



Warnings Systems and Criteria in the Netherlands

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Head of Forecasting

KNMI in bird's-eye view





Royal Netherlands Meteorological Institute (KNMI)

- History
- Organization
- Characterization
- Challenges

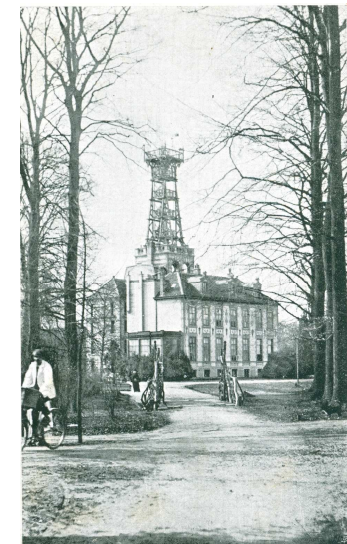


Koninklijk Nederlands
Meteorologisch Instituut
Ministerie van Verkeer en Waterstaat

HISTORY



- **Founded by Royal Decree in 1854 in Utrecht (Sonnenborgh Observatory) by Prof. Buys Ballot**
- **Initially funded because of benefits for Merchant Ships**
- **1897 moved from Utrecht to present location in De Bilt**
- **Major changes:**
 - **1901 Seismology added**
 - **1953 Storm Surge: extra staff & research**
 - **1980s: Climate Research**
 - **1998 Privatisation of commercial tasks**



Observatorium v.h. Meter. Inst.

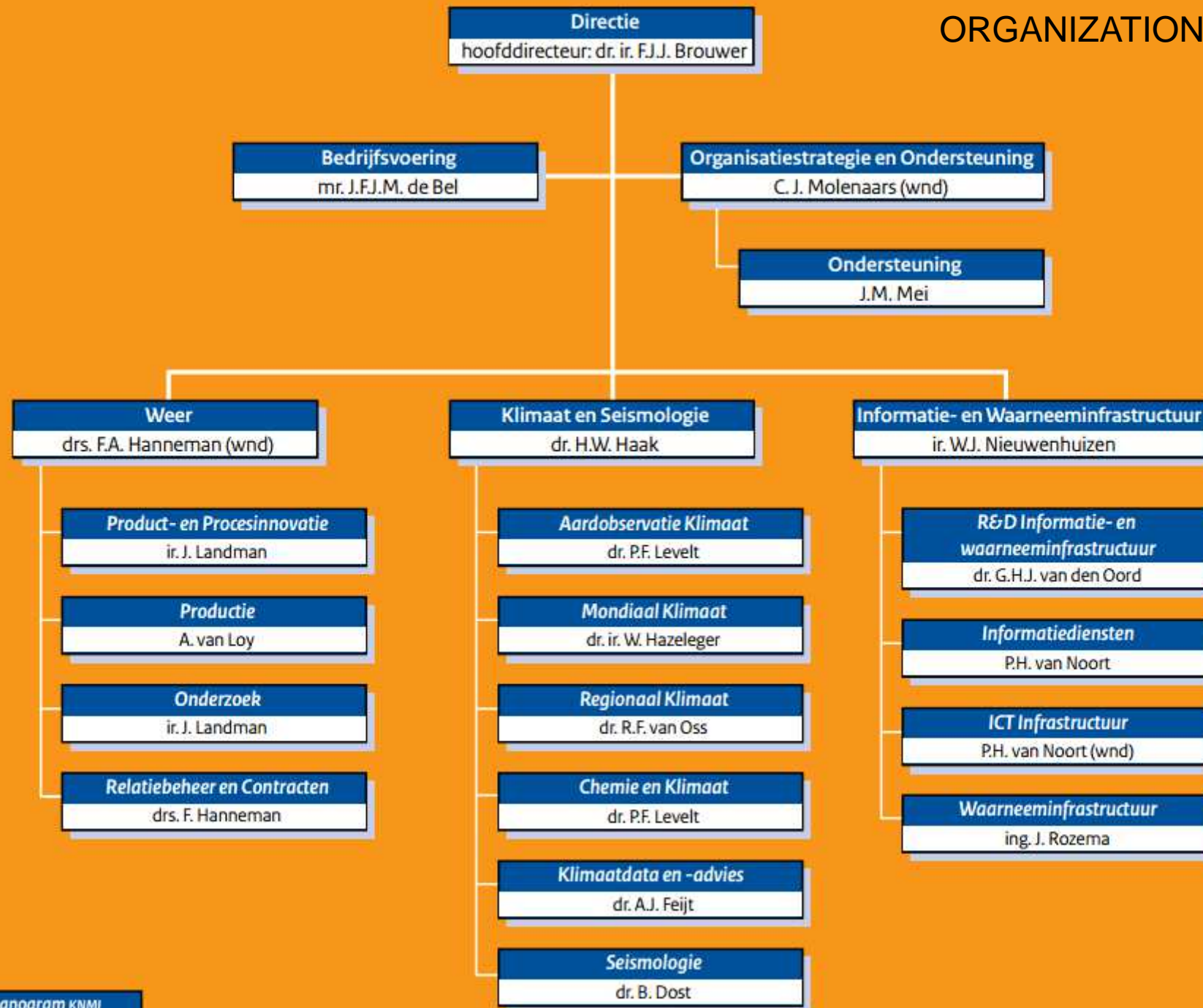
De Bilt.

