



Metocean Extremes and their Trends: Waves, Winds, Ice

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Among hydroclimatic extremes, Metocean extremes are often overlooked. They include wave height, wind speed, and in polar areas ice concentration and thickness. In the paper, we will show trends for Metocean extremes, based on 30 years of global satellite observations. Overall, for winds and waves such trends are positive, except high latitudes where Metocean behavior is complicated due to shifts of the wind patterns, ice retreat and regional changes of ice regimes.

It is also argued that small-scale Metocean extremes can affect behavior and hence large-scale hydroclimatic extremes. Waves are essentially coupled with the lower atmosphere and upper ocean. For example, wave mixing in tropical cyclones can cool the surface and impact negatively on the cyclone intensity. These and other links of small-scale and large-scale geophysical extremes will be outlined.