	39: 0.06%:	.org (Non-Profit Making Organisations)
4: 0.16%:	7: 0.11%:	38: 0.06%:	.kr (South Korea)
1: 0.04%:	4: 0.06%:	28: 0.05%:	.dk (Denmark)
1: 0.04%:	5: 0.08%:	24: 0.04%:	.et (Ethiopia)
1: 0.04%:	4: 0.06%:	19: 0.03%:	.fi (Finland)
2: 0.08%:	4: 0.06%:	12: 0.02%:	.do (Dominican Republic)

Directory Report

Printing all directories with at least 0.01% of the traffic, sorted by amount of traffic.
 Printing directories to depth 1.

pages: %pages: #reqs: %reqs: kbytes: %bytes: directory

 2569: 100%: 6362: 100%: 60161: 100%: /gsc/

File Type Report

Printing all extensions with at least 0.1% of the traffic, sorted by amount of traffic.

#reqs: %reqs: kbytes: %bytes: extension

 2410: 37.88%: 20293: 33.73%: .gif
 895: 14.07%: 15643: 26.00%: .jpeg
 2569: 40.38%: 14844: 24.67%: .html
 172: 2.70%: 8305: 13.81%: .pdf
 68: 1.07%: 611: 1.02%: .biapchat
 33: 0.52%: 450: 0.75%: .jpg

Request Report

Printing all requested files with at least 10 requests, sorted by number of requests.

#reqs: %reqs: kbytes: %bytes: file

 426: 6.70%: 1516: 2.52%: /gsc/default.html
 371: 5.83%: 1755: 2.92%: /gsc/english/logosmall.gif
 328: 5.16%: 53: 0.09%: /gsc/english/bullet.gif
 304: 4.78%: 3672: 6.10%: /gsc/gscfront.gif
 286: 4.50%: 2351: 3.91%: /gsc/logobig.gif
 151: 2.37%: 304: 0.51%: /gsc/english/general.html
 139: 2.18%: 586: 0.97%: /gsc/newsletter/default.html
 119: 1.87%: 170: 0.28%: /gsc/english/map.html
 118: 1.85%: 588: 0.98%: /gsc/spanish/logosmall.gif
 104: 1.63%: 3486: 5.80%: /gsc/english/map.gif
 101: 1.59%: 10: 0.02%: /gsc/spanish/top.gif
 101: 1.59%: 200: 0.33%: /gsc/spanish/peru.html
 99: 1.56%: 10: 0.02%: /gsc/english/top.gif
 95: 1.49%: 732: 1.22%: /gsc/newsletter/logobig.gif
 91: 1.43%: 331: 0.55%: /gsc/english/album/argintro.html

88: 1.38%: 6: 0.01%: /gsc/gscfront.map
 88: 1.38%: 49: 0.08%: /gsc/english/argentinaflag.gif
 86: 1.35%: 356: 0.59%: /gsc/english/aboutmap.html
 85: 1.34%: 144: 0.24%: /gsc/english/default.html
 78: 1.23%: 169: 0.28%: /gsc/spanish/general.html
 76: 1.19%: 1063: 1.77%: /gsc/english/argentina.html
 74: 1.16%: 108: 0.18%: /gsc/spanish/map.html
 70: 1.10%: 207: 0.34%: /gsc/english/album/peruintro.html
 70: 1.10%: 95: 0.16%: /gsc/english/news.html
 68: 1.07%: 611: 1.02%: /gsc/conference/run.biapchat
 67: 1.05%: 1646: 2.74%: /gsc/english/peru.html
 63: 0.99%: 140: 0.23%: /gsc/spanish/default.html
 61: 0.96%: 4: 0.01%: /gsc/english/map.map
 61: 0.96%: 1987: 3.30%: /gsc/spanish/bolivia.html
 60: 0.94%: 9: 0.02%: /gsc/english/reportsmain.html
 57: 0.90%: 932: 1.55%: /gsc/english/album/arg4s.jpeg
 57: 0.90%: 977: 1.62%: /gsc/english/album/arg1s.jpeg
 57: 0.90%: 1095: 1.82%: /gsc/english/album/arg2s.jpeg
 57: 0.90%: 309: 0.51%: /gsc/english/album/arg3s.jpeg
 55: 0.86%: 665: 1.10%: /gsc/english/album/arg5s.jpeg
 55: 0.86%: 132: 0.22%: /gsc/english/bolivia.html
 54: 0.85%: 1991: 3.31%: /gsc/newsletter/v1n2.pdf
 53: 0.83%: 51: 0.08%: /gsc/spanish/boliviaflag.gif
 53: 0.83%: 352: 0.59%: /gsc/english/chile.html
 51: 0.80%: 214: 0.36%: /gsc/newsletter/logosmall.gif
 50: 0.79%: 39: 0.06%: /gsc/english/peruflag.gif
 49: 0.77%: 841: 1.40%: /gsc/spanish/argentina.html
 49: 0.77%: 145: 0.24%: /gsc/spanish/album/peruintro.html
 47: 0.74%: 669: 1.11%: /gsc/english/album/peru1s.jpeg
 46: 0.72%: 583: 0.97%: /gsc/english/album/peru4s.jpeg
 46: 0.72%: 803: 1.34%: /gsc/english/album/arg6s.jpeg
 46: 0.72%: 67: 0.11%: /gsc/spanish/news.html
 46: 0.72%: 710: 1.18%: /gsc/english/album/peru2s.jpeg
 45: 0.71%: 618: 1.03%: /gsc/english/album/peru3s.jpeg
 44: 0.69%: 780: 1.30%: /gsc/english/album/arg7s.jpeg
 41: 0.64%: 701: 1.17%: /gsc/english/album/arg8s.jpeg
 41: 0.64%: 209: 0.35%: /gsc/spanish/aboutmap.html
 37: 0.58%: 533: 0.89%: /gsc/newsletter/v1n1.html
 35: 0.55%: 33: 0.06%: /gsc/english/boliviaflag.gif
 33: 0.52%: 6: 0.01%: /gsc/spanish/bullet.gif
 33: 0.52%: 49: 0.08%: /gsc/newsletter/samples.gif
 30: 0.47%: 1041: 1.73%: /gsc/newsletter/v1n3.pdf
 30: 0.47%: : : /gsc/spanish/reportsmain.html
 30: 0.47%: 443: 0.74%: /gsc/newsletter/v1n3.html
 29: 0.46%: 13: 0.02%: /gsc/english/chileflag.gif
 29: 0.46%: 124: 0.21%: /gsc/spanish/bolivia2.html
 29: 0.46%: 24: 0.04%: /gsc/spanish/peruflag.gif
 27: 0.42%: 203: 0.34%: /gsc/spanish/chile.html
 26: 0.41%: 408: 0.68%: /gsc/newsletter/v1n2.html
 25: 0.39%: 23: 0.04%: /gsc/newsletter/question.gif
 24: 0.38%: 44: 0.07%: /gsc/english/perumap.html
 23: 0.36%: 42: 0.07%: /gsc/english/argentinamap.html
 23: 0.36%: 84: 0.14%: /gsc/spanish/album/argintro.html
 22: 0.35%: 1585: 2.63%: /gsc/newsletter/v1n4.pdf
 19: 0.30%: 12: 0.02%: /gsc/newsletter/indicators.gif

