

WIND KNOWLEDGE

IS WIND POWER



WindSim User Meeting 2024

windsim

Services

Presented by:
Nandha Kishore

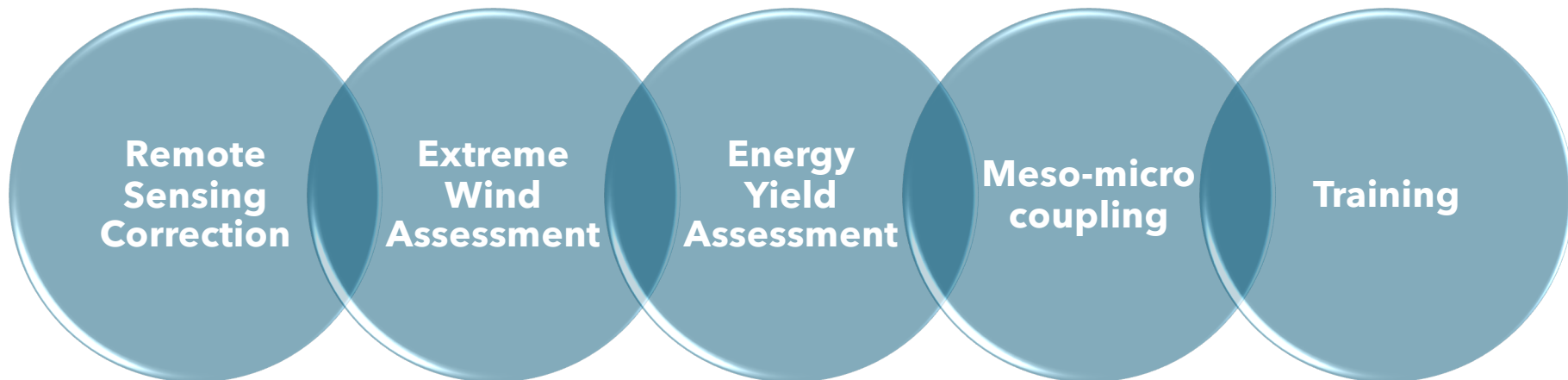


Services Team

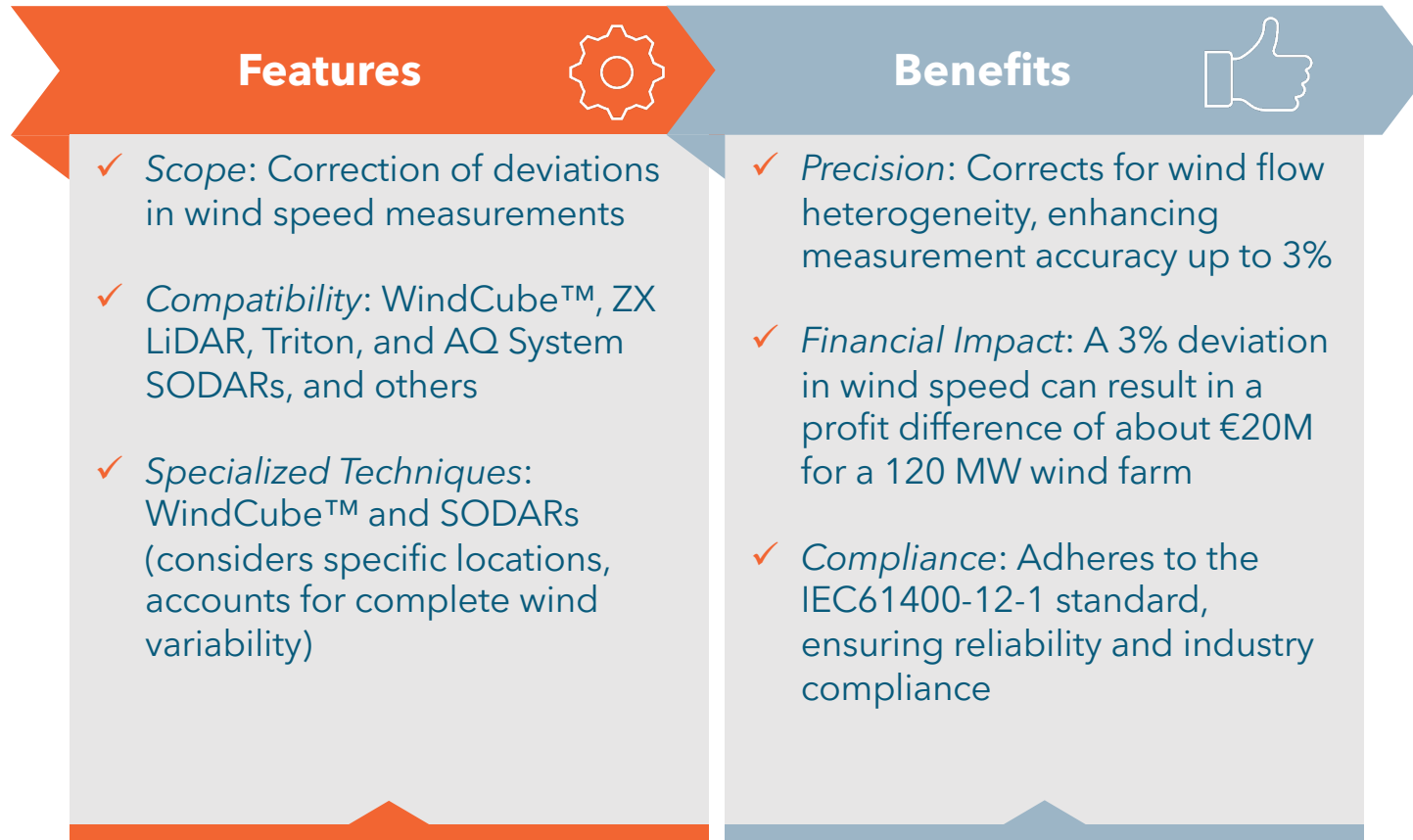
Name	Key Competencies and Highlights	Name	Key Competencies and Highlights
<p>Xuan Wu</p> 	<p>Country Manager in China</p> <ul style="list-style-type: none"> • CFD Expert • 14 Years of Wind Resource Experience 	<p>Juho Iipponen</p> 	<p>Meteorologist and Developer</p> <ul style="list-style-type: none"> • 2 years at WindSim • Mesoscale coupling development • Wide range of numerical modeling expertise
<p>Tianliang Zhang</p> 	<p>Wind Resource Expert</p> <ul style="list-style-type: none"> • 10 Years of Wind Resource Experience • Handled 50+ Remote Sensing Correction • Handled 100+ Extreme wind studies- Solar 	<p>Mohammadreza Mohammadpour</p> 	<p>Meteorologist and Developer</p> <ul style="list-style-type: none"> • 10 years experience in wind energy sector • Atmospheric numerical modeling
<p>Vincent Birkeland</p> 	<p>Technical Sales & Support</p> <ul style="list-style-type: none"> • 4 years of WindSim Experience • Junior consultant in training 	<p>Nandha Kishore</p> 	<p>Consultancy Manager</p> <ul style="list-style-type: none"> • 12 Years of Wind Resource Experience • Handled 20 GW of Siting Assessments in Vestas and Wind World

Services and Training

- WindSim Consultancy offers additional capacity, specialized expertise, streamlined processes and regulatory insight
- The WindSim Consultancy competency is primarily used for
 - Enhancing capabilities for large and/or complex projects
 - Providing a second opinion for complex sites, enabling risk management
 - Improving efficiencies with up- and downscaling on demand



Remote Sensing Correction | The Experience



Extreme wind assessment for Solar parks | The Experience

Features



- ✓ *Scope:* The assessment will be based on the series of extreme value analyses that are performed on measured and modelled meteorological datasets
- ✓ *Specialized Techniques:* The study will also recommend directional wind factors and speeds

