

Predictability of the California Nino/Nina

*Takeshi Doi¹, Chaoxia Yuan², Swadhin Behera¹, Toshio Yamagata¹

1.JAMSTEC, 2.Nanjing University of Information Science & Technology (NUIST)

Predictability of a recently discovered regional coupled climate mode called the California Nino (Nina) off Baja California and California is explored using a seasonal prediction system based on the Scale Interaction Experiment-Frontier, version 1 (SINTEX-F1) coupled ocean-atmosphere general circulation model. Because of the skillful prediction of basin-scale El Nino (La Nina), the California Nino (Nina) that co-occurs with El Nino (La Nina) with a peak in boreal winter is found to be predictable at least a couple of seasons ahead. On the other hand, the regional coupled phenomenon peaking in boreal summer without co-occurrence with El Nino (La Nina) is difficult to predict. The difficulty in predicting such an intrinsic regional climate phenomenon may be due to model deficiency in resolving the regional air-sea-land positive feedback processes. The model may also underestimate coastal Kelvin waves with a small offshore scale, which may play an important role in the generation of the California Nino/Nina. It may be improved by increasing horizontal resolution of the ocean component of the coupled model. The present study may provide a guideline to improve seasonal prediction of regional climate modes for important industrial as well as social applications.

Keywords: California Nino/Nina, Seasonal prediction