The connection between the NAO and extreme wave heights around Norway

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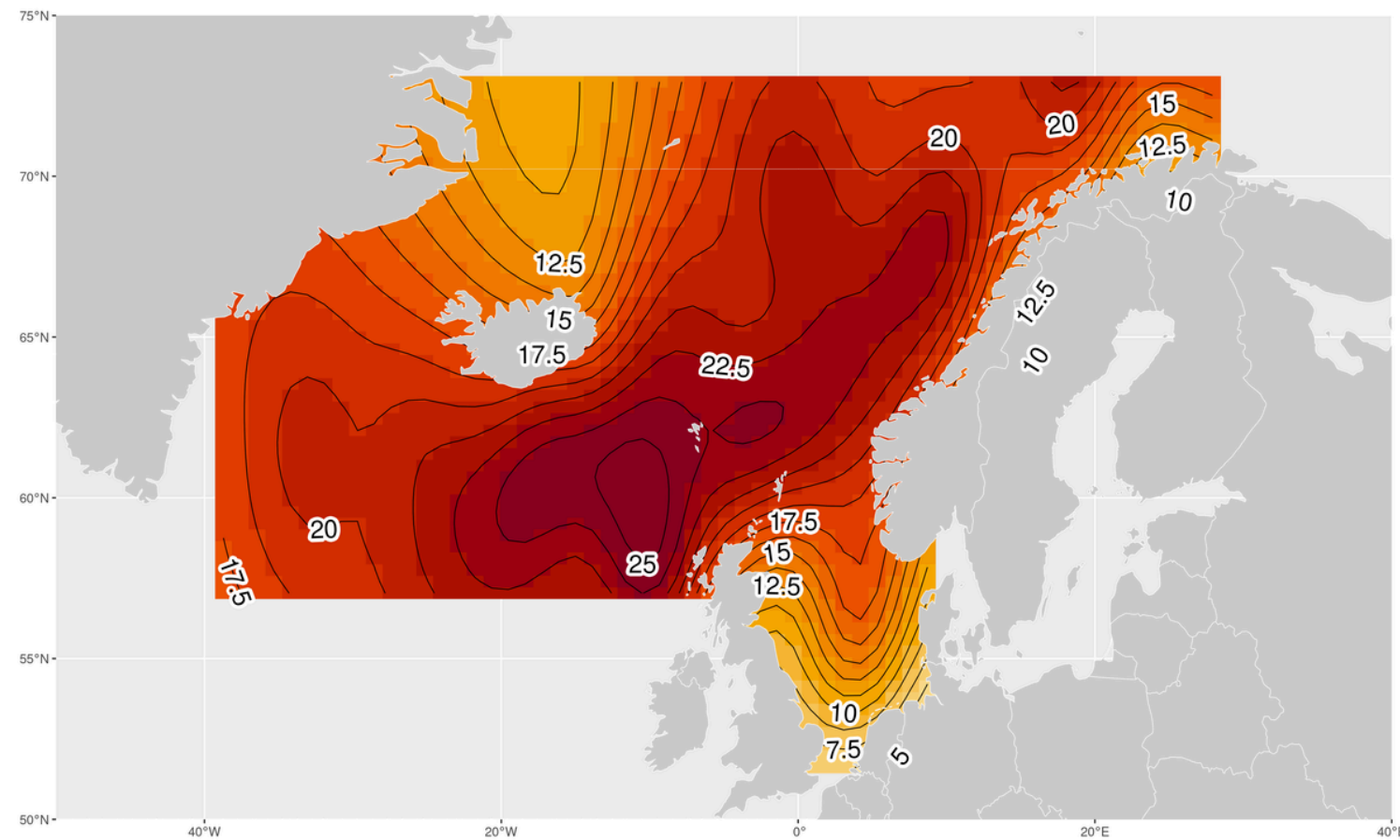
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Generalised additive extreme value models

$$F_{GEV}(z; \mu, \sigma, \xi) = \exp\left(-\left(1 + \xi\left(\frac{z - \mu}{\sigma}\right)\right)^{-1/\xi}\right)$$

