

Actionable warnings

- a joint effort on how to communicate warnings with one voice

Mai-Linn Finstad Svehagen MET Norway

Our challenge



- Are severe weather forecasts received and understood?
- Are there too many forecasts?



A typical situation is that forecasts are communicated on Yr, Varsom, TV, Radio, Social Media and also local media.

Is it too much information in too many channels?

Cooperation

The innovation team at MET partnered up with The NRK and NVE to look at some of these issues.

As it turns out we have common challenges and common needs, and decided on a joint effort to get funding from Stimulab to work on these challenges together.

The funding was secured and the project: “***En fare - lokal handling***” started.

“

Forecasts of what the weather will **BE** are no longer enough. Impact-based forecasts that inform the public of what the weather will **DO** are vital to save lives and livelihoods.

World Meteorological Organization (WMO)



nrk Troms og Finnmark

To omkom da snøskred tok hus og fjøs: – Det er en forferdelig tragedie

To personer er bekreftet omkommet, og nå evakueres flere, etter at et snøskred har tatt med seg et bolighus og et fjøs på Reinøya i Troms. Den lille øya er sterkt preget av hendelsen.



Fem utenlandske skiturister tatt av snøskred: en person omkommet

Det skal ha gått totalt tre større skred i Troms fredag ettermiddag. I Lyngen ble fem personer tatt av snøskred. Det er bekreftet at en av dem har omkommet.



Deler av snøskredet som gikk på Kverningsfjell, sentralt på Lyngneset i Troms. FOTO: LYNGEN-NÆRE KORS/ LYNGEN-NÆRE KORS HUSEIERERS



“

Noen av skredene skjedde på plasser det var umulig å vite om det skulle skje, det må vi lære av og sende presise varslar nasjonalt.

Prime Minister, Jonas Gahr Støre.

Make it easier for users to understand when to act on alerts and what to do



Challenge:

MET, NVE and NRK have different ownership, target groups and content, but the purpose is similar.

How can we get a common understanding on what the users need?

Challenges

“how do local actors work together when natural hazards occur?”

We know that severe weather forecasts not always are acted upon, but we know less about why.

We need to know more about what local actors need to know.

Challenges

“With climate change, natural hazards happen more often at new locations

With climate change, more people experience insecurity of knowing the consequences of the weather

With knowledge, the safety and predictability increases and the extent of damage in society is reduced.

Project goals

“Local societies need to prevent damage due to natural hazards in a changing climate

We need forecasts to be received, easy to understand and acted upon.

The project partners (MET, NRK, NVE) collaborate on issuing forecasts with a common knowledge both on roles and mandates, and on what users needs.

