



# NORDSJØVIND: Ressurs, variabilitet & turbulensmodellering

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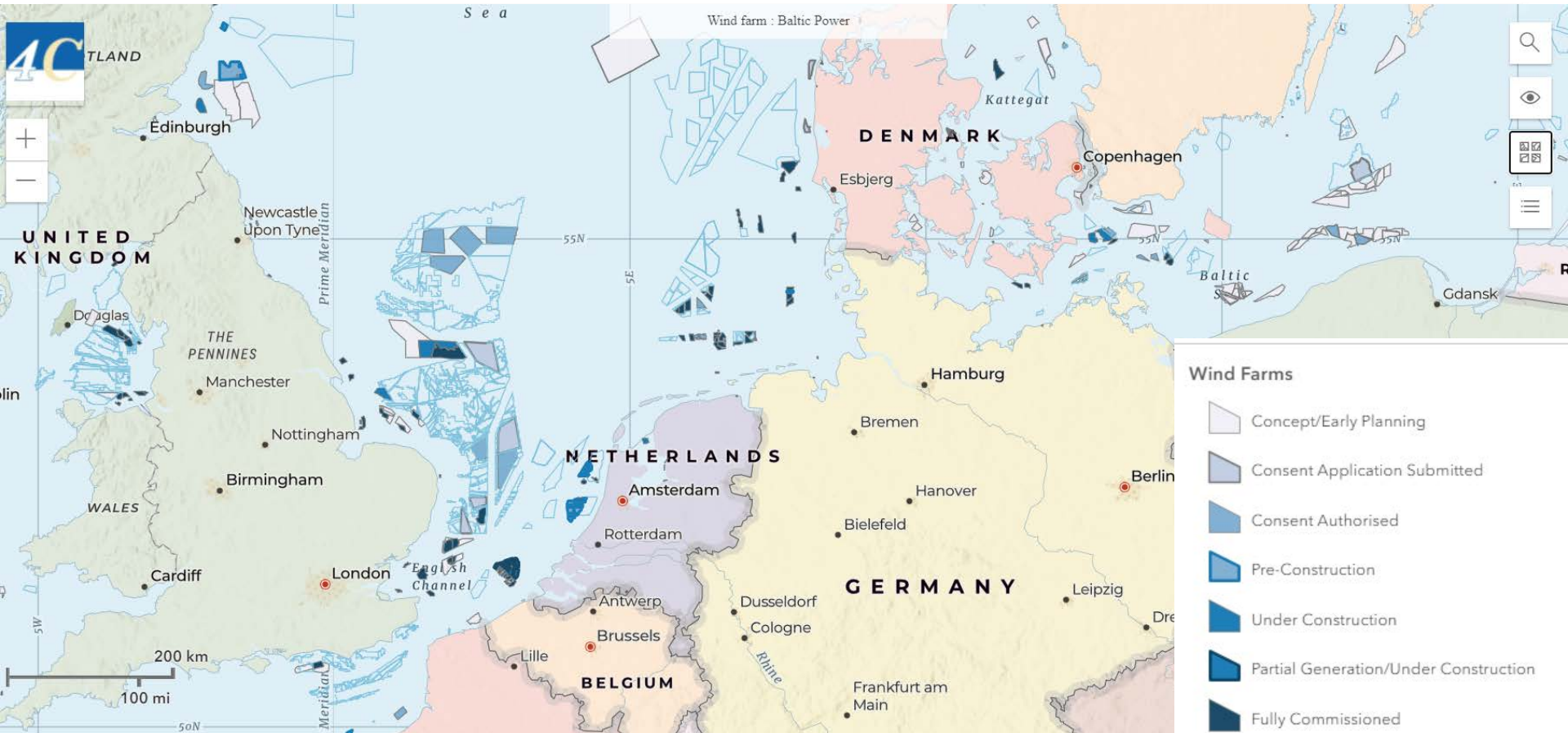


