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A Hurricane Juliette generated coastally trapped wave in the HYbrid  
Coordinate Ocean Model (HYCOM)

E. Joseph Metzger, Luis Zamudio and Harley E. Hurlburt

The HYbrid Coordinate Ocean Model (HYCOM) has been used to study the propagation of a coastally trapped wave (CTW) along the Mexican west coast and into the Gulf of California. This wave was generated by Hurricane Juliette in September/October 2001 as 1/12 deg Pacific HYCOM was forced with winds from the Fleet Numerical Meteorology and Oceanography Center Navy Operational Global Atmospheric Prediction System. Model-data comparisons of coastal sea level at Manzanillo, Mazatlan, Guaymas, Puerto Penasco and Cabo San Lucas clearly show the propagation of the CTW. HYCOM accurately simulates the phase of the signal, but the amplitude is too weak. We investigate possible causes that include atmospheric hurricane forcing that may be too weak or inadequate ocean model horizontal resolution. A 1/25 deg Gulf of California version of HYCOM nested within 1/12 deg Pacific HYCOM is used to study this latter issue.