ENSO effects on mean temperature in Turkey

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Abstract. The ENSO effects on Turkish streamflow and precipitation patterns were previously analyzed by applying the t-test on eight standard seasons beginning with the JJA (-1) season of the year before the event year and ending with the MAM (+1) season of the year after the event year. The objective of this study is to identify the ENSO effects on the mean temperature data in Turkey by using the same methodology used for streamflow and precipitation. The methodology mainly comprises of two phases: first, composite analysis; and second, statistical t-test analysis. An overall result shown by this study is that the response of temperature to ENSO events was not much noticeable than those of the two hydroclimatological variables. Any positive anomaly could not be detected during the classical seasons of the event year, indicating that the mean temperature values occur below the average. The dominancy of cold anomaly conditions begins with the JJA (-1) season and continues until the DJF (+1) season. Furthermore the MAM (0) season has the maximum number of negative anomalies when compared to other cold anomaly seasons. Besides the positive anomaly conditions of streamflow and precipitation at the event year, the temperature values exhibited negative anomaly conditions at the same time period. In this study we aimed to determine whether there exists any relationship between temperature, streamflow and precipitation patterns of Turkey in terms of responding to the ENSO forcing. In conclusion, a sign of the tropical biennial cycle was, to some extent, evident surface climate variables.

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