



## **Current performance of IGS ionosphere TEC maps: final and rapid products**

**A. Krankowski** (1), M. Hernández-Pajares (2)

(1) Geodynamics Research Laboratory (GRL), Institute of Geodesy, University of Warmia and Mazury in Olsztyn, Poland (kand@uwm.edu.pl; Fax: +48-89-5234768), (2) gAGE/UPC, Research group of Astronomy and Geomatics, Technical University of Catalonia, Barcelona, Spain (manuel@ma4.upc.edu, mhpajares@gmail.com / Fax: +34 934015981)

Nowadays the Ionosphere Working Group of the International GNSS Service (IGS) generates two types of ionospheric products: final and rapid, respectively. This IGS Iono WG started the routine generation of ionosphere vertical total electron content (TEC) maps in June 1998. There are currently four IGS Associate Analysis Centres (IAACs) for ionosphere products: CODE (Center for Orbit Determination in Europe, University of Berne, Switzerland), ESA/ESOC (European Space Operations Center of ESA, Darmstadt, Germany), JPL (Jet Propulsion Laboratory, Pasadena, U.S.A), and gAGE/UPC (Technical University of Catalonia, Barcelona, Spain). These centres provide products computed with different approaches. The products are transmitted to an IGS Ionosphere Product Coordinator, who produces a weighted combined product. Presently the weights are defined by the IAAC global TEC maps evaluation carried out by 1 UPC center. From January 2008, this coordination is carried out by the GRL/UWM (Geodynamics Research Laboratory of the University of the Warmia and Mazury in Olsztyn, Poland). The IGS produces a Final Ionosphere product in IONEX format with resolution of 5 degrees in longitude and 2.5 degrees in latitude with a latency of 10 days, and a rapid solution with a latency of 1 day. During a period of about 10 years of continuous IGS ionosphere operation, the techniques used by the IAACs and the strategies of combination have improved in such a way that the combined IGS Ionosphere TEC maps are now significantly more accurate and robust. The purpose of this paper is, on one hand, to show the present performance of the combined final and

rapid IGS Ionosphere TEC maps, and on the other hand to summarize the present and future related activities within the IGS Ionosphere WG. The performance of IGS TEC maps will be computed from November 15th, 2007 to March 15th, 2008 and compared with the four IAACs maps. The following aspects are analyzed: 1) Vertical TEC performance, comparing with independent estimates of TEC provided by the TOPEX altimeter, 2) Measured vs. formal TEC standard deviations, 3) Inter-frequency Delay Code Biases (DCBs) estimations for the GPS satellites, 4) Inter-frequency Delay Code Biases (DCBs) estimations for available IGS GPS sites.