

# The challenges of the MEDEX Second Phase

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The First Phase of MEDEX has finished at the end of 2005, although not all the objectives were fully achieved. Now MEDEX has entered its Second Phase, in which the not covered objectives of the First Phase are integrated and new challenges are introduced. The topics for the MEDEX Second Phase are as follows:

1. Climatology. A variety of results regarding the climatology of the cyclones has been performed and published. Some other can be directly extracted from the MEDEX cyclone data base, which is complete. About the relationship between extreme weather and cyclones or general situation, much work is still pending. The impact of the climate change on the Mediterranean cyclones and extreme weather is another important challenge.
2. Understanding of physical processes. Much work was done in the First Phase (see Buzzi et al., 2005, for a summary). But many doubts still remain and new research is needed in this field.
3. Experimental design and test of real time targeted observations. After numerous studies of sensitivity for past cases, this is the time to test the performance of some real time targeted observations in some sensitive areas around the Mediterranean. The impact of these additional observations on the predictions has to be evaluated.
4. Development and testing of some prediction methodologies. The objective is to explore the abilities of some kinds of ensemble and probabilistic prediction of extreme events in the Mediterranean.
5. To evaluate the societal and economical benefit of a supposed improvement in the forecast.

The MEDEX Second Phase will be conducted in coordination with THORPEX and it will flow into a multi-scale experiment to be performed by 2010 or 2011, focused in three small target areas located in Catalonia (Spain), South-eastern France and Northern Italy.