



Norwegian
Meteorological
Institute

New practise for weather warnings in Norway

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Nordisk meteorologmøte Juni 2018

Common Alert Protocol for issuing weather warning



An event based forecast:
A *phenomena*
of a certain *severity* and
consequence/impact
with a *probability* to happen
in a *region* within a *time period*.

Collaboration with NVE (Norwegian Water Resource and Energy directorate)

- Report on harmonizing
- **One CAP- dialect**
- Aim to reduce over forecasting
- Flood and landslide is a consequence of rain
- Snow avalanches
- Distribute and use each other forecasts
- On duty forecasters have dialogue every day and more when issuing warnings



02.09.2018



Awareness - Probability of severe weather

Severity: Certainty	Moderate (Exposed objects)	Severe (general damages)	Extreme (Extreme damages)
Observed	Yellow	Orange	Red
Likely (>50%)	Yellow	Orange	Red
Possible (<50%)	White	Yellow	Orange
Unlikely (~0%)	White	White	Yellow

Awareness notation

No Severe Weather	Be Aware	Be Prepared	Take Action

Farge	Respons	Type situasjon	Betegnelse tom. mai	Betegnelse fom. mai
Gul	Vær oppmerksom	Utfordrende	Obsvarsel	Gult nivå
Oransje	Vær forberedt	Alvorlig	Melding om økt overvåking	Oransje nivå
Rød	Sikre verdiene	Ekstrem	Ekstremværsvarsel	Rødt nivå

Phenomena

- Land/sea



- Above 1000 m



Not extreme

- Polar-lows and coastal events



Warnings for rain episodes



- Before: Issuing only 24 hours precipitation
- **Colours** correspond to return periods of ~ 5, 10, 25 years

Time duration for rain	Level of awareness
1 hour	yellow/orange
3 hour	yellow/orange
6 hour	yellow /orange/red
12 hour	yellow/orange/red
1 day	yellow/orange red
2 – 3 days	yellow/orange (red in Longyearbyen)

