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Europe Windstorm variations: past, present and future

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Ten years ago, we studied 101 years (1910-2010) of wind observations at five stations spread throughout the Netherlands, and representative of a wider area in Europe containing regions of dense exposure. The raw wind speed data were homogenised using detailed station metadata to account for changes in observation practises, then processed to form a windstorm loss index timeseries. Our analysis found large changes in annual storm losses at multidecadal timescales, with two minima occurring in the 1960s and the 2000s. The more recent minimum was three to four times lower than the century-scale peak of indexed losses in the 1980s and early 1990s and primarily driven by the reduced rate of occurrence of damaging storms.

We recently extended the storm loss timeseries up to 2019 and results confirmed what most of us expected: the lull continues. A recent industry survey indicated the ongoing quiet period is the top science issue for European windstorms, presumably because its large amplitude dwarfs other uncertainties in storm loss climate. The burning question for re/insurance is: what to expect over the next few years? What roles will natural climate variability and anthropogenic forcings play in the medium-term future evolution of our storm climate? Researchers have begun to supply some answers, finding strong empirical links between Arctic sea-ice, the state of the North Atlantic Ocean, and European winter climate, backed up by process-based studies connecting these variables. We will review their findings in the context of storm loss variability, then identify questions which could be key to anticipating the storm activity over the next few years.