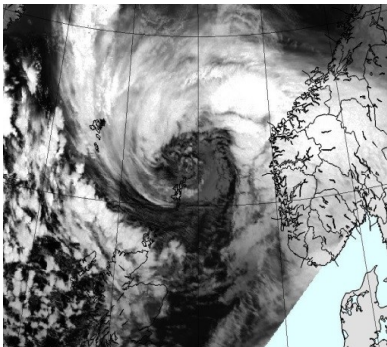


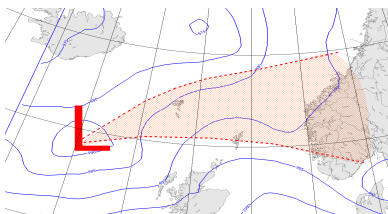
Introduction

Saturday 10th of January 2015 an intense low pressure gave extreme weather in southern part of Norway.

The prognoses gave a high probability of an intense low many days in advance, however the final track of this low where highly uncertain.



MET Norway issued a warning of possible extreme weather for parts of southern Norway Wednesday in advance, for both Friday and Saturday. The low pressure on Friday was later canceled as extreme weather. The low pressure on Saturday was fore casted as extreme weather on Friday afternoon 9th of January and given the name Nina.



Prognosis from Friday evening 18UTC showing the possible track of Nina. This is made from the different ensemble members.

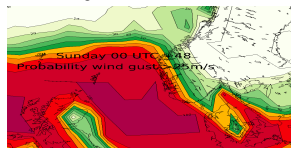
The extreme weather warning issued Friday evening was sent for the western part of Norway for wind and waves. For Rogaland in the south the forecast gave somewhat less wind and it was said that it would not reach the extreme weather criteria

The ECMWF 12UTC run Friday positioned the low pressure center further south and with stronger winds. Our local models followed up this development in the 18UTC and 00UTC run. Late Friday evening and early Saturday morning the extreme weather warning was updated. The whole part of western Norway was included and with stronger wind.

Products from ECMWF

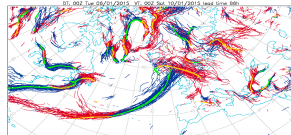
The ensemble prediction system from ECMWF early showed a clear drop in the pressure on Saturday. We used different products to get the best overview we could get.

1. EFI and SOT for wind gust and wind speed
2. Probabilities: 10m wind speed and 24h maximum of 10m wind gust

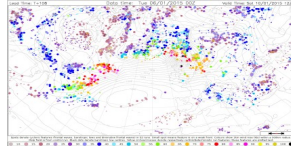


3. All the ensemble prediction members

4. Fronts Animation – spaghetti plot of fronts



5. Feature Animation (1km wind max (kts) within 300km radius)



Information that would have been valuable when evaluation the position and track of the extreme weather.

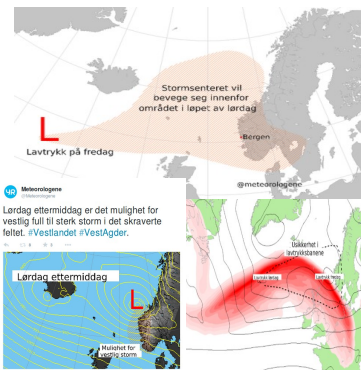
- probabilities and ensemble members every 3 hour or more. Could then compare with observations to find the member that where closest to the observations.
- pressure tendencies in members
- clusters in our workstation, DIANA

Communicating uncertainties

The written forecast of possible extreme weather indicated that there were uncertainties in the track of the low.

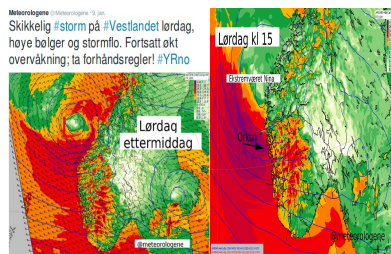
We had contact with the authorities continuously and tried to explain the different scenarios

We also sent out multiple figures on twitter and on our web page yr.no, and to the media in general



An article was written on yr.no with the title: "This is very difficult" Great waves, storm and possible hurricane. Southern Norway will get severe weather this weekend. However the meteorologist are uncertain where the extreme weather will hit

The clusters and the deterministic run was shifting the days in advance and there were sent updates on the position and the strength of the extreme weather



The extreme weather Nina

The low pressure hit near Fedje Saturday afternoon and gave strong wind and damages especially in the southwestern part of Norway.



Nina was among the 5 strongest storms with a westerly or northwesterly wind direction for the last 60-70 years in this area. It was somewhat weaker than Dagmar that hit the northwest part of southern Norway 26th of December 2011. However Nina was as damaging or maybe more damaging since it gave extreme weather in a highly populated area



Feedback from public and authorities were good after Nina.

We had an on line chat on our web page for 12 hours during the extreme weather event where people could ask questions and there were meteorologist and researchers answering.

However there were people in the northern part of this area that experienced only gentle breeze and where it first was warnings of storm. They asked why we did this big mistake.

Challenges in communicating uncertainties in extreme weather events.

How can we visualize the possible outcomes in the best way for all users. The danger and impact of the different scenarios are important to make clear. How can we use percentage or text in a way that people understand

Different users need different information, how should we make warnings and figures for different users.

How can we use colors to explain both the uncertainties, but also the different parameters.