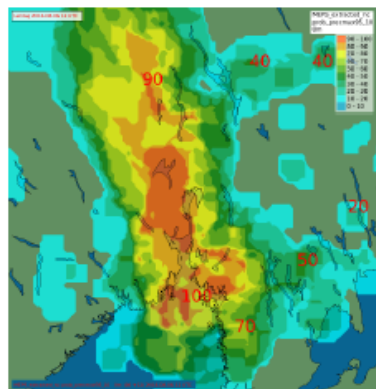
6 hour precipitation, 6. Aug 2016

Maximum value in Asker
82 mm/12 hours,
110 mm in 24 hours

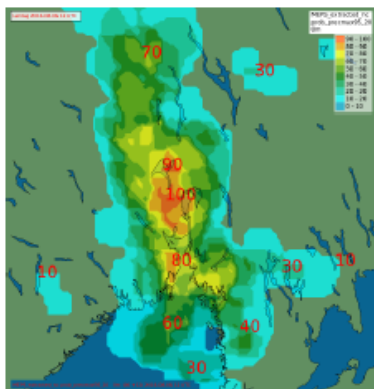


Gitte Johannessen / NTB scanpix

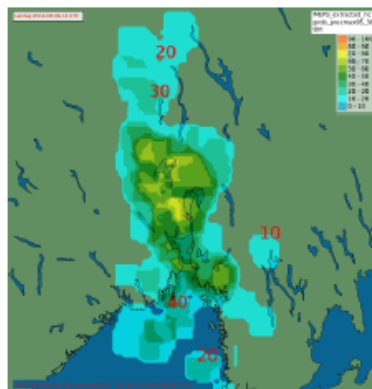
Cost about 40 mill EURO



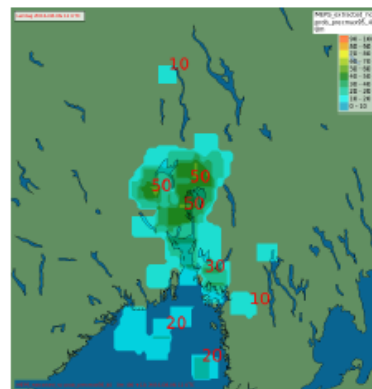
>10mm/6hr



