



MAP NEWS

Internal Newsletter of the Multinational Andean Project

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Volcanology Field Work. Lima Peru.

Far left: members of the field course pose in front of Yucamane volcano.

Left: Examining deposits of Misti volcano near Arequipa.

Activities Reports

Volcanology Short Course Report

A short course in volcanology, "Mapping Volcanic Terrain: Products and Processes" was presented at the INGEMMET offices in Lima, Perú, April 10-14. Instructed by Drs. Kelly Russell (UBC) and Catherine Hickson (Research Scientist-Volcanology and MAP Project Manager), the course introduced 20 more INGEMMET and university people to some of the major concepts in volcanology and mapping volcanic rocks. Unlike the earlier course given to 38 people last December, this course was followed by a six day field course lead by Hickson and Ing. Agapito Sanchez. Twenty-two professionals participated. The course started in Arequipa. Eight vehicles conveyed the participants to Chivay near the Colca Canyon then back to Arequipa. Numerous outcrops of volcanic rock ranging from mafic spatter cones to outcrops exhibiting the complex facies of pyroclastic flow rocks were examined. The trip then went from Arequipa to Moquegua. During this portion of the trip, volcanic rocks of possible Cretaceous age were examined and a good sample of silicic volcanic rock was found. This sample should prove to be suitable for the standards program. Field course participants worked hard to collect the 100 kilograms of the rock needed for the standards program. The group then headed to Candarave near Yucamane Volcano. The final day was spent travelling from Candarave to Tacna. Over the six days of the trip, participants were exposed to an incredible range of volcanic rocks, of varying lithologies and field aspect. They had the opportunity to describe stratigraphic sections and to try to discern the origin of a variety of volcanic deposits. The group had an excellent opportunity to apply the methodology and knowledge they learned in the classroom portion of the course to real examples in the field. This



Geologists collecting samples for the standards program in southern Peru.

knowledge will now be applied to the revision of the maps from this area of southern Peru.

Mineral Deposits Studies Argentina / Peru

Activity: A.98/P-1 & A.96/A-2



Andre Panteleyev collecting radiometric dating samples from rhyolite dome - Juli Lake Titicaca, Peru

Dr. Andre Panteleyev of XDM Consultants visited the offices of INGEMMET in Lima, Perú to review sampling methods and procedures for fluid inclusion studies, radiometric

dating techniques and review of regional mineral potential studies. Some work in the field intended for developing procedures for metallogenic studies was conducted in the southern coast and Puna regions. The work in the Mollendo area was done together with the brigade headed by Ing. Mario Carpio, and the work to the southwest of Lake Titicaca was led by Ing. Elmer Boulanger. Dr. Panteleyev also visited SEGEMAR offices in Buenos Aires, Argentina to participate in discussions about economic geology field programs.

Airborne Surveys

Argentina / Chile Survey Hart Aviation Safety Report



Mr. Joe Gross of Hart Aviation returned from Mendoza after conducting the safety audit of the SIAL Aviation aircraft. Hart Aviation will prepare a complete report shortly. A recommendation by Mr. Gross to make the aircraft more recognizable during the unlikely event of an emergency landing was quickly solved by SIAL's crew by painting a large orange stripe on the fuselage and wings (see photo above). Flying is tentatively scheduled to commence in the 2nd half of May.

Bolivia / Chile / Peru Survey

A contractor has been selected but in order to carry out this proposed airborne geophysical survey the participation of two more partners is required. Any interested partners should contact Hickson or Dennis Teskey directly.

Sample Standards Update

The petrological sample standards program is progressing, with eight potential sample

standards undergoing evaluation (4 basalts from Argentina, 2 andesites from Chile, and 1 dacite from Bolivia). An additional felsic sample has been collected in Peru and is expected in Vancouver soon.

Preliminary whole rock major and trace element analytical results for 8 samples submitted to MAP as potential geochemical reference materials (sample standards) have been received. Three initial analyses have been done for each sample, to test consistency. Petrographic study of textures has also aided in evaluating these samples.

