



## **Drought Predictions in the mid-latitude regions during recent decades**

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Understanding and predicting droughts in wet seasons are critical for agricultural productivity and water resource management under global warming. The present study 1) investigates precipitation variability of the wet seasons of South Korea (SK) and California (CA) and related large-scale circulations for the recent 20 years (1995-2014) in order to develop drought prediction models.

Primary meteorological causes of the precipitation deficits and droughts are persistent geopotential height anomalies in the neighboring oceans; for CA, anti-cyclonic circulations in the northeastern Pacific and for SK, cyclonic circulations in the east of Japan. These height anomalies tend to be pronounced in weak ENSO years. The former is associated with warm western-cool eastern tropical Pacific and the latter is so with cold Norway Sea and warm Barents Sea. In particular, barotropic Rossby wave-like teleconnection pattern from North Atlantic to East Asia is responsible for the interannual variability of warm season precipitation in SK. These linkages show significant decadal changes, in particular, since the mid-1990s. Detailed background mechanisms and model developments are also presented.