

# Worldwide Met-Ocean Information and Warning Service (WWMIWS)

WEATHER CLIMATE WATER  
TEMPS CLIMAT EAU

Neal Moodie  
July 2018



WMO OMM

World Meteorological Organization  
Organisation météorologique mondiale

# Contents

- WWMIWS web portal
- Global datasets
- How forecasts and warnings are produced
- Systems approach to marine weather safety
- How to recognise high quality and reputable information

# World Meteorological Organization

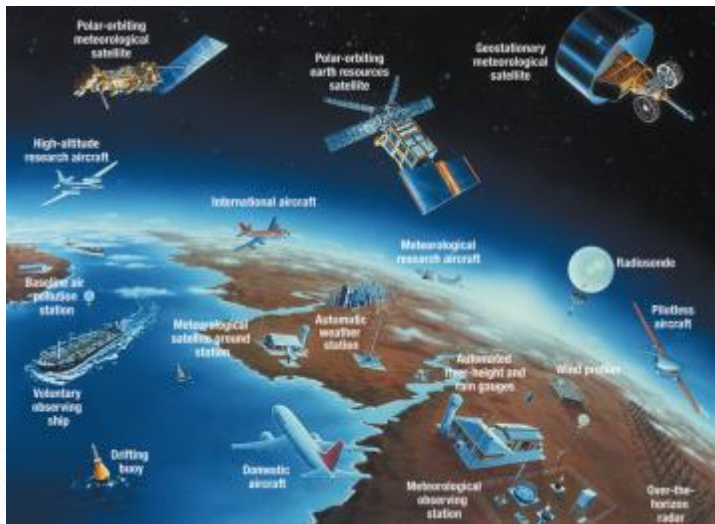
UN Specialized Agency



Weather Warnings

**Authoritative voice on weather, climate and water, enabling world-wide observations, research and services needed to...**

- Support meteorological agencies to provide forecasts and warnings for all sectors of industry and for the community
- Facilitate networks of monitoring stations and service centres
- Promote systems for real time global exchange of data
- Further the application of meteorology to socio-economic sectors;
- Encourage research and training



# Weather touches a number of key industry issues

## ISSUES TO MONITOR (AND PRICE)



High-value risks

The human factor/  
Qualification

Oil price, fuel quality,  
effect of ECA's?

Climate changes

Law and liability changes



Accumulation

Arctic risks



New technology



Navigation



# Risk – controllable vs uncontrollable

## Controllable

- Boat build
- Communications
- Waterway management
- Competent workforce
- Lifejacket wear



## Uncontrollable

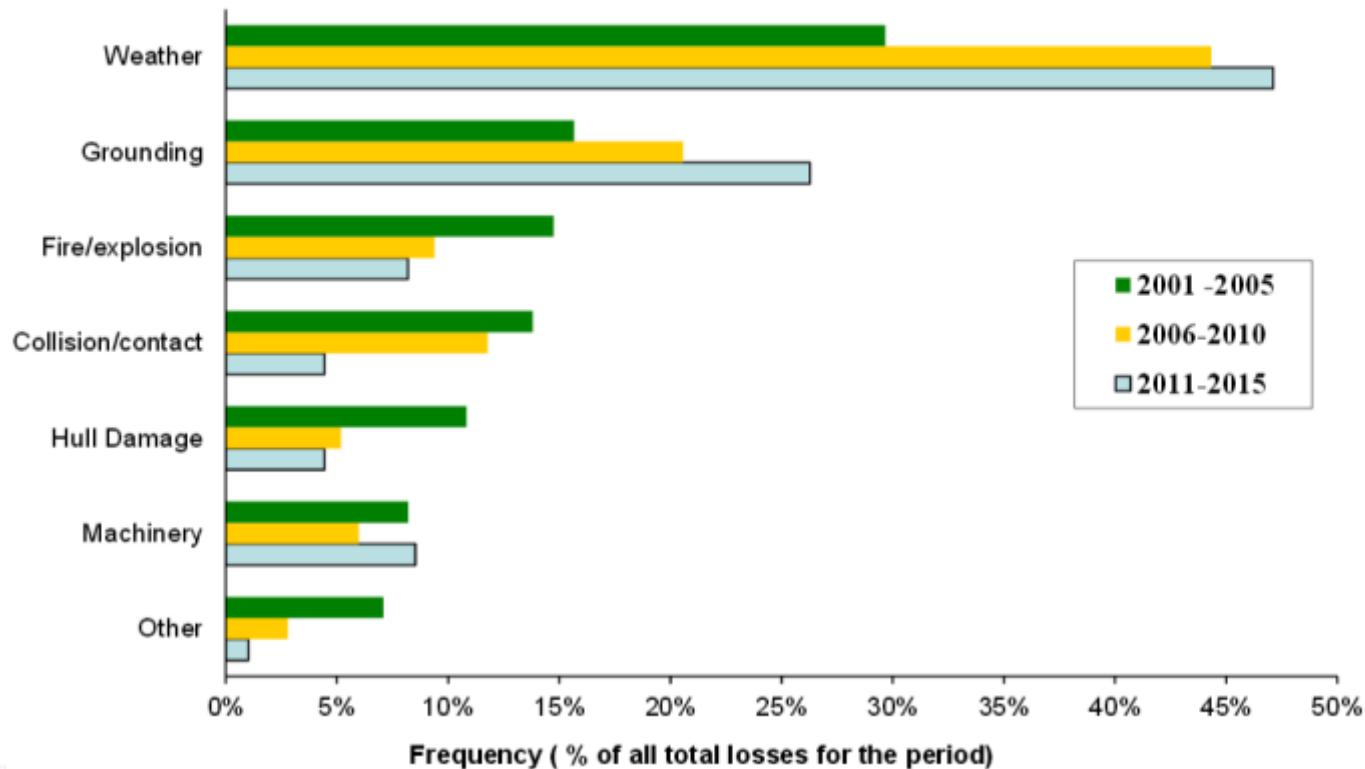
- Weather
- Security threats
- Human error