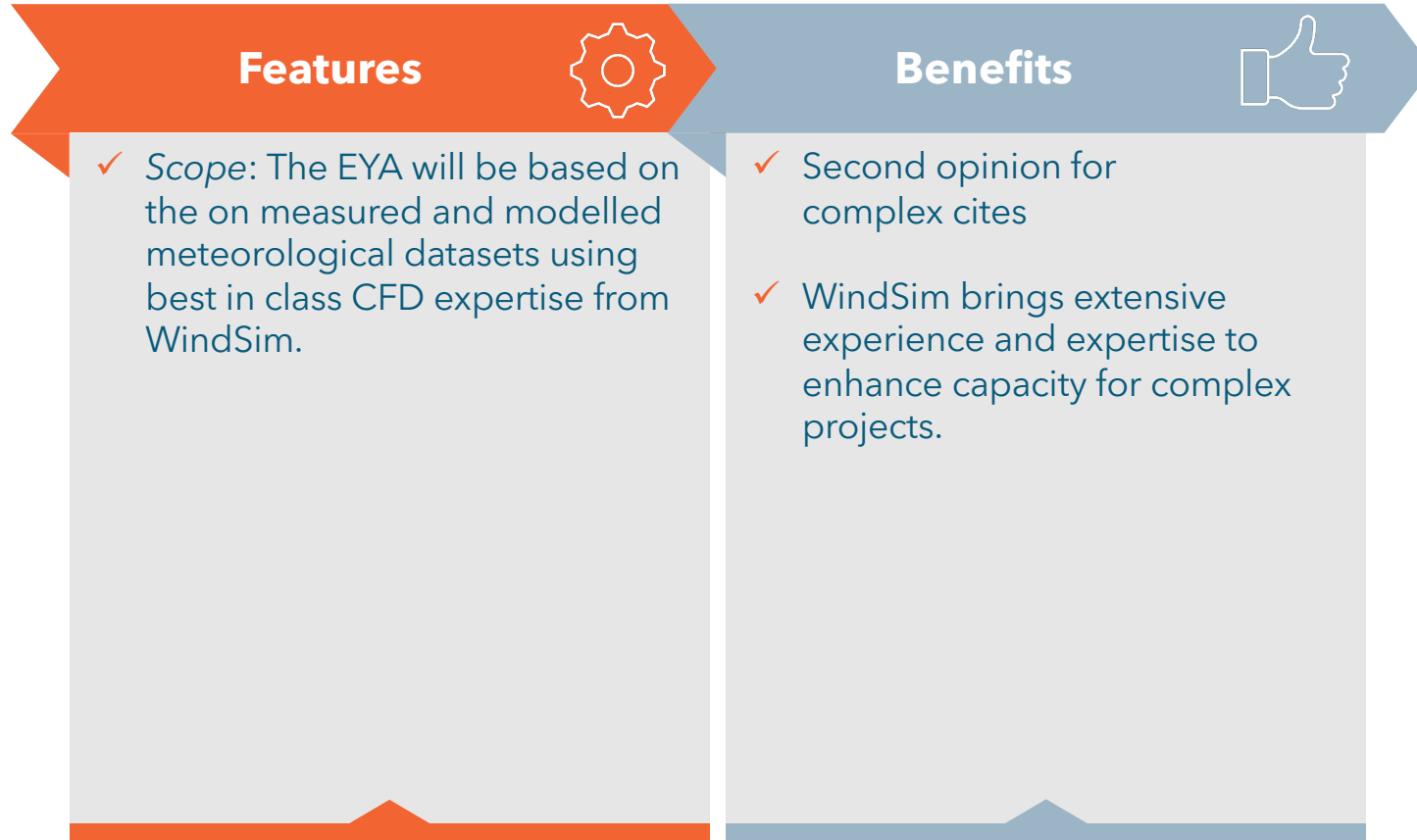
Benefits



- ✓ *Compliance:* The extreme wind analysis methodology is developed in line with both US building code, ASCE: Minimum Design Loads for Buildings and Other Structures.



