The challenge of the operational meteorological forecasting in the Mediterranean region

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It is well known that the Mediterranean area poses a great challenge for the operational forecasting, mainly due to the variety of hazardous weather phenomena affecting the region. It should be remembered that the Mediterranean presents the highest concentration of cyclogenesis in the world and that it is the region were the heaviest extra-tropical rainfall events have been observed, in many occasions associated with Mesoscale Convective Systems (MCS) producing extreme flash-floods. Furthermore, strong local winds and other severe phenomena, including tornados and violent hailstorms, are also quite frequent in some Mediterranean areas.

In order to meet these challenges, different methods and tools for operational forecasting have significantly improved in the last decade, mainly as a consequence of the improvements in the quality and resolution of NWP models and to spectacular advances in nowcasting procedures based on remote sensing data. At the same time Ensemble Prediction System (EPS) approaches are becoming more relevant, not only for the medium but also for the short-range, although at the present moment there is a need to develop new tools to process the EPS outputs to provide useful description of the different scenarios to the forecasters.

From other point of view, changes in the forecasting process and modifications to forecast system infrastructure will likely be also needed. At present the process is, in so many occasions, insufficient to meet the needs of increasingly sophisticated users and the role of the forecasters should change if the meteorological services want to face these aspects. The possibility for the participation of the forecaster in the decision about the deployment and distribution of targeted observations could be a fundamental element in the near future.

This presentation will give a short overview about the previous points, which will probably be of significance for the improvement of the operational forecasting in the Mediterranean region.