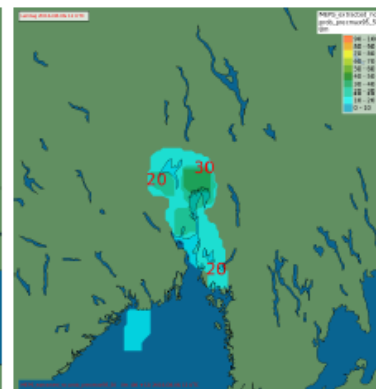
>20mm/6hr



>30mm/6hr

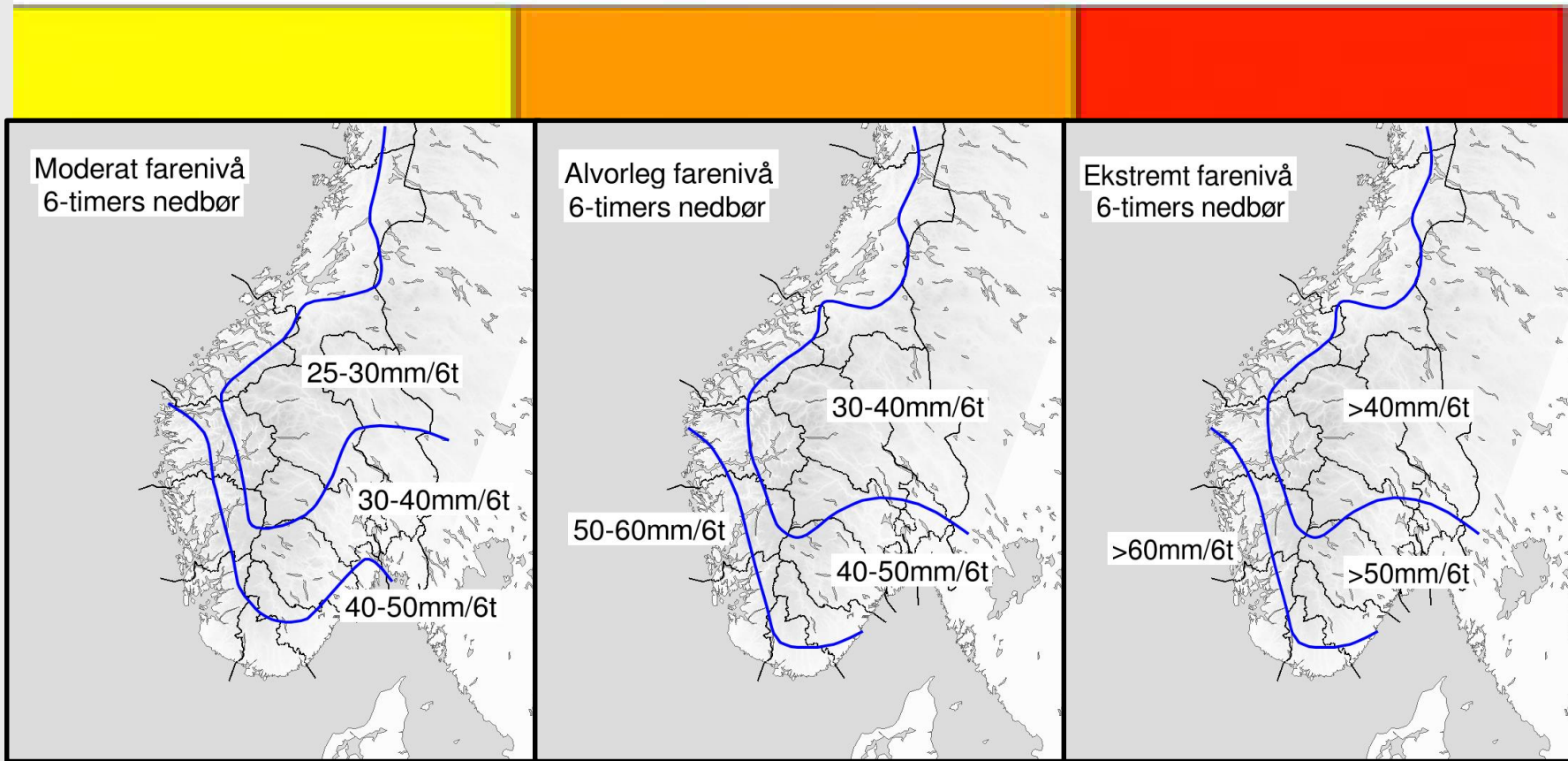


>40mm/6hr



>50mm/6hr

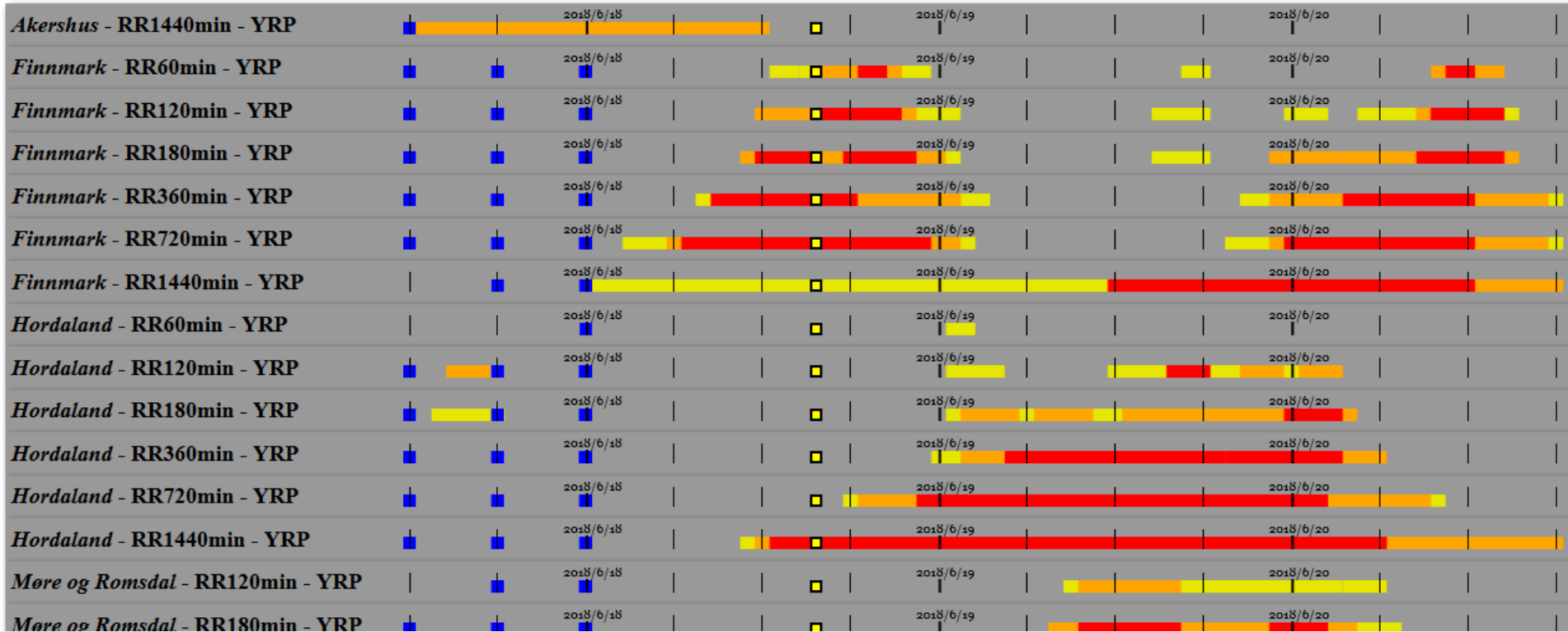
Precipitation 6 hour



Return period – proxy to impact

MEPS P95 2.5km

UP INDEX ■=analysis, ■=warning, ■=now, Mon, 18 Jun 2018 05:44:00 GMT + 9h 55m 57s