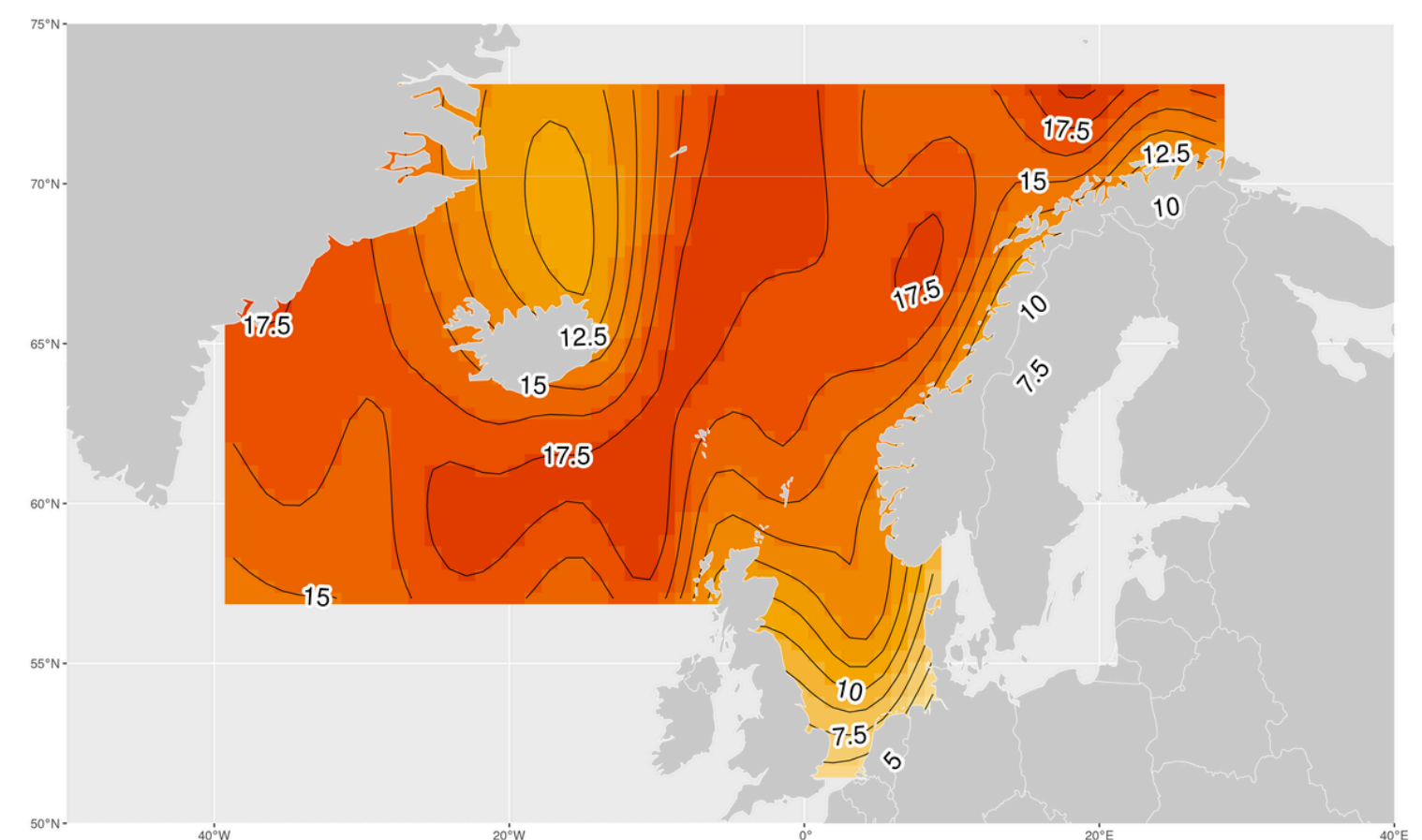shape · shape · scale · location

Return values

