| Name-Surname | Dionysios Roukanas |
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| **Thesis Title** | *Evaluation of COSMO model with respect to precipitation during explosive cyclogenesis in the Mediterranenan* |
| **Supervisor** | H. Flocas, Associate Professor |
| **Summary** | The objective of this study is to evaluate the ability of the non-hydrostatic numerical model COSMO-GR to simulate the precipitation patterns during a case of explosive cyclogenesis which took place in the eastern Mediterranean in 27-31/12/16. Data from land meteorological stations both in Greece and Turkey have been used, in comparison with data from SEVIRI radiometer embedded in Meteosat-9 satellite. On the basis of the station measurements, the model is verified with the aid of the statistical packet VERSUS. Furthermore, a correlation between precipitation spatial distributions of COSMO model and those from satellite data is carried out. Thus, it is possible not only to investigate the ability of COSMO model to simulate episodes of heavy rain, but also to identify both the spatial distribution of rain and its quantity as well. The correlation between simulated precipitation amount and observed data manifested an underestimation of high precipitation values from COSMO model. Additionally, a discrepancy between values derived from satellite data and simulated values is pointed out, more likely attributed to the ineffective representation of diabatic heating. |
| **Key words** | COSMO-GR model, explosive cyclogenesis, SEVIRI radiometer, statistic indices, Eastern Mediterranean |
| **Evaluation committee** | H. Flocas, Associate Professor<br>C. Cartalis, Professor<br>M. Tombrou, Associate Professor |