Landsat Imagery of the Central Andes

The central Andes of South America extend from approximately 14° S to 28°S as an unbroken chain of mountains and volcanoes over 2000 km long. It is here that the Nazca plate dives under the South American plate at angles varying from 10° to 30°. Very little is known about the volcanoes comprising this classic, subduction-type plate margin.

A catalogue of the volcanoes in the central Andes is being prepared by Dr. P.W. Francis and Dr. C.A. Wood at the NASA Lunar and Planetary Institute. At present, more than 800 volcanoes of Cenozoic age have been recognized in the chain, with an estimated 75-80 major, active Quaternary volcanoes. The existing Catalogue of Active Volcanoes of the World lists only 16 active volcanoes in the region. Obviously, there is much detailed work to be done.

Approximately 100 1536 x 1536 pixel color composite Optronics positives were produced from six full Landsat Thematic Mapper scenes and three partial TM scenes. These positives cover a large portion of the central Andes and the work was done in conjunction with Dr. Francis' catalogue.

The positives were produced from Landsat data using the VAX imaging package, LIPS. The scenes were first transferred from magnetic tape to disk. The LIPS package was then used to select volcanically interesting areas which were then electronically enhanced. Finally, the selected areas were transferred back to tape and printed on the Optronics equipment. The pictures are color composites using Landsat TM bands 7,4, and 2 in the red, green, and blue filters, respectively.

The work done at the LPI last summer will be incorporated into my Master's thesis work. The tentative title for the thesis is "Volcanology of the Central Andes between 21° S and 24° S."

Catherine A. Komer
3 June 1986 - 29 August 1986

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