Some examples of what
we have done so far



1

Build your own forecast

Build your own forecast

User input on all levels
of communication is
crucial

So we went to Førde



Foto: Halogen

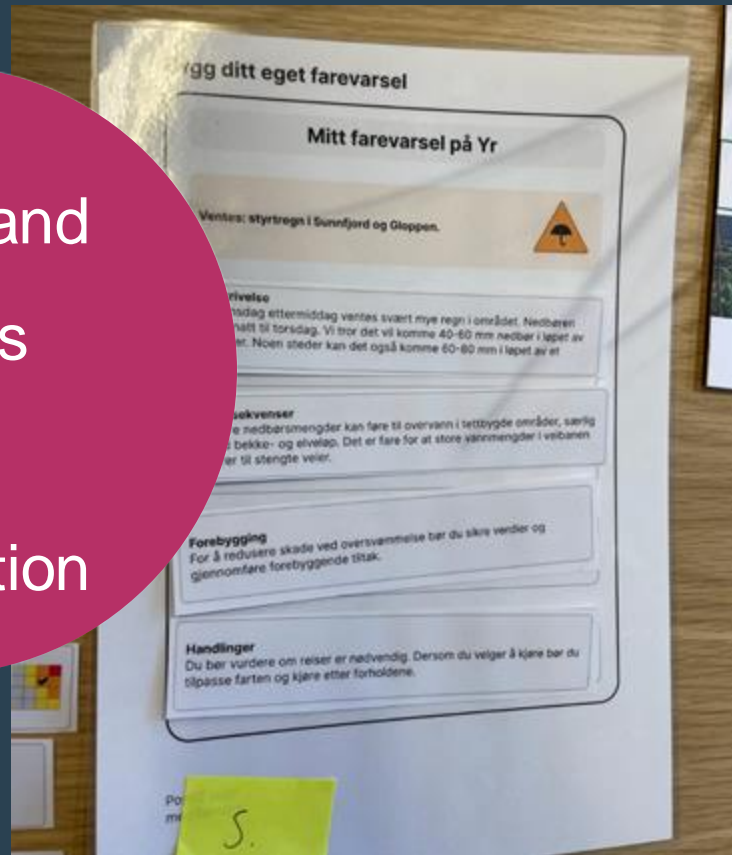


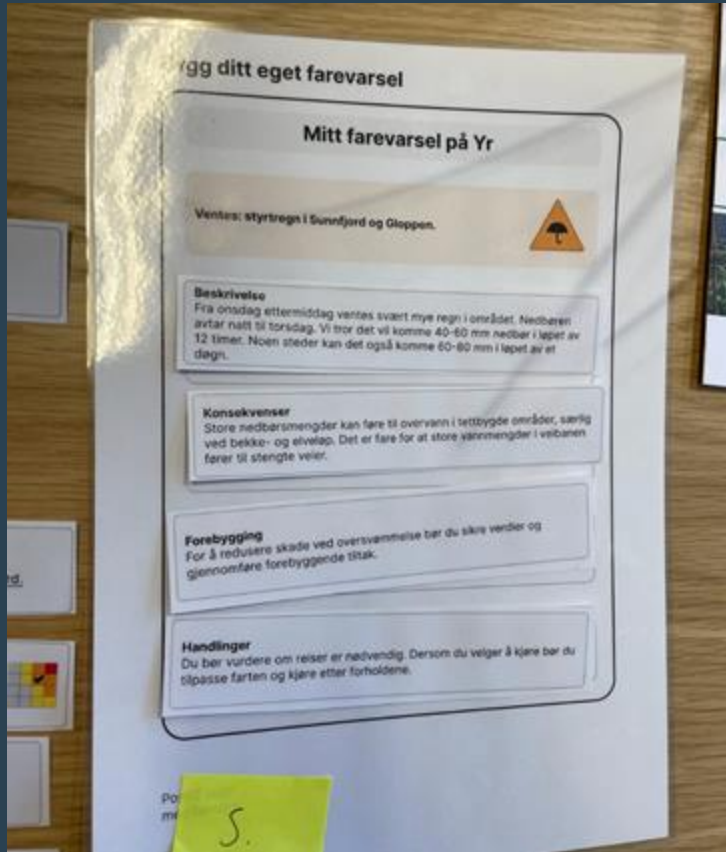
Understand

Assess

Plan

Take action





What is the preferred order of the content?

How do users make use of or understand the different elements of the forecast?

2

What forecast
do **you** prefer?

Nine people
attended this test..

Oransje farevarsel: Det
ventes svært mye regn i
Sunnfjord og Gloppen.

Fra onsdag ettermiddag til
natt til torsdag ventes svært
mye regn. Det kan komme
opp mot 40-60 mm på 12
timer og 60-80 mm på et
døgn.

Hold deg oppdatert på
<http://yr.no/farevarsler>

MET utsteder et oransje
farevarsel for Sunnfjord og
Gloppen.

Det ventes svært mye regn
det neste døgnet, med fare
for overvann og stengte
veier.

Du bør vurdere reiseplaner,
sikre verdier og følge med på
informasjon fra lokale
myndigheter.

Regnet avtar torsdag kveld.

Hold deg oppdatert på
<http://yr.no/farevarsler>

2

What forecast
do **you** prefer?

Nine people
attended this test..

Oransje farevarsel: Det
ventes svært mye regn i
Sunnfjord og Gloppen.

Fra onsdag ettermiddag til
natt til torsdag ventes svært
mye regn. Det kan komme
opp mot 40-60 mm på 12
timer og 60-80 mm på et
døgn.

Hold deg oppdatert på
<http://yr.no/farevarsler>

Oransje
Sunnfjord og

mye regn
med fare
tengte

iseplaner,
følge med på
kale


dag kveld.

ert på
arsler

2

What forecast
do **you** prefer?

Nine people
attended this test..



Oransje farevarsel: Det
ventes svært mye regn
Sunnfjord og Gloppen.

Fra onsdag ettermiddag
natt til torsdag ventes
mye regn. Det kan kom
opp mot 40-60 mm på
timer og 60-80 mm på
døgn.

