

Monthly CREW Update: April 2011

Here is an update on upcoming activities and opportunities:

1. We are very saddened to see Prof. Lucy Pao step down from the position of Scientific Director of CREW. While this decision was hard for her to take, she will appreciate having more time for her research and faculty duties. Thank you Lucy for your time and enduring commitment to CREW's development!

2. Seminar series:

On March 28, 2011, Brad Cochran of CPP Wind gave a great seminar on "Modeling Airflow over Buildings for Rooftop Wind Turbine Applications." Brad presented cases from around the world where wind turbines have been used on or near buildings. For environmental or technological reasons, the concept of using a turbine on a building is still at its infancy. Brad thus showed how physical simulations of airflow on a reduced scale model in an atmospheric boundary layer can be used to define the local wind environment, and further discern e.g., locations of recirculation cavities, corner vortices, and areas of accelerated air flow.

On April 25, 2011, Paul Heyliger gave our April CREW seminar, which is the last seminar of the semester. Paul talked on "Larger blades in bigger farms: interactions in multiple turbines." Paul presented the critical issue of interactions between multiple wind turbines and the forces they generate on larger, more flexible wind turbine blades. Using CDF computation, Paul demonstrated the level of complexity of flow fields in the vicinity of different wind turbine layouts, as well as the blade mechanics responses to such turbulent flow fields.

We will resume the seminar series in the Fall 2011. Stay tuned!

3. Florence Bocquet, CREW Managing Director, has coordinated the reviews for the second round of shared research proposals received in November 2010. Proposals were forwarded to the CREW Center Advisory Board (CAB). Each member company in CREW has a representative on the CAB, and these member companies reviewed the 10 proposals received. Based on their reviews and recommendations, the following 4 proposals have been selected for funding:

- "A fully-coupled ground water-land surface-atmospheric modeling system and ensemble data assimilation for wind energy predictions" R. Maxwell (PI), Colorado School of Mines; J. Lundquist, University of Colorado; Luca Delle Monache, National Center for Atmospheric Research; J. Michalakes, National Renewable Energy Laboratory; and J. Williams, Colorado School of Mines.
- "An innovative approach to the design and control of wind farms" J. Marden (PI) and L. Pao, University of Colorado at Boulder.

- "Model coupling for multi-scale wind-energy computing" M. Sprague (PI), National Renewable Energy Laboratory; J. Michalakes, National Renewable Energy Laboratory; and J. Lundquist, University of Colorado at Boulder.
- "Multi-faceted comprehensive condition monitoring for wind turbine gear boxes" J. Steele (PI), Colorado School of Mines and S. Sheng, National Renewable Energy Laboratory

These seed projects are expected to officially launch on June 1, 2011. Thank you for all PIs who submitted a proposal, and congratulations to the PIs of the four selected proposals.

4. Please mark your calendars and plan to join us at our 3rd annual CREW Symposium on Friday August 12, 2011 at NREL in Golden, CO. We will send out more information about the symposium over the next few months. The symposium will include sessions open to all where we will provide an update of our CREW activities, and there will also be sessions geared specifically for our CREW member companies to discuss results on the three 2010-2011 CREW shared research projects and on other activities.

And it's the end of the Spring semester!