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GEOLOGICAL MAP OF SOUTH AMERICA

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Compiled by

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Map prepared with the technical and financial support of:

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With the cooperation of

ASGMI Asociación de Servicios de Geología y Minería Iberoamericanos
Association of Iberoamerican Geological and Mining Surveys

Scale 1:5 000 000

Coordinate System: World Polyconic
Projection: Polyconic
Datum: WGS 1984
Central Meridian: -59,0000

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Geological Map of South America at a scale of 1:5M

Abstract

A new edition of the Geological Map of South America (GMSA) at a scale of 1:5 M was developed by the Subcommission for South America of the Commission for the Geological Map of the World (CGMW), approved by the CGMW General Assembly held in Oslo (Norway), during the 33rd International Geological Congress.

This third version has been prepared with the cooperation of the Ibero–American Association of Geology and Mining Surveys (ASGMI), the geological surveys of Argentina, Brazil, Chile, Colombia, Ecuador, Peru, and Uruguay; and several additional universities and research institutes that are mentioned in the collaborators information.

The subcommission followed a methodology for integrating the geological information from each country as follows: first, a new code was generated for each chronostratigraphic unit according to the proposed legend, by using digital layers provided by the geological survey of each country; second, symbology and colors were created with patterns representative of rock type and colors depicting the ages; and third, a map with coded units was prepared at a scale of 1:5 M.

With the objective of generalization and linking units by hand, the GMSA was printed at a scale of 1:3 M with the new codification. Next, the GMSA was scanned and georeferenced in order to generalize the geological units, faults and folds at a scale of 1:5 M. Once this was done, and despite the small–scale of the GMSA, the chronostratigraphic units, faults and folds on the map were adjusted with the aid of shaded relief images (STRM from NASA) in order to improve the matching between relief and the mapped geological units. Finally, the geology between countries was harmonized. It is worth noting that the updating of the GMSA was done through consultation of internationally indexed published papers.

The map is based on a Polyconic Projection (Latitude × Longitude), centered on Meridian –59°, WGS–1984 datum; data for offshore areas were taken from the Tectonic Map of South America at scale 1:5,9 M (Cordani et al., 2016); the Sea Floor Topography from GEBCO 08 Grid, version 20100927; and the Crustal Age Grid: NCEI/NOAA.

Collaborators:

The GIS map/database was developed by Nohora Emma MONTES RAMÍREZ and Helena Soares ZANETTI EYBEN. The shaded relief images and the style were prepared by Fernando Alirio ALCÁRCEL GUTIÉRREZ.

Data were supplied, or critically evaluated, in collaboration with the following, listed in alphabetical order by country:

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South American Platform

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Offshore

Cordani, U.G., Ramos, V.A., Fraga, L.M., Cegarra, M., Delgado, I., de Souza, K.G., Gomes, F.E.M. & Schobbenhaus, C. 2016. Tectonic Map of South America at 1:5.9 M. CGMW, CPRM & SEGEMAR.

Map of Plate Tectonics of South America

Conventions

Legend