ORGANIZATION



- **Agency of the Ministry of Infrastructure and Environment**
- **Political responsibility of Deputy-Minister**
- **Secretary-General is “Owner” of the Agency**
- **Programme Board (9 members, chaired by Director-General for Water) determines our Work Plan**
- **Advisory Board (6 members) for Quality Aspects**

ORGANIZATION (2)



ORGANIZATION



Some figures:

450 FTEs, of which ca. 70 temporarily and financed by 3rd parties (projects)

Budget 45 M€ (Income 3/5 Ministry, 1/5 Aviation, 1/5 Research Programmes and Data Selling),

Spending: 65% Personnel Costs, 25% Operational Cost, 10% Investments (excl. EUMETSAT).

CHARACTERIZATION



KNMI is...

Thé National Institute for Weather, Climate and Seismology

Active for Safety, Sustainable Environment and Economical Development in The Netherlands

By providing data, information and knowledge

CHARACTERIZATION



KNMI's prime products:

Severe Weather Warnings and Climate Scenario's

Both an operational organisation and research center 'under one roof'

Being an Agency, activities in the most economical way: e.g. product management, real cost, time management, organisational development.

Due to Governmental decisions : 10% cut is needed.

CHARACTERIZATION



KNMI is the Guardian of the National Meteorological Database
(data from the national meteorological infrastructure);

Recognized as major organisation in case of disasters;

High level science;

CHALLENGES



Singe Europeas Skies (aviation meteorology);

Budget cuts;

Closer interaction with policy issues;

Wider orientation towards Europe/World, including Development Aid.



Weather Warnings in The Netherlands

Warning Elements

Wind Gusts



Extreme rainfall



Thunderstorms



Poor visibility



Wind/Watersprouts



Snow & Ice



High Temperatures





Weather Warnings in The Netherlands

Procedures



Distinction between warning phases

No impact weather → only regular forecasts, so no warnings (**GREEN**)

Relax

Impact only expected for targeted groups (>60% risk) → Regular forecasts and Warnings for dangerous weather (**YELLOW**)

