

GIS ANDES: A METALLOGENIC GIS OF THE ANDES CORDILLERA

Daniel CASSARD, BRGM, ORLEANS, France.

GIS Andes is a homogeneous information system of the entire Andes Cordillera, covering an area of 3.83 million km² and extending for some 8500 km from northern Venezuela to Cape Horn. Conceived as a tool for both the mining sector, as an aid to minerals exploration and development, and the academic sector as an aid to developing new metallogenic models, GIS Andes is based on original syntheses and compilations. The different layers of the system, which can of course be combined in any way that the user sees fit, are: Geographic: a DCW® geographic base; DEM: digital elevation models with a structural analysis of the topography; Imagery: SPOT 4 VEGETATION® images; Geological synthesis: geological map of the Andes at 1:2,000,000 scale; Geologic map coverage: more than 900 georeferenced maps; Seismic: more than 50,000 seismic records, with modelling of the subduction plane; Volcanic: data on Holocene volcanism; Gravimetric: the Bouguer anomaly calculation; isostatic correction and corresponding residual anomalies; vertical gradient calculation and structural analysis; gravity modelling of the Nazca plate; Heat Flow: a base with oceanic and continental data; Geochemistry: a database (3935 whole-rock analyses) from which it is possible, for example, to identify zones of adakitic magmatic activity - a new gold metallogenic model; Ore Deposits: linked to a Database under Access® and using a new metallogenic lexicon; Mineralogy, fluid inclusions, isotopes: data on the main ore deposits of the Cordillera; Mining Districts and Provinces: location, main features, potential; Geodynamic: the evolution of the Andean margin with a series of palinspastic maps.