Lots of focus on these

Difficult to address

# Context of Maritime Safety Services

Total Losses 2000 – 2014  
By Cause, All Vessel Type  
(vessels > 500 GT)

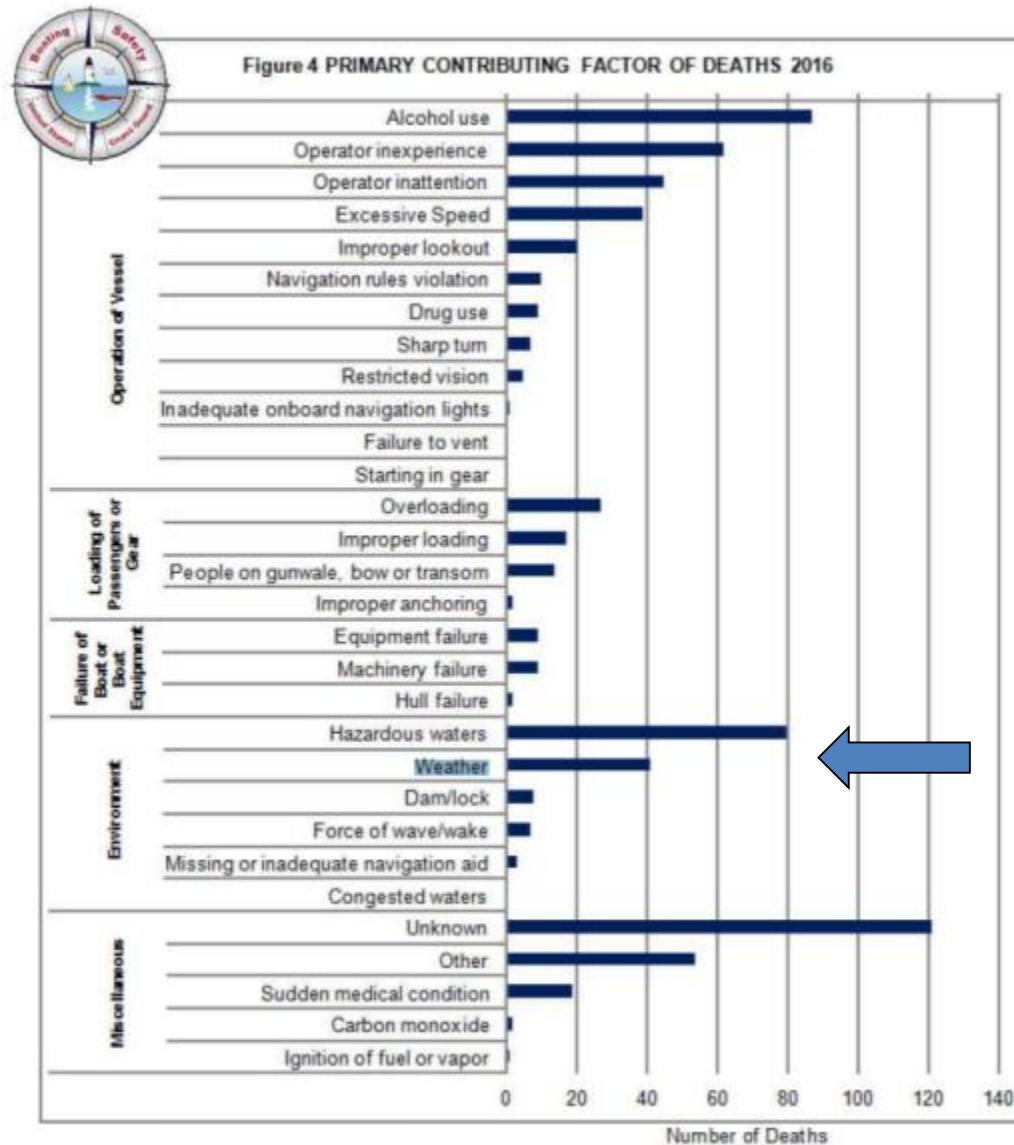


