WEDNESDAY June 1

Conference Opening: Welcome & Explanations

09:00 - 10:30

Welcome and opening of the conference by Prof. Simon Watson (Director of Delft University of Technology Wind Energy Institute)
Welcome address by Prof. Henri Wang (Dean of the Faculty of Aerospace Engineering at Delft University of Technology)
Welcome Challenges in Wind Energy (President of the European Academy of Wind Energy)
Grand Challenges in Wind Energy: Next Steps by Paul Veers (Chief Engineer at the National Wind Turbine Centre, NREL, USA)
Further announcements
Discussion about Grand Challenges in Wind Energy with the panelists Sarah Barber, Sukanta Basu, Nicolaos Cutululis, Eric Lantz

10:30 - 11:00 — Break

11:00 - 12:30

Turbine Technology #1: Aerodynamic Induction (Chair: Carlos Simao Ferreira)	Wind and Wind Farms #1: Field Experiments (Chair: Jakob Mann)	Artificial intelligence, Control and Monitoring #1: Loads and Monitoring (Chair: Tuhfe Göçmen)	Measurement and Testing #1: Measurements (Chair: Martin Kühn)
Comparison of aerodynamic planform optimization of non-planar rotors using blade element momentum method and a vortex cylinder model	Turbulence above offshore wind farms measured by aircraft	Autoencoder and Mahalanobis distance for novelty detection in structural health monitoring data of an offshore wind turbine	Aerosense: Long-Range Bluetooth Wireless Sensor Node for Aerodynamic Monitoring on Wind Turbine Blades
Vortex-model-based Multi-objective Optimization of Winglets for Wind Turbines using Machine Learning	Effects of the thrust force induced by wind turbine rotors on the incoming wind field: A wind LiDAR experiment	Probabilistic surrogate modeling of offshore wind-turbine loads with chained Gaussian processes	An aeroacoustics-based approach for wind turbine blade damage detection
Dynamic inflow and unsteady aerodynamics models for modal and stability analyses in OpenFAST	Farm blockage model validation using pre and post construction LiDAR measurements	Wake State Estimation of Downwind Turbines using Recurrent Neural Networks for Inverse Dynamics Modelling	Design and evaluation of rotor blades for Fluid Structure Interaction studies in wind tunnel conditions
Analysis and Validation of Glauert Rotor Design	Design of the American WAKE ExperimeNt (AWAKEN) field campaign	Deep Neural Network Hard Parameter Multi-Task Learning for Condition Monitoring of an Offshore Wind Turbine	Lifetime Fatigue Response due to Wake Steering on a Pair of Utility-Scale Wind Turbines

12:30 - 13:30 — Lunch

13:30 - 15:00

Turbine Technology #2: Boundary Layer Flows and Flow Control I (Chair: Caroline Braud)	Wind and Wind Farms #2: Turbulent Inflow and Loads (Chair: Wim Bierbooms)	Artificial intelligence, Control and Monitoring #2: Wind Farm Control I (Chair: Paul Fleming)	Measurement and Testing #2: Remote Sensing (Chair: Julia Gottschall)
Performance analysis of wind turbines with leading-edge erosion and erosion-safe mode operation	Wind speed reconstruction from three synchronized short-range WindScanner lidars in a large wind turbine inflow field campaign and the associated uncertainties	Probabilistic surrogates for flow control using combined control strategies	Improved wind speed estimation and rain quantification with continuous-wave wind lidar
Potential of Mini Gurney Flaps as a Retrofit to Mitigate the Performance Degradation of Wind Turbine Blades Induced by Erosion	Handling Individual Pitch Control within an Actuator Disk framework: verification against the Actuator Line method and application to wake interaction problems	Efficient Loads Surrogates for Waked Turbines in an Array	Adaptive measuring trajectory for scanning lidars: proof of concept
Effect of erosion morphology on wind turbine production losses	A flexible actuator curve model for aeroelastic simulations of wind turbines in atmospheric boundary layers	Investigating the Impact of Atmospheric Conditions on Wake-Steering Performance at a Commercial Wind Plant	Optimum gust detection by nacelle-based lidar: A study on the Vestas V52
Impact of high size distributed roughness elements on wind turbine performance	Impact of Canonical Perturbations in the Inflow on Wind Turbine Loads	FLORIDyn - A dynamic and flexible framework for real-time wind farm control	Spatially distributed and simultaneous wind measurements with a fleet of small quadrotor UAS