Energy Yield Assessment | The Experience



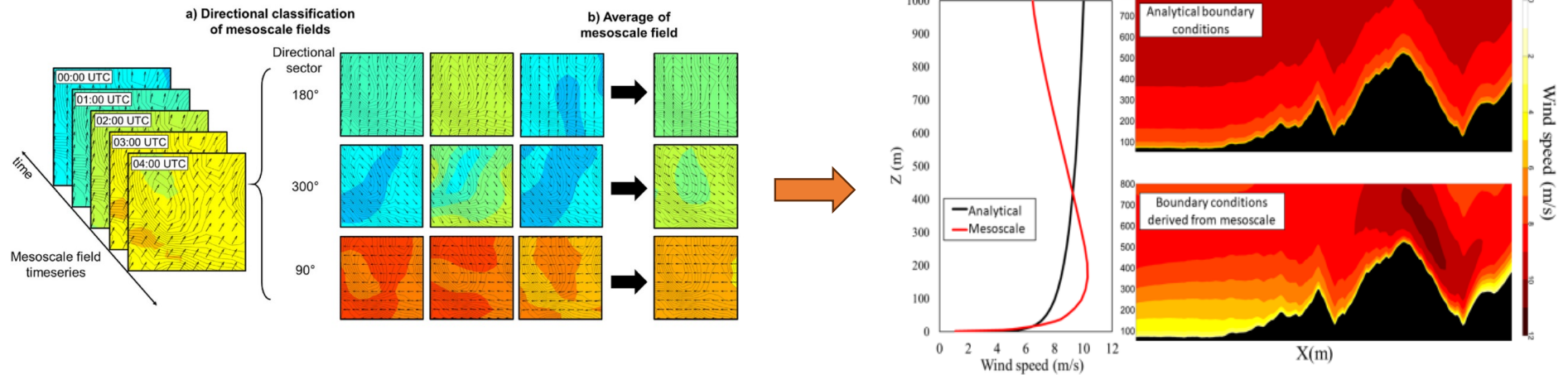
Meso-micro coupling

Presented by:
Juho lipponen

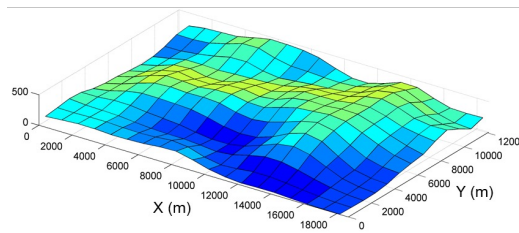


Meso-Micro coupling (in WS12)

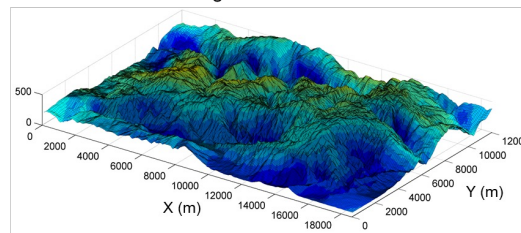
- Sector-averaged mesoscale fields as boundary conditions
- Optional specification of atmospheric stability



Low resolution (1 km) mesoscale field input



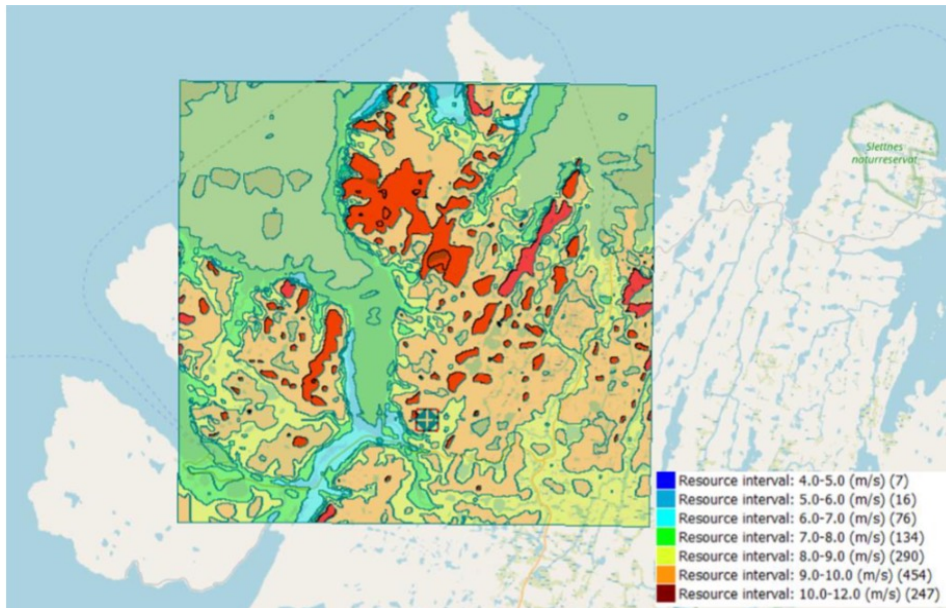
WindSim high resolution (20 m) physical downscaling of the mesoscale field



