

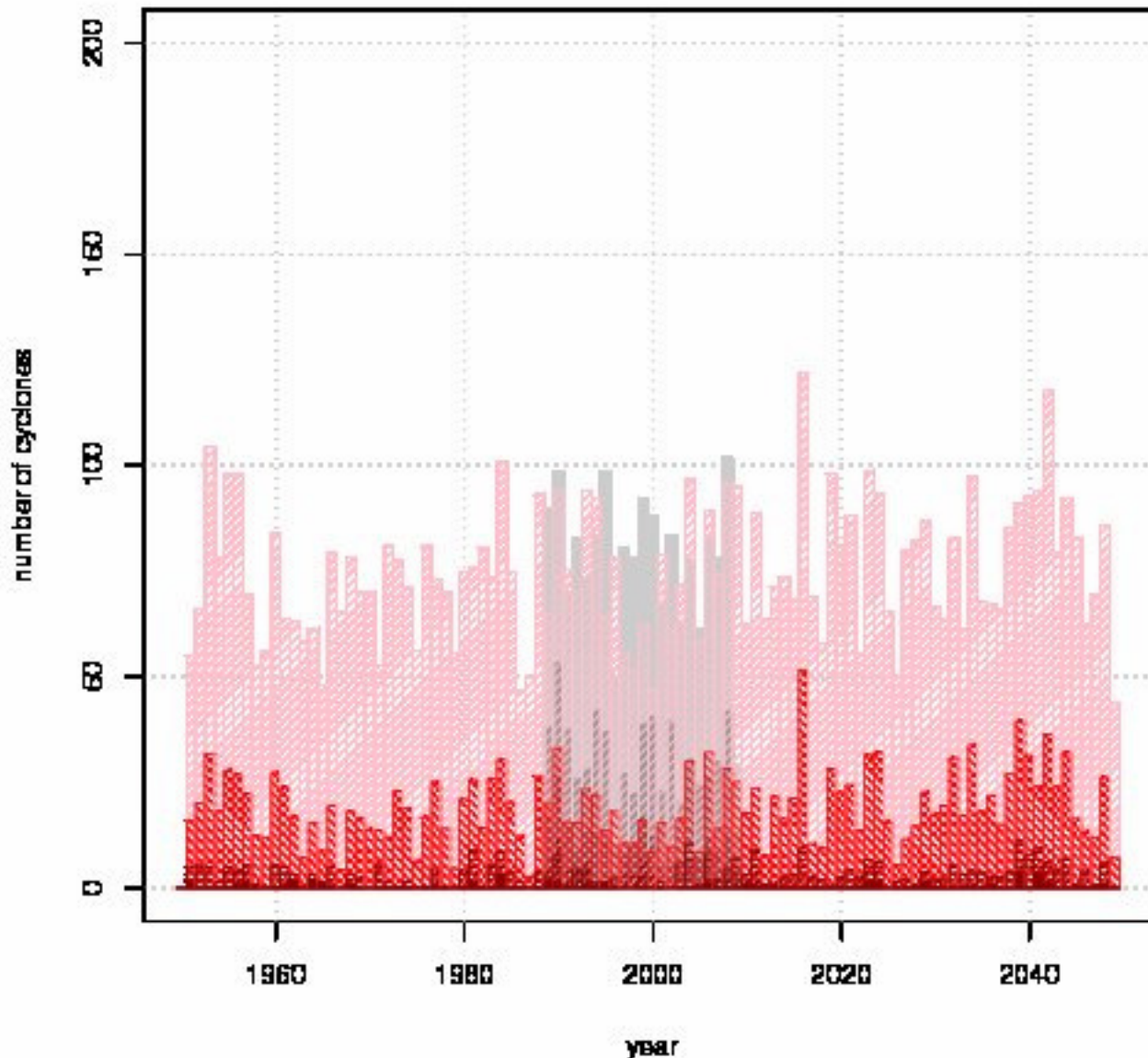


Norwegian  
Meteorological Institute  
met.no

## *An analysis of simulated and observed storm characteristics*

*- Can we expect a change in the future?*

# No change in storm frequency?



Number of cyclones:  
**RCM**  
analysis  
CCI  
(Benestad & Chen, 2006)

