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Space-time variability of hydrological drought ar wetness in Iran using NCEP/NCAR and GPCC da

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Abstract. Space-time variability of hydrological drought and wetne Iran is investigated using the National Centers for Environmental Prediction/National Center for Atmospheric Research (NCEP/NCAR) reanalysis and the Global Precipitation Climatology Centre (GPCC) for the common period 1948–2007. The aim is to complement prev studies on the detection of long-term trends in drought/wetness ti series and on the applicability of reanalysis data for drought monit Iran. Climate conditions of the area are assessed through the Standardized Precipitation Index (SPI) on 24-month time scale, wh Principal Component Analysis (PCA) and Varimax rotation are used investigating drought/wetness variability, and drought regionalizat respectively. Singular Spectrum Analysis (SSA) is applied to the tim of interest to extract the leading nonlinear components and compa with linear fittings.

Differences in drought and wetness area coverage resulting from t datasets are discussed also in relation to the change occurred in r years. NCEP/NCAR and GPCC are in good agreement in identifying sub-regions as principal spatial modes of drought variability. Howe climate variability in each area is not univocally represented by the datasets: a good agreement is found for south-eastern and north regions, while noticeable discrepancies occur for central and Caspi regions. A comparison with NCEP Reanalysis II for the period 1979 seems to exclude that the discrepancies are merely due to the intr of satellite data into the reanalysis assimilation scheme.

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