

Naoui, M., Y. Kamae, H. Ueda, and W. Mei, 2020: Impacts of seasonal transitions of ENSO on atmospheric river activity over East Asia. *J. Meteor. Soc. Japan*, **98**, 655-668.

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**Plain Language Summary:** Atmospheric Rivers (ARs), narrow water vapor transport bands over the mid-latitude, often cause natural disaster when they make landfall. Occurrence frequency of ARs is perturbed over East Asia in association with seasonal transitions of the El Niño Southern Oscillation. A rapid transition from preceding-winter El Niño to summertime La Niña results in more AR occurrence through enhancement and northward expansion of the anticyclone over the western North Pacific.

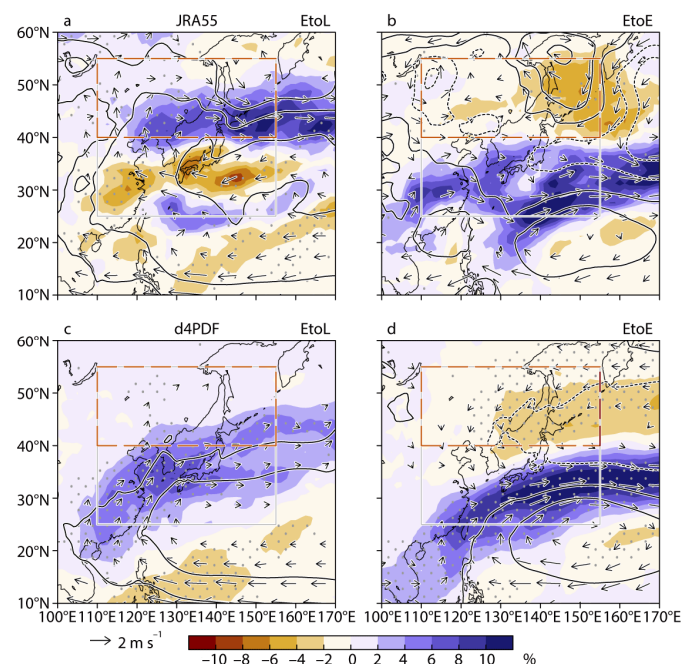


Figure 1. Composited anomalies of occurrence frequency of atmospheric rivers (ARs; shading; %), sea level pressure (contour; hPa), and horizontal wind at 850 hPa level (vector;  $\text{m s}^{-1}$ ) during June-to-August compared to the climatology for 1958–2010 in (a, c) years with a transition from preceding-winter El Niño to summertime La Niña and (b, d) sustained El Niño years in (a, b) JRA-55 and (c, d) d4PDF.

- The relationship between the seasonal transitions of ENSO and the summertime AR activity over East Asia are examined using an atmospheric reanalysis and high-resolution model ensemble simulations.
- A rapid transition from preceding-winter El Niño to summertime La Niña results in more AR occurrence over northern East Asia.
- The anomalies of AR activity and atmospheric circulation are consistent with a steady response of the atmosphere to the anomalous condensation heating over the Maritime Continent and equatorial Pacific associated with the ENSO transition.