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Identifying Large Hurricanes Through Seismology

Storm-generated seismic signals may allow seismologists to detect large hurricanes at sea and track their intensity, adding useful data to the discussion of whether anthropogenic global warming has increased the frequency and intensity of hurricanes and tropical storms, including ones that don't reach land.

Ambient noise, or microseisms, is the pervasive background signal bathing the surface of Earth and is not produced by earthquakes. These surface waves generated by ocean storms are detected even in continental interiors far from source regions.

Researchers at Northwestern University demonstrate that the August 1992 category 5 Hurricane Andrew can be detected using microseisms recorded at the Harvard, Massachusetts seismic station, even while the storm is as far as 1200 miles away at sea. When applied to decades of existing analog seismograms, this methodology could yield a seismically identified hurricane record for comparison to the pre-aircraft and pre-satellite observational record.

Source: C. W. Ebeling, S. Stein. Seismological Identification and Characterization of a Large Hurricane. Bulletin of the Seismological Society of America, 2011; 101 (1): 399 DOI: 10.1785/0120100175