Be aware

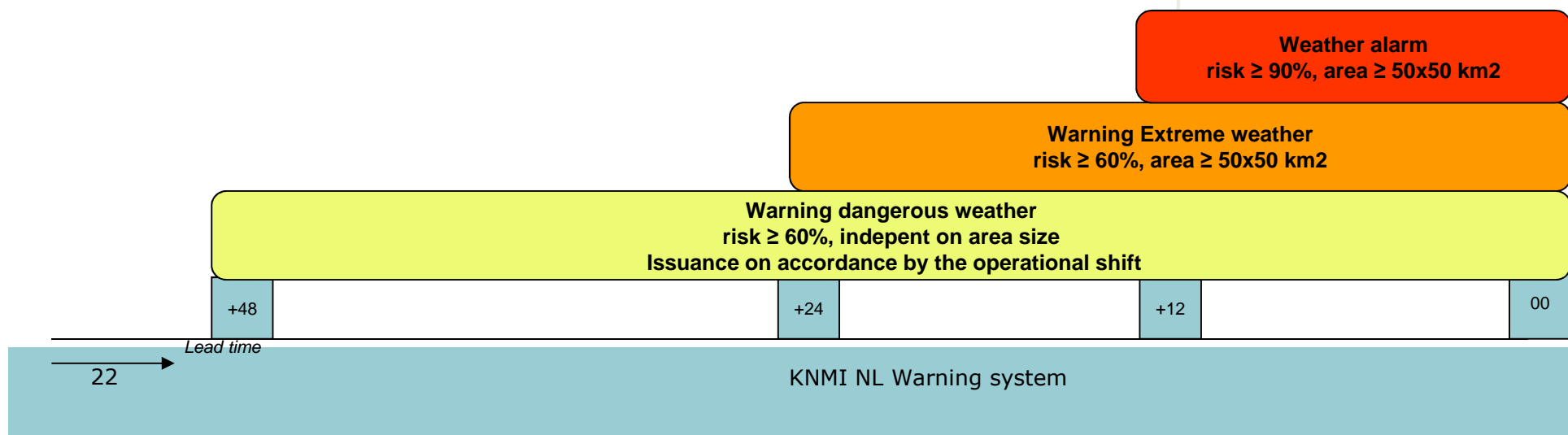
High impact expected on society as a whole (>60% risk) within a large area(> 50x50 km²) → Regular forecasts and Warnings for Extreme weather (**ORANGE**)