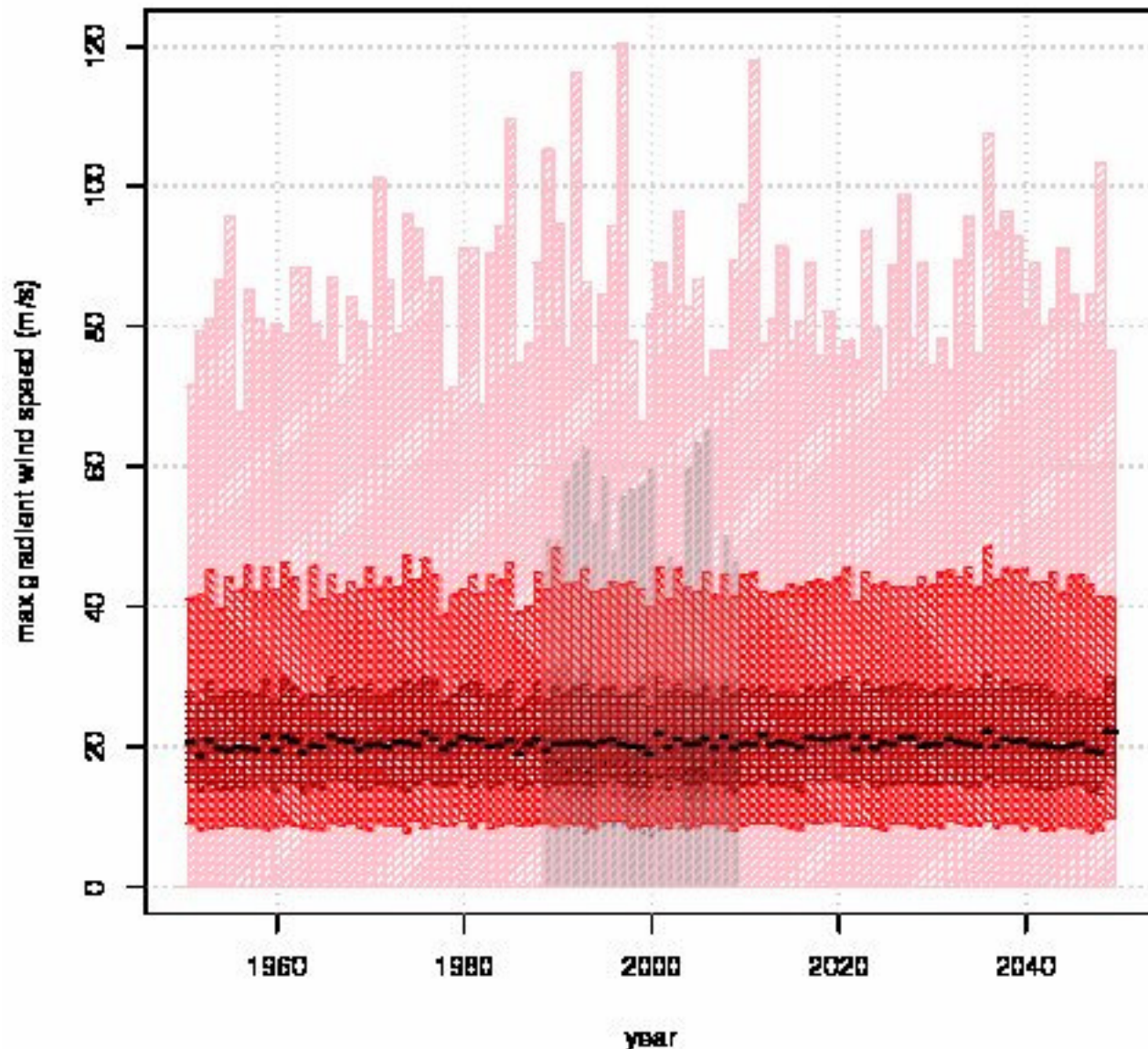
ERA domain: -12-38E 48-66N 1989-2009 / RCM domain: -11-38E 48-66N 1950-2049



