



Lithospheric magnetic field mapping of the Caribbean region.

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Although several studies has been performed, and broad bibliography exist of north and south Puerto Rico and Dominican Republic area, there is a lack of magnetic information/studies at this geographical frame, mainly in the south: at the Caribbean plate. We have tried to fill this gap by using several sources of information: marine and terrestrial data. Marine magnetic information comes from past cruises (1962-2002) downloaded from the National Geophysical Data Center (NGDC). Other are from GEOPRICO geophysical campaign (March-April 2005), while terrestrial information comes from the Dominican Republic magnetic flight. The latter was performed in two phases: the first one in 1996 and the second in 1999. All this information has been treated in order to make an homogeneous data set from it. A key step was the use of the Comprehensive Model 4 (CM4) in order to extract the core field component. It allows an estimation of the magnetospheric and ionospheric contribution, too. This model shows great improvement over its predecessors in terms of completeness of sources and noise reduction in the lithospheric field, as a result of improved data selection that includes not only POGO and Magsat satellite data, but also from Oersted and Champ satellites and Observatory network data. The magnetic anomaly map obtained, shows not only the general character of the magnetic field pattern in the region, but depicts well-known geological and structural features too, as the Bahamas platform domain, Puerto Rico trench and Mona Block, providing a neither still shown nor discussed magnetic anomaly status southward, particularly a magnetic picture of the north Caribbean plate, where we could discerned isolated anomalies: north-south and east-west linear like anomalies. Additionally using potential field data: satellite

gravity data (2 minute arc) and magnetic data from the previous cited compilation once clean, we have tried to achieve a clearer magnetic as well as gravitational picture to complement previous studies carried out in the area (which were mainly based on seismic investigations). With this aim, using an algorithm based on Poisson's theorem, we have studied the deep structure in the area and analysed its potential field sources distribution.