

Twelfth Pacific Congress on Marine Science and Technology, PACON 2006: *Marine Science and Technology in Asia*, Traders Hotel, Yangon in Myanmar, June 11-15, 2006.

Storms - analysis, statistics and changes

Hans von Storch

Storms represent a major geo-risk in marine and coastal environments – almost everywhere. They may cause significant damage both by their own wind-force but also indirectly through storm surges and ocean waves. Thus, knowledge about the statistics of storms and their current and possible future changes are of utmost interest not only for coastal and marine stakeholders but also for the public at large.

We consider three types of marine storms, tropical storms, extra-tropical baroclinic storms and polar lows. Because of changing observational capabilities, the observational record of the frequency of intensity of such storms is methodologically difficult; sometimes, conclusions about changing storminess are based on inhomogeneous data, due to changing local conditions, observation practices and instrumentation.

Homogenous statistics of storminess for sufficiently long times can be derived by combining two sources of knowledge, namely the “reconstruction” with regional climate models for the last four decades (during which global re-analyses are available), and the assemblage of long series of suitable proxy data. The availability of suitable regional climate models allows also the construction of consistent scenarios of possible future storm statistics.

Results for extra-tropical storms are given in some detail; first results for tropical storms in SE Asia and N Atlantic polar lows are given.