# ...or simulated wind speeds?



CCI statistics



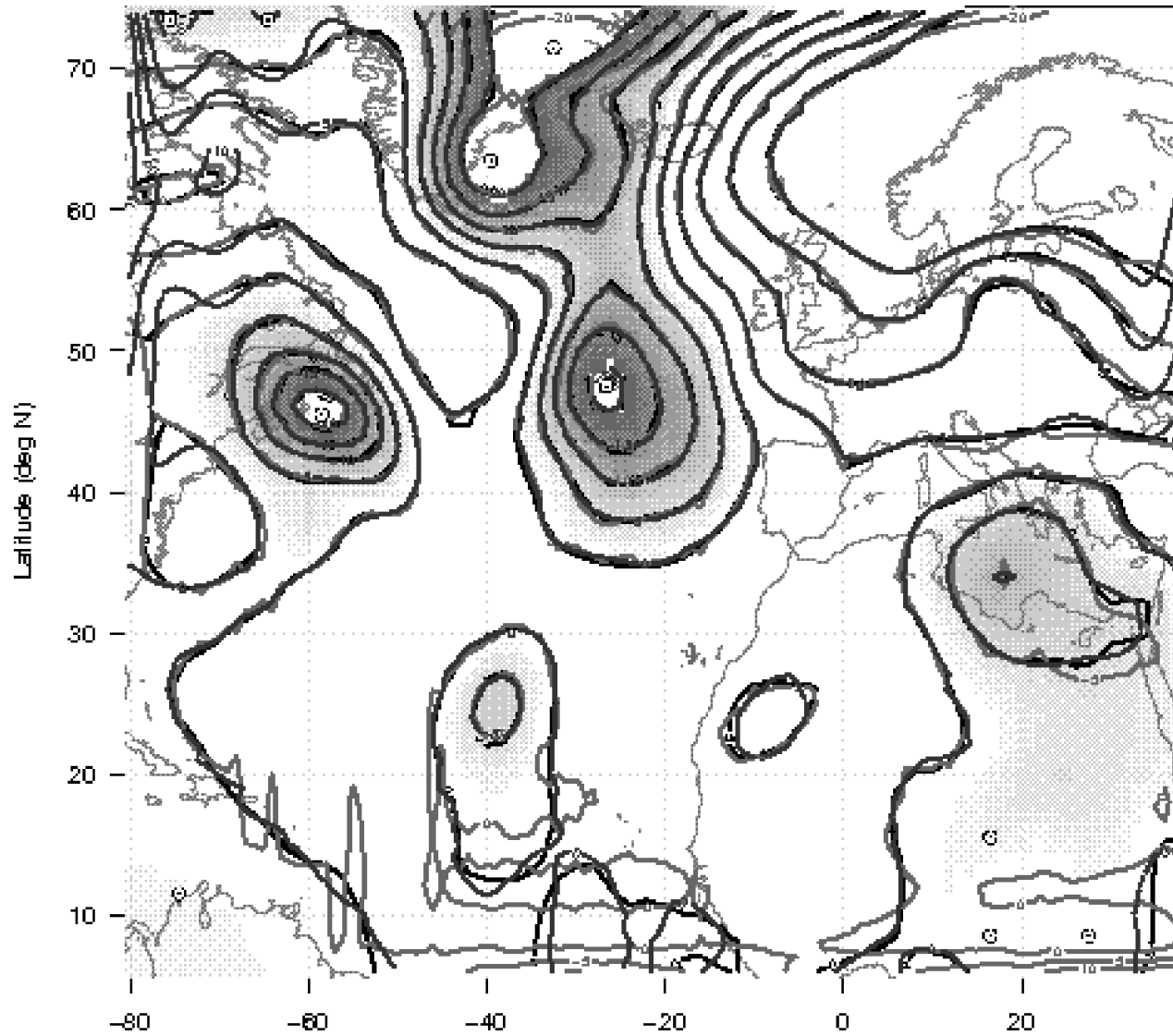
ERA domain: -12-38E 48-66N 1959-2009 / RCM domain: -11-35E 48-66N 1950-2049

