

Interactive comment on “Review Article: Atmospheric conditions inducing extreme precipitation over the Eastern and Western Mediterranean” by U. Dayan et al.

Anonymous Referee #1

Received and published: 3 July 2015

The authors present a review of existing literature on the topic of extreme precipitation over the Mediterranean. The manuscript is in general well written and structured and provide a good overview of the current literature of this subject. Still some minor points needs to be implemented prior to a possible publication in NHESS.

One of my major concerns is that the manuscript lacks a clear motivation. Why is it timely to have such an review why is it important? This needs to be addressed in the introduction.

Further the works lacks a bit the comprehensiveness, e.g., mountain lee cyclogenesis

C1207

is not discussed in great details although it is important in the Alpine area and the Atlas area. Therefore the authors need to include publications like: Speranza A., 1975: The formation of baric depressions near the Alps. *Ann. Geoph.*, 28, 177-217.

Speranza A, et al. 1985: A theory of deep cyclogenesis in the lee of the Alps. Part I: modification of baroclinic instability by localized topography. *J. Atmos. Sci.* 42:1521-1535

Grams CM, et al. 2014: Atmospheric processes triggering the central European floods in June 2013, *Nat. Hazards Earth Syst. Sci.*, 14, 1691-1702

Hofstaetter, M. and Chimani, B. 2012: Van Bebber's cyclone tracks at 700 hPa in the Eastern Alps for 1961-2002 and their comparison to circulation type classifications, *Meteorol. Z.*, 21, 459-473.

Messmer, M et al. 2015: Climatology of Vb-cyclones, physical mechanisms and their impact on extreme precipitation over Central Europe *Earth Syst. Dynam. Discuss.*, 6, 907-941, 2015

Additionally, some references concerning the connection to modes of variability could be added:

Gomez-Hernandez et al. (2013) Variability of moisture sources in the Mediterranean region during the period 1980-2000, *WATER RESOURCES RESEARCH* 49: 6781-6794

Raible, CC 2007: On the relation between extremes of midlatitude cyclones and the atmospheric circulation using ERA40, *Geophys. Res. Lett.*, 34, L07703

Cortesi, N et al. 2014: Weather types and spatial variability of precipitation in the Iberian Peninsula. *INTERNATIONAL JOURNAL OF CLIMATOLOGY*, 34: 2661-2677

Trigo et al. 2004: Climate impact of the European winter blocking episodes from the NCEP/NCAR Reanalyses, *CLIMATE DYNAMICS*, 23:17-28.

C1208

Trigo, IF et al. 2000: Decline in Mediterranean rainfall caused by weakening of Mediterranean cyclones, GEOPHYSICAL RESEARCH LETTERS, 27: 2913-2916

The proposed connection to ENSO is missing in the manuscript:

Shaman, J and Tziperman, E (2010) An Atmospheric Teleconnection Linking ENSO and Southwestern European Precipitation JOURNAL OF CLIMATE 24:124-139

Technical issues to be solved:

The authors need to include more line breaks the paragraphs sometimes go over 2 pages which diminish the readability.

All figures are in poor quality except Fig. 5 and 7. So please increase the axis labels, contour labels, contours of continents, avoid rainbow color scale (for color-blind people).

Fig 10 and 11 seems to be very specific and could be avoided in such an overview.

Interactive comment on Nat. Hazards Earth Syst. Sci. Discuss., 3, 3687, 2015.