Geophysical Research Abstracts
Vol. 20, EGU2018-3059, 2018
EGU General Assembly 2018

The relationship between „atmospheric rivers" and extreme precipitation events in Croatia

Matea Martinkovic, Natasa Strelec Mahovic, and Petra Mikus Jurkovic
Meteorological and Hydrological Service of Croatia, Zagreb, Croatia (petra.mikus@cirus.dhz.hr)

Extreme precipitation events are usually a consequence of deep convective clouds or strong cyclonic activity, but they can also be enhanced by the influence of atmospheric rivers, bands of high water vapor content transported from subtropical areas polewards. In this paper 60 selected cyclone cases are studied in the cold part of the year from 2010 to 2016, in order to find whether atmospheric rivers are connected with extreme precipitation amounts in Croatia. Depending on the place of origin, Mediterranean and Atlantic cyclones are observed separately. The cyclone cases with precipitation amount higher than 100 mm in the period from 24 hours to five days were analyzed in detail. An atmospheric river over the Atlantic or the existence of a part of the atmospheric river in a Mediterranean cyclone could be connected to large, even extreme precipitation amounts in more than 80% of all studied cases. Analysis of cyclone cases shows that water vapor transport from tropical and/or subtropical areas in the atmospheric river can be detected 2 or 3 days, sometimes even 4 or 5 days before the cyclone develops or arrives over Europe. This connection can be used as additional information in forecasting extreme precipitation events.