MAP has chosen to go ahead with the process of creating geochemical reference materials for andesite sample CH-2 from Chile, as the texture and composition are suitable, and there is enough material in Vancouver to process. Argentina has also been requested to send 100 kg of basalt sample BAMAP01 to be processed. MAP is looking forward to receiving a recently collected sample of felsic volcanic rock, most likely rhyolitic in composition from Peru soon. From Bolivia, MAP needs further samples with higher silica content, preferably over 62%. MAP also requests all countries to look for more suitable samples in the range of 47 to 60% silica, preferably around 55%. It is intended that the reference sample suite have a wide range of compositions from basalt to rhyolite.

MAP is arranging for the Ontario Ministry of Northern Development and Mines (Mines and Minerals Research Centre) to produce custom geochemical reference materials (bottles of pulverised rock to be used as standards), possibly before the next MAP Executive Council meeting, if the bulk samples arrive in Canada in time. More information on this process will be posted soon.

Metallogenic Map Update

The GIS department of GSC Vancouver has received most of the data for the metallogenic map of the border regions of the four MAP countries. Presently Mr. Rob Cocking of the GSC is working on digitizing the geological data from Argentina and Chile and is preparing the maps for the visit of the metallogenic map coordinator Dr. Eduardo Zappettini

of SEGEMAR in June. Zappettini will spend one week at GSC Vancouver working together with Cocking on merging the digital data from the four countries into one map. The final product is to be presented as a draft version at the Andean section of the IX Chilean Geological Congress in Puerto Varas, Chile and at the International Geological Congress in Rio de Janeiro, Brazil in August of this year.

Upcoming Activities

PIMA Short Course at SERNAGEOMIN

Activity: A.99/C-2

Ms. Anne Thompson of Petrascience Consultants Inc. is scheduled to give a short course on the use of the Portable Infrared Mineral Analyzer (PIMA) at the SERNAGEOMIN offices in Santiago, Chile from May 22 through 26, 2000. The same course was given in Bolivia and Peru during the 1999 fiscal year.

Hydrogeology: SERNAGEOMIN Scientists in Canada

SERNAGEOMIN scientists Sergio Iriarte and Igor Aguirre plan to be in Waterloo, Ontario from April 15th to May 9th to attend the course "Field Methods in Hydrogeology". Both scientists have been involved in the SERNAGEOMIN hydrogeology program which is in part sponsored by MAP.

Geochronology

SERNAGEOMIN scientist Dr. Paula Cornejo was in Ottawa from April 10 to 25 to work with Mr. Mike Villeneuve from the GSC Ottawa geochronology lab. Following that Cornejo was in Vancouver from April 27th to 29th to attend and present at the Geological Society of America Cordilleran Section Annual Meeting in Vancouver. The paper was presented in the session entitled "Metalloctets II: Latin and South American Cordillera, Friday, April 28, and it was entitled: El Salvador Porphyry Copper System, Chile: A Magmatic Response to the Middle Eocene Incaic Deformation Phase; Authors: Stephen J. Matthews, Paula Cornejo, Constantino Mpodozis and Andrew J. Tomlinson.



IX Chilean Geological Congress

The following is an update on the MAP symposium at the IX Chilean Geological Congress (CGC).

Date: The Organizing Committee of the IX CGC has suggested that the MAP symposium be moved from the originally programmed date of Wednesday the 2nd to Tuesday the 1st of August in order to avoid an overlap with the sessions on volcanism. Taking into consideration that this is one of the most relevant topics for MAP members the recommendation was accepted.

Submission of Works: To date, Argentina has submitted 5 works, 3 from Bolivia, 2 from Canada, 5 from Chile and 2 from Perú. This makes a total of 17 presentations which will require an entire day of the symposium. All works are in the process of being edited and the eventual changes from the editors will be submitted during the second half of May.

Distribution: Once all works have been approved by the editorial committee of the IX CGC a participant list will be sent to all participants.

CGC Registration: The organizing committee of the IX CGC has reported record participation having already received 350 works. Likewise there are approximately 500 professionals registered. Furthermore, this meeting has stimulated great interest in the southern region of Chile and in particular in its local authorities involved in environmental and applied issues such as public works, water management, etc.

Executive Council Meeting: The dates initially agreed upon for the Executive Council Meeting of Thursday the 3rd to Saturday the 5th of August will be maintained.

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

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

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