Thanks to Project leader Tor Skaslien
Anita Verpe Dyrddal, Frank Tvetter ++

http://alarm.met.no

Secure | <https://projects.met.no/alarm/pc4804/index.html>

Automated Meteorological Warning Service

NDEX Sat, 24 Mar 2018 17:43:00 GMT + 1h 57m 25s

Share 0 G+ Del Tweet

Aerodrome turbulence: 1 moderate, 8 light

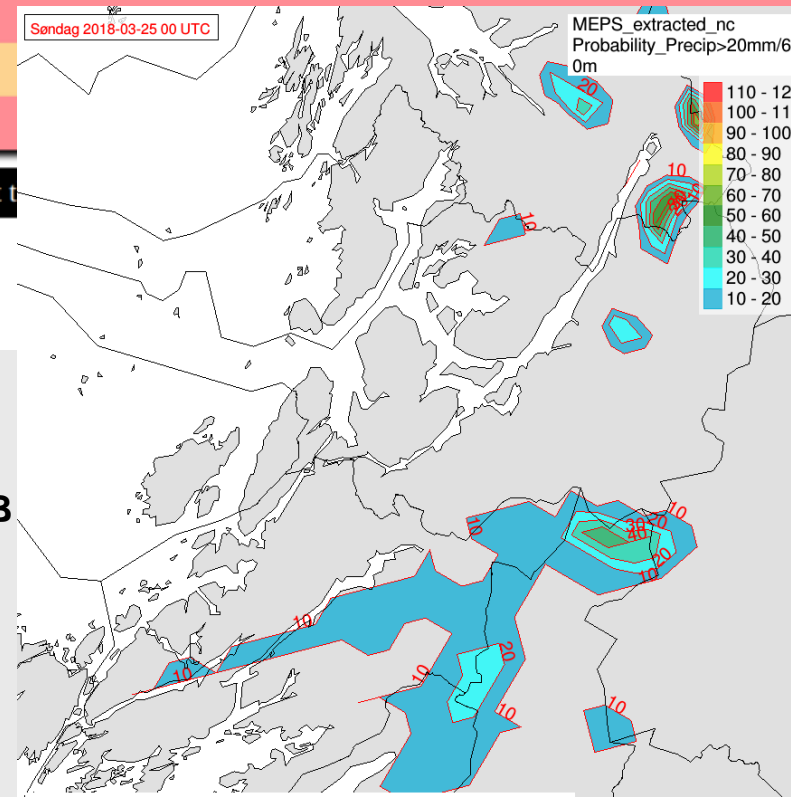
MEPS 2.5km: 1 severe, 3 moderate, 14 light

MEPS EPS 2.5km: 3 moderate, 7 light

MEPS P95 2.5km: 4 severe, 14 moderate, 35 light

Automated Meteorological Warning Service for use by diagnosis-team at t

Precipitation: RR > 20mm/6t PROB



Wind and wind gust



Farenivå	<i>Moderat</i>	<i>Alvorlig</i>	<i>Ekstrem</i>
Returperiode	5 år	10 år	25 år
<i>Begrepsbruk</i>	<i>Kraftige vindkast</i>	<i>Svært kraftige vindkast</i>	<i>Ekstreme vindkast</i>
Aktsomhetsnivå ved høy sannsynlighet			
Indre strøk Østafjells	20	22	25
Indre strøk Vest-/Midt-/Nord-Norge	25	28	35
Kommuner ved Skagerrakskysten	30	35	38
Kystkommuner Lindesnes - Grense Jakobselv	35	37	40
Nordenskiöld land på Spitsbergen			40

Omtrentlige "grenser" (m/s) for å vurdere farevarsler i perioden 15.sep. - "Palmelørdag". I sommersesongen er grensene lavere (80%). Meteorologen bruker mer detaljert statistikk og skal i tillegg vurdere demografi, infrastruktur, hendelsens varighet, sannsynligheter, årstid, vindretning, lokale forhold og annet som påvirker skadeomfang.

Thanks to
Geir Ottar Fagerlid

Forecaster tool

Phenomenon: wind

List of current areas of selected phenomenon: Fjellet i Sør-Norge, Oppland, Hedmark, Akershus, Oslo, Østfold, Buskerud, Vestfold, Telerud, Aust-nd, Vest-gd, Rogaland

Awareness

Severity: Extreme

Certainty: Likely

Incident

Incident number: 51

Incident name: Select from list...

Valid period (UTC)

From: Wed 16 May 2018 19:21

To: Wed 16 May 2018 19:21

Danger decreases at end time

Upper and lower height

Upper height (Ceiling): 9000FT

Lower height (Altitude): 0FT

Validating threshold

17.2 m/s

Warning - NO

Warning - EN

Consequences

- Det er fare for å være ute i vind og regn og å bli skadet på grunn av vind, snø, regn, skog og strømnett.
- Stor fare for å bli skadet av fallende objekter og å bli rammet av brann og støv.
- Takstein og takplater blåser av hus og bygninger.

Instructions


Hold dere inne.