Poster Session #1

15:00 - 16:30

A blade element momentum model for dual-rotor wind turbines considering inter-rotor velocity interferences	Detection and localization of flow separation on wind turbines by means of unsteady thermographic flow visualization	Inflow and pressure measurements on a full scale turbine with a pressure belt and a five hole pitot tube	Surging Wind Turbine Simulations with a Free Wake Panel Method
A data-informed analytic model for turbine power prediction with anisotropic local blockage effects	Development of a dynamic wake model accounting for wake advection delays and mesoscale wind transients	Influence of nacelle-lidar scanning patterns on inflow turbulence characterization	Surrogate modelling of wind fields from point-wise atmospheric turbulence measurements
A fast, heuristic method for generating offshore wind farm turbine layouts	Development of a Genetic Algorithm Code for the Design of Cylindrical Buoyancy Bodies for Floating Offshore Wind Turbine Substructures	Influences on the LVRT Behavior of DFIG Wind Turbine Systems	Synoptic and mesoscale winds in the complex terrain of Perdigão
A frequency-time domain method for annual energy production estimation in floating wind turbines	Dynamic optical deformation measurements on wind turbines	Large eddy simulation of an onshore wind farm under different operating regimes including topographic effects	The emergence of supersonic flow on wind turbines
A new wake detection methodology to capture wind turbine wakes using adaptive mesh refinement and Large Eddy Simulation	Dynamic wake tracking based on wind turbine rotor loads and Kalman filtering	LES verification of HAWC2Farm aeroelastic wind farm simulations with wake steering and load analysis	The WRF model and the diurnal cycle of orographically-influenced flow: A case study
A Novel Nonlinear Model Predictive Controller for Power Maximization on Floating Offshore Wind Turbines	Effectiveness of dynamic induction control strategies on the wake of a wind turbine	Microscale modelling of wind turbines in the New York offshore lease area	Tuning of an engineering wind farm model using measurements from Large Eddy Simulations
A one-year long turbulence simulation using a WRF-LES based modeling system at Østerild	Effects of freestream turbulence on the wake growth rate of a model wind turbine and a porous disc	Microscale simulations of extreme events in complex terrain driven by mesoscalar budget components	Turbine-level clustering for improved short-term wind power forecasting
A surrogate model of offshore wind farm annual energy production to support financial valuation	Efficient multibody modeling of offshore wind turbines with flexible substructures	Modeling extreme weather events for offshore wind in the North Sea: a sensitivity analysis to physics parameterizations in WRF	Turbulence Optimized Park model with Gaussian wake profile
Active power control of wind farms: an instantaneous approach on waked conditions	Enhanced resource assessment and atmospheric monitoring of the research wind farm WiValdi	Multi-fidelity Analyses of Rotor Loads of Floating Offshore Wind Turbines with Wind/Wave Misalignment	Unsteady aerodynamic modelling for dual-rotor wind turbines with lifting surface method and free wake model
Aeroelastic modal dynamics of floating wind turbines in anisotropic conditioning based on Floquet analysis	Evaluation of a lattice Boltzmann-based wind-turbine actuator line model against a Navier-Stokes approach	Operation and Maintenance Modelling for Multi Rotor Systems: Bottlenecks in Operations	Unsteady aerodynamic simulations of a multi-megawatt airborne wind energy reference system using computational fluid dynamics
Aeroelastic Stability Analysis of a Quad-Rotor Wind Turbine	Evaluation of a Wind Field Parametrisation Methodology for Lidar-Measured Wind Turbine Inflow	Optimal Planning of Co-Located Wind Energy and Hydrogen Plants: A Techno-Economic Analysis	Wake impact of constructing a new offshore wind farm zone on an existing downwind cluster: a case study of the Belgian Princess Elisabeth zone using FLORIS
Aeroservoelastic stability of a floating wind turbine	Evaluation of the "fan scan" based on three combined nacelle lidars for advanced wind field characterisation	Overcoming Blade Interference: A Gappy-POD Data Reconstruction Method for Nacelle-Mounted Lidar Measurements	WakeNet 0.1 - A Simple Three-dimensional Wake Model Based on Convolutional Neural Networks
An approach and discussion of a simulation based measurement uncertainty estimation for a floating lidar system	Evaluation of two mesoscale wind farm parametrisations with offshore tall masts	Parametrisation Scheme for Multidisciplinary Design Analysis and Optimisation of a Floating Offshore Wind Turbine Substructure – OC3 5MW Case Study	Wakes in and between very large offshore arrays
An experimental system to acquire aeroacoustic properties on wind turbine blades	Experimental Investigation on the Effect of Lateral Turbine Spacing on Interactions of Wakes	Physics informed DMD for periodic Dynamic Induction Control of Wind Farms	Wind Farm Inflow Wind Simulation based on Mesoscale and Microscale Coupling
Application of an open-loop dynamic wake model with high-frequency SCADA data	Experimental proof-of-concept of an energy ship propelled by a Flettner rotor	POD analysis of the wake dynamics of an offshore floating wind turbine model	Wind farm optimization with multiple hub heights using gradient-based methods
Atmospheric Irrigation with Wind Turbines	Experimental study of mean and turbulent velocity fields in the wake of a twin-rotor vertical axis wind turbine	Recalibration of a wind atlas using local wind measurements	Wind Park Power Prediction: Attention-Based Graph Networks and Deep Learning to Capture Wake Losses
Comparison of near wind farm wake measurements from scanning Lidar with engineering models	Faster wind farm AEP calculations with CFD using a generalized wind turbine model	Reduction and analysis of rotor blade misalignments on a model wind turbine	Wind tunnel benchmark tests of airfoils
Comparison of time averaged wake flow fields between LiDAR measurements and DWM	Field Study of Turbulence Intensity measurement by Nacelle Mounted Lidar (NML)	Rotational and blockage effects on a wind turbine model based on local blade forces	Wind Tunnel Experiment to Study Aerodynamics and Control of H-Rotor Vertical Axis Wind Turbine
Contrast enhancement in thermographic flow visualization on wind turbines in operation	Floating wind turbine control optimization	Rotor-Wake Interactions in a Wind Turbine Row: a Multi-Physics Investigation with Large Eddy Simulation	Wind tunnel experiments for investigating wake effects in atmospheric boundary layers using a simplified miniature model wind turbine
Cost-based mooring designs and a parametric study of bridles for a 15 MW spar-type floating offshore wind turbine	High Wind Speed Performance of AeroMINE at Pilot-Scale	Sensitivity analysis and Bayesian calibration of a dynamic wind farm control model: FLORIDyn	Wind tunnel investigation of the wake-flow response for a floating turbine subjected to surge motion
Cross validation of the aerodynamic and acoustic measurements in two Kevlar-walled wind tunnels	How does the rotational direction of an upwind turbine affect its downwind neighbour?	Sensitivity of Wake Modelling Setups	Wind tunnel study: is turbulent intensity a good candidate to help in bypassing low Reynolds number effects on 2d blade sections?
Current simulation with Software in the Loop for floating offshore wind turbines	How generalizable is a machine-learning approach for modeling hub-height turbulence intensity?	Stability information derived from a floating lidar system using bulk Richardson formulation	Wind turbine power performance characterization through aeroelastic simulations and virtual nacelle lidar measurements
Design and testing of a model-scale yaw mechanism for an experimental wind turbine model	How long can constant wind speed periods last in the turbulent atmospheric boundary layer?	Structure of Offshore Low-Level Jet Turbulence and Implications to Mesoscale-to-Microscale Coupling	WindsPT e-Science platform for wind measurement campaigns
Design of a gust generator and comparison of model wind turbine and porous disc wake flows in a transverse gust	Including installation logistics costs in the optimal sizing of semi-submersibles for floating wind farms	Study of the influence of Met-ocean data in fatigue loads calculations of a floating offshore wind turbine	

