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La Niña Modoki Enhances Precipitation Over the Maritime Continent

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Possible impacts of the La Niña/El Niño Modoki ¹on the precipitation over the maritime continent were investigated in this study. The analysis used monthly precipitation, sea surface temperature (SST), sea level pressure (SLP), and horizontal wind for ¹a period of January 1948 to December 2013. The results clearly show the change in the distribution of precipitation associated with the La Niña Modoki events. During the dry season from JJA to SON, La Niña Modoki caused an increase of precipitation almost all over the maritime continent, in particular over the Kalimantan, Sulawesi, Papua, and central/northern parts of the Sumatra Islands. The condition continued to the wet season (DJF), although the affected regions were narrower compared to those during the dry season. The enhanced precipitation was related to colder ²SST anomalies in the central Pacific Ocean and warmer SST anomalies in the maritime continent. The warmer SST anomalies in the maritime triggered low-level wind convergence, increased lower atmospheric water vapour, and enhanced atmospheric convection over the maritime continent that led to increase of precipitation. In contrast, El Niño Modoki event caused severe drought in the maritime continent during dry season. The influence of El Niño Modoki gradually was weaker during the wet season.

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PRIMARY SOURCES

1 Iskhaq Iskandar, Putri Adia Utari, Deni Okta Lestari, Qurnia Wulan Sari et al. "Evolution of 2015/2016 El Niño and its impact on Indonesia", AIP Publishing, 2017

24 words — 10%

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