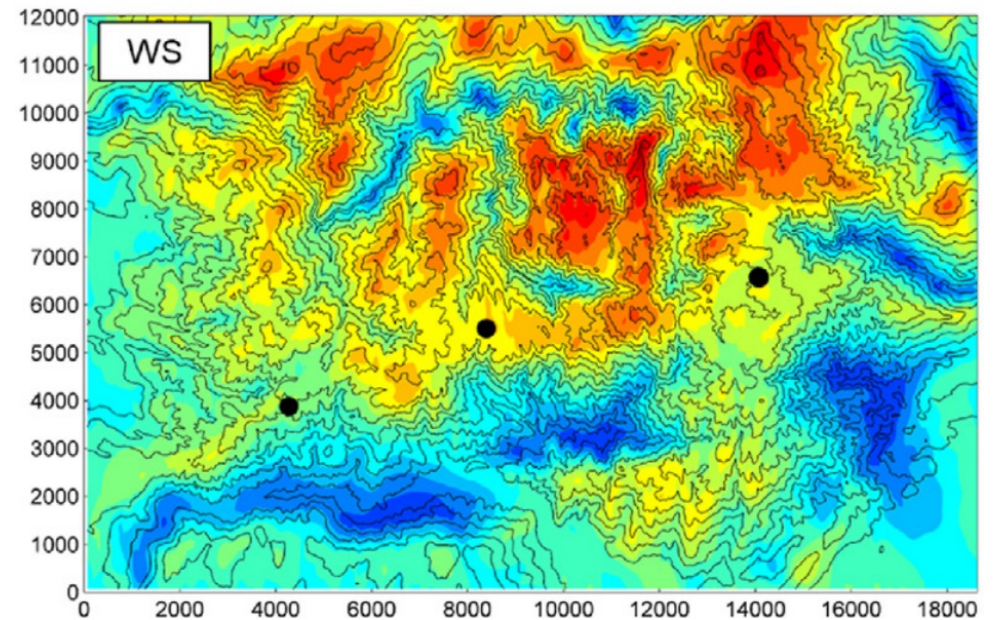
MMC consulting services

- Sites with complex mesoscale effects
- Alternative MMC approach (more in the afternoon)
 - With or without measurements

Prospecting (greenfield)



Calibrated with measurements



MMC

- In active development at WindSim
- Now offered as a consulting service
 - Prospecting (greenfield sites)
 - Sites with measurements
- Working on the cloud implementation
 - Fast and accurate results
 - Also for less-experienced users
 - Our own WRF model (as an option)

Training

Presented by:
Nandha Kishore



Training | General

Target groups & purpose

1. New WindSim users
2. Users who wish to upgrade/refresh the skills
3. Companies expanding their talent base

Customized training & benefits

1. Time slot to suit the team needs
2. Topics as per choice/customization
3. More room for project-specific questions and clarifications
4. Improved value addition to complex projects, quality enhancements
5. Personal development and motivation



WindSim China | The Basics ————— 15 October
Online | Chinese

WindSim | The Basics ————— 15-16 October
Online | English - €650

WindSim China | Advanced Usage & Concepts ————— 21-22 October
Online | Chinese

WindSim | Advanced Usage & Concepts ————— 22-23 October
Online | English - €1850

Training | Curriculum snapshot

Curriculum overview - Basic Training

- WindSim installation
 - Terrain Module: Generation of a 3D model
 - Tools: Terrain data conversion
- Wind fields: Establish the numerical wind database
- Objects: Wind Farm Layout
 - Tools: Climatology data conversion
- Results: Interpretation of the simulations, 2D results
 - 3D visualization: Interpretation of the simulations, 3D results
 - Tools: Vertical Profiles, 1D results
- Wind Resources: The wind resource map
- Energy: The annual energy production (AEP)

Curriculum overview - Advanced Training

- Terrain module: Obstacles, forest, porous disc
- Tools: Terrain data conversion
- Turbulence modelling
 - IEC criteria
 - Optimizing Park Design
- On the Sensitivity of Numerical Wind Field Modelling
 - Objects
 - Climatology data: time history versus frequency distribution
 - Wind Resources and Energy
 - Sector interpolation
 - Power history export
- Stability
 - Mesoscale coupling with temperature



Thank you!

WindSim AS
Tollbodgaten 22
3111 Tønsberg
Norway
Tel.: +47 33 38 18 00

WindSim China
No. 101 Shaoyang Beili, Chaoyang District
1000029 Beijing
China
Tel.: +86 186 1029 1570