**Abstract:**

The main purpose of this study was to evaluate the long term trends of monthly, seasonal and annual reference evapotranspiration (ET_0) in Sistan and Baluchestan province. In this study six synoptic stations with 21 years (1990-2010) data series of wheather variables were selected. Monthly reference evapotranspiration was calculated using Penman-Montith FAO-56 method. Mann-Kandall and Spearman tests were used for detecting trend and the trend slope was determined by Sen's slope estimator. The results showed a similar performance of both Mann-Kandall and Spearman tests in detecting trend for monthly time scale while they performed slitgly different for seasonal and annual time scales. According to the results, a monthly significant positive trend of ET_0 was seen in Saravan station in April and May, in Zabol station in January to March and July to September and in Zahedan in February, July and August. In Chabahar, significant positive and negative trends were observed in July and October, respectively. Some significantly positive trends were observed in February, March, April and September in Iranshahr and in February, March, August and September for Khash. There was a nonsignificant trend of ET_0 in the other months of the year. Based on Sen' slope results, the largest slope of significantly positive trends of ET_0 was observed at Zabol station in Aguest (+6.17 mm) while the largest slope of significantly negative trends of ET_0 was observed at Khash station in Jaunuary (-3.5 mm).

Key words: Reference evapotranspiration, Mann-Kendall, Spearman, Sen's slope estimator, Sistan and Baluchestan.
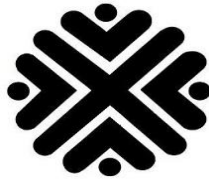
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Long-term trend of reference evapotranspiration in

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