Challenges in Monitoring and Prediction for Current ENSO Conditions

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The El Niño Southern Oscillation (ENSO) phenomenon contributes significantly to seasonal climate fluctuations in many regions of the globe with substantial social and economical implications. Therefore, it is critically important to monitor ENSO conditions, and forecast ENSO at seasonal time scales. NOAA has primary responsibilities for providing forecasts to the Nation, and a leadership role in sponsoring El Niño observations and research. The NOAA's official ENSO forecast, issued monthly through "ENSO Diagnostic Discussion", called for *El Nino Watch* for summer/fall/winter 2014 on March 6, 2014. This presentation will discuss the recent evolution, current status and prediction of this anticipated El Nino using various monitoring and forecasting products. In the era of declining TAO array, we also examine uncertainties in ocean reanalyses used for the initialization of seasonal forecast systems around the world. The ensemble mean temperature from six ocean reanalyses (signal) provides a best estimation of the thermal structure of ENSO and the ensemble spread (noise) provides uncertainties in thermal structures in ocean initializations that will likely influence ENSO forecast in different seasonal forecast systems. We found that the ensemble spread is sensitive to distribution of in situ ocean observations. There are needs to reduce ensemble spread in the north-western tropical Pacific and off-equatorial regions in the eastern Pacific.