

WISLINE meeting 01.02.2016

Location: The Norwegian Meteorological Institute, Oslo

Participants

Harold Mc Innes (MET), Jan Erik Haugen (MET), Bjørg Jenny K. Engdahl (MET), Mareile Wolff (MET), Ragnar Brækkan (MET), Hilde Haakenstad (MET), Jón Egill Kristjánsson (UiO), Greg Thompson (NCAR), Roy Rasmussen (NCAR), Bjørn Egil K. Nygaard (KVT), Kristina Blennow (SLU)

Welcome and information

We will soon receive the 2015 grant from the Research Council. For those who have not sent invoice for the work carried out in 2015, please do so.

The disdrometer and how to use the data

Statnett has sponsored the purchase and operation of a disdrometer near Vemork, approximately 1200 m above sea level. This is at the same location as Kjeller Vindteknikk (KVT) will carry out observations of atmospheric icing on rotating cylinders and overhead powerlines. The disdrometer has been ordered, and we expect to receive it in 10 to 15 days. It will measure particle size between 0.16 and 8 mm and fall speeds between 0.2 and 20 m/s. Data from the disdrometer will be number of particles in 22 different diameter intervals and 20 fall speed intervals. From this information it is possible to classify the precipitation.

Time averaging of the disdrometer data was discussed. It was decided to use 10 minutes data, as higher time resolution would give too much noise and make the analysis of the data difficult.

The main purpose of the disdrometer is to provide data for validation of the AROME micro physics. Precipitation type is interesting in this regard. Together with ice accumulation data from KVT's observations, the disdrometer data could give valuable information on supercooled droplets and riming.

The area is exposed to both wind and atmospheric icing. Wind and turbulence may influence the observations of fall speed and the disdrometer could be covered by ice. However this is a place of moderate and not extreme icing. The disdrometer will be heated and it will be monitored by a web camera. It will be placed 10 m above the ground in order to avoid drifting snow.

The disdrometer will be put into operation as soon as possible. Roy Rasmussen will share an algorithm from the SPICE project which will be very useful when analyzing the data. Mareile Wolff has master students in environmental technology, and one of her students may help us to analyze data as part of the master thesis. However this should wait until we have the data from this winter, since the students only have 6 months to complete their thesis.

Status of the WPs

WP1

Björg Jenny K. Engdahl is busy with PhD courses, but she has carried out some test of the AROME model. She will work together with Greg Thompson on the AROME code when he is visiting Oslo. She will also cooperate with Lisa Bengtsson from SMHI in Sweden.

WP2

Dataset for WP2.1 is currently being validated and is expected to be ready in 4 weeks. This dataset will cover southern Norway and have a horizontal resolution of 2.5 km and a time resolution of 3 hours. It covers the period 2000 – 2015 and is based on a dataset with 11 km resolution which has been downscaled to 2.5 km by applying 1 year of data from AROME. The parameters are precipitation, temperature at 2m, wind at 10 m, humidity at 2m, surface pressure and snow depth.

Leader of WP2 has applied for high performance computing resources at the Norwegian national infrastructure. Producing the datasets is very expensive, and costs can be reduced by downscaling a coarser dataset based on a year of AROME data instead of running AROME for 10 to 15 years. The method can also be applied to data from climate models in order to produce high resolution datasets for future climate. This is probably sufficient for wind and wet-snow icing, but could be more difficult for cloud icing. We need to figure out how this can be solved, and we also need to make sure that datasets from present and future climate are comparable.

WP3

As part of the project FRONTLINES, rotating cylinders and ice load measurements on power lines and test spans are now in operation at Ålvikfjellet (1100 m above sea level) and Stølsheimen (1300 m) in westerns Norway and near Vemork (1200 m). Data will also be available for the WISLINE project.

A dataset of wind at 1 km resolution covering Norway for the period 1979 to 2015 is being produced. The data will be based on one year of 1km WRF simulations combined with 36 years of WRF 4km simulation with input data from ERA-INTERIM. The dataset will be extended with wet snow icing, in-cloud icing, short wave radiation, precipitation and lightning indexes. The data will be available for WISLINE although it is produced under another project.

WP4:

WP4 has prepared forest damage data and is awaiting wind, snow and ice data in order to progress further with their model on snow and wind damage.

Further plans

Some of the deadlines for the deliveries of 2016 are too ambitious. We will have to explain that in the next progress report to the Research Council. If we give a good explanation, this should not cause any problems.

Scenario for future climate should be decided.

The main objective of WISLINE is “To quantify climate change impact on technical infrastructure and the natural environment caused by strong winds, icing and wet snow”. This has been stated by the Research Council, and we need to make sure that we work towards it. In order to do so the project leader will produce a draft that will be circulated among the WP leaders. This should lead to a plan describing how the main objective is to be fulfilled. Consistency between datasets for existing and future climate will be important in this regard.

End of meeting