RCM:  
N corresponds  
|v| too high

# Method: storm characteristics



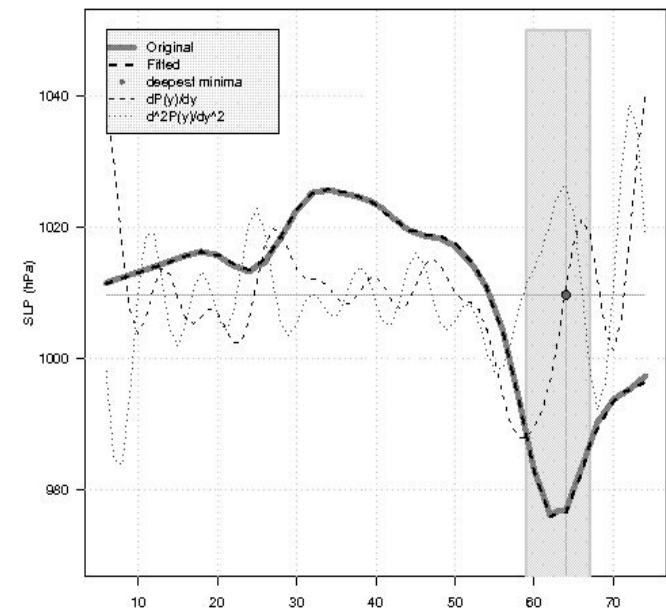
SLP anomalies



Longitude (deg E)  
2008-1-1 #2

*.CCI*  
*.triangulation*

SLP profile at -39.5E

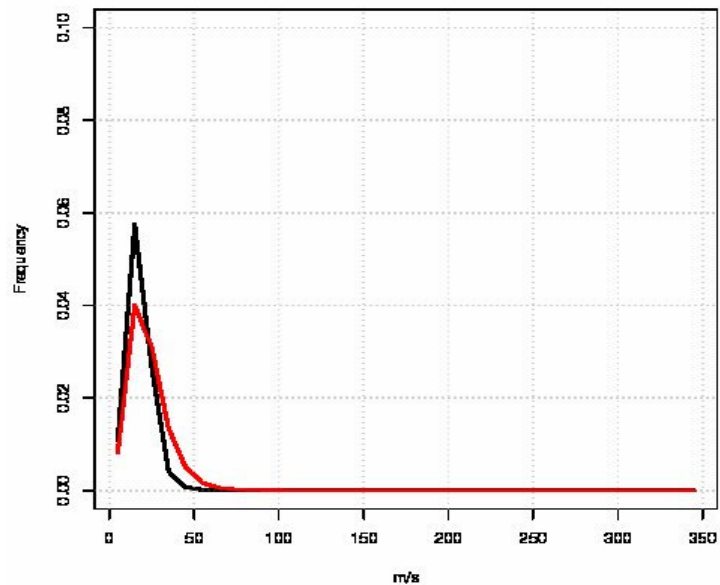


Latitude (deg N)  
2008-1-1 #2

# Storm statistics



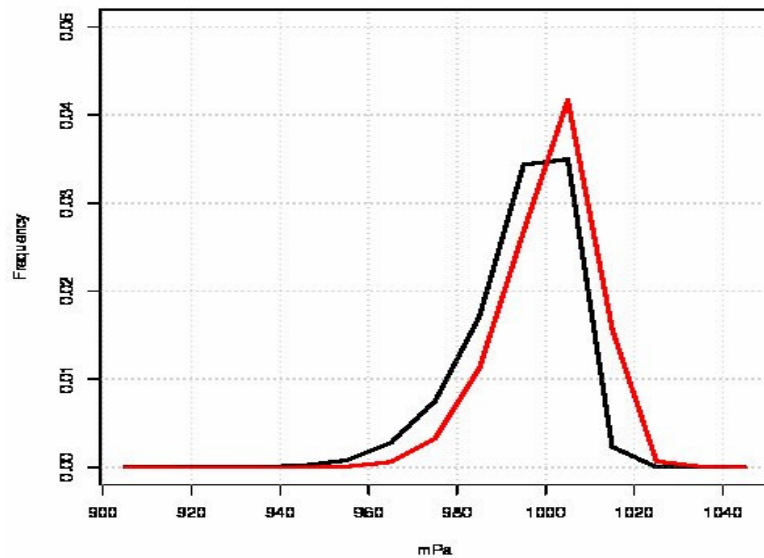
Histogram: gradient wind



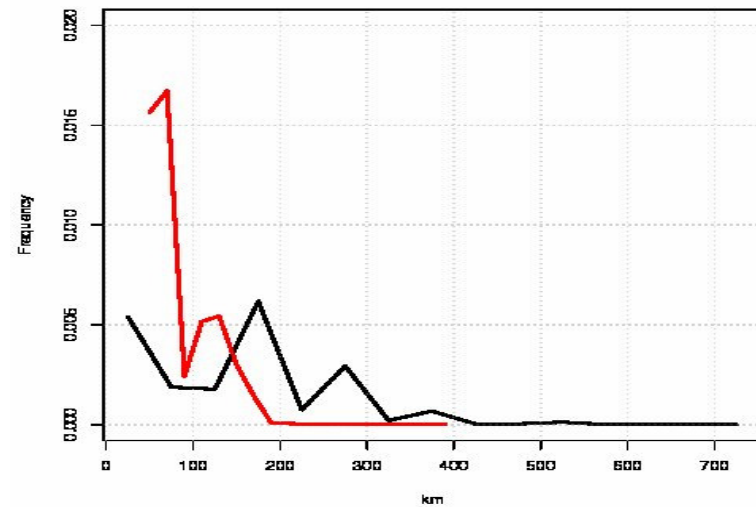
ERA domain: -12-38E 48-66N 1989-2009 / RCM domain: -11-35E 48-66N 1950-2049

