



# MAP NEWS

Internal Newsletter of the Multinational Andean Project

<http://www.pma-map.com/newsletter/v4n3.html>

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## XI Latin American Geology Congress

The XI Latin American Geological Congress will take place in Montevideo, Uruguay from the 12<sup>th</sup> to 16<sup>th</sup> of November. MAP will be participating in the congress unveiling the Metallogenic Map of the project region as well as the companion bulletin and CD-ROM.

In preparation for this important event a number of activities will be arranged to present the project products to industry. In preparation for the event, MAP administration is compiling a list of contacts of major industry publications worldwide in order to produce a Media package and press release prior to the Congress. Any suggestions or comments please email Mr. Mike Ellerbeck at: [mellerbe@nrcan.gc.ca](mailto:mellerbe@nrcan.gc.ca)

For more information about courses and meetings that are taking place during the congress please visit the official Congress web page at:

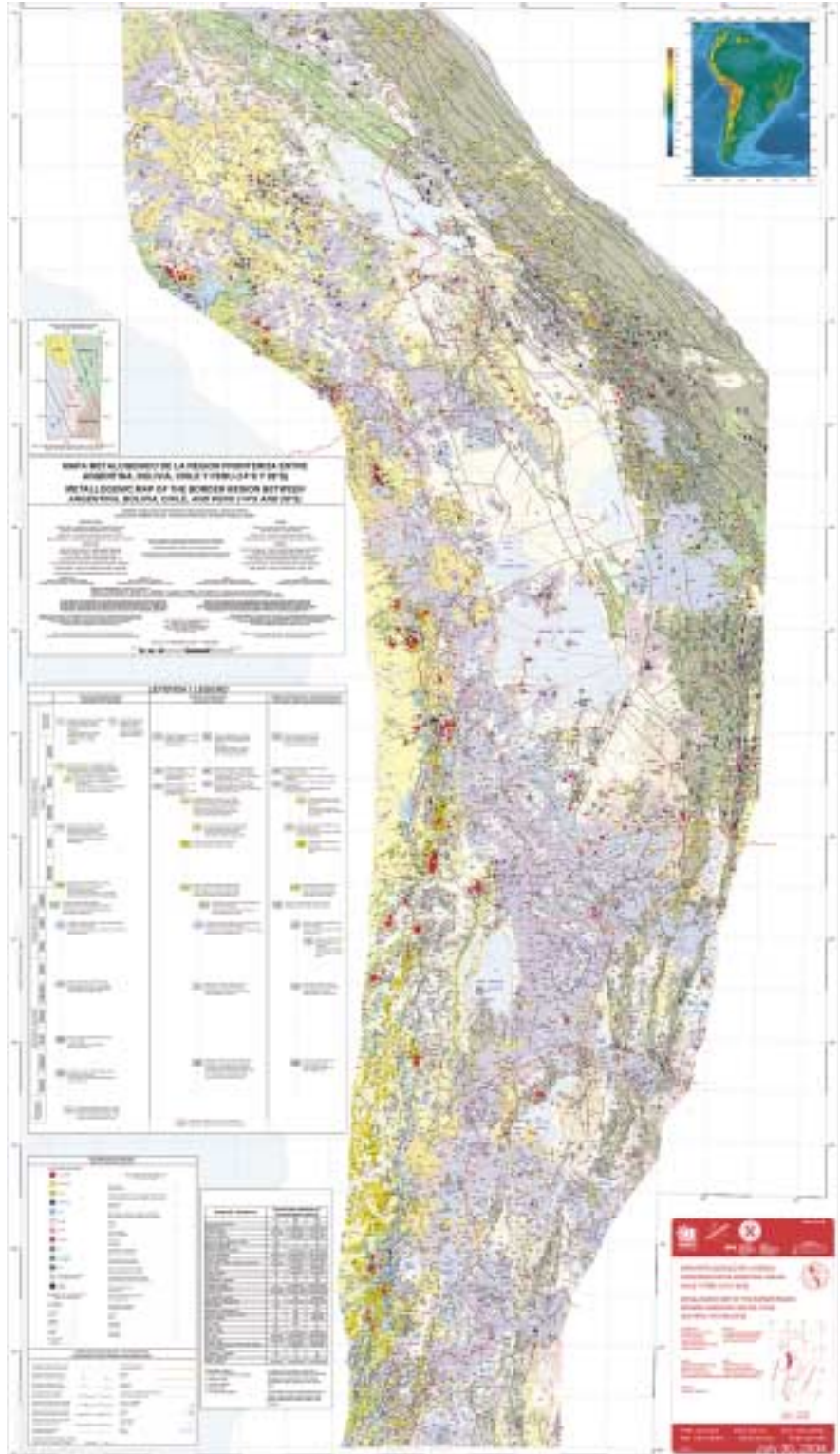
<http://www.dinamige.gub.uy/congresolatino/>

## The XI meeting of the MAP Executive Council

The eleventh meeting of the MAP Executive Council will take place in Montevideo, Uruguay during the week of the XI Latin American Geological Congress. MAP management would like to request all participating countries forward names of attendees from their agencies to the meetings to Ellerbeck at: [mellerbe@nrcan.gc.ca](mailto:mellerbe@nrcan.gc.ca) before September 30<sup>th</sup>, 2001 in order for MAP management to take care of Hotel and Congress reservations. Members are also requested to send suggestions for agenda topics to Ellerbeck.