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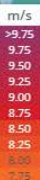
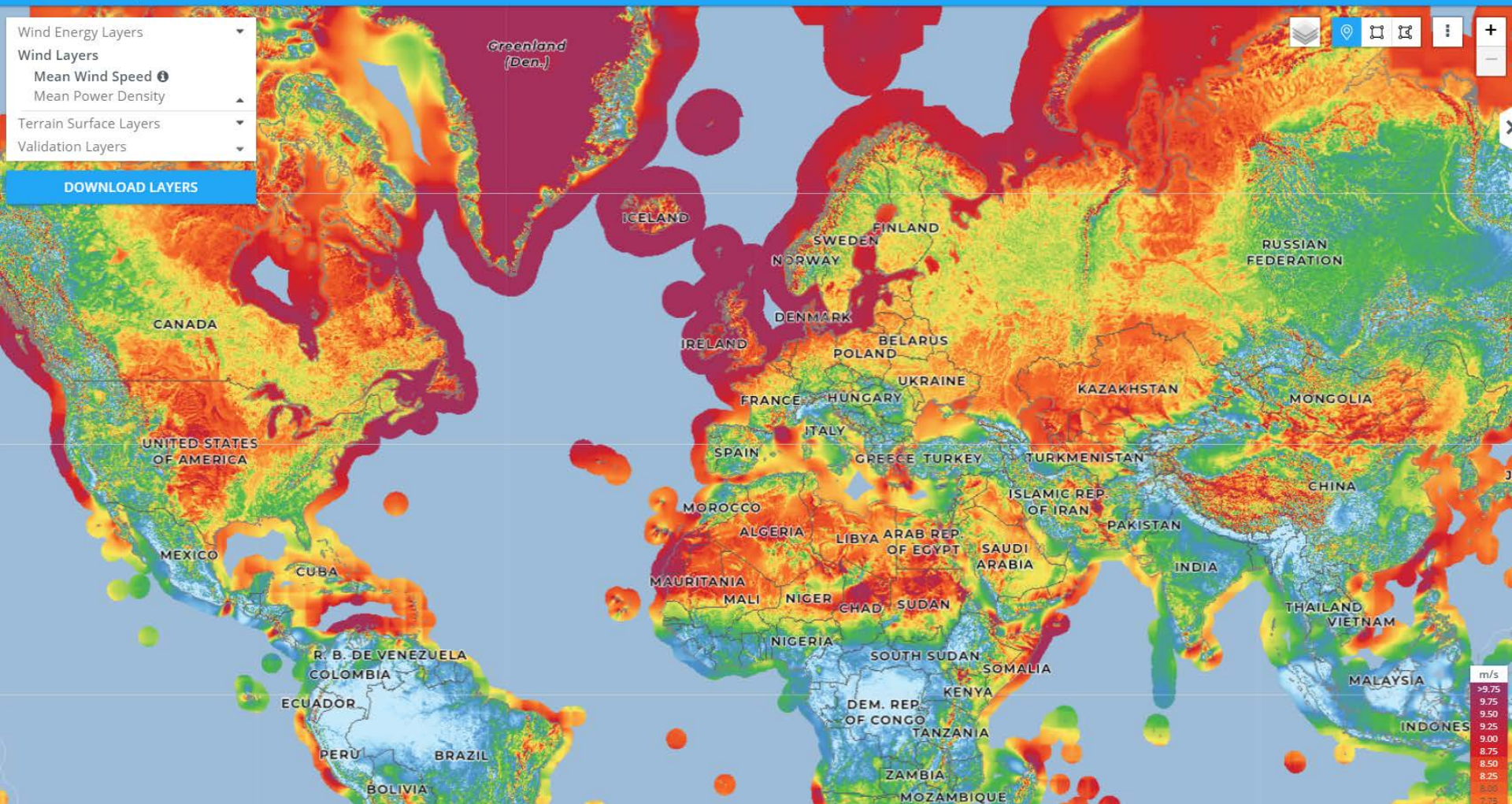
# Kvifor Nordsjøen?





- Wind Energy Layers
- Wind Layers
  - Mean Wind Speed
  - Mean Power Density
- Terrain Surface Layers
- Validation Layers

