## Subseasonal variability and El Niño waveguide warming; observed effects of the MJO and westerly wind events.

Andrew Chiodi<sup>†</sup>; Don Harrison <sup>†</sup> JISAO/ University of Washington, USA Leading author: <u>andy.chiodi@noaa.gov</u>

The role of intra-seasonal Oscillations (or Madden-Julian Oscillation; "MJO") in initiating and maintaining equatorial Pacific waveguide warming is considered here, over the time period 1986-2006. MJO events are defined using the Wheeler and Hendon (2004: WH04) scheme, and 51 are identified over this period that occur in ENSO-neutral (|NINO3| < 0.75C) SSTA conditions and maintain substantial amplitude in their westerly surface wind phase. 33 of these MJO events have one or more embedded Westerly Wind Events ("WWE") and 18 have not. WWEs are defined as in Harrison and Chiodi (2009). We examine the time evolution of sea surface temperature anomaly over the Pacific equatorial waveguide following the westerly surface wind phase of the MJO over the western equatorial Pacific. We find that there is waveguide warming for the MJO WWE events in similar magnitudes and amounts as following WWEs that are not embedded in an MJO, and that there is very little statistically significant waveguide warming following the MJOs that do not contain an embedded WWE. This result extends and confirms the results of Vecchi (2000) with a near doubling of the period of study. We suggest that understanding the sources and predictability of tropical Pacific Westerly Wind Events remains essential to improving predictions of the onset of El Niño events. We find no evidence that the Madden-Julian Oscillation itself plays a role in the development of El Niño events.