**RCM:** storms too small  
too strong.  
Gradient wind  
Obs=ERAINT (reanalysis)

Histogram: pal



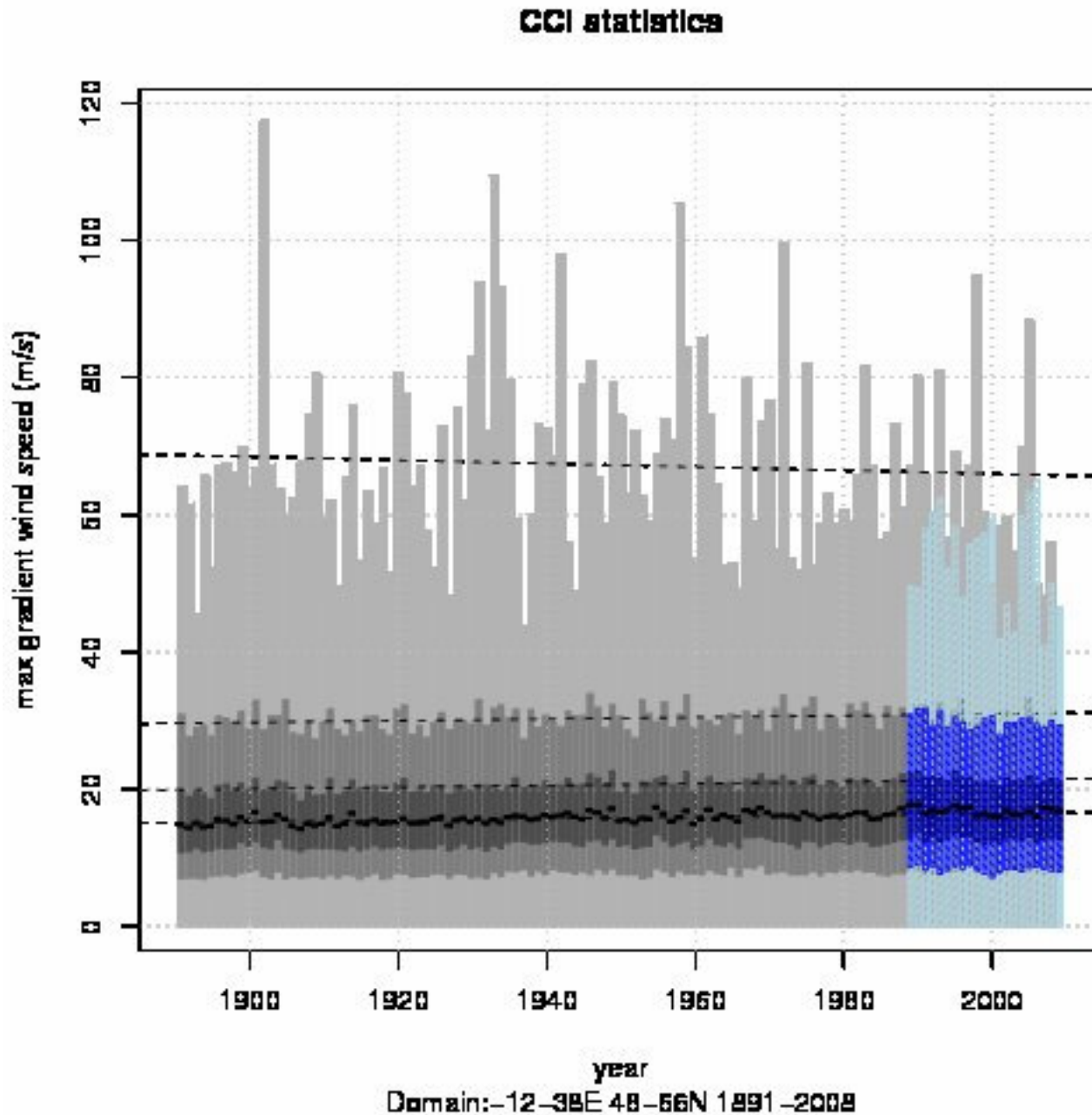
storm radius



ERA domain: -12-38E 48-66N 1989-2009 / RCM domain: -11-35E 48-66N 1950-2049



# Historical analysis: N

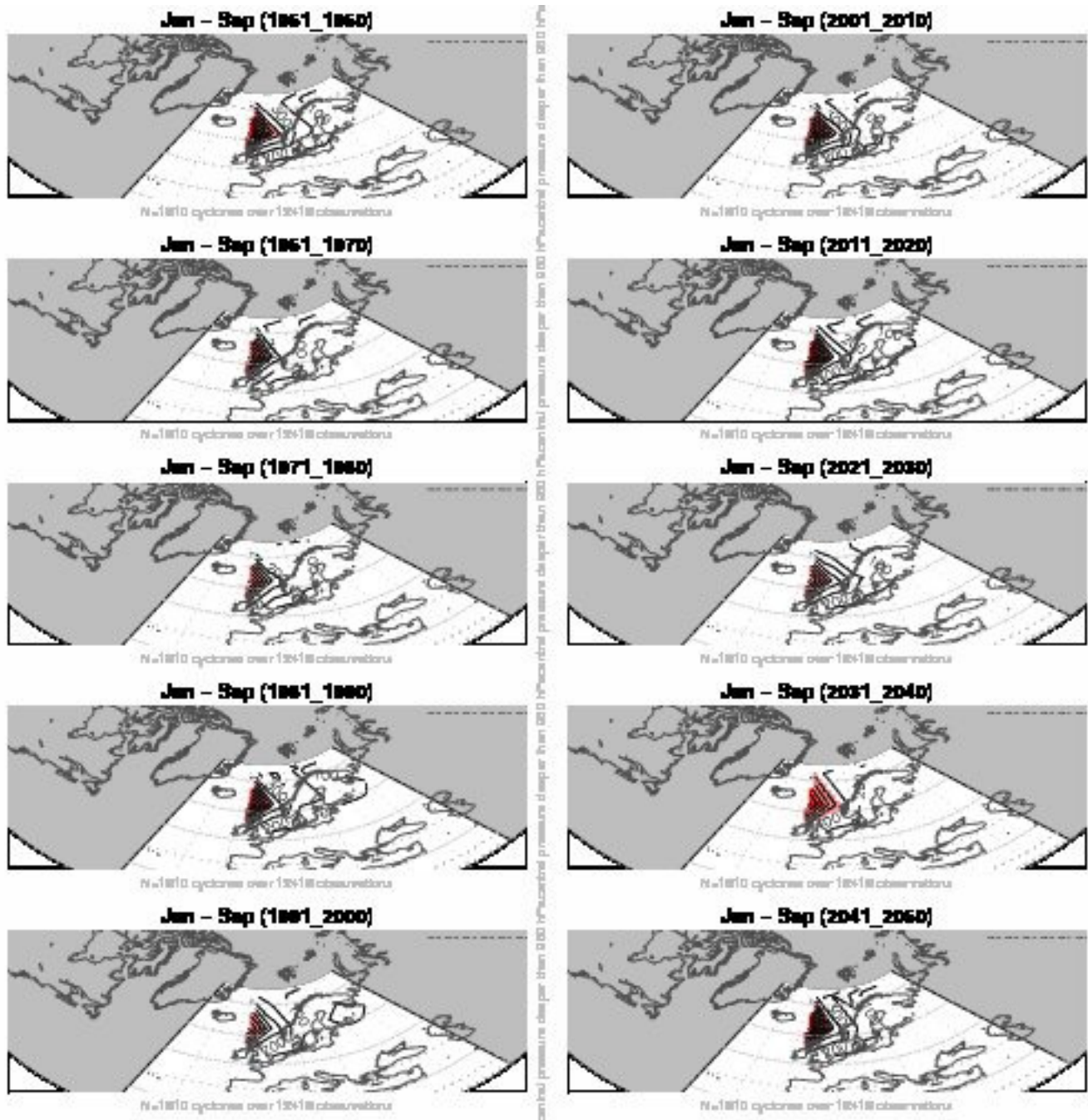


Domain:  
