

Diagnostic Monitoring of Rip Currents on Southern California Beaches By

C-S Wu¹, Jason Taylor¹, Ivory Small² and Stephan Smith¹

¹Office of Science and Technology, Meteorological Development Laboratory

²National Weather Service Forecast Office in San Diego

National Weather Service, National Oceanic and Atmospheric Administration

1325 East-West Highway, W/OST23

Silver Spring, MD 20910-3283

POC: chung-sheng.wu@noaa.gov at 1-301-713-1768 x166

ABSTRACT

A pilot project was conducted to train lifeguards to provide rip current observations on Moonlight Beach in Encinitas, California. The observations were used to study the rip current phenomenon in Southern California and to test against proposed rip current monitoring indices. The manual observations are used to populate a database that began in 2007 and that now contains more than 400 days worth of rip current observations.

Analysis indicates that during the late spring and summer, rip currents are most often produced by swells originating from the south-southwesterly quadrant and by waves of 2-5 ft heights. During the winter, northwesterly sea swells produce very strong rip currents. During seasonal transition periods, rips are less common. As the beach forms a rip channel, breaking waves during low tides can drive strong rips which are dangerous to beach goers. Using the observations, we validated different indices for diagnosing the conditions conducive to rip currents, particularly, moderate-strong rips.

Our interaction with the Southern California lifeguard community has led us to examine rip currents within the context of beach safety. In particular, we consider how rip current danger is dependent not only the wave-beach conditions, but on the alertness of beachgoers as well.