

## Vertical structure of deep cyclones over Central Europe

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The study is devoted to the vertical structure of deep cyclones over Central Europe in the period of 50-years (1961-2010). The main objective is to detection of the spatial and temporal variability of geopotential height in the cyclone centres. The second objective is to determine the mutual relationship between sea level pressure at the centre of deep cyclones and geopotential height on the selected levels.

Gridded data with spatial resolution of  $2,5^{\circ} \times 2,5^{\circ}$  from the NCEP/NCAR Reanalysis were used as the basic research material. Geopotential height data for 850, 700, 500, 300 hPa as well as sea level pressure in 6-hourly time resolution in the entire period were the basis for all calculations. Research area covers the Central Europe ( $5^{\circ}\text{E}$  -  $30^{\circ}\text{E}$  and  $45^{\circ}\text{N}$  -  $60^{\circ}\text{N}$ ). Deep cyclones were selected from the sea level pressure data with the pressure in the centre of cyclones lower than or equal to 990 hPa.

Detailed analysis of the temporal and spatial variability of the location of cyclonic centres has been performed. Simultaneously, their vertical range as well as its relationship to the geopotential height of the major isobaric surfaces were studied. Temporal analyses contain different time slices including long term variability.