



## **Contribution of the DORIS system to the observation and determination of essential variables for geodesy**

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The DORIS system was designed to meet needs in precise orbit determination for satellite-based ocean radar altimetry. Since the launch of TOPEX/Poseidon in 1992, DORIS has played a key role in the altimetric missions which contribute to the continuous monitoring of essential variables for Ocean and Climate (e.g. the 25-year series of the Global Mean Sea Level).

DORIS has also proven greatly valuable for geodesy and geophysics applications: measuring tectonic plate motions, determination of the rotation and the gravity parameters of the Earth, contributing to the international reference system. Technological and methodological improvements have allowed the improvement in the estimates of the positions of the DORIS tracking ground stations, the Earth rotation parameters and other geodetic variables such as the geocenter and the scale of the ITRF.

For more than 30 years, the system has been maintained and improved by CNES with the help of IGN. Continuous efforts are made to make the DORIS network more robust and to maintain the desired level of performance. A new generation of ground antennae (Starec "C") whose 2GHz phase center is stably defined to  $\pm 1$  mm, is being deployed throughout the network. A new generation of ground beacons will be soon deployed which will allow improved sky visibility down to low elevations. Co-location with other space geodetic techniques is also a permanent objective.

The constellation of contributing instruments is currently composed of seven satellites, all equipped with the last DGXX generation receiver. Many future missions under preparation should guarantee a constellation of DORIS contributor satellites up to 2030 and beyond.

The IDS was implemented in 2003 and since then it has guaranteed access to DORIS data and derived products for the user community. Actions are underway to reduce data latency to meet the needs of new applications such as the ionosphere modelling.

Based on the assets of DORIS, this presentation will show its contribution to the observation and determination of some essential variables for geodesy.