# Comparing different methods to detect and track Northern Hemisphere midlatitude cyclones

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The applicability of three different cyclone detection and tracking schemes is investigated in ECMWF (ERA-40). Cyclone climatologies and cyclone characteristics are intercompared within the three methods. The comparison of the methods is based on the ERA-40 data set and shows a generally good correspondence between different schemes. However, trends in cyclone characteristics, like the number of cyclones, are sensitive to the detection and tracking scheme used. Moreover, there are two technical aspects, differences in criteria of the cyclone identification and different approaches in cyclone tracking. Differences in both lead to deviations in cyclone length. Applying life-time thresholds, some of the cyclone tracks might be too short to be included in statistical measures of cyclones. Thus, it is often not clear which scheme is correct or wrong. Nevertheless, consequences of these differences in the mean cyclone characteristics are minor, but for specific research questions, e.g., what is the cyclone activity in the Mediterranean in winter, the users should be aware of these potential differences and if necessary adjust their scheme.