DOWNLOAD LAYERS



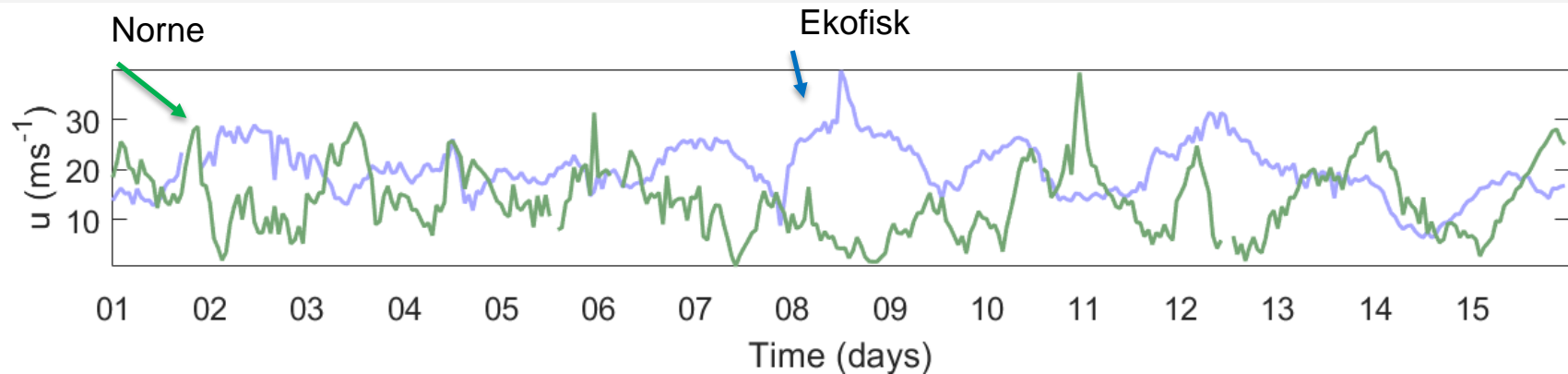


# Variabilitet på den norske sokkelen

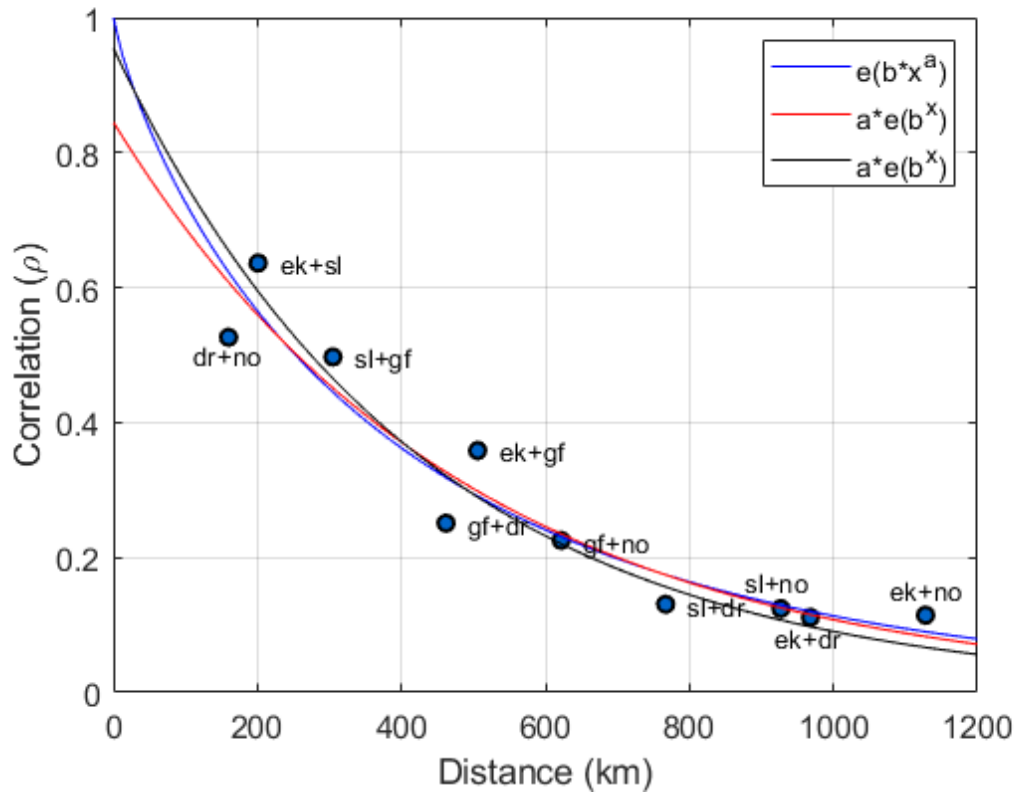
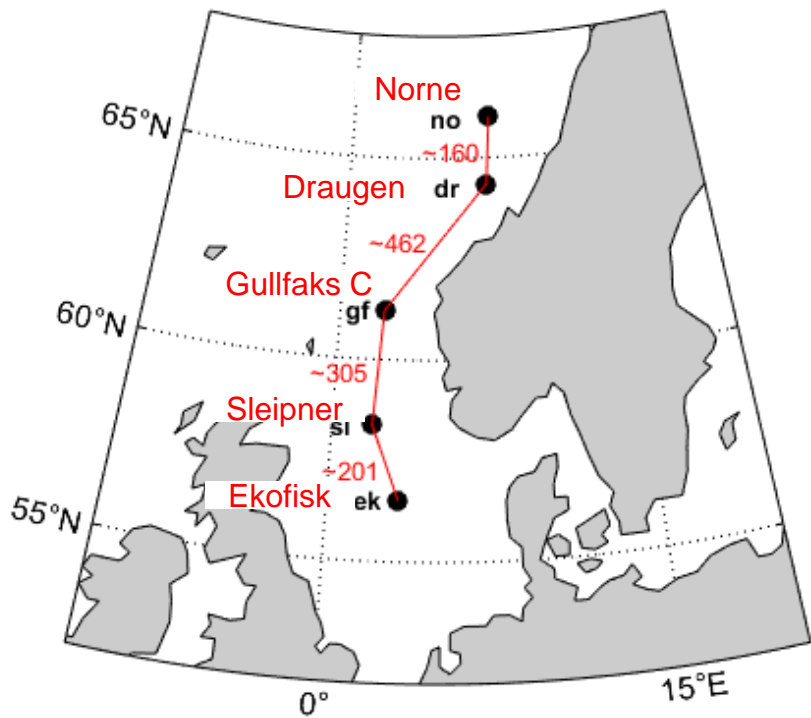


