Detection of cyclone attributes by Hovmöller diagrams

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Constant latitude, longitude from 30W to 40E, resolution 2.5°

Time on 6h resolution

Latitude 50N

Year 2010

0°

Moisture flux (FQ) at 850 hPa level: Zonal flux (FQU) from W and E Meridional flux (FQV) from S and N



Moisture flux and mean daily discharges during selected

Motivation:

- Association of heavy precipitation and floods with intense fluxes of moisture in the troposphere (Müller and Kaspar, 2010, Phys. Chem. Earth, 35, 484–490).

Aims:

- To recognize characteristic features in moisture flux development before and during extreme floods;

- Describe differences among various regions of Europe.

Tools:

- Hovmöller diagrams expressing time development of zonal and meridional component of moisture flux (NCAR/NCEP Reanalysis); - Maps of geopotential and moisture flux magnitude at 850 hPa;

- Charts of daily mean discharge of selected rivers (GRDC data).

Results:

- All studied events connected with intense moisture flux; - Apart from the Eastern Carpathians, both extreme floods were accompanied by very similar features in the diagram:

W region: green diagonals

- recurring intense and long western fluxes moving eastward;

