

The Global Tropical Moored Buoy Array: 30 Years of Progress in Observing, Understanding and Predicting Climate Variability

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Thirty years ago, the 1982-83 El Niño, one of the strongest of the 20th century, led to widespread droughts, floods, heat waves, and extreme weather events around the world. This El Niño caught the scientific community completely by surprise: it was neither predicted nor even detected until nearly at its peak. The failure to provide advance warning motivated an international effort to develop an ocean-atmosphere observing system in the tropics for improved detection, understanding, and prediction of climate variability on seasonal and longer time scales. This presentation will highlight successes in observing system development for tropical coupled ocean-atmosphere interactions over the past 30 years. Emphasis will be on the Global Tropical Moored Buoy Array, a multinational network of moorings reporting data in real-time that spans the Pacific, Indian, and Atlantic Oceans. We will also illustrate how this buoy network, in conjunction with other in situ observing system components and Earth-observing satellites, has enabled scientific advances in our understanding and ability to predict El Niño and the Southern Oscillation (ENSO), the Indian Ocean Dipole, and other climate phenomena that affect the globe.