RECAST

Reduced Assessment Time

Advisory Board Meeting

Andreas Bechmann (DTU)

31-05-2018

Skype

DTU EMD emd.dk res powering change Vestas Innovation Fund Denmark

AGENDA

RECAST Introduction (20 min)

Purpose

Organisation

Project Plan

RECAST Status (20 min)

Management & Dissemination

Project plan

RECAST Workshop (20 min)

Purpose

Participants

Agenda

RECAS
Reduced Assessment Time

Introduction: Purpose

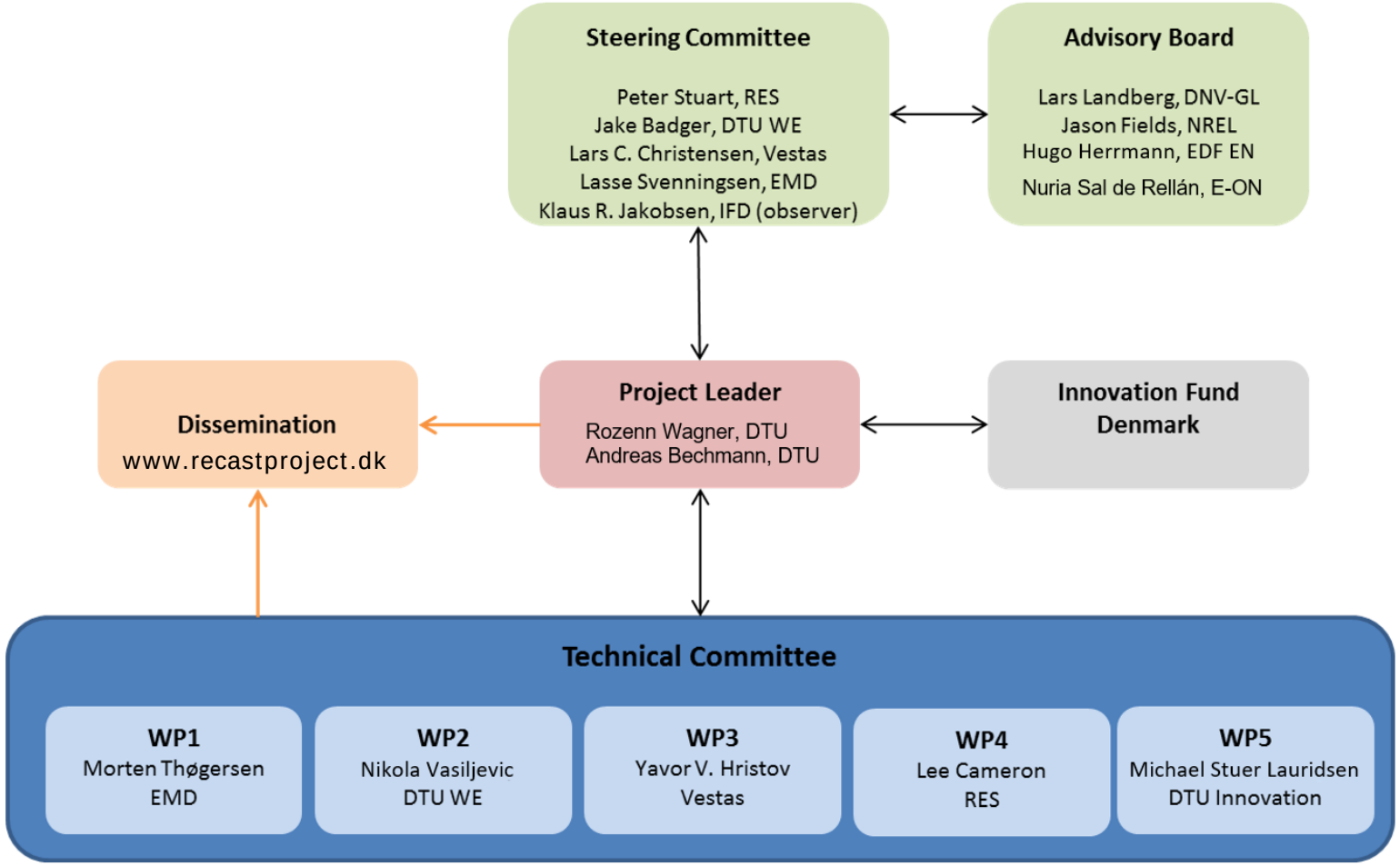
Vision:

Holistic Methodology for Credible Wind Resource Predictions using Scanning Lidars (WindScanner)

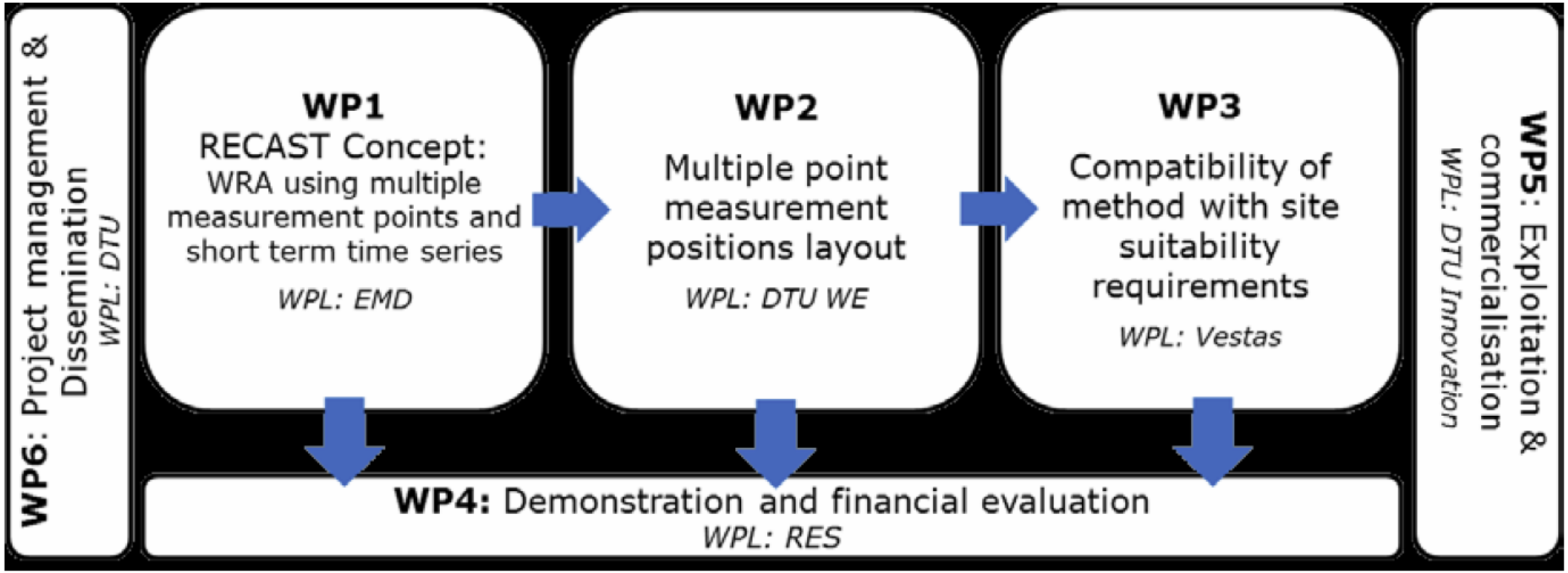
Objectives:

1. to increase the TRL of the WindScanner system to a commercially mature instrument;
2. to integrate short multi-point measurements in the WAsP microscale flow model;
3. to develop a decision tool that helps developers choose the best suited measurement campaign

