

2014 aborted El Nino and its predictability

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El Nino occurrence is known to be predictable a few seasons ahead using a climate model. However, the El Nino of 2014 was quite unusual. It started quite well from the boreal winter to the boreal spring with some strong westerly wind bursts. This condition was very similar to the pre-condition in the 1997/1998 El Nino, which is the strongest event in the 20th century. Therefore, many climate scientists worried about the strong El Nino occurrence in the boreal summer and its societal impacts. Actually, many seasonal forecast systems in the world predicted that El Nino would occur in the boreal summer. The SINTEX-F seasonal prediction system was also predicting a moderate El Nino right from November 2013 initializations though some of the other prediction models were predicting a very strong El Nino similar to that of 1997 event. The El Nino was evolving well until June and the Indian summer monsoon rainfall, which is usually less than normal during El Nino events was actually 60% less than normal for that month. However, the El Nino did not progress well thereafter and was considerably weakened during August and September (aborted El Nino event). This was not captured well by model predictions, including SINTEX-F. In this research, we explore why the 2014 El Nino was killed. Although there are several hypotheses related to the decadal variability in the tropical Pacific and the Indian Ocean impact, we focus on the interaction between intraseasonal and seasonal variations. The intraseasonal upwelling Kelvin wave in the July could be one of key factors to explain 2014 aborted El Nino.

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