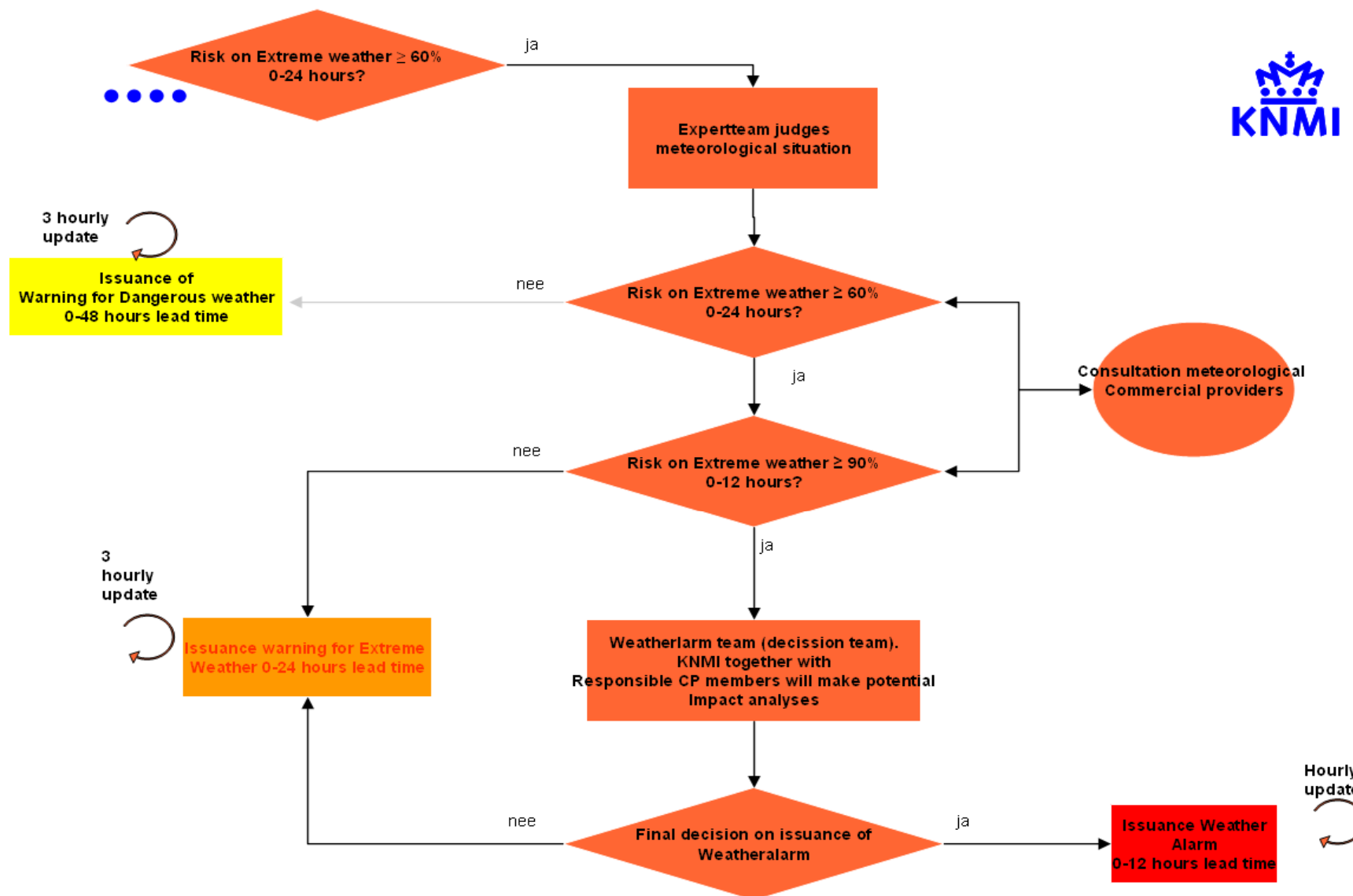
Be prepared

High impact expected on society as a whole (>90% risk) within a large area(> 50x50 km²) → Regular forecasts and Weather Alarm (**RED**)

Take action

Phenomenon	Criteria Warning dangerous weather	Criteria Warning Extreme weather and Weather Alarm
Snow and Ice	<ul style="list-style-type: none"> frosty wet roads accumulation of snow 0-3 cm/hr 	<ul style="list-style-type: none"> accumulation of snow >3cm/hr of >10 cm/6 hr snow or drifting snow with mean wind speed >40 km/hr slippery roads by freezing rain or ice pallets
Thunder	<ul style="list-style-type: none"> >1 strike in 5 minuten, possibly accompanied by hail 	<ul style="list-style-type: none"> >500 strikes within 5 minuten, possibly accompanied by hail
Rain	<ul style="list-style-type: none"> troubling the road traffic (only after indication from road traffic partners) >30 mm/hr 	<ul style="list-style-type: none"> >75 mm in 24 hours
High temperatures	<ul style="list-style-type: none"> extreme high temperatures (only after consultation Environmental Istitute, RIVM) 	<ul style="list-style-type: none"> not appilicable
Wind and water spouts	<ul style="list-style-type: none"> only after observation of a wind or waterspout 	<ul style="list-style-type: none"> not applicable
Gusts	<ul style="list-style-type: none"> >75 km per hour 	<ul style="list-style-type: none"> >100 km per hour >120 km per hour (winterperiod in coastal area)
Visibility	<ul style="list-style-type: none"> ≤ 200mtrs, ≤ 50mtrs, ≤ 10mtrs 	<ul style="list-style-type: none"> not applicable





