Geophysical Research Abstracts
Vol. 18, EGU2016-8673, 2016
EGU General Assembly 2016


# The relevance of flood hazards and impacts in Turkey: What can be learned from different disaster loss databases?

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Despite technological development, better data and considerable efforts to reduce the impacts of natural hazards over the last two decades, natural disasters inflicted losses have caused enormous human and economic damages in Turkey. In particular earthquakes and flooding have caused enormous human and economic losses that occasionally amounted to 3 to 4% of the gross national product of Turkey (Genç, 2007). While there is a large body of literature on earthquake hazards and risks in Turkey, comparatively little is known about flood hazards and risks. Therefore, this study is aimed at investigating flood patterns, intensities and impacts, also providing an overview of the temporal and spatial distribution of flood losses by analysing different databases on disaster losses throughout Turkey. As input for more detailed event analyses, an additional aim is to retrieve the most severe flood events in the period between 1960 and 2014 from the databases.
In general, data on disaster impacts are scarce in comparison to other scientific fields in natural hazard research, although the lack of reliable, consistent and comparable data is seen as a major obstacle for effective and long-term loss prevention. Currently, only a few data sets, especially the emergency events database EM-DAT (www.emdat.be) hosted and maintained by the Centre for Research on the Epidemiology of Disasters (CRED) since 1988, are publicly accessible and have become widely used to describe trends in disaster losses. However, loss data are subjected to various biases (Gall et al. 2009). Since Turkey is in the favourable position of having a distinct national disaster database since 2009, i.e. the Turkey Disaster Data Base (TABB), there is the unique opportunity to investigate flood impacts in Turkey in more detail as well as to identify biases and underlying reasons for mismatches with EM-DAT. To compare these two databases, the events of the two databases were reclassified by using the IRDR peril classification system (IRDR, 2014). Furthermore, literature, news archives and the Global Active Archive of Large Flood Events - Dartmouth Flood Observatory (floodobservatory.colorado.edu) were used to complement loss data gaps of the databases. From 1960 to 2014, EM-DAT reported 35 flood events in Turkey (26.3 % of all natural hazards events), which caused 773 fatalities (the second most destructive type of natural hazard after earthquakes) and a total economic damage of US$ 2.2 billion. In contrast, TABB contained 1076 flood events (8.3 % of all natural hazards events), by which 795 people died. On this basis, floods are the third most destructive type of natural hazard –after earthquakes and extreme temperatures– for human losses in Turkey. A comparison of the two databases EM-DAT and TABB reveals big mismatches of the flood data, e.g. the reported number of events, number of affected people and economic loss, differ dramatically.
It is concluded that the main reason for the big differences and contradicting numbers of different natural disaster databases is lack of standardization for data collection, peril classification and database thresholds (entry criteria). Since loss data collection is gaining more and more attention, e.g. in the Sendai Framework for Disaster Risk Reduction 2015-2030 (SFDRR), the study could offer substantial insights for flood risk mitigation and adaptation studies in Turkey.

References

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