

WinterWind 2011

Umeå (S), February 10, 2011

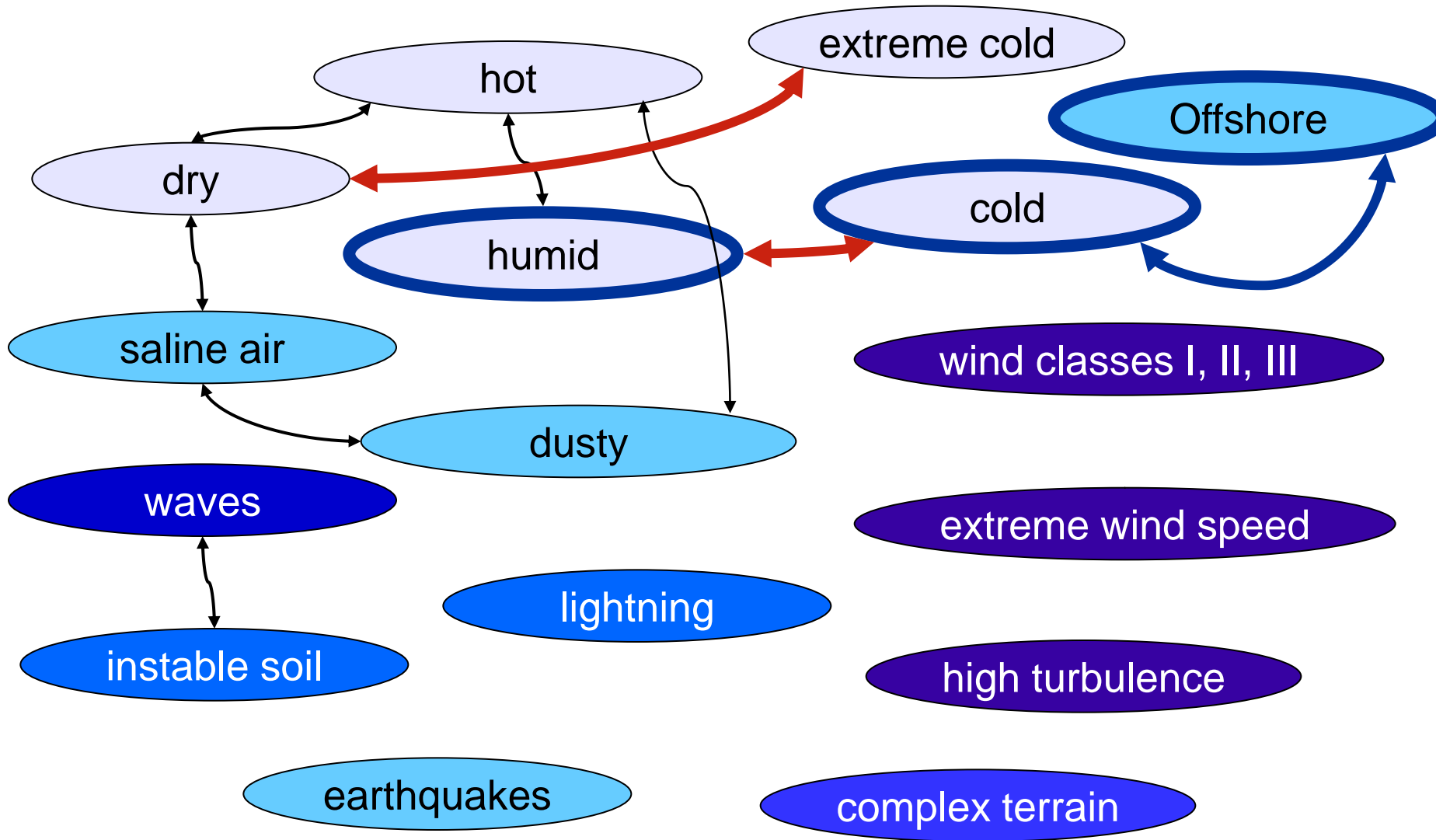


Concluding Remarks

Jos Beurskens

ECN Wind Energy
Petten (NL)