## Metallogenic Map Nearing Completion Activity (B.98/M-1)

The metallogenic map is finally nearing completion. Dr. Eduardo Zappettini is compiling the final version of the deposits database. The version to the right shows the final layout format.



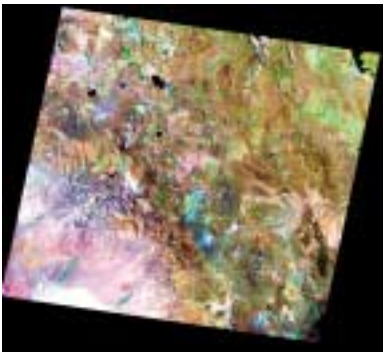


The MAP CD-ROM undergoes rigorous testing

## MAP CD-ROM Activity (B.98/M-1)

Proceeding from the alpha version released in July, the creation of the MAP CD is on schedule. Preparations are already under way for the development of the CD cover and booklet. Translation and testing of the interface continues on a daily basis.

For a more information about the status of the MAP CD-ROM please contact Andrew Makepeace at [amakepea@nrcan.gc.ca](mailto:amakepea@nrcan.gc.ca)



A subset of the TM Image being assembled for the CD

## Satellite Imagery

Satellite imagery is being prepared to provide a backdrop to the geological data that will be available on the MAP CD. Landsat Thematic Mapper (TM) data provides beautiful imagery showing water, landforms, geological structure, and vegetation. The resulting mosaic will provide the user with a colourful and informative view of the Andean project area.

## Landsat data

The Landsat satellite sensors record the amount of light reflected from the objects on the Earth's surface. Different objects (rocks, vegetation, soil, water) will reflect light with a characteristic

signature across the electromagnetic spectrum. The Thematic Mapper sensor measures the reflectance from 7 wavelengths or channels of the spectrum. Three channels are in the visible wavelengths. Combining these channels will produce a "true colour" image such as would be seen by the human eye. There are also three channels in the near to middle infrared spectrum. Combining infrared and visible channels produces a "false colour" composite image revealing information which cannot be seen by the human eye. The seventh channel of TM measures in the thermal infrared spectrum. Each channel is useful for discriminating certain features on the surface; for example, channels 2 and 7 are good for plant discrimination, channels 3, 5, and 7 are good for rock type discrimination, channel 4 is good for mapping water body extents.

Each Landsat scene covers an area of approximately 180km by 180km. The smallest area measurable by the sensor is a 30m by 30m cell (or pixel). Each scene, therefore, can be up to 7000 pixels by 7000 pixels per channel, totalling 350 Mb of data.



Ms. Carol Wagner uses image processing software to georeference and register raster data from various sources.

## Making the Mosaic

To cover the area of the MAP project, dozens of TM scenes are needed. To keep the amount of data manageable, thumbnail images of archived data supplied by the countries are being used for some parts of the project area. These images have been resampled to a coarser resolution, while still maintaining a good representation of the ground features. In other areas of the project, a previously high resolution mosaic image completed by Zappettini is being resampled to a coarser resolution. A "false colour" band combination is being used to highlight the geological features of the scenes.

Because the scenes are from differing dates and years, the edges between adjoining

scenes are often very distinct. This situation can be diminished, in some cases, by enhancing the images to "match" the values of a neighbouring image. The enhancement and scene matching techniques are available with image analysis software.

The satellite imagery is only useful for the purposes needed on the MAP CD if the images are georeferenced to the other mapped information. All images must be referenced to the Transverse Mercator projection being used for the MAP products. This georeferencing involves identifying several points on each image with corresponding points on a base map (river, lakes, roads) and "warping" the image so that it will overlay with the base map.

All the images will be combined into one final mosaic. Using this final image, the viewer should be able to identify landforms and waterbodies, delineate some structural lineations, and differentiate between significant rock types.

## New appointments in SERGEOMIN

On July 12, 2001 MAP management received notification that Ing. Hernan Uribe of SERGEOMIN Bolivia had left SERGEOMIN to work in the private sector. Ing. Uribe has been an important contributor to MAP for almost two years and he will be missed. Management wishes to extend its warmest regards and best wishes to Uribe in the future. Replacing Ing. Uribe at SERGEOMIN is Ing. Miguel Blacutt. On behalf of all MAP participants we wish to welcome Ing. Blacutt to the MAP family. MAP participants are reminded that all MAP related communication with Bolivia should be sent to the attention of both Ing. Carlos Riera and Ing. Miguel Blacutt.

## Sad News

MAP Management was deeply saddened to hear of the sudden death of the son of MAP project leader for Peru, Ing. Manuel Paz. MANUEL WILFREDO PAZ VASQUEZ died on August 8, 2001. On behalf of the MAP Executive Council and Map participants we wish to extend our sympathies to our colleague and friend Ing. Paz and his family during this difficult time.

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

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

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