

## **The IMILAST project: Comparison of different mid latitude cyclone detection and tracking methods by a track to track algorithm**

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Mid latitude cyclones are among other important natural hazards on the weather scales with strong socio-economic impacts. The increasing number of available observational and simulated data led to a number of different automatic cyclone detection and tracking methods during the last 2 decades. However, these methods use different vortex definitions and approaches to retrieve the tracks. This caused differing results for densities, genesis and lysis areas, and life cycle properties. The aim of the study is to quantitatively compare the trajectories of mid latitude cyclones detected by different state-of-the-art cyclone detection and tracking methods. As test bed the ERAinterim data set (1x1 degree) is used spanning the period 01/1989 to 03/2009. The most rigorous comparison is a track-by-track comparison of the trajectories (Blender and Schubert 2000). Here, we use a spatio-temporal distance which includes differences in locations and observation times of cyclones. In an earlier study (Raible et al. 2008) we could already show that the trajectories detected by three different methods show an agreement of 67% to 80%. In this study we will apply the track-by-track comparison to 12 different cyclone tracking methods and to all seasons separately. The data of the methods are provided by the IMILAST project. References: Blender, R. and M. Schubert, 2000: Cyclone Tracking in Different Spatial and Temporal Resolutions. *Mon. Wea. Rev.*, 128, 377-384. Raible, C. C., P. Della-Marta, C. Schierz, H. Wernli, and R. Blender, 2008: Northern Hemisphere extratropical cyclones: A comparison of detection and tracking methods and different reanalyses, *Mon. Wea. Rev.*, 136 880-897.