RESUBMIT

The Joint Application of Altimetry Data, the New Geopotential Models and Tide Gauge Registrations for the Studies of the Sea Level Variations and Geodynamics of Western Pacific Belt

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The results of the joint application of altimetry data (1992-2003), the new geopotential models and tide gauge registrations for the studies of the sea level variations and geodynamics in Western Pacific belt (40°<B<64°, 135°<L<180°) are presented. In this study we used the system of processing satellite altimetry and other data for solving geodetic, oceanographic and attendant problems created in Geophysical center RAS. The problems of optimizing satellite altimetry database and measurements processing are discussed. The database and software are providing the sufficiently fast access to data and processing procedures. A current version of SATREAD altimetry processing software have the following facilities: creating local data bases, input data for any satellite, select region, averaging data for points of the track, averaging data for points of the region, calculation mean sea surface heights for any time range and region. The problems of the distributed databases use and of the parallel processing data are discussed. The Geophysical Center of RAS continues the research directed to the accurate determination of modern planetary geopotential models of the Earth. The planetary model GCGM-2004 (to degree 360) and the numeric model of the Russian Gravimetric Quasigeoid - 2004 (RGQG-2004) were developed as the result of such research. The numeric model of the Russian Gravimetric Quasigeoid - 2003 (RGQG-2004) obtained in 2004 is the grid of quasigeoid height values over common reference ellipsoid calculated with latitude (B) and longitude (L) spacing of 5' for 40°≤B≤90°, 26°≤L≤192°. The computations were based on a data set consisting of 5'x 5' mean gravity anomalies and topography information of updated geodesy, satellite altimetry and gravity data base. In our research we use also for comparison EGM-96, EIGEN-3P, EIGEN-GRACE01S and GAO-98 gravitational field models and geodetic data for tide gauge stations. The results of our study are presented. The research is supported by RFBR (Projects 04-05-64820 and 03-07-90174).

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