Link to more info

<https://www.met.no/vaer-og-klimateknologi/varsling-og-ekstremvaer>

Upload images

Select server: http://leonardo-b.met.no/imaginary

Image	Upload time
	https://res.cloudinary.com/meteorologisk-institutt/image/upload/v1526459994/te... 2018-05-16T08:39:53Z

Region

Period

Warning

Consequences

Instructions

Link

Illustration

Ted - Find Danger Warnings

Select x_test_METfare to update/cancel

Incident	Phenomenon	Area	msgType	Ter
50 Jak	rain	Østfold og Akershus	Update	Wed 1
48	wind	Troms	Alert	Tue 15
47	wind	Ofoten, Lofoten og Vesterålen	Alert	Tue 15

Termin: 2018-05-16 10:51:56 Fra: 2018-05-16 16:00:00 Til: 2018-05-17 10:00:00

Østfold og Akershus

Test! Fra onsdag kveld til torsdag morgen lokalt mye nedbør i Høland og Rømskog. Det k

Severity: Extreme

Certainty: Likely <https://res.cloudinary.com/meteorologisk-institutt/image/upload/v1526459994/te...>

References: 180516104654905.258,2018-05-16T10:46:54+00:00

Finse, Ulvik (Hordaland)

Overview

Hour by hour

Long term

Weather radar

Statistics

Maps

RELEVANT PLACES

[Finse](#)

[Vesbven](#)

[Kirkenes](#)

[_eknes](#)

[Vesund](#)

[Tromsø](#)


[/ansie](#)

[Oslo \(Blindern\)](#)

[observation site](#)

[Tempelsetra](#)

[Meteorologisk institutt](#)

 To the main menu at the page bottom



Expected: Strong winds (Fjellet i Soer-Norge)

From Tuesday morning west severe gale force 9 to storm force 10 in high mountain area. Tuesday afternoon decreasing in Langfjella, Wednesday morning decreasing further north.







Tuesday June 19, 2018 08:00
Wind increases







Wednesday June 20, 2018 08:00
Wind wanes

It may be dangerous to travel in the mountains. Secure loose items. Be careful when traveling outdoors.

Today, Monday 18/06/2018

Time	Forecast	Temp.	Precipitation	Wind
14:00–18:00		6°	0 – 0.4 mm	 Moderate breeze, 6 m/s from southwest
18:00–00:00		6°	0.6 – 2.2 mm	 Gentle breeze, 5 m/s from southwest

Tomorrow, Tuesday 19/06/2018


Time	Forecast	Temp.	Precipitation	Wind
00:00–06:00		2°	1.4 – 6.7 mm	 Strong breeze, 11 m/s from west-southwest
06:00–12:00		1°	1.6 – 8.0 mm	 Near gale, 15 m/s from west-southwest

Consequences

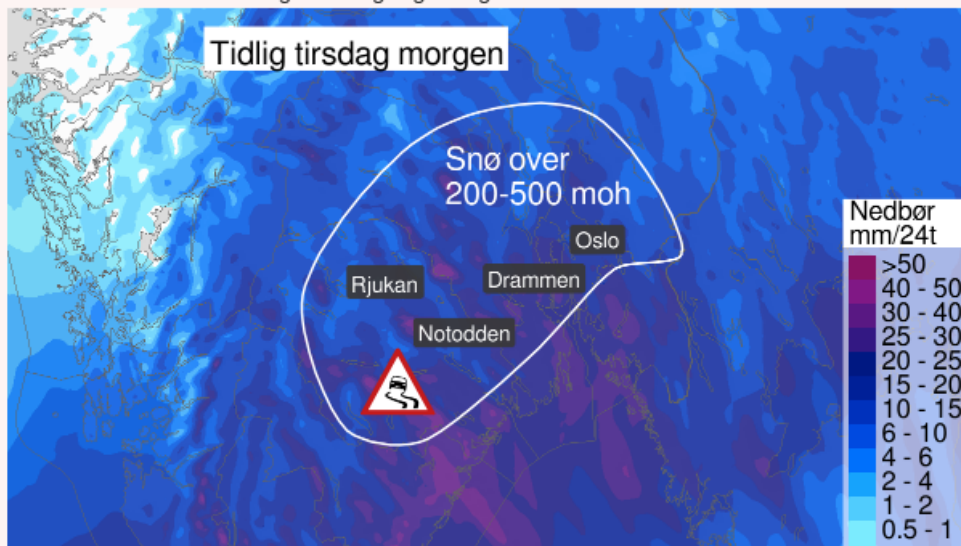
Illustrations in CAP

@meteorologene at twitter

Tirsdag 1. mai

 **Ventes:** Vanskelige kjøreforhold (Oslo, Akershus, Buskerud, Vestfold og Telemark)

Fra natt til tirsdag ventes vanskelige kjøreforhold på grunn av nedbør som snø over 200-500moh. Utover formiddagen overgang til regn.