Photo Jos Beurskens (Umeå, 08-02-2011)



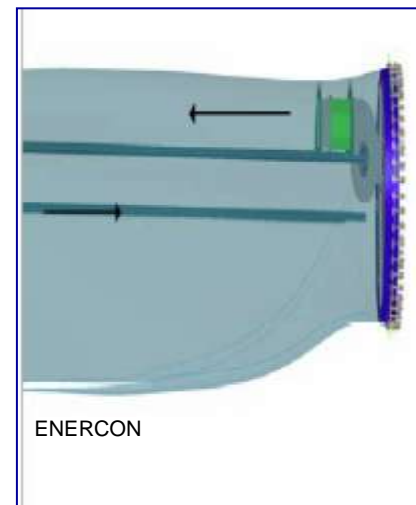
Priorities (1)

Dedicated cold weather wind turbine concepts

- Anti icing & de-icing:

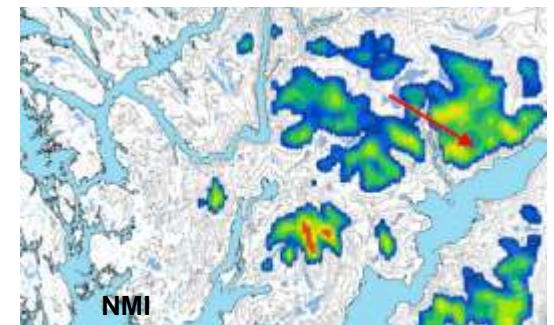
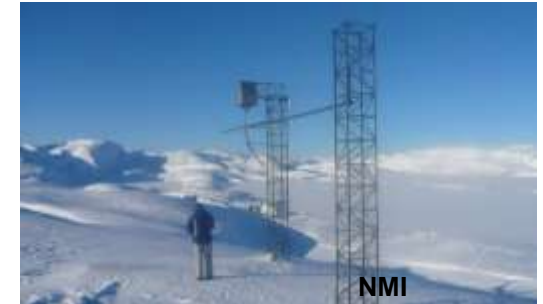
Innovations, integrated blade design (priority number 1)

Intensification innovation and know-how from other disciplines (material science, physics, ...)



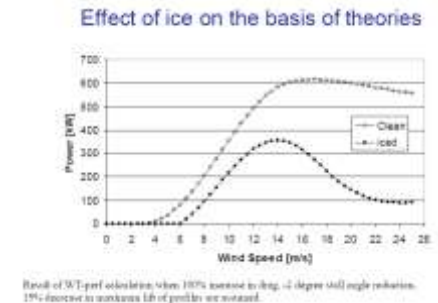
Priorities (2)

- Conditions for icing (super cooling, sublimation, (T, Humidity, V))
- Combination of icing conditions with other aspects: water spray (offshore), wind speed, altitude.
- Icing probability mapping of areas with high wind potential ('iso icing days/annum' contours)
- Cold climate resistant measuring instruments and associated power supply units (performance, resource assessment, ice detection, loads, heating system control)



Priorities (3)

- Impact on performance (how big are 'hidden' energy losses?)
- Impact on loading (aerodynamically and mechanical/aerodynamically induced loads, scale effects)
- Transport and assembly, because of poor access
- Operation and maintenance/access
- Safety, standards



Priorities (4)

- Field test facilities for problem definition and verification of models
- Feed back of operational experiences to designers
- Bridging gap between meteorological aspects and wt technology impacts



Priorities (5)

- Continuous up-dating market potential based upon Mapping, Performance losses, Market developments
- The GRID !!!! (only 3 presentations)



A close-up photograph of a hand holding a glowing orange sphere. The hand is positioned on the left side of the frame, with the fingers wrapped around the sphere. The sphere is bright and has a textured, crystalline appearance. The background is a soft, out-of-focus blue and white gradient.

This conference has provided valuable input for improving Europe's R&D, D agenda where the European Technology Platform is working on.