



Evaluation of numerical weather predictions performed in the context of the project DAPHNE

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The region of Thessaly in central Greece is one of the main areas of agricultural production in Greece. Severe weather phenomena affect the agricultural production in this region with adverse effects for farmers and the national economy. For this reason the project DAPHNE aims at tackling the problem of drought by means of weather modification through the development of the necessary tools to support the application of a rainfall enhancement program. In the present study the numerical weather prediction system WRF-ARW is used, in order to assess its ability to represent extreme weather phenomena in the region of Thessaly. WRF is integrated in three domains covering Europe, Eastern Mediterranean and Central-Northern Greece (Thessaly and a large part of Macedonia) using telescoping nesting with grid spacing of 15km, 5km and 1.667km, respectively. The cases examined span throughout the transitional and warm period (April to September) of the years 2008 to 2013, including days with thunderstorm activity. Model results are evaluated against all available surface observations and radar products, taking into account the spatial characteristics and intensity of the storms. Preliminary results indicate a good level of agreement between the simulated and observed fields as far as the standard parameters (such as temperature, humidity and precipitation) are concerned. Moreover, the model generally exhibits a potential to represent the occurrence of the convective activity, but not its exact spatiotemporal characteristics.

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