3.5.6 Global Geophysical Fluids Center (GGFC)

The International Earth Rotation and Reference Systems Service (IERS)'s Global Geophysical Fluids Center (GGFC) provides the geodetic community with models of geodetic effects (earth rotation, gravity, and deformation) driven by the temporal redistribution of the Earth geophysical fluids. These include fluid motions within the Earth system such as the core and mantle, as well as the motions of surface fluids (e.g. oceans, atmospheres, and continental water).

A GGFC workshop was held in Vienna on 20 April, 2012 (see Section 4 of this report). It is our hope, that over the next few years the GGFC and its user community can make progress on many of issues raised at the Workshop and in its recommendations.

In 2012, a call was sent out for proposals for new products. The products accepted as GGFC Provisional Products are shown in Table1. The procedure for certifying the products requires an analysis of the latency and reliability over a two-year period. In 2014, the original two-year validation will be complete, with certified products upgraded to GGFC Operational Products.

These and all other GGFC Operational and Provisional products can be found through the GGFC website: <http://geophy.uni.lu/>, and links to the Special Bureau sites therein.

For information on submitting proposals for GGFC operational products, please go to <http://geophy.uni.lu/ggfc-about/to-submit-new-proposals-for-products.html> or contact T. van Dam (tonie.vandam@uni.lu).

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Table 1: New GGFC Provisional Products

Proposed GGFC Product	**Principal Investigator**	**Proposed GGFC Operational Center**
UNB Vienna Mapping Function Service	M. Santos	University of New Brunswick
• AAM series from 6-hourly operational analysis data starting in 1980, • AAM series from 3-hourly delayed cut-off analysis data starting in 2004, • AAM series from 10-day forecast data, • Cartesian coordinates of the center of mass of the atmosphere and total mass of the atmosphere at 6-hourly intervals • Atmospheric loading ECMWF • Atmospheric gravity coefficients : thin layer approach and vertical integration approach	J. Boehm	Technical University of Vienna
• Atmospheric loading: NCEP • Continental water loading: GLDAS	D. MacMillan	Goddard Space Flight Center
• Site displacements due to atmospheric pressure loading • Low degree harmonic time series from LAGEOS	J.-C. Raimondo R. Koenig	University of Luxembourg
• High resolution atmospheric loading (3-hr; 0.5 deg): ECMWF+IB and ECMWF+MOG2D • atmospheric loading ECMWF reanalysis • Continental water loading: GLDAS, EWMWF reanalysis (soil moisture+snow) • Effects on gravity and surface displacement	J.-P. Boy	Ecole et Observatoire des Sciences de la Terre; University of Strasbourg