Scheme issuance Warning for Extreme weather and Weather Alarm



Weather alarm team

Ministerie of Infrastructure and Environment: Traffic Center

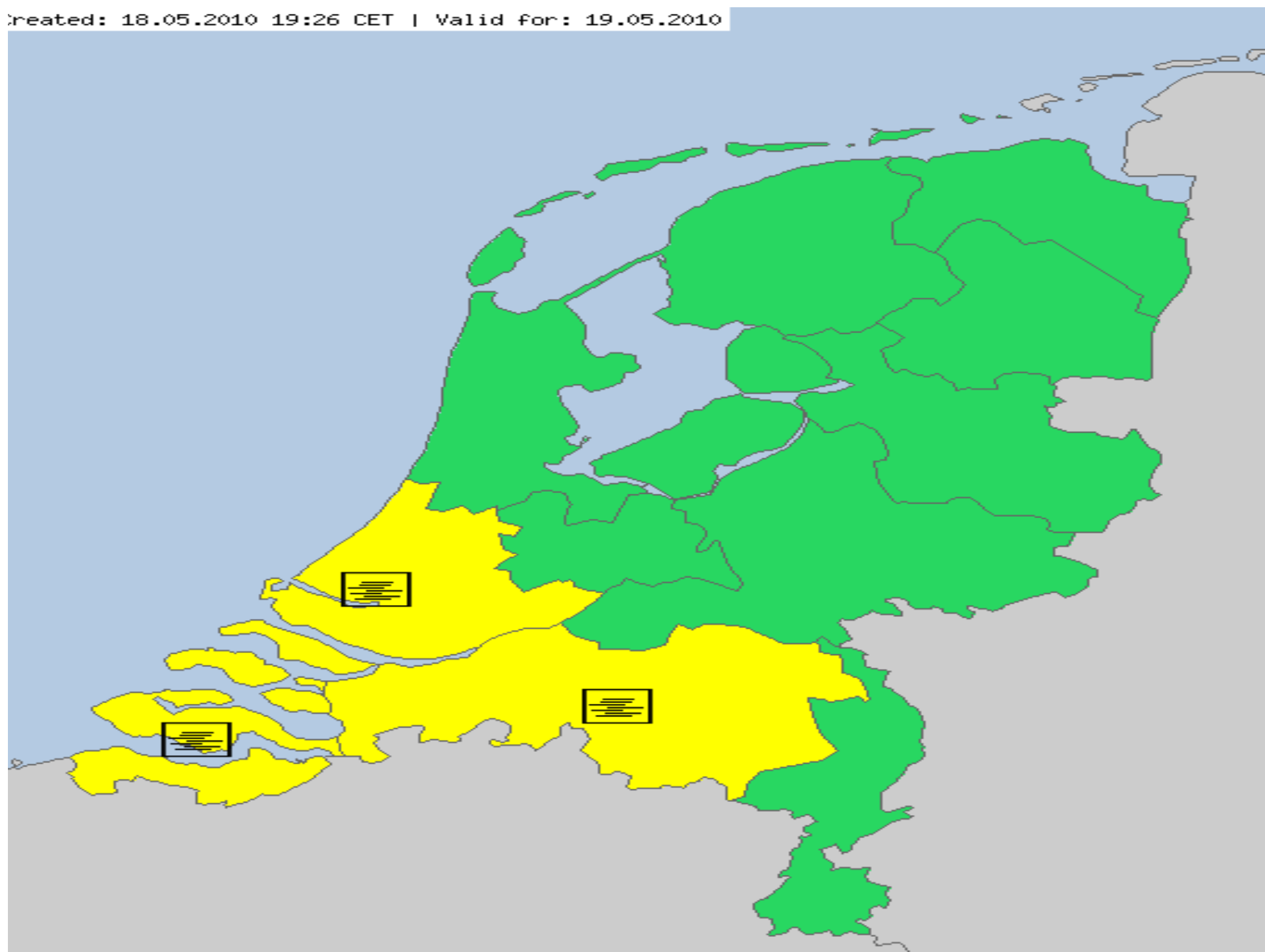
Ministerie of Infrastructure and Environment: Coordination Center