16:30 - 18:00

System Design and Multi-Fidelity/Multi-Disciplinary Modelling #1: Turbine (Chair: Katherine Dykes)	Future Wind: New Applications and Novel Architectures (Chair: Dominic von Terzi)	Artificial intelligence, Control and Monitoring #3: Wind Farm Control II (Chair: Jan-Willem van Wingerden)	Floating Wind #1: Dynamics and Wakes of FOWTS I (Chair: Delphine de Tavernier)
Fatigue study of an inverse-designed low-induction rotor using open-source tools	Optimum turbine design for hydrogen production from offshore wind	Region-Based Convolutional Neural Network for Wind Turbine Wake Characterization from Scanning Lidars	Validation of CFD determined hydrodynamic coefficients for a semisubmersible floating offshore wind turbine
An open-source framework for the uncertainty quantification of aeroelastic wind turbine simulation tools	Techno-economic analysis of power smoothing solutions for pumping airborne wind energy systems	Flow Modelling for Wind Farm Control: 2D vs. 3D	An engineering modification to the blade element momentum method for floating wind turbines
Life Cycle Environmental Impact of Wind Turbines: What are the Possible Improvement Pathways?	Sensitivity analysis of a Ground-Gen Airborne Wind Energy System design	Serial-Refine Method for Fast Wake-Steering Yaw Optimization	An Open-Source Frequency-Domain Model for Floating Wind Turbine Design Optimization
Wind turbine blade design with airfoil shape control using invertible neural networks	Multi-Timescale Wind-Based Hybrid Energy Systems	Turbine power loss during yaw-misaligned free field tests at different atmospheric conditions	A comprehensive code-to-code comparison study with the modified IEA15MW-UMaine Floating Wind Turbine for H2020 HIPERWIND project