The relationship between the Mediterranean and the European cyclones tracks - preliminary results

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The Mediterranean is one of the most cyclogenetic regions in the world. The cyclones are oriented more or less west-east and are concentrated along its northern coasts, with several secondary tracks connecting them to Europe. The aim of this study is to examine the relationship between the tracks of the Mediterranean and the European cyclones.

We compared the low pressure centers found in Sea-Level Pressure (SLP) maps averaged over different time scales, i.e., seasons, months and shorter periods, to the distribution of cyclone occurrences, as detected subjectively over the study region. The study is based on the NCAR/NCEP reanalysis data base.

A good agreement was found between the subjectively analyzed cyclone occurrences and the SLP long-term mean and anomaly maps for the various time scales. Regions that were found rich with cyclone occurrences (and had anomalously low SLP) reflected high cyclonic activity.

Preliminary results for 4 winters (Nov-Mar) show that the intensity and distribution of the cyclone activity differ considerably from one season to another. Moreover, there is a distinct division along each season of periods, with duration varying between $\sim$2 - $\sim$6 weeks, with sharp shifts between one sub-seasonal period to another. The European main track is less dense and more diffuse than the Mediterranean one. These two tracks compete with each other and the Mediterranean one does not extend always along the entire MB. Two major regimes were identified:

- High cyclonic activity over Europe and weak over the Mediterranean
- The reverse situation, in which the Mediterranean becomes the most active region.

In the second regime the cyclonic activity tends to concentrate on a certain part of the Mediterranean Basin; the western, the central or the eastern.