Geophysical Research Abstracts
Vol. 15, EGU2013-5168, 2013
EGU General Assembly 2013

Determination of Nutation Terms by means of GPS

Elke Umnig (1), Robert Weber (1), Nicole Capitaine (2), and Kunliang Yao (2)

(1) Department of Geodesy and Geoinformation, Research Group Advanced Geodesy,Vienna University of Technology, Austria (elke.umnig@tuwien.ac.at), (2) SYRTE, Observatoire de Paris, CNRS, UPMC, France

The observation of the Earth rotation variability as well as the explanation of the exciting mechanism is one main objective in space geodesy. The mathematical quantities, namely the Earth orientation parameters (EOP), which are characterizing the Earth rotation and orientation, connect the space-fixed and Earth-fixed reference system, their variation may indicate changes in dynamics of the Earth. Three of the five EOP elements, nutation offsets and UT1-UTC can be accessed only indirectly by means of space geodetic techniques, indeed their changes/rates can be determined with high precision.

The present study concentrates on the investigation of short periodic nutation. Nutation rates on base of high temporal resolution are computed at Vienna University of Technology using the GPS observations taken from a dense, globally distributed subset of the IGS08 reference station network. The time series start on Jan, 1st, 2009 and are going to be processed for a time span of three years. The computations are carried out by means of the Bernese GNSS Software. Processing strategies, the underlying a priori models for the parameter estimation and first results are discussed in the poster. A similar analysis with GINS software has been already independently carried out at Observatoire de Paris for comparison.