

## **Creating a European Windstorm Catalogue**

Q1. What is the purpose of the catalogue?

Q2. How to define (select) windstorms?

Q3. How should we do the tracking?

Q4. Given the answers to Q1-Q3, what datasets and resources are needed?

Questions that we didn't get around to:

Q5. What variables should be in the catalogue? How do we measure severity?

## Creating a European Windstorm Catalogue

Q1. What is the purpose of the catalogue?

- useful to the research community and industry
- parallels with HIRDAT and IBTRACS tropical cyclone catalogues
  - Cyclone track, intensity (winds &mslp), radius....

Industry:

- many companies have their own European WS catalogues
- create consensus within industry
- open source (freely available, transparent methodologies)
- winds at very high resolution? might not be important but some wind fields would be (need to down scaling)

Research Community:

- climate model evaluation
- characterisation of windstorms/variability in storm footprints
- variability of windstorms and links to the large-scale circulation

-To be useful to both research and industry the catalogue might have different 'levels' of complexity (individual members and ensemble mean)

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Q2. How to define (select) European windstorms?

“A storm with strong winds over Europe” ?

Storm – not a precise term

Synoptic-scale versus mesoscale versus convective scale

Even if we focus on extratropical cyclones we may have many definitions – winds, mslp, vorticity....

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Q3. How should we do the tracking?

What should we track, vorticity, mslp, winds etc...?

What tracking algorithm should we use?

- differences between algorithms (cf IMILAST)
- ensemble of tracks – too complex for industry users?

Q4. Given the answers to Q1-Q3, what datasets and resources are needed?

- 20<sup>th</sup> century reanalysis (Compo et al. 2011) was suggested
  - Uses an Ensemble Kalman Filter approach with 56 members, lots of data!
  - Large project to make the 20<sup>th</sup> Century reanalysis available and visualizable via an interactive website
- high resolution winds would require downscaling
  - statistical vs dynamical
  - pilot Met Office project to downscale 1894 Thames flooding case-study

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Creating the windstorms catalogue would require substantial amount of work, so the purpose of the catalogue would need very clear

A Willis Research Network working paper on developing a European Windstorm Catalogue is in preparation

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