

Spatiotemporal variability of dryness/wetness status in Japan

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Spatiotemporal variability in dryness and wetness status over Japan from 1961 to 2010 was analysed using Palmer Drought Severity Index (PDSI), which was derived based on water balance model of two soil layer. Monthly value of PDSI was calculated with monthly mean air temperature and precipitation of 136 stations. During the analysis period, number of wet months decreased and that of dry months increased throughout Japan, while decrease of wet month was remarkable at northern area and distribution of dry area expanded. We employed Empirical Orthogonal Function (EOF) analysis to PDSI dataset, and obtained following results: the first EOF (EOF1) represented a dominant pattern of increasing dryness throughout Japan. Spatial contrast between the northern and southern area of eastern part of Japan was shown by EOF2, in which drying trend in northern area and wetting (suppressing drying) trend in southern area was clear. Spatial contrast between western and eastern part of Japan, which was shown by EOF3, was probably influenced by the variability of longitudinal distribution of the sea surface temperature.