El Niño Development in 2018-19

Michael McPhaden

NOAA/PMEL, Seattle, United States (michael.j.mcphaden@noaa.gov)

In early 2018, the tropical Pacific Ocean began to exhibit signs of an impending El Niño. Westerly wind bursts between February to June excited eastward propagating downwelling Kelvin waves that initiated warming in the equatorial cold tongue of the eastern Pacific. In addition, subsurface heat content along the equator rose to a level comparable to that seen prior to the onset of the major 2015-16 El Nino. These precursors, combined with the majority of seasonal forecast models predicting further development of warm conditions in the tropical Pacific over the second half of 2018, prompted NOAA's Climate Prediction Center to issue advisories beginning in May indicating the likely onset of an El Niño in 2018. It was only in October however, several months later than typically expected, that warm SST anomalies finally rose above the 0.5°C El Niño threshold in the Nino3.4 index region. This presentation will review the development of El Niño conditions in the tropical Pacific in 2018 and early 2019, how the forecasts verified against the observations, and what dynamical insights can be gained from this most recent warm event.