# Variabilitet i tid og rom

- Vinddata frå oljeplatformar



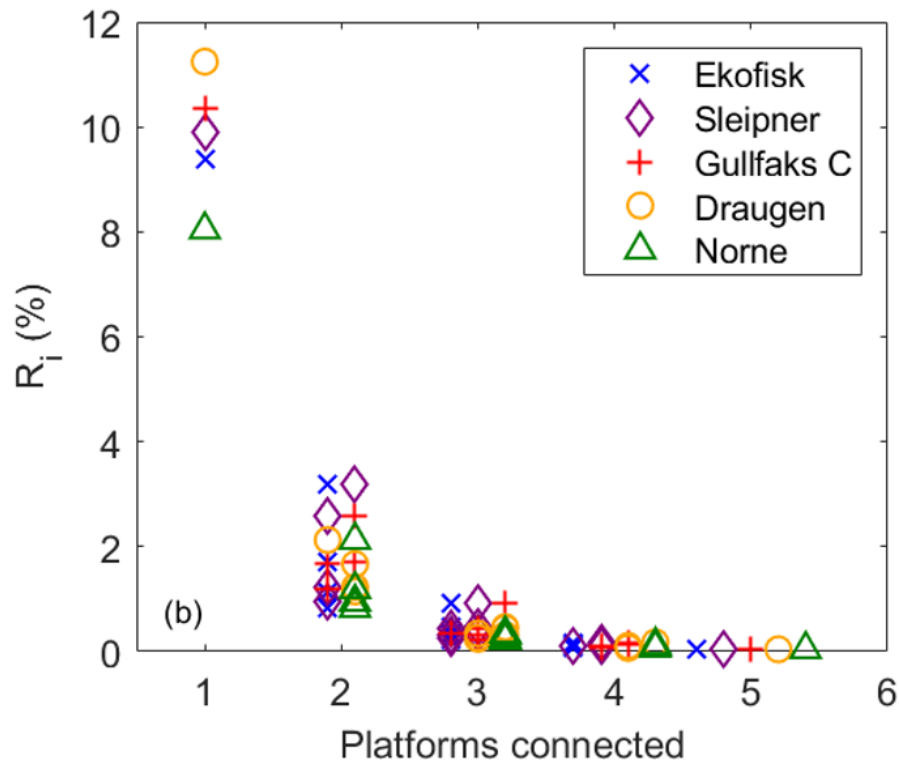
# Korrelasjon mellom lokasjoner





# Korleis redusere variabilitet?

- Kople saman potensielle vindparkar?
- $R_i$  = Sannsyn for nullproduksjon ved for låg/høg vindfart