12°W-38°E/48-66°N  
(Same as RCM)

Historical reanalysis  
**ERAINT**

Little trend!

# RCM domain

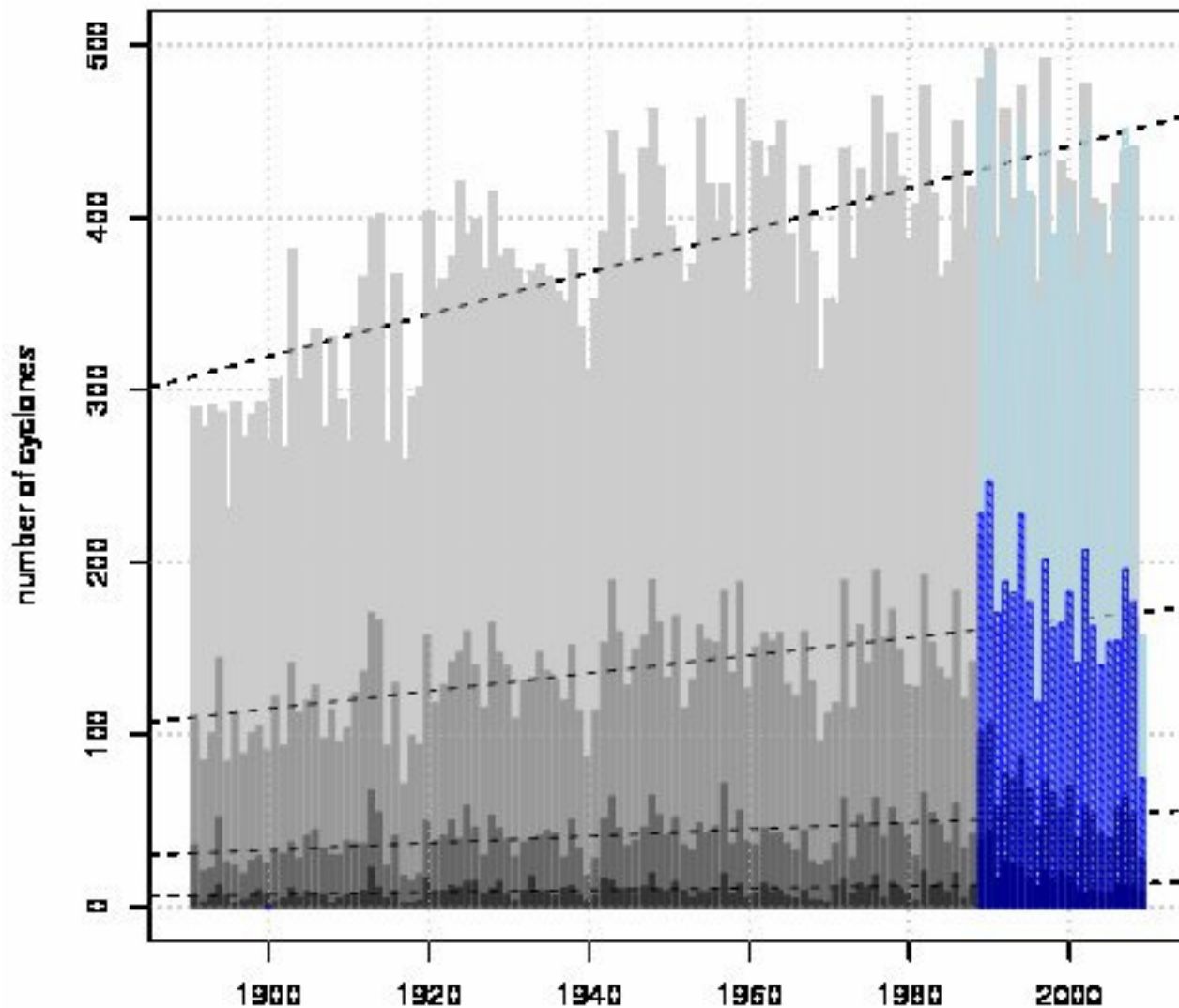


CCI on small  
domain:  
restricted

# Storm statistics: Whole North Atlantic



CCI statistics



Domain: -80-38E 20-74N 1991-2009

**Domain:**

80°W-40°E/20-75°N

Different story!

