Forecasting and understanding cyclone behaviour using new ensemble products

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Cyclonic storms are responsible for some of the highest natural-hazard-related losses in the mid-latitudes. So knowledge of likely future changes in the extratropical cyclone climatology is crucial for strategic planning and for minimization of disaster impacts. In future the total number of storms may be similar, but major shifts could occur in cyclone characteristics such as locations, intensity and life time.

Though it may seem straightforward, successful identification and tracking of cyclonic features is actually a complex and difficult procedure. And partly because of this, the quantification of trends in storminess depends strongly on the methodology employed. Indeed scientific studies may find seemingly contradictory results using the same datasets, which makes interpreting results very difficult for users. The project 'IMILAST' aims at providing a systematic intercomparison of different methodologies, and a comprehensive assessment of all types of uncertainties inherent in the tracking of mid-latitude storms.

In this presentation the motivation, aims and structure of the project will be outlined. The input datasets (from ERA-interim) will be described. One project activity focusses on 20 North Atlantic cyclonic windstorms, in order to critically evaluate algorithm performance. In another activity contiguous data over the Northern Hemisphere is used over a much longer period to derive storm track climatologies. Here we present some initial results of applying the different methodologies to the ERA-interim data.