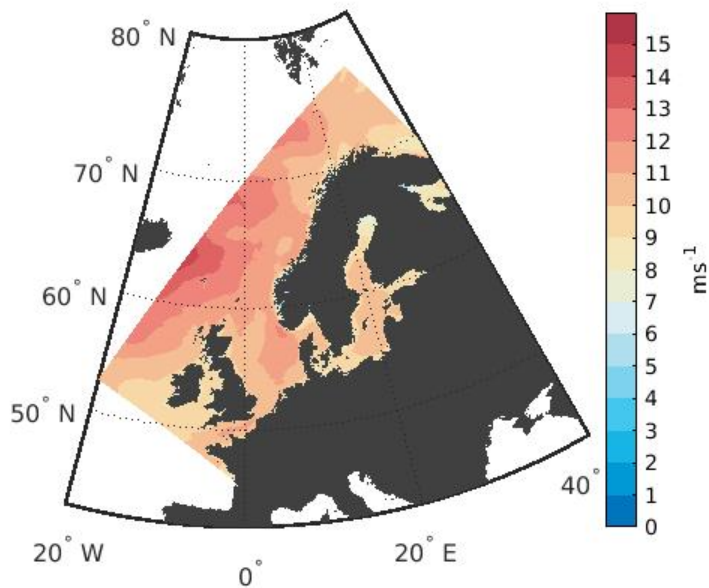


# Sesongvariabilitet i Nordsjøen – *NORA3*

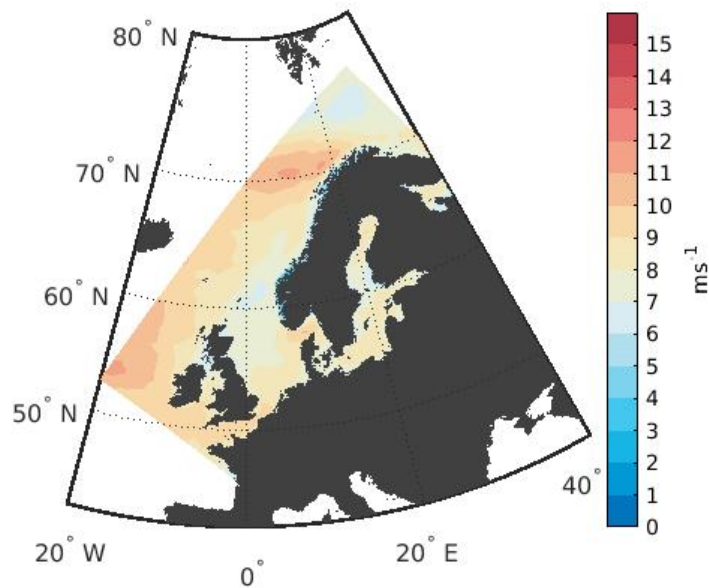


# Høge vindfartar om vinteren

Januar



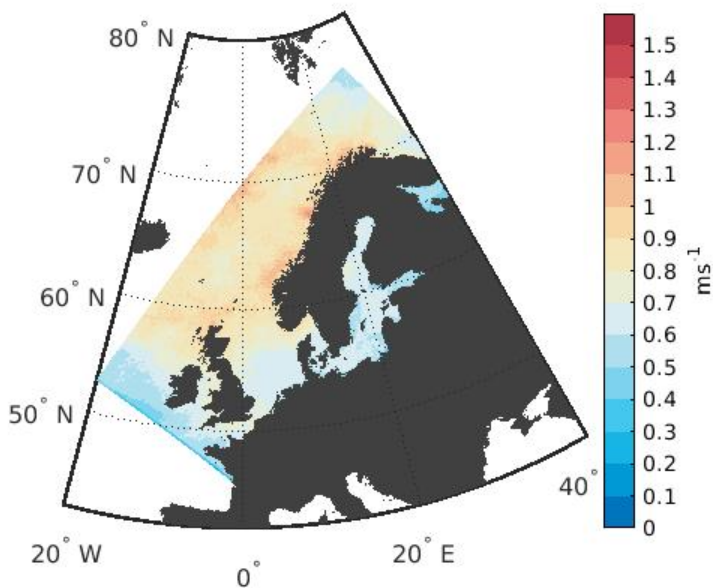
Juni



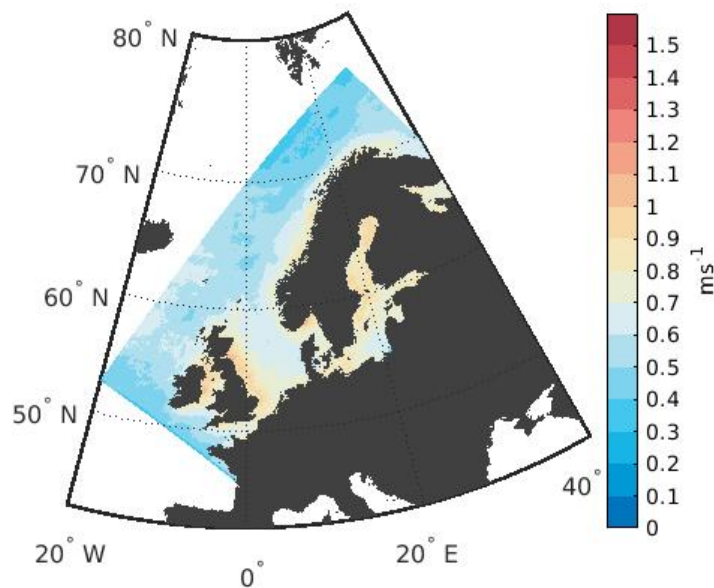
# Større variasjon i vindfart om vinteren



Januar



Juni