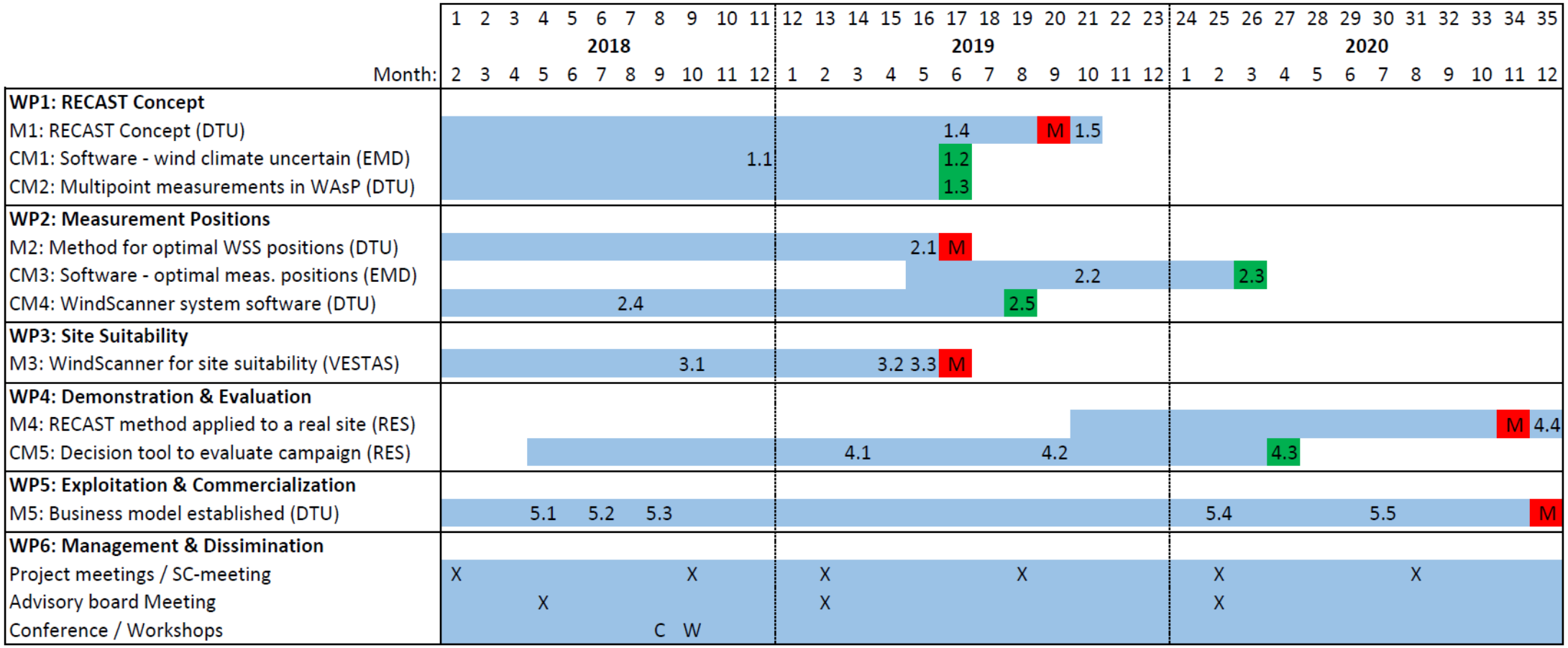
Introduction: Organisation #1



Introduction: Organisation #2



Introduction: Project Plan



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Status: Management & Dissemination (WP6)

Meetings

– Steering Committee meeting (28/2, twice a year)
– Kick-off meeting (28-29/2)
– Advisory Board meeting (31/5, twice a year)
– Project meetings (Monthly Skype-meetings)
– Rozenn Wagner returns from leave (1/9)

Dissemination

– Recast Workshop: “AEPs from Lidars” (2/10)
– EMS: Optimizing scanning lidars for turbulence (3-7/9)
– www.recastproject.dk