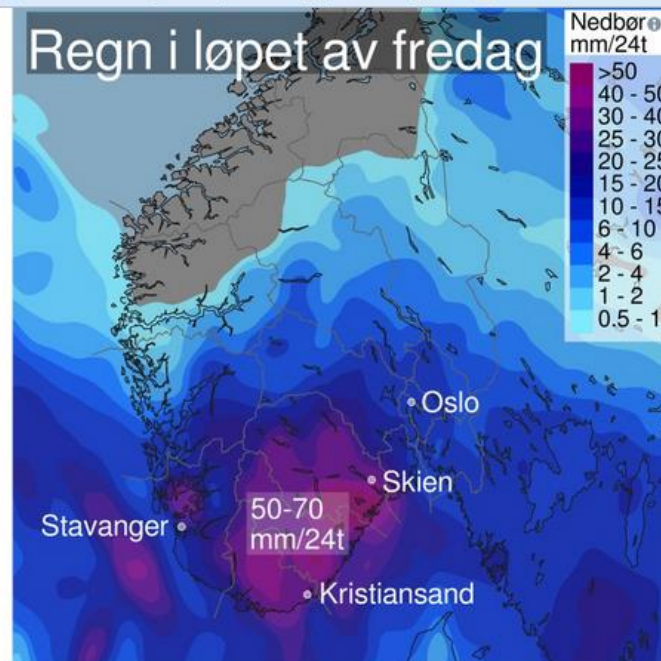


● Tirsdag 1. mai 2018 kl. 03:00
Faren øker

● Tirsdag 1. mai 2018 kl. 11:00
Faren er over

Vanskelige kjøreforhold og lokale forsinkelser. Bruk dekk som passer forholdene.

Regn i løpet av fredag



 **Meteorologene**
@Meteorologene

 Follow

Mye regn på fredag i #Agder, #Telemark og #Vestfold. 50-70 mm/24t og opptil 40-60 mm/12t. De største mengdene kommer fredag ettermiddag.

10:05 AM - Sep 7, 2017

🗨️ 3 🔄 8 ❤️ 4

RSS feed: alert.met.no

Browser address bar: <https://alert.met.no/alerts>

Browser tabs: Mest besøkt, Getting Started, Web Slice-galleri, Meldinger fra NVE RSS, Met - Weather alerts, Norges forskningsråd ...

[Gale warning, yellow level, Storegga, 18 June 21:00 UTC to 19 June 10:00 UTC.](#)
18. juni 2018, 11:58
Alert: From late this evening Monday or early Tuesday morning southwest gale force 8, Tuesday at times strong gale force 9

[Gale warning, yellow level, East-Tampen, 18 June 21:00 UTC to 19 June 10:00 UTC.](#)
18. juni 2018, 11:55
Alert: This evening Monday increasing southwest gale force 8

[Gale warning, yellow level, Viking, 18 June 21:00 UTC to 19 June 10:00 UTC.](#)
18. juni 2018, 11:52
Alert: From late this evening Monday southwest at times gale force 8 in the northern part.

[Forest fire danger, yellow level, Oppland and Hedmark, 18 June 09:00 UTC to 20 June 10:00 UTC.](#)
18. juni 2018, 11:26
Update: Locally high forest fire hazard until significant amount of precipitation.

[Gale warning, yellow level, Slettnes lighthouse- Vardoe, 18 June 15:00 UTC to 18 June 21:00 UTC.](#)
18. juni 2018, 11:23
Alert: Late Monday afternoon and Monday evening southeast near gale force 7.

[Gale warning, yellow level, Swedish border - Stavern, 18 June 20:00 UTC to 19 June 06:00 UTC.](#)
18. juni 2018, 10:26
Alert: From Monday evening southwest near gale force 7. Decreasing Tuesday morning.

[Strong winds, yellow level, Fjellet i Soer-Norge, 19 June 06:00 UTC to 20 June 06:00 UTC.](#)
18. juni 2018, 10:00
Alert: From Tuesday morning west severe gale force 9 to storm force 10 in high mountain area. Tuesday afternoon decreasing in Langfjella, Wednesday morning decreasing further north.

[Gale warning, yellow level, Maaloey - Svinoy, 18 June 06:00 UTC to 18 June 19:00 UTC.](#)
17. juni 2018, 21:06

CAP files validate

Result

Valid!

