

ETRS89 Realization and Maintenance in Spain

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Abstract. The implementation of ETRS89 in Spain was established by law in 2007, based on a passive geodetic network. At the same time, most of regional cartographic agencies installed their own GNSS permanent network, mainly for the purpose of real-time positioning, while the IGN active national network (ERGNSS) was growing. The geodetic reference frame for most of these active networks was usually given by their own processing and in some cases by IGN, but not in a common reference epoch, neither in an unique realization of ETRS89 or a common and homogeneous processing.

A Working Group was created with the aim of harmonizing and standardizing a common reference framework in ETRF00 for all public GNSS networks in Spain (excepting the Canary Islands). National and regional institutions were involved working together in processing all existing GNSS permanent stations, combining the solutions to obtain precise coordinates, velocities, time series and discontinuities.

First solution was published in 2018, in which about 250 stations were processed in the period between April 2011 and January 2017, obtaining a homogeneous set of coordinates in ETRF00 that were adopted by all public GNSS existing networks in Spain.

Two updates were obtained since then, combining a total period from April 2011 to January 2022. For each solution, a monitoring of the coordinates of stations is done and criteria for defining an update in coordinates or not are taken. If a change in the official coordinates is required, these updated coordinates are published and distributed to all institutions involved.

The combination process to obtain the station coordinates, the maintenance works, and update of the coordinates are presented in this contribution.