Ministerie of Internal Affairs: National Disaster coordination Center

ProRail: exploitation of rail infrastructure

Civil Protection

Created: 18.05.2010 19:26 CET | Valid for: 19.05.2010





Weather Warnings in The Netherlands

Meteoalarm Emma, European harmonization

TEMPÊTES NOËL 1999

50°

Trajet de **LOTHAR**

Ploumanach
148 Km/h

Pte du Raz
162 Km/h

Rouen
140 Km/h

Paris/Montsouris
169 Km/h

Paris/Orly
173 Km/h

Strasbourg
144 Km/h

Île d'Yeu
162 Km/h

26 Décembre 1999

Trajet de **MARTIN**

45°

Cap-Ferret
173 Km/h

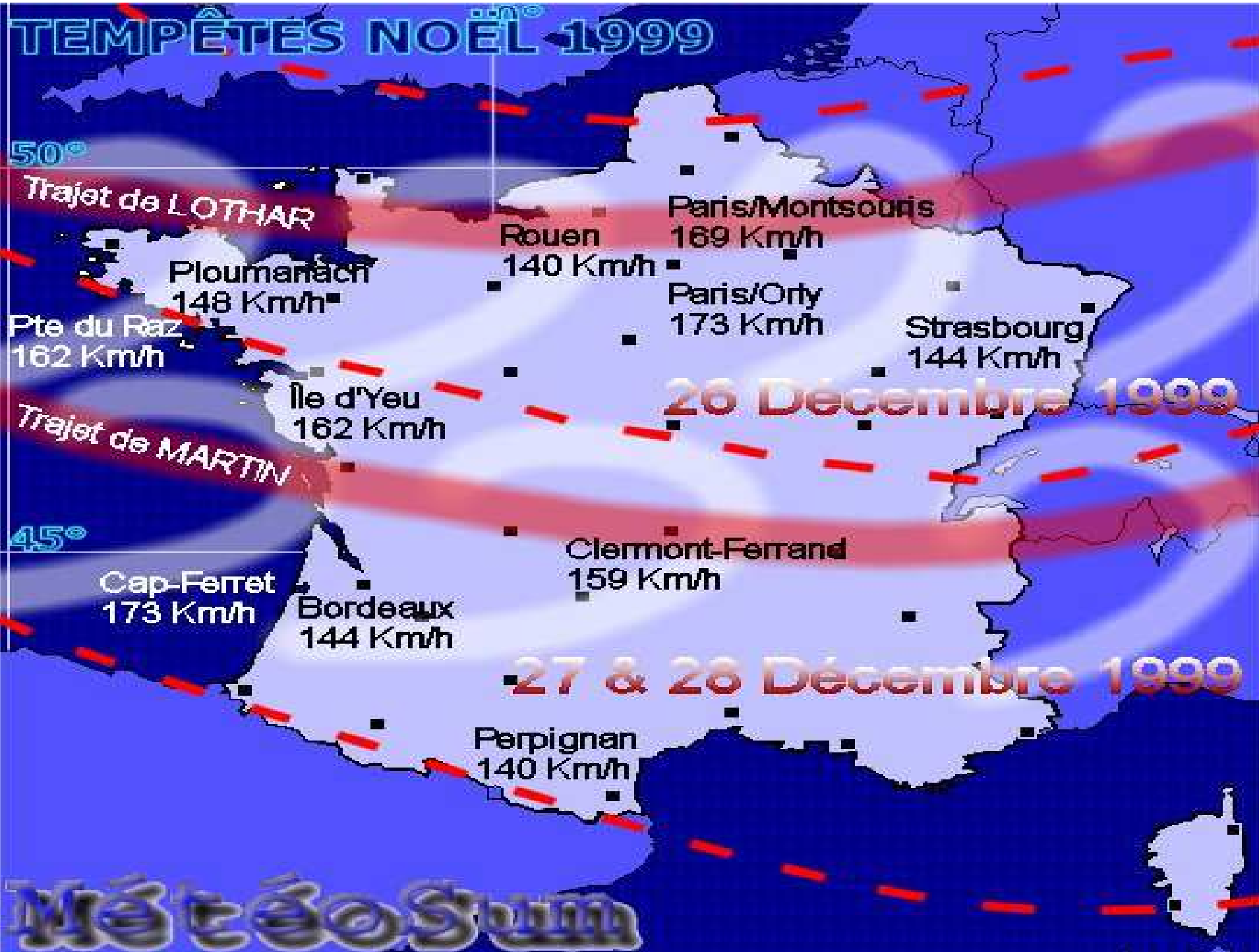
Bordeaux
144 Km/h

Clermont-Ferrand
159 Km/h

27 & 28 Décembre 1999

Perpignan
140 Km/h

MétéoSum





Winterstormmeeting Toulouse Oct 2000

- **Meteorological discussions (synoptical + dynamical)**
- **Discussions on warning strategies**
- **Vigilance system announcement by Meteo France**
- **Need was expressed to improve communication between NMS's**



Starting points Meteoalarm concept

1. Simply understandable for non experts, using graphical symbols
2. All warning levels (colours) should be impact and damage related
3. Harmonize colour assignment strategy across the domain, based on impact
4. Primarily targeted at the General Public and national CP services
5. Also targeted to the Forecasters at the bench. Awareness/cross border discussion