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WP6: Management & Dissimination																																			
Project meetings / SC-meeting	X								X				X						X						X						X				
Advisory board Meeting				X									X												X										
Conference / Workshops								C	W																										

Status: RECAST Concept (WP1)

J. Wind Eng. Ind. Aerodyn. 111 (2012) 85–94

Contents lists available at SciVerse ScienceDirect

Journal of Wind Engineering and Industrial Aerodynamics

journal homepage: www.elsevier.com/locate/jweia

A systematic method for quantifying wind flow modelling uncertainty in wind resource assessment

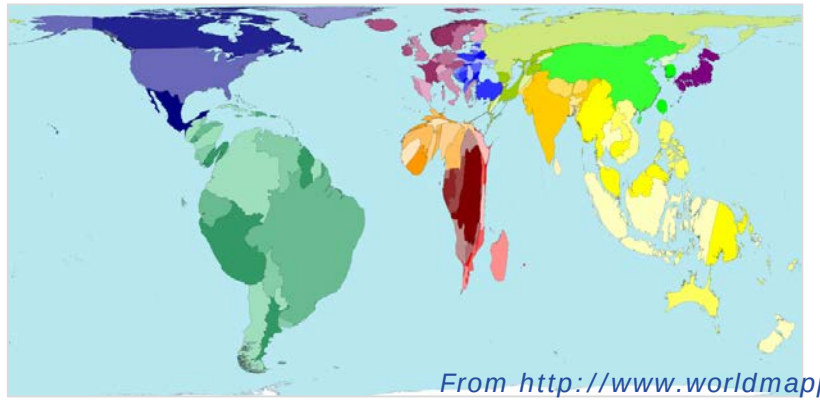
Alex Clerc*, Mike Anderson, Peter Stuart, Gerd Habenicht

Renewable Energy Systems Limited, Beaufort Court, Egg Farm Lane, Kings Langley WD4 8LR, UK

Status:

- Implementation of Clerc method in WAsP Pungi
- Development of multi-point Long-term correction method
- Clerc method implementation using Vestas CFD model

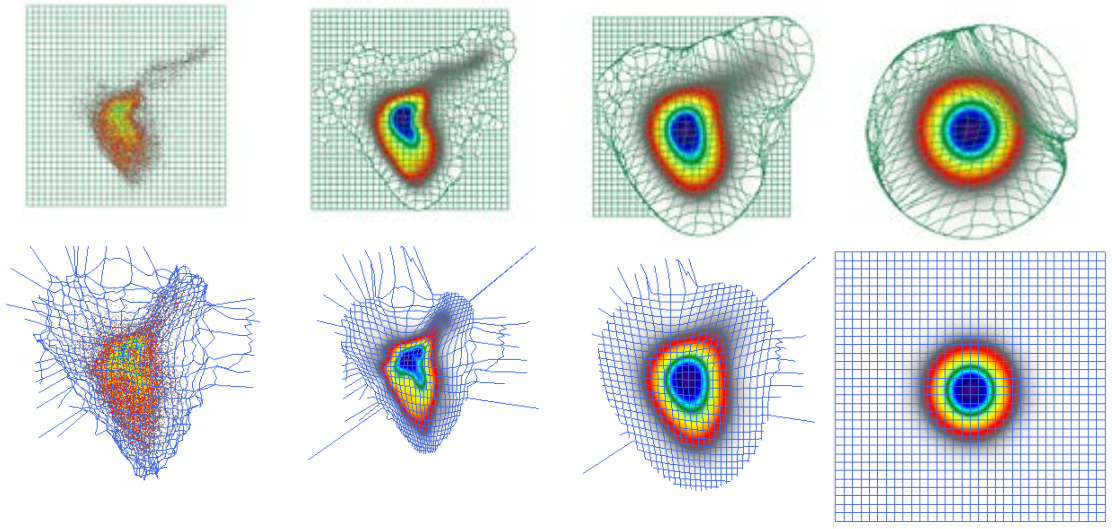
Gastner & Newman (2004)