Hold deg oppdatert på
<http://yr.no/farevarsler>

MET utsteder et oransje
farevarsel for Sunnfjord og
Gloppen.

Det ventes svært mye regn
det neste døgnet, med fare
for overvann og stengte
veier.

Du bør vurdere reiseplaner,
sikre verdier og følge med på
informasjon fra lokale
myndigheter.

Regnet avtar torsdag kveld.

Hold deg oppdatert på
<http://yr.no/farevarsler>

The second
one with **more
text**, but **less
numbers** was
preferred

Oransje farevarsel: Det
ventes svært mye regn i
Sunnfjord og Gloppen.

Fra onsdag ettermiddag til
natt til torsdag ventes svært
mye regn. Det kan komme
opp mot 40-60 mm på 12
timer og 60-80 mm på et
døgn.

Hold deg oppdatert på
<http://yr.no/farevarsler>

3

MET utsteder et oransje
farevarsel for Sunnfjord og
Gloppen.

Det ventes svært mye regn
det neste døgnet, med fare
for overvann og stengte
veier.

Du bør vurdere reiseplaner,
sikre verdier og følge med på
informasjon fra lokale
myndigheter.

Regnet avtar torsdag kveld.

Hold deg oppdatert på
<http://yr.no/farevarsler>

6



How is a severe weather forecast received and understood?



This is how a red
alert on Yr looks
today



Expected: Flood (Deler av Drammensvassdraget: Randsfjorden og Tyrifjorden)

Red severity



Recommendations

- Stay informed on the situation
- Keep away from rivers and streams with high flow
- Emergency authorities must be prepared for the fact that building and infrastructure in general may be subject to serious incidents

Consequences

- Local flooding and/or erosional damage in streams and small rivers
- Extensive floods, erosion damage and flood damage to buildings and infrastructure

Description

The flood situation is still at red level in Tyrifjorden and Randsfjorden, but are now slowly reducing.

Area

Applies to Deler av Drammensvassdraget: Randsfjorden og Tyrifjorden




[\[varsom.no\]](https://varsom.no)

Time period

Monday, 07 August kl. 12:00 - increasing danger



Danger levels

-  Yellow - moderate danger
-  Orange - considerable danger
-  Red - extreme flood danger

Read more about the severity levels at hjelp.yr.no



Notice from the Meteorological Institute for Lofoten

Very heavy rain, orange level

Consequence

Risk of stormwater in densely built-up areas. See www.varsom.no for more information. Danger of closed roads and/or storm water in the case of streams and rivers. Road conditions due to flooding and the risk of aquaplaning.

Advice

Assess the need for preventive measures. Follow local authorities' instructions from emergency authorities. The need for preparedness must be assessed by emergency responders. Consider whether the journey is necessary. Listen to emergency announcements (175.no). Adjust your speed and drive according to the conditions.

Description

From Wednesday afternoon, a lot of rain is expected, 40-60 mm/12h. There may also be 60-80 mm/24h. The precipitation decreases overnight to Thursday

A closer look
at the
forecast, the
order and
what words
are used



A lot of rain in Lofoten

Orange danger warning. Be prepared for a lot of water.

Very much rain

From Wednesday afternoon, a lot of rain is expected (up to 60 mm in twelve hours). The rain will subside overnight until Thursday and the water will gradually drain away.

Difficult driving conditions

The rain can lead to flooding and difficult driving conditions. Roads may be closed. Consider whether the journey is necessary. Adjust your speed and drive according to the conditions. Remember that you can check road information on 175.no.

Risk of water damage

Risk of stormwater in densely built-up areas and water penetrating into houses. Consider cleaning gutters and downspouts so the water can drain away.

The new
approach

The user test

What do the users think?

Do they understand what to do?

We tested on six people (30 minutes each) and presented both alternatives (randomly)

The results

Five out of **six** preferred the new version

They liked it because it was easier to read, shorter and straight to the point. All six loved the new headlines and found the order more logical.

Fundamentals of a good forecast

- Short and straight to the point
- A meaningful structure
- Title and subtitle summarize the most important
- Subtitles that can be meaningful on their own
- Personal: use of pronouns
- Good links at the right spots
- Meaningful advice at the right time

The upside down megaphone



Thank you!

Questions?

Feel free to ask or get in touch with me

Mai-Linn Finstad Svehagen - **mailf@met.no**