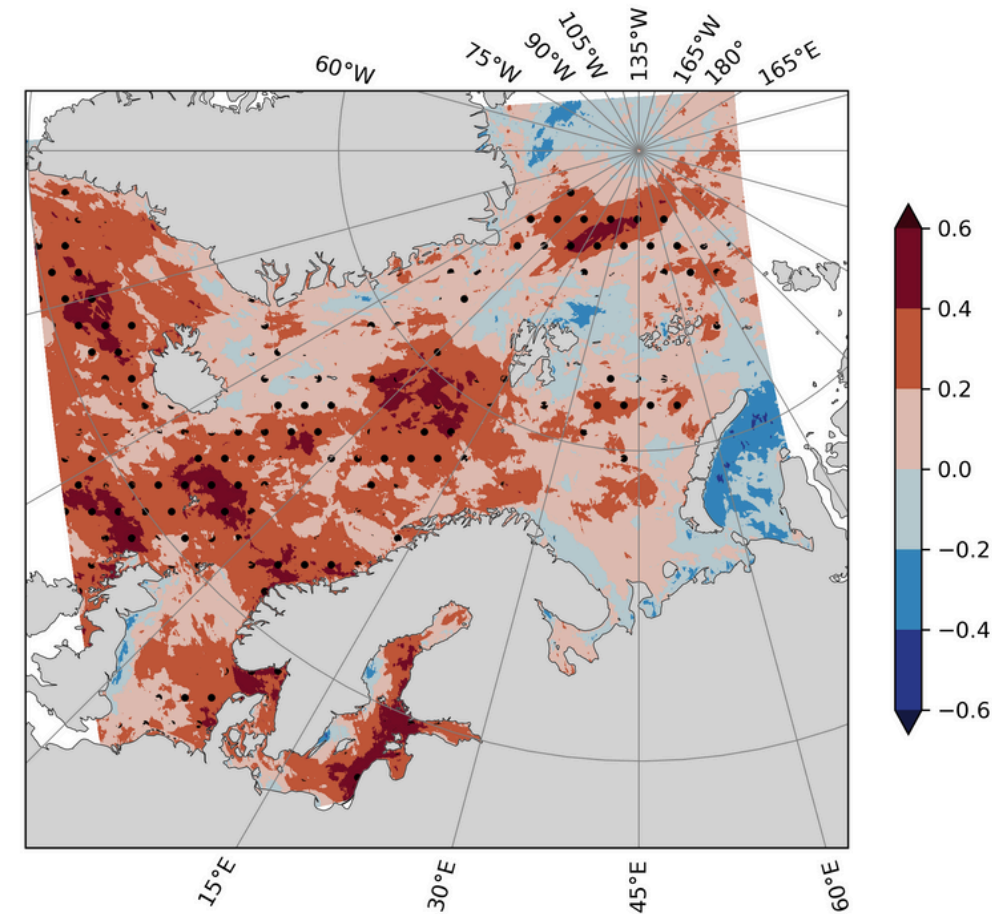NAO anomaly = 1

100-year return values of Hs [m]

