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Thesis Title	<i>The role of the polar front and subtropical jets during explosive cyclogenesis in the Mediterranean</i>
Supervisor	H. Flocas, Associate Professor
Summary	<p>The purpose of this study is to investigate the composite characteristics of the polar front jet (PFJ) and subtropical jet (STJ) during cases of explosive cyclogenesis in Western (WM), Central (CM) and Eastern (EM) Mediterranean. The cases derived from a climatological analysis performed with the aid of the cyclone tracking algorithm MS. The two jets are investigated at 300 and 200 hPa with the aid of wind data every six hours from ERA-Interim archive, for the period 1979–2016 on a 1°x1°regular longitude-latitude grid. First, on a climatological basis, it was found that in winter the PFJ strongly descends at lower latitudes while the STJ has a slighter displacement to the south. The two jets through their interaction, can cause regular or explosive cyclogenesis events over Mediterranean. This is verified through the composite anomalies during explosive cyclogenesis over the three examined areas of the Mediterranean, demonstrating that a cyclonic curved anomaly appears over each area, but with different characteristics, following the different position of the PFJ, which seems to interact with the composite STJ. Finally, this finding was further elaborated by the analysis of a case study, when the two jets interact, contributing to the explosive cyclogenesis.</p>
Key words	polar front jet, subtropical jet, explosive cyclogenesis, Mediterranean, ERA-Interim dataset
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