3.6.6 Global Geophysical Fluids Center (GGFC)

Mass transports in the atmosphere-hydrosphere-solid Earth-core system, or the “global geophysical fluids”, will cause observable geodynamic effects on a broad time scale. The Global Geophysical Fluids Center (GGFC) and its Special Bureaus (SBs) have the responsibility of supporting, facilitating, and providing services to the worldwide research community in areas related to the variations in Earth rotation, gravitational field and geocenter that are caused by mass transport in the geophysical fluids and the induced loading effects.

The GGFC was established by the International Earth Rotation Service (IERS) on IERS’s 10th anniversary day January 1, 1998, in an effort to expand IERS’s services to the scientific community, which had already included those of the Sub-Bureau for Atmospheric Angular Momentum since 1989. Under the GGFC, seven SBs were established initially (SB for Atmosphere, Oceans, Hydrology, Tides, Mantle, Core, and Gravity/Geocenter). In 2002 an eighth SB, the SB for Loading was added after a formal proposal-selection process administered by the IERS Directing Board. Additional, but slight, changes in personnel in the SB structure were also implemented in 2002 (see Appendix 2).

Under GGFC/SBs, angular momenta and the related torques, gravitational coefficients, geocenter shift, and surface loading deformation fields will be computed for all geophysical fluids based on global observational data, and/or products from state-of-the-art models some of which assimilate such data. The computed quantities, algorithm and data formats will be standardized. The data products are, and additional ones will be, archived and made available to the scientific research community.

The web sites given in Appendix 3 contain detailed information of GGFC and the SBs, including description and availability of archived data, useful graphics, members/associates list, call for participation, planned activities, and bibliography, etc. In particular, the following article defining GGFC, published in 2000, is posted on the GGFC website, courtesy of the American Geophysical Union: Chao, B. F., V. Dehant, R. S. Gross, R. D. Ray, D. A. Salstein, M. M. Watkins, and C. R. Wilson, Space geodesy monitors mass transports in global geophysical fluids, *EOS, Trans. Amer. Geophys. Union, 81*, 247-250, May 30, 2000.

The two most recent GGFC meetings were conducted during the 2001 and 2002 European Geophysical Society General Assembly; on March 29, 2001, and April 24, 2002, respectively, in Nice, France. Both were open discussion meetings attended by around 30 interested scientists. In addition, two GGFC papers were presented at international conferences: (1) Ocean Hemisphere

Project Symposium, Japan 2001 (by B. Chao); and (2) EGS2002 Assembly, Nice (newly-established SB for Loading presentation by H.-P. Plag).

Detail reports from each SB follow.

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