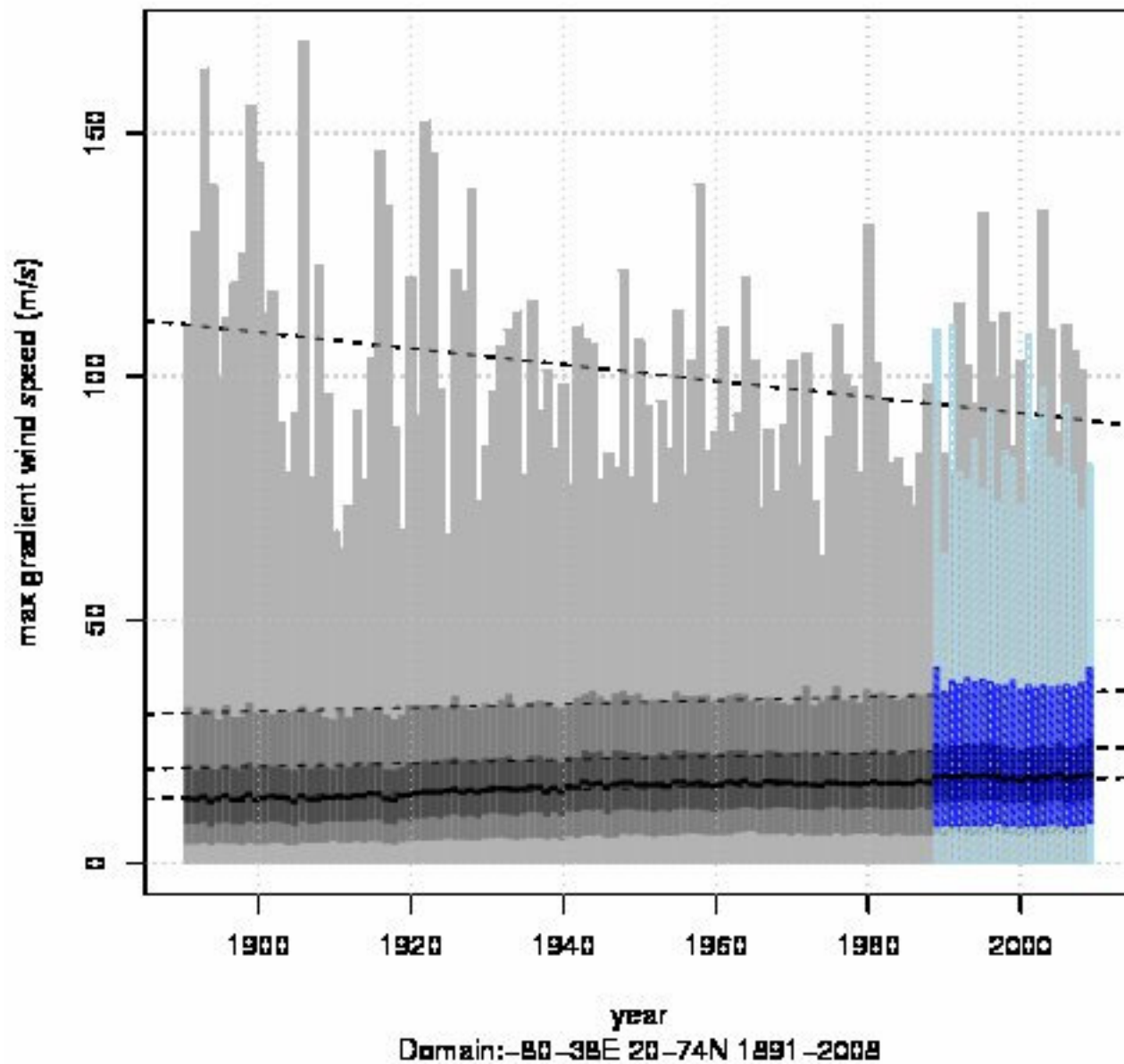
Geographical distribution?