19: 0.30%: 233: 0.39%: /gsc/newsletter/v1n4.html
 18: 0.28%: 470: 0.78%: /gsc/english/perumap1.gif
 18: 0.28%: 1: : /gsc/english/perumap1.map
 18: 0.28%: 287: 0.48%: /gsc/newsletter/pima.jpg
 17: 0.27%: 239: 0.40%: /gsc/spanish/album/peru3s.jpeg
 17: 0.27%: 220: 0.37%: /gsc/spanish/album/peru4s.jpeg
 17: 0.27%: 242: 0.40%: /gsc/spanish/album/peru1s.jpeg
 16: 0.25%: 253: 0.42%: /gsc/newsletter/v1n4e.html
 16: 0.25%: 823: 1.37%: /gsc/english/argmap1.gif
 16: 0.25%: 253: 0.42%: /gsc/spanish/album/peru2s.jpeg
 15: 0.24%: 25: 0.04%: /gsc/english/perumap2.html
 15: 0.24%: 34: 0.06%: /gsc/newsletter/calender.gif
 14: 0.22%: 428: 0.71%: /gsc/5.pdf
 14: 0.22%: 142: 0.24%: /gsc/newsletter/n5.jpg
 14: 0.22%: 1: : /gsc/spanish/map.map
 14: 0.22%: 1: : /gsc/english/argmap1.map
 12: 0.19%: 340: 0.57%: /gsc/spanish/bolivia1.jpeg
 12: 0.19%: 477: 0.79%: /gsc/newsletter/v1n5.pdf
 12: 0.19%: 9: 0.02%: /gsc/conference/default.html
 12: 0.19%: 22: 0.04%: /gsc/english/boliviamap.html
 12: 0.19%: 165: 0.27%: /gsc/newsletter/v1n5.html
 11: 0.17%: 265: 0.44%: /gsc/spanish/bolivia2.jpeg
 11: 0.17%: 22: 0.04%: /gsc/spanish/argentinamap.html
 11: 0.17%: 963: 1.60%: /gsc/newsletter/v1n4es.pdf
 11: 0.17%: 349: 0.58%: /gsc/english/bolmap1.gif
 11: 0.17%: 142: 0.24%: /gsc/newsletter/v1n5e.html
 11: 0.17%: 123: 0.20%: /gsc/samples/world.gif
 10: 0.16%: 2169: 3.61%: /gsc/english/perumap2.gif
 10: 0.16%: 71: 0.12%: /gsc/newsletter/v1n1.pdf
 10: 0.16%: 57: 0.10%: /gsc/spanish/album/arg3s.jpeg
 10: 0.16%: 513: 0.85%: /gsc/english/reports/report_6/default.html
 10: 0.16%: 17: 0.03%: /gsc/english/argentinamap2.html
 10: 0.16%: 1204: 2.00%: /gsc/brochure.pdf
 10: 0.16%: 1: : /gsc/english/bolmap1.map

This analysis was produced by analog2.11/Mac.
 Running time: 2 seconds.