



Effect of climate change on cyclone activity in Europe: spatial and seasonal characterization

P.Lionello (1), U.Boldrin (2)

(1) Department of Material Science, University of Lecce (2) Department of Physics, Univ. of Padua

This study discusses how cyclone climatology is affected by climate change across Europe and identifies the different responses in various regions. The analysis is based on a regional climate model simulation carried out with the RegCM model at ICTP (Trieste, Italy) covering an area from Scandinavia to Northern Africa and from Eastern Atlantic to Russia. The analysis of variability suggests to consider four regions with a coherent behaviour: North East Atlantic, Scandinavia, Russia and Mediterranean. In future scenarios (A2 and B2) the synoptic variability increases in the North East Atlantic and diminishes over Russia and Eastern Mediterranean region. Climate change is particularly large in winter. In fact, the larger activity over North East Atlantic is mainly due to a large increase in winter, when both the synoptic signal and the overall number of cyclones increase, while in summer, actually, both synoptic activity and cyclone number decrease. Similarly, the decline over Russia is due to a reduction during winter. Instead, the Mediterranean region is affected by an overall reduction of synoptic variability in spring and autumn.