# Historical analysis: |v|



CCI statistics

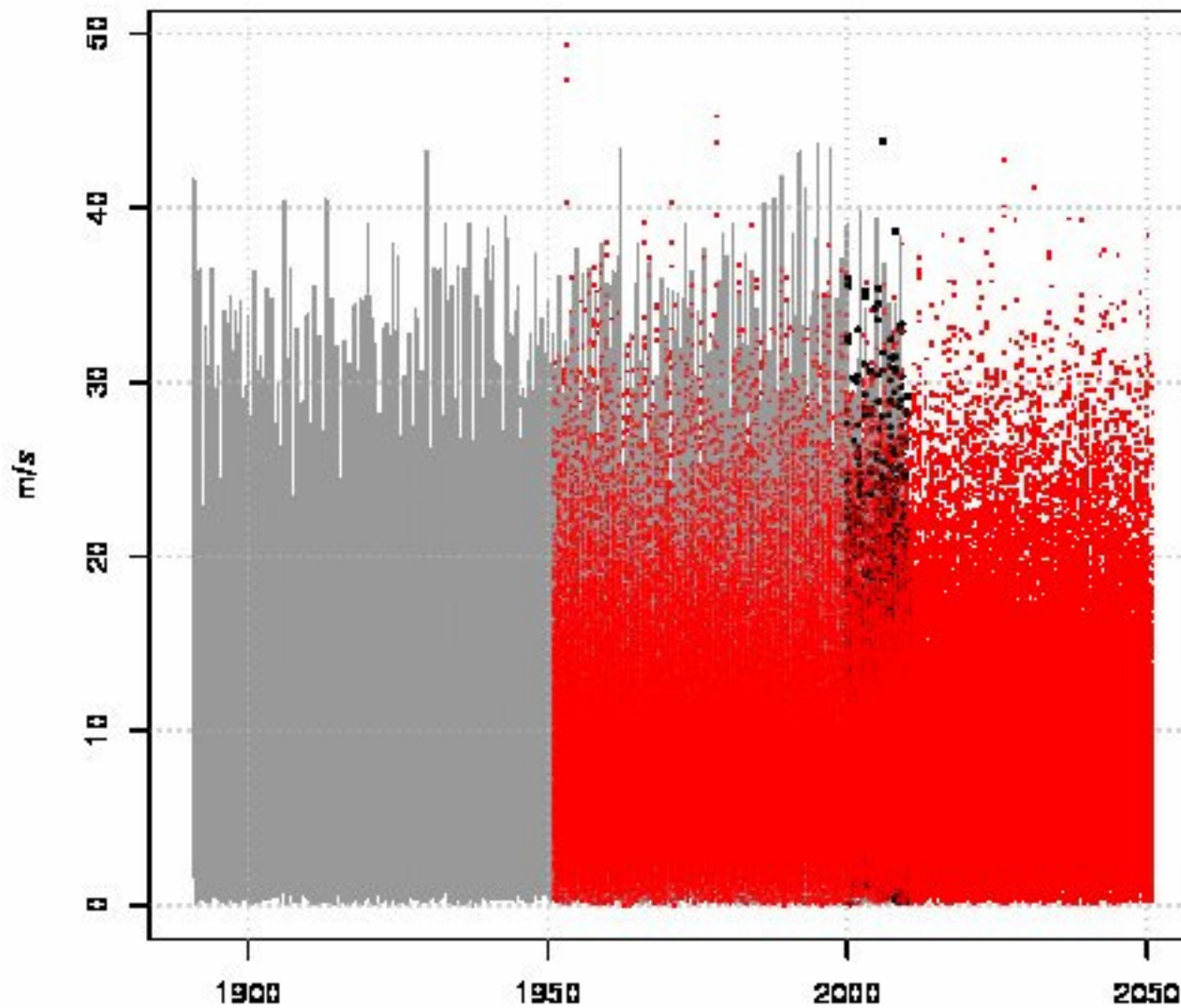


Homogeneous?

# Geostrophic wind



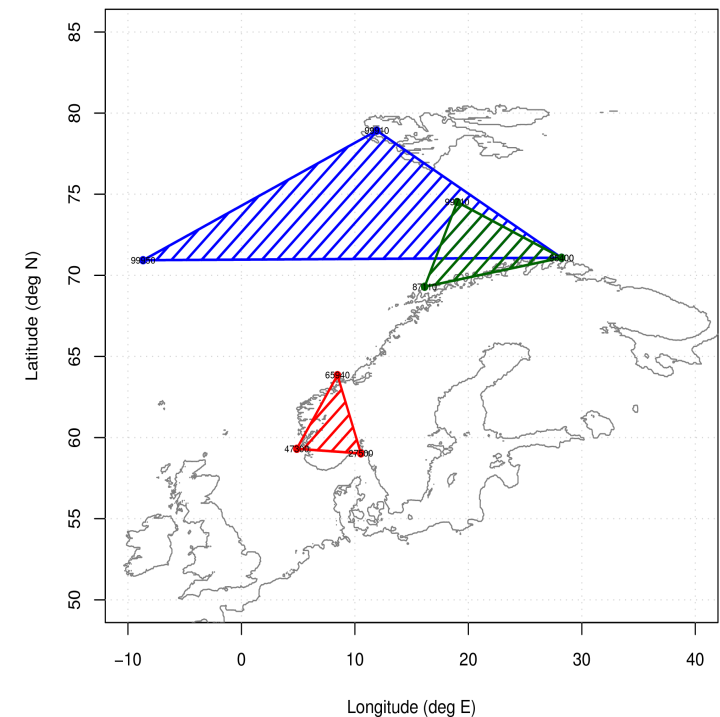
Geostrophic wind speed



LTSIRA FYR - FÆRDER FYR - SJLA

Southern Norway  
SLP 'triangulation'  
historical  
ERAINT  
RCM

Triangulation





## A change in storminess?

- Storms: baroclinic instability, available energy
- Ambient conditions:
  - $dT/dy$ , moisture, flow.
- Energy flow:
  - evaporation, motion, condensation, radiation, advection.
- Aspects:
  - Clouds, winds, pressure & precipitation.
- Data difficult.
- High uncertainty!