A Brief History of DART®

The map inside provides a visual summary of past and present Deep-ocean Assessment and Reporting of Tsunamis (DART®) deployments for detection and measurement of tsunami waves. DART® technology was developed by the NOAA Pacific Marine Environmental Lab over decades in two phases: a measurement phase and a communication phase. From the mid-1980s into the 1990s, bottom pressure recorder (BPR) data at locations in the Pacific Northwest and along the Alaska Aleutian Islands were processed and analyzed for tsunami signals. In the 1990s, a communication linkage between the BPR and shore stations was accomplished with acoustic coupling of a surface buoy to telemeter ocean bottom pressure measurements from the seafloor to land via satellite. These coupled BPR/Surface Buoy pairs were the first DART® systems and predecessor to the DART® II in operation today.

DART® technology was transferred to the NOAA National Data Buoy Center for routine operations and maintenance in the early 2000s. At the time of the transfer and into 2005, the total DART® network consisted of six systems deployed in the North Pacific Ocean. The U.S. DART® network was expanded to 39 stations by 2008, as a direct consequence of the 2004 Indonesian tsunami. The network covers the Pacific, North Atlantic, and Caribbean basins. Since then, other countries have contributed to a worldwide network, operating DART® systems in and around their territorial waters, including several “non-DART technology” systems off India, Ecuador, and Colombia. DART® systems will, in the future, be placed closer to a tsunami source with development of the 4th generation technology.

DART® data are available in near-real-time from the National Data Buoy Center: https://www.ndbc.noaa.gov/dart.shtml.

High-resolution data stored onboard the BPR are quality-controlled upon bottom unit recovery and archived by the National Centers for Environmental Information: https://www.ngdc.noaa.gov/hazard/DARTData.shtml.

Details of DART® system development, tsunami forecasting, and propagation and inundation modeling are available from the NOAA Center for Tsunami Research: https://nctr.pmel.noaa.gov/.

The latest information on tsunami warnings, advisories, watches, and threats is available from the Tsunami Warning Centers: https://www.tsunami.gov/.

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DART® Deployments

NOAA
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Past Deployments

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