



Floods in Turkey: 1980-1998

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Turkey has precipitation in every form, and basically every mechanism. In the cold season, Mediterranean cyclones dominate the climate of the country, bringing rain and snow to entire territories, but affect southern and western coasts more than any other part. In the spring and summer, convection takes role in intense amounts of rainfall rate. Orographic precipitation is also a great contributor for Turkey, which has very high mountain ranges following its coasts especially in the South and the North.

Not only the meteorological and/or hydrological factors, but also the vulnerability increases the number of flood disasters in Turkey. Turkey's complex topography and the fact that most of the urban areas lay on the valleys lead to frequent flood events. Floods certainly are one of the hardest events to analyze, due to their multi-discipline nature. They can occur due to any of the following: multi-day heavy precipitation resulting from midlatitude cyclones, long-term sum of persistent orographical rain, melting of high amounts of snow over the mountains, or excessive rainfall rates from severe convective storms rapidly.

To assess the flood risk of the country, and further, find out the contribution of severe convective storms to the floods, an inventory of flood events is built from historical records. From 1980 to 1998, 555 flood events have been found, with 165 fatalities. Results indicate that Turkey has experienced many flood events in early 1980s (e.g. more than 140 in 1981), but the annual frequency has fallen down to under 20 in the 1990s. This is attributed to the local climate variability, as a similar trend has been observed in severe hail, lightning fatalities and injuries, etc. Nevertheless, the numbers should be taken cautiously, since they will increase with more records from different sources. Floods in Turkey has a peak in May, with more than 90 events in 19 years. June and July follows May in frequency. Another peak is observed in December and January, which should be taken as the effect of Mediterranean cyclones. More insights from the geographical and temporal distribution will be presented.