Source: LLI, total losses as reported by Lloyds List





# Weather impact on boaters - USA

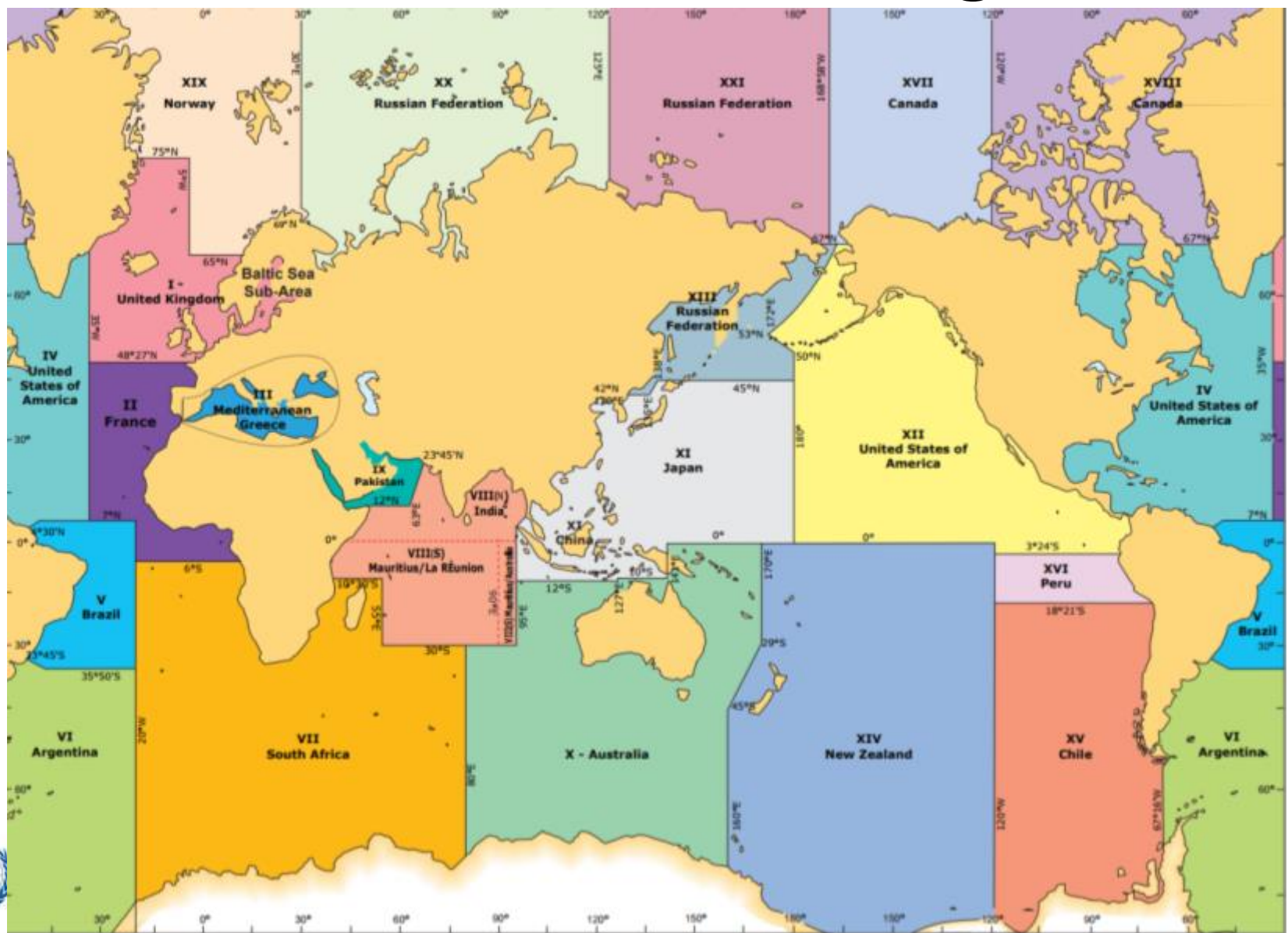


# IMO/WMO Worldwide Met-Ocean Information and Warning Service

