

3.7.4 Working Group on Prediction

Introduction The IERS Working Group on Prediction (WGP) was tasked to determine what Earth orientation parameter (EOP) prediction products are needed by the user community and to examine the fundamental properties of the different input data sets and algorithms (see IERS web site <<http://www.iers.org/IERS/EN/Organization/About/History/Prediction/prediction.html>>). The question was addressed by means of the EOP prediction survey developed by the WGP. Broad participation in the survey was solicited by IERS from those on the IERS mailing lists, those who receive IERS Rapid Service/Prediction Center (RS/PC) products, and any others thought to have an interest in EOP predictions (see IERS Message 104).

EOP Prediction Survey Results

Given the variety of high-precision applications that need EOP predictions, the first task of the WGP was to determine whether the current IERS products are adequate or whether modifications and/or improvements are necessary to meet more stringent requirements. To understand the needs of various users, the survey respondents were asked to characterize what type of user they were and then to specify their requirements in terms of desired accuracies and characteristics of EOP predictions. Although each category of user has different needs, the survey confirmed that most users need polar motion accuracies of 1 milli-arcsecond or better and UT1–UTC accuracies of 0.1 millisecond or better. The survey also confirmed that there is a large group of operational users that need daily predictions, tabular data, one-day spacing, and predictions up to 30 days. In general, the survey results confirmed the terms of reference under which the IERS RS/PC operates.

However, the survey also revealed that there is a need for increased accuracy, and subsequent efforts of the WGP concentrated on examining algorithms and incorporating potential new sources of data to address that need. In addition, the growing interest in daily and sub-daily predictions will require more timely measurements of EOP quantities and some increased processing capability.

IERS Workshop on EOP Combination and Prediction

As a fitting conclusion to the WGP, the IERS Workshop on EOP Combination and Prediction was held in Warsaw, Poland on 19–21 October 2009. The goal of the workshop was to define the current state-of-the-art for EOP predictions. The workshop looked at all aspects of predictions, including sessions on both data and algorithms as well as sessions devoted to the geophysical causes of the variations in Earth orientation.

At the end of the 3-day workshop, twenty recommendations were generated in an effort to help the EOP community direct its

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resources towards areas that were likely to be most beneficial. These recommendations touch on all aspects of the combination and prediction process. Papers from the Workshop were published in Volume 45, No. 2 of *Artificial Satellites* (2010) (see this report, Section 4.2).

It should be noted that one of the recommendations of the IERS Workshop was to “investigate the feasibility of initiating operational ensemble EOP predictions,” a task which has been taken up by the newly formed IERS EOP Combination of Predictions Pilot Project. For more information on the Pilot Project, please see <<http://maia.usno.navy.mil/eopcPPP/eopcPPP.html>>.

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