NAO anomaly = - 1
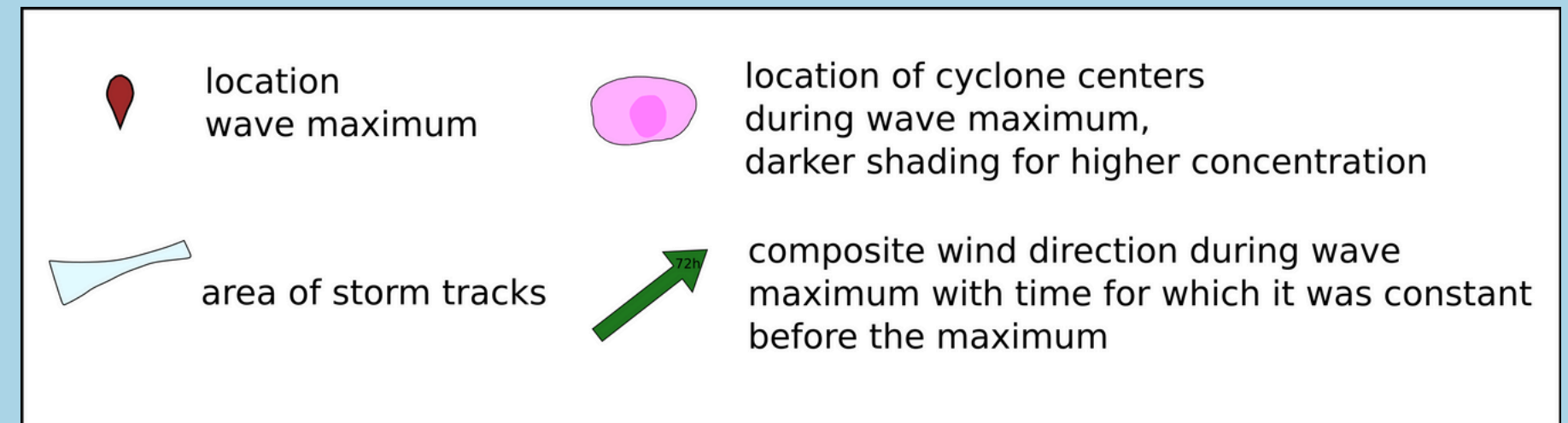
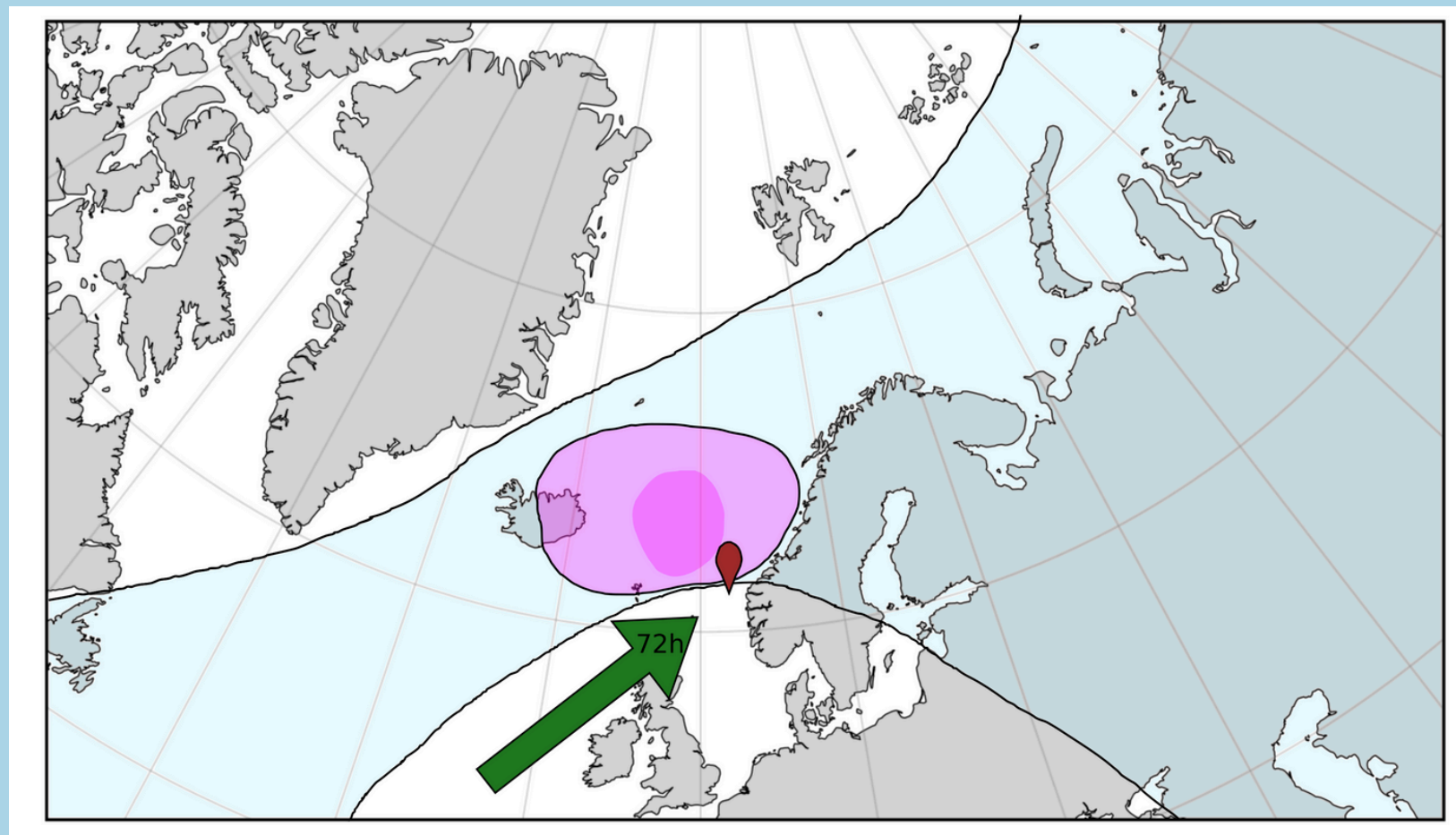100-year return values of Hs [m]
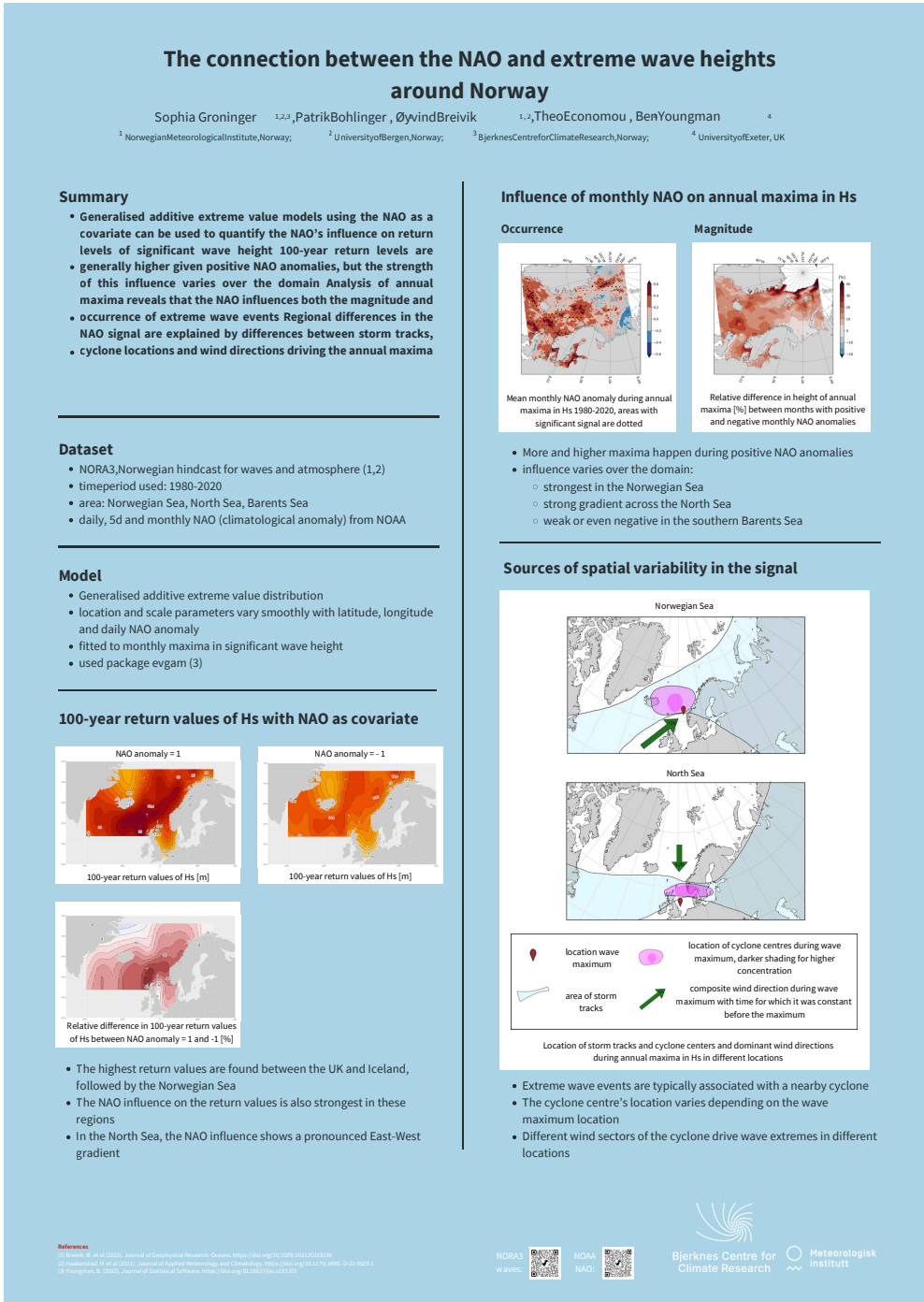
NAO influence on annual maxima

Occurrence

Mean monthly NAO anomaly during annual
maxima in Hs 1980-2020, areas with
significant signal are dotted

Atmospheric situation during annual maxima

location
wave maximum

location of cyclone centers
during wave maximum,
darker shading for higher concentration

area of storm tracks

composite wind direction during wave
maximum with time for which it was constant
before the maximum

Come around for a chat if you are interested in...

- Generalised (additive) extreme value models and modelling choices
- The relation between cyclones and extreme Hs

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