



**Doctoral Thesis Title:** Optimization of regional geomagnetic cartography based on the modeling of satellite and terrestrial geomagnetic data.

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**Abstract:**

Regional geomagnetic cartography has traditionally been elaborated from local observations of the Earth's magnetic field and from secular variation mathematical models obtained by polynomial methods.

The evolution in recent decades of new observation sources, especially satellite and aeromagnetic data, allows physico-mathematical modeling of the Earth's magnetic field on a global and a regional scale.

From these models, which are more accurate and complete, it is possible to optimize geomagnetic cartography and its applications.

**Available Means:**

Access to data and observation campaigns of the geomagnetic field carried out by the IGN throughout the last century. Access to satellite data from different missions like Swarm constellation.

**References:**

- Àngela Talarn, F. Javier Pavón-Carrasco, J. Miquel Torta, Manuel Catalán (2017). Evaluation of using R-SCHA to simultaneously model main field and secular variation multilevel geomagnetic data for the North Atlantic. *Physics of the Earth and Planetary Interiors*, Volume 263, 2017, Pages 55-68, ISSN 0031-9201. <https://doi.org/10.1016/j.pepi.2016.11.008>.
- Finlay, C.C, Olsen, N., Kotsiaros, S., Gillet, N., Tøffner-Clausen, L., 2016. Recent geomagnetic secular variation from Swarm and ground observatories as estimated in the CHAOS-6 geomagnetic field model. *Earth, Planets and Space*, 60, 112. doi:10.1186/s40623-016-0486-1