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Stratospheric impact of two types of El Niño events in WACCM3.5 simulations

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Stratospheric impact of two types of El Niño events in WACCM3.5 simulations Isabel Zubiaurre (1) and Natalia Calvo (1,2) (1) Universidad Complutense de Madrid (UCM), Madrid (Spain), (2) ACD, NCAR, Boulder (USA) ENSO is known to be the largest source of interannual variability in the tropical troposphere. However, since 1979, the variability in the Tropical Pacific is associated not only to the canonical ENSO, but also to a new phenomenon called ENSO Modoki, with warm anomalies in the tropical Pacific located westward from those during a typical ENSO. Comparisons of the signal in troposphere between the two phenomena, employing different models and dataset have already been done (Kao and Yu 2009, Ashok and Yamagata 2009). We have characterized the signal of the new ENSO Modoki in the stratosphere, comparing with the canonical ENSO, by using the fully coupled chemistry climate Whole Atmosphere Community Climate Model (WACCM3.5). The results show a significant warming over the SH Pole in the stratosphere in boreal winter which propagates downwards in early spring; absent during the warm canonical ENSO events. On the contrary, in the NH stratosphere, the anomalous warming typical of the canonical ENSO during boreal winter is not statistically significant during El Niño Modoki events. We will show that these differences seem to be related to changes in the tropospheric teleconnections and tropical convection associated with both types of events.