

3.5.6.2 Special Bureau for the Oceans

The oceans have a major impact on global geophysical processes of the Earth. Nontidal changes in oceanic currents and ocean-bottom pressure have been shown to be a major source of polar motion excitation and also measurably change the length of the day. The changing mass distribution of the oceans causes the Earth's gravitational field to change and causes the center-of-mass of the oceans to change which in turn causes the center-of-mass of the solid Earth to change. The changing mass distribution of the oceans also changes the load on the oceanic crust, thereby affecting both the vertical and horizontal position of observing stations located near the oceans. As part of the IERS Global Geophysical Fluids Center, the Special Bureau for the Oceans (SBO) is responsible for collecting, calculating, analyzing, archiving, and distributing data relating to nontidal changes in oceanic processes affecting the Earth's rotation, deformation, gravitational field, and geocenter. The oceanic products available through the IERS SBO web site at <http://euler.jpl.nasa.gov/sbo> are produced primarily by general circulation models of the oceans that are operated by participating modeling groups and include oceanic angular momentum, center-of-mass, and bottom pressure. A subroutine to compute these oceanic products from the output of general circulation models can also be downloaded from the IERS SBO web site along with a bibliography of related articles.

During the past year, new contacts with ocean modeling groups were initiated, the bibliography of related articles was updated, and additional data sets were acquired. The data sets currently available through the IERS SBO web site are: (1) two different oceanic angular momentum series, one spanning 1985-1996 at 5 day intervals and the other spanning 1988-1997 at 3 day intervals, (2) two different oceanic center-of-mass series, both spanning 1992-1994 at 3 day intervals but produced by different ocean models, and (3) two different ocean-bottom pressure data sets, both given at 12-hour intervals but one spanning 1993 to the present produced by a data-assimilating ocean model and the other spanning 1980 to the present produced by an ocean model that does not assimilate any data.

Richard Gross