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Radiational Ocean Tides Along the Coasts of the United States

Bernard D. Zetler

Atlantic Oceanographic and Meteorological Labs., ESSA, Miami, Fla

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ABSTRACT

A procedure has been developed for separating an analyzed S_2 ocean tide amplitude and phase into gravitational and radiational components. Values obtained by applying the method to 11 one-year sets of harmonic constants at San Francisco were found to be reasonably consistent. Results have been obtained for 15 outside or near-outside stations on each of the east and west coasts of the United States. For both coasts the mean amplitude ratio (radiational to gravitational) is 0.16; the mean phase differences (radiational minus gravitational) are 133° and 185° for west and east coasts, respectively. The observed S_1 amplitude of 1 cm, consistent on the east, west and Gulf coasts, is larger than would be expected from equilibrium considerations, from the K_1 cusp, or from the continuum; it is therefore considered to be primarily radiational.

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