# Turbulensmodellering i Nordsjøen



Færøene

Norge

Helsinki



Oslo

Stockholm

Østersjøen

Nordsjøen

Edinburgh  
Glasgow

København

Danmark

Storbritannia

Isle of Man

Dublin

Manchester  
Liverpool

Hamburg

Polen

Berlin



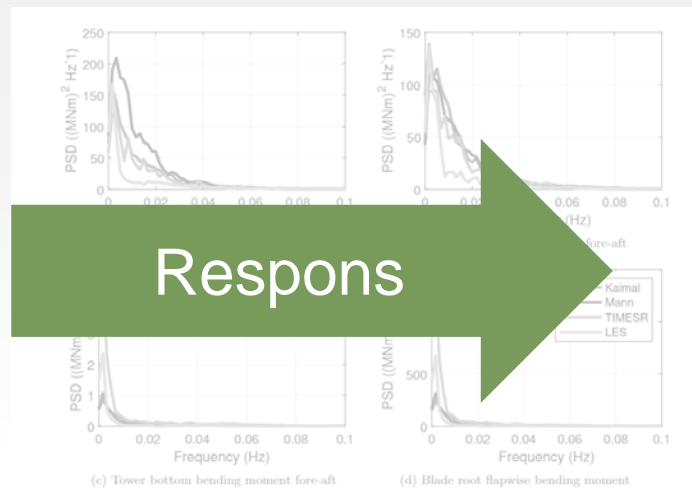
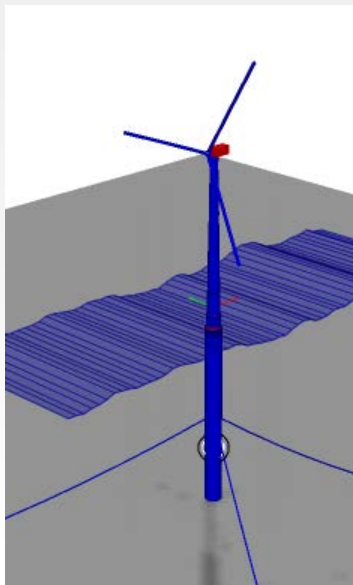


