FALL-TO-WINTER CHANGES IN THE EL NIÑO TELECONNECTION

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The El Niño teleconnection in late fall/early winter (November-December) departs considerably from the canonical TNH-like El Niño signal, with a trajectory that appears to originate in the tropical western Pacific (TWP) rather than the tropical eastern Pacific, and an amplitude that is strongly modulated by forcing in the TWP, being substantially stronger when warm conditions and/or convection prevail in the TWP. This (previously unnoted) seasonal change in the El Niño teleconnection can be viewed as part of an overall shift in the sensitivity of the North Pacific/North American atmospheric circulation to tropical forcing, from the TWP in late fall to the central/eastern Pacific in winter. Using barotropic Rossby wave propagation arguments, we show that this seasonal sensitivity change is consistent with the attendant changes in the climatological Pacific jet and associated Rossby wave guide. We investigate the extent to which this sensitivity shift is reproduced in AMIP simulations and show that deficiencies in the climatological jet may result in poorly simulated fall-to-winter changes in the El Niño teleconnection. We also investigate the possible role of seasonal changes in the vertical profile of convective forcing. Our findings suggest that diagnostic studies using DJF seasonal averages may obscure some important aspects of climate anomalies associated with El Niño.