



Cloud cover associated to cut-off low systems in the Mediterranean region

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Cut-off low (COL) are middle and upper troposphere closed cyclonically circulating eddies isolated from the main westerly stream; they are common features of Mediterranean meteorology in warm month and are often related to sever weather. Ten years (1992-2001) of warm season ERA-40 reanalysis, available every six hours on $2.5^{\circ} \times 2.5^{\circ}$ grid, are processed to extract a database of cut-off low occurrence in the Mediterranean basin and continental Europe. The cloud structures related to the COL are analyzed using International Satellite Cloud Climatology Project DX data available every 3 hours on a 30×30 km² grid. For each COL occurrence, the size of the related cloud shield is estimated, and the mean optical depth and cloud top height computed. Cloud patterns are studied for different COL classes according to their vertical characteristics.

Out of a total of 273 COL selected episodes, for about the two thirds (184) the cloud analysis is possible. For remaining third of the events the analysis is not carried out because it is not possible to automatically isolate the cloud cover to be associated to a given COL. For 23 COL systems analyzed no cloudiness is associated at any stage of the development, while for about 20 COL events the size of the cloud structure exceeds few millions of square kilometres. The cloudiness size is related to the vertical structure of the COL: large size are found for those systems that show a corresponding depression at the ground, small size or no cloudiness are found for systems dynamically confined to upper tropospheric levels.