# Kvifor turbulensmodellering?

## Design



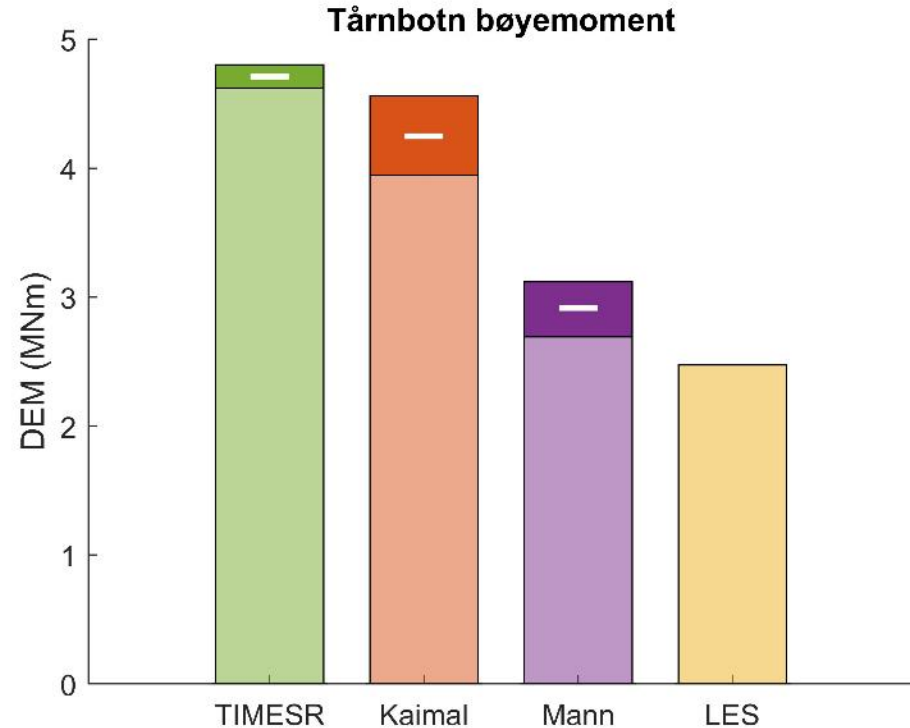
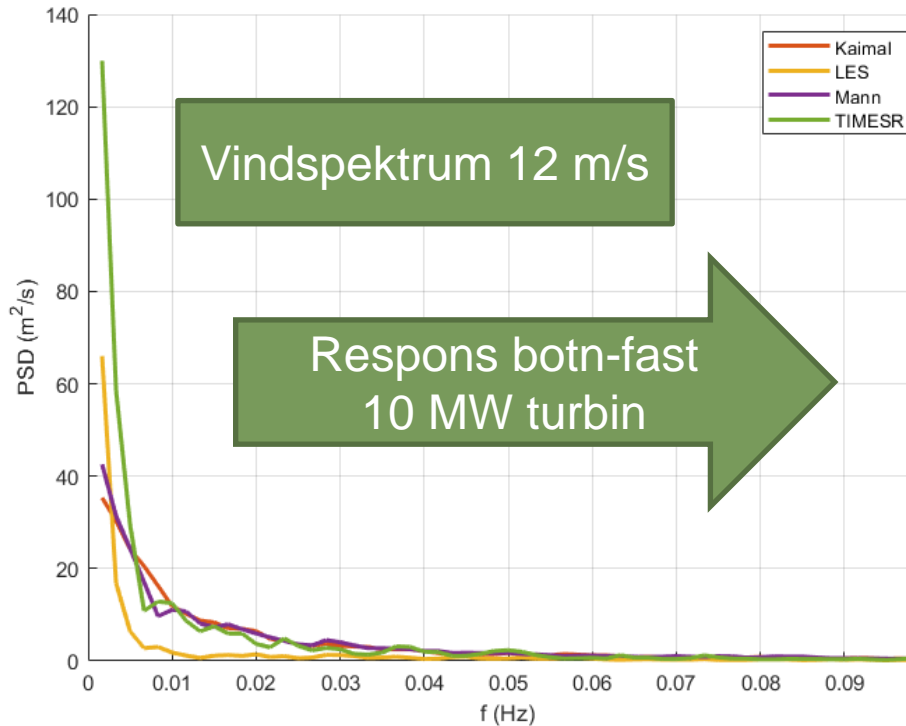
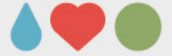
Innkomande vind



Respon



# Ulike moglegheiter for å modellere vindfelt gir ulik respons





# Oppsummering



- **Gode vindressursar** i Nordsjøen
- **Stor variasjon** i vindfart med tid → reduserast ved å kople saman fleire vindparkar
- **NORA3** gir eit godt grunnlag for å vurdere nye lokasjonar for vindparkar og evt. samankopling av desse
- Etter val av lokasjon må ein vurdere lokale forhold i detalj, og deretter **modellere vindfeltet** best mogleg for å kunne forutsjå produksjon og skade





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