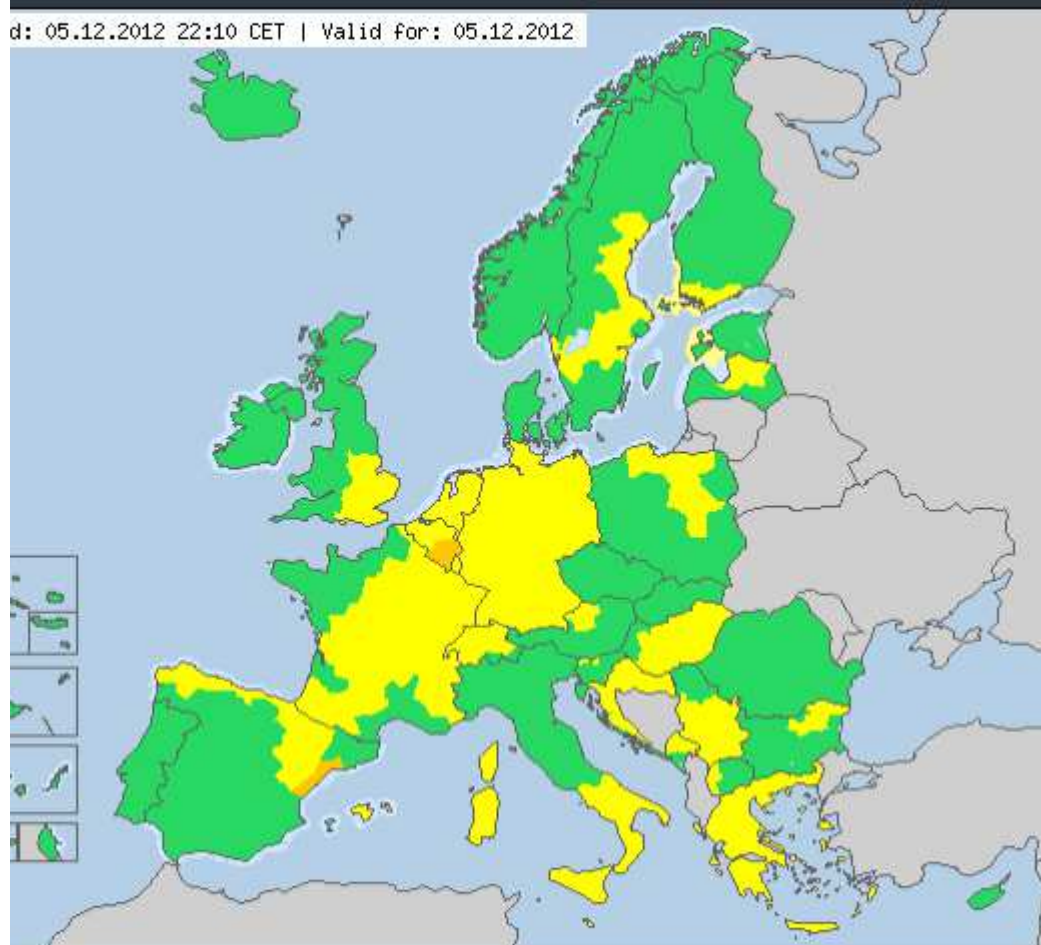
The Meteoalarm warning matrix



Colour	One word	Damage / Impact	What to do?	Used how often?	Meteo Treshholds e.g. Rain (area + impact related)
Green	Weather report	- - -	usual phenomena	usual phenomena	Examples
yellow	Be aware!	exposed objects (avoidable)	caution with exposed activities	> 30 per year	> 54 mm/12h
orange	Be prepared!	general damages (not avoidable)	keep informed in detail, follow advice of authorities	1 to 30 per year	> 80 mm/12h
red	Take action!	extreme damage and /or casualties <i>extreme damage (mostly) on large areas, threatning life and properties</i> (not avoidable, even in otherwise safe places)	follow order of authorities under all circumstances be prepared for extraordinary measures	less then 1 year + <i>large (5000km²) scale phenomena</i>	> 140 mm/12h

dropa::

d: 05.12.2012 22:10 CET | Valid for: 05.12.2012



Waakzaamheidsberichten - U kunt meer gedetailleerde informatie vinden op de waakzaamheidsrapporten die voor elk land worden uitgegeven. Selecteer het land van uw keuze

[illegible]

parameters: all awareness types

Periode: vandaag morgen

Caption:





Meteoalarm Recently Extended Features

Soon new features on the normal website:

- 12 Nmiles zone coastal warnings for leisure purposes
- Next to rain now also: Rain and/or Flood, Flood parameters on the web

By user and password admittance for CP services and NMS's

- Day 2 to 5 warnings displayed by some countries



Thanks for your attention!