

The IAG/IAPSO Joint Working Group on Geodetic Effects of Nontidal Oceanic Processes

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The oceans have a major impact on global geophysical processes of the Earth. Nontidal changes in oceanic currents and bottom pressure have been shown to be a major source of polar motion excitation and also measurably change the length-of-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. In recognition of the important role that nontidal oceanic processes play in Earth rotation dynamics and terrestrial reference frame definition, the IAG/IAPSO Joint Working Group on Geodetic Effects of Nontidal Oceanic Processes was formed at the XXII General Assembly of the IUGG in 1999 for the purpose of: (1) promoting investigations of the effects of nontidal oceanic processes on the Earth's rotation, deformation, gravitational field, and geocenter; and (2) fostering interactions between the geodetic and oceanographic communities in order to gain greater understanding of these effects. In this report, the activities of the Joint Working Group during the past four years will be summarized.