

# **Interannual and interdecadal variations of subtropical Eastern North Pacific SST warming**

**Yi-Kai Wu<sup>12</sup>, Chi-Cherng Hong<sup>1</sup>, Chi-Chun Chang<sup>13</sup>, An-Yi Huang<sup>13</sup>**

**Department of Earth and Life Sciences, University of Taipei, Taipei, Taiwan<sup>1</sup>**

**Department of Earth Sciences, National Taiwan Normal University, Taipei, Taiwan<sup>2</sup>**

**National Science and Technology Center for Disaster Reduction, Taipei, Taiwan<sup>3</sup>**

## **Abstract**

The subtropical Eastern North Pacific (ENP) sea surface temperature (SST) warming, previous study refer it to the Pacific Meridional Mode (PMM), is the second leading mode in Pacific and influence the Pacific climate. In recent years, we have observed sequence of subtropical ENP SST warming which was associated with various climate events. The SST warming in subtropical ENP hindered the development of 2014 El Niño. It is also related to the 2015 super El Niño that was a mixed type of central Pacific and Eastern Pacific El Niño. In 2016, this SST warming induced a cyclonic circulation suppressing the Western North Pacific anticyclone, therefore the tropical cyclone number is larger than it in 1997-1998 El Niño decay year.

In this study, we showed the subtropical ENP SST exhibiting interannual and interdecadal variations. In the interannual timescale, the warm SST is associated to the El Niño. The SST warm from California to south of Hawaii and in equatorial eastern to central Pacific at the same time. In the interdecadal timescale, the subtropical ENP SST are correlated with Pacific decadal oscillation (PDO) and north Pacific gyre oscillation (NPGO). The relationship of PDO (NPGO) and subtropical ENP SST is lower (higher) in late 1980s (early 1990s).