La Nina caused global sea level drop

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The 2011 La Niña was so strong that it caused global mean sea level to drop by 5 millimeters (0.2 inches), a new study shows. Since the early 1990s, sea level has been rising by about 3 millimeters (0.1 inches) per year, satellite data show. But between the beginning of 2010 and the middle of 2011, sea level fell by 5 millimeters (0.2 inches).

This occurred concurrently with the La Niña phase of the El Niño–Southern Oscillation (ENSO). ENSO involves a shift in ocean surface temperatures in the tropical Pacific and changes in precipitation patterns around the world. Previous studies have shown that strong El Niño events can increase sea level temporarily.

Using data from the GRACE satellite, which measures ocean mass, as well as ocean temperature data from floating sensors and rainfall data, Boening et al. show that the change in sea level during the La Niña is due to water mass temporarily shifting from oceans to land as precipitation increased over Australia, northern South America, and Southeast Asia, while it decreased over the oceans.

Rising sea level is already affecting populations near coasts, and most climate models predict that sea level will generally continue to rise as Earth's climate warms. But sea level exhibits significant interannual variability, and it is important to be able to distinguish natural variability, such as changes due to ENSO, from changes caused by anthropogenic global warming.

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