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Surface Topography of the Gulf Stream Region Derived from GEOSAT Altimetry

R R Carnes and J L Mitchell (Both at Naval Ocean Research and Development Activity, Stennis Space Center, MS, 39529-5004; 601-688-5455)

Altimetry data from the GEOSAT Exact Repeat Mission, which began in November 1986, has been processed to produce consecutive maps of surface topography for the Gulf Stream region at one-week intervals. The geoid heights along ground tracks used in the processing were derived as the one-year mean difference between surface height above a reference surface, measured by altimetry, and relative dynamic height at the sea surface computed from a feature model based upon positions of the front and eddies obtained from satellite IR imagery. Surface heights at altimeter ground track positions spanning a complete GEOSAT 17 day repeat cycle were gridded to form each map using optimum interpolation. A video has been prepared showing adjacent maps of the feature-modelled and altimeter-derived surface topography. Relative merits of the two approaches are discussed.