From http://www.worldmapper.org

Example: Water resource per country

Morten Nielsen, DTU (2018)

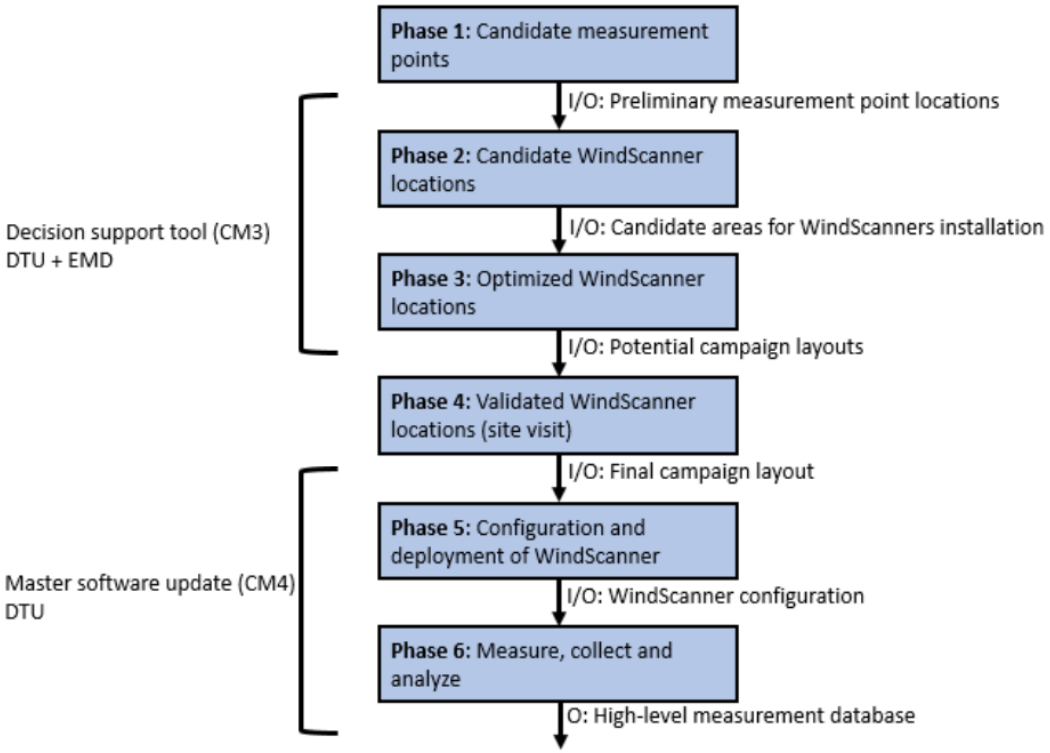


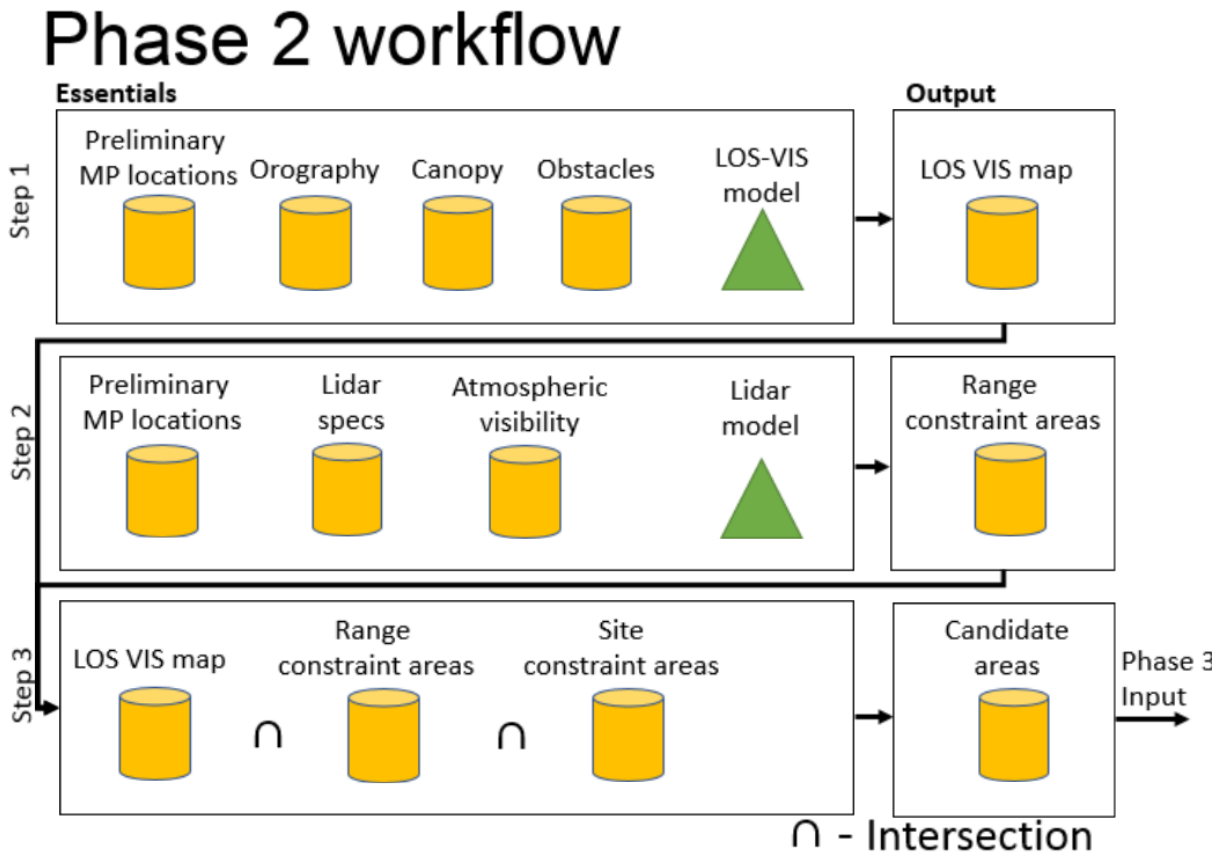
Example. Top: WRF model – forward transformation. Bottom: Met. Mast observation – backward transformation

Status: Measurement Positions (WP2)

Status:

- Complete workflow drafted





Status: Site suitability (WP3)

Status:

- Vestas is extending the Clerc-method to turbulence and shear
- Study to optimize the WindScanner scanning strategy for turbulence measurements (see pdf)

'Optimizing' WindScanner's turbulence measurements

Alfredo Peña

DTU Wind Energy, Risø campus – Department of Wind Energy

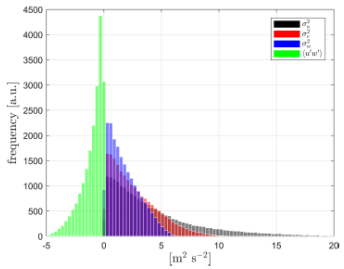
Risø wind energy colloquium 2018
DTU, Lyngby, Denmark

April 6, 2018

DTU Wind Energy
Department of Wind Energy

Relative error of a given pattern

- simulate variances for a range of turbulence conditions



- compute the lidars' radial velocity variances and add random 'error' (mimic observations)
- solve the linear system, i.e., estimate the variances
- bootstrap the difference (simulated vs estimated)

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Status: Demonstration and Evaluation (WP4)

Status:

- RES is finding sites for developing and testing initial RECAST concepts
- The Perdigao site is also being prepared testing

Status: Exploitation and commercialization (WP5)

Status:

- Stakeholder list is being revised

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