tribution models, and often have significant overlap with the interests and motives of the other SB's. We therefore maintain at least annual communication with these SB's about the status and capability of these products for comparison and validation as needed. We expect this may become a larger job as more users migrate to the project data centers for the access of the routine gravity solutions.

Michael M. Watkins

Special Bureau for Loading

Introduction

The solid Earth is constantly impacted by loads due to mass relocations in the atmosphere, oceans, cryosphere and terrestrial water storage. These loads deform the Earth, change the gravity field and introduce perturbations in Earth's rotation. Mass redistributions occur on a wide range of time scales including those of tsunamis (minutes to hours), tides (semi-diurnal, diurnal, fortnightly, monthly, and seasonal), meteorological (several days) and climatological changes (seasonal to multi-decadal), and changes in the ice cover (years to millenniums). These deformation, if not account for correctly, affect the geodetic terrestrial reference frame and can lead to a significant degradation in accuracy. Loading signals in the vertical component significantly exceed the 10 mm level at diurnal and seasonal time scales, while secular signals associated with postglacial rebound are on the level of 10 mm/yr. Surface displacements induced by seasonal exchanges between ocean and terrestrial hydrosphere are of the order of 10 mm. Thus, achieving a reference frame with sub-millimeter accuracy requires accurate modeling of the loading signals both for station motion models and the alignment of geodetic solutions to the *International Terrestrial Reference Frame* (ITRF). It is the task of the *Special Bureau for Loading* (SBL) to provide predictions of the loading signals for research as well as operational space-geodetic analyses.

SBL goals and contributions

The SBL, which was established in 2002 in response to an expressed need for standardized loading predictions, is part of the IERS Global Geophysical Fluid Center. It has the goal to provide predictions of surface-load induced changes in the Earth's geometry, gravity field and rotation. The initial goal of the SBL was the provision of predictions of changes in Earth's geometry induced by atmospheric loading, preferably in near-real time. In 2003, time series of predicted station displacements due to atmospheric loading were made available for the stations in the main global and regional geodetic networks. These predictions (denoted as Research Products) are available for different atmospheric pressure data sets, Earth models, and computational approaches (see Van Dam et al., 2003, for more details) and they are intended mainly for research. In 2004, the semi-operational near-real time provision of station dis-