



Interannual variability in recent data of the European Severe Weather Database

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The European Severe Weather Database is officially in operation since 2006 as the database of ground-truth severe weather observations in Europe and the Mediterranean Region. The origins of these observations can be classified into two categories: scarce historical reports before 2006 and numerous reports entered in near-real time after 2006. We are therefore not able to identify any trends or interannual variability in occurrence frequency across or before that break point. In our contribution we investigate the annual numbers of severe events since 2006 to see to what extent we can disentangle meteorological from non-meteorological effects.

Non-meteorological factors affect the number of reports since 2006, most importantly the growth of ESSL's data collection network. This network has expanded over the years as voluntary observer networks, individuals and national weather services have joined ESSL's efforts in collecting quality-controlling data in their respective countries. This has led to an increasing total number of reports reminiscent of exponential growth. For example, an important increase of hail events has occurred since 2006.

But not all severe weather types follow this pattern. The annual number of tornadoes, for instance, shows a decrease with two minima in 2008 and 2011 followed by an increase. In particular the signals in tornado data are not easily explained by changes in reporting rates. Other ways to interrogate the data are explored, such as considering tornado and hail days as well as days with many tornado and hail occurrences. In addition to exploring the ESWD data, we also investigate if we can reproduce some of the interannual signals by applying severe weather proxies to reanalysis data.