Kart Satellitt

Sent: 2018-06-18T08:00:03+00:00
Expires: 2018-06-20T06:00:00+00:00
Area: Fjellet i Soer-Norge
Web: <https://www.met.no/vaer-og-klima/farevarsel-og-ekstremvaer>
Sender: noreply@met.no
Identifier: 2.49.0.1.578.0.180618080003069.1416

Google

Kartdata ©2018 GeoBasis-DE/BKG (©2009) Google Inst Geogr Nacional 200 km Brukervilkår

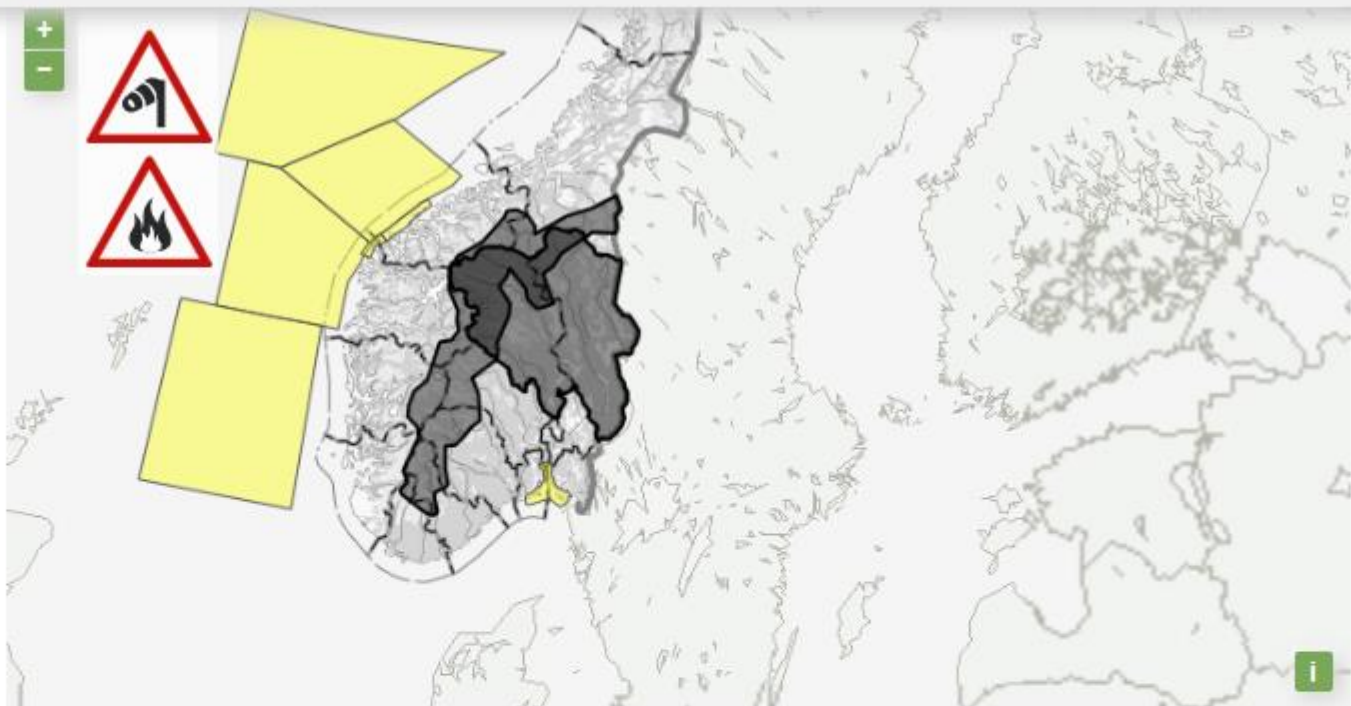
<http://halo.met.no>



- Wind, land
- Wind, coast and sea
- Forest fire danger

Awareness levels

- Moderate
- Show all



Be aware: Challenging situation

From Tuesday 19. June 06:00
to Wednesday 20. June 06:00

Issued by MET Norway 18. June
08:00

Strong winds, Fjellet i Soer-Norge

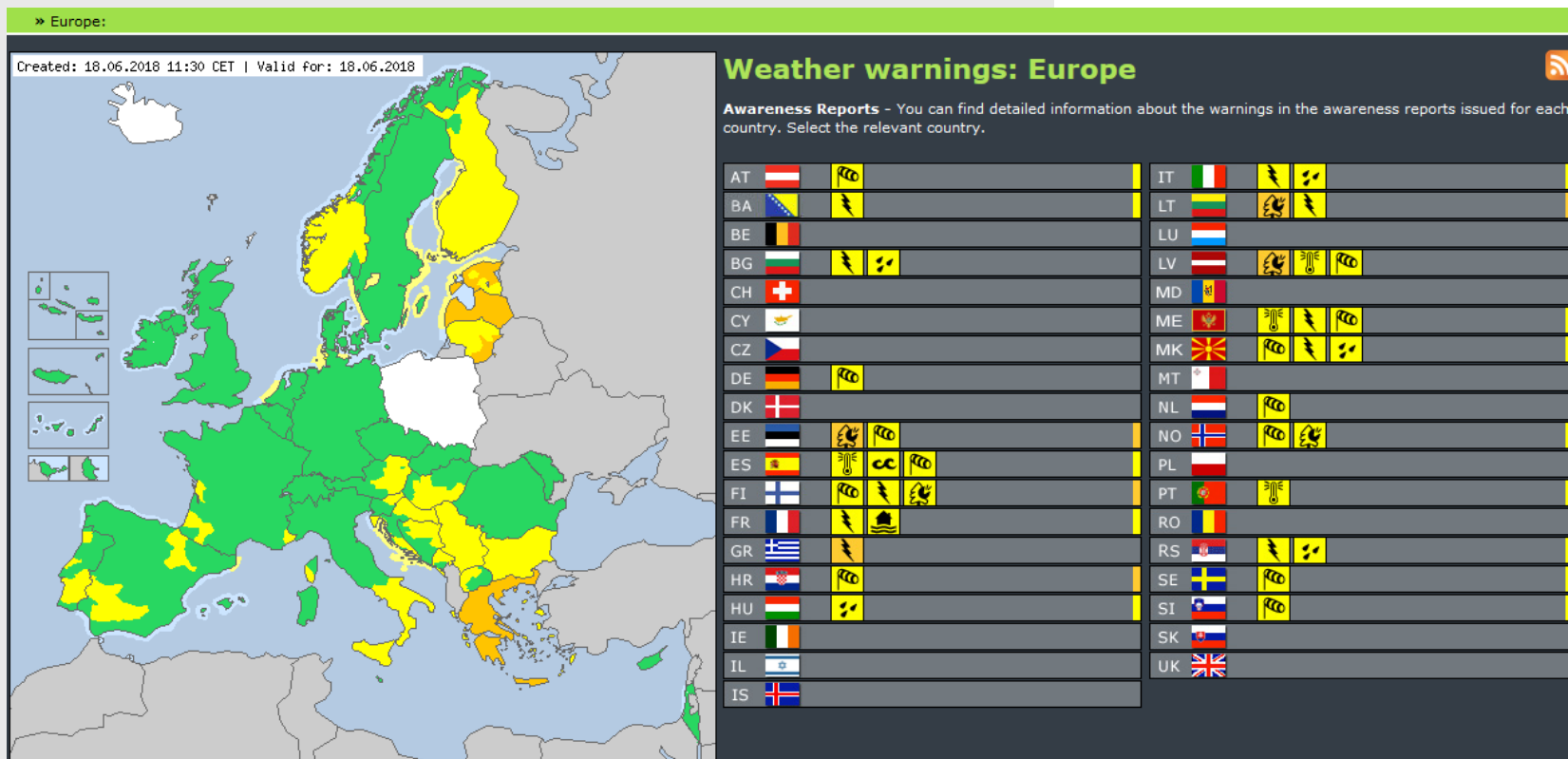
Description: From Tuesday morning west severe gale force 9 to storm force 10 in high mountain area. Tuesday afternoon decreasing in Langfjella, Wednesday morning decreasing further north.

Consequences: It may be dangerous to travel in the mountains.

Instruction: Secure loose items. Be careful when traveling outdoors.

EUMETNET - METEOALARM

- EMMA: <http://eumetnet.eu/activities/forecasting-programme/current-activities-fc/emma/>
- <http://meteoalarm.eu>



EMMA requirements

- Check operationally through a **quality control system** the input of all CAP files
- **Redesign of the website** to accommodate higher responsiveness.
- Support members to **enhance cooperation** with hydrological services
- Specify and supply an **information exchange platform for forecasters** to eventually use as a means of **cross border exchange** of information for and about warnings.
- This platform will facilitate the communication of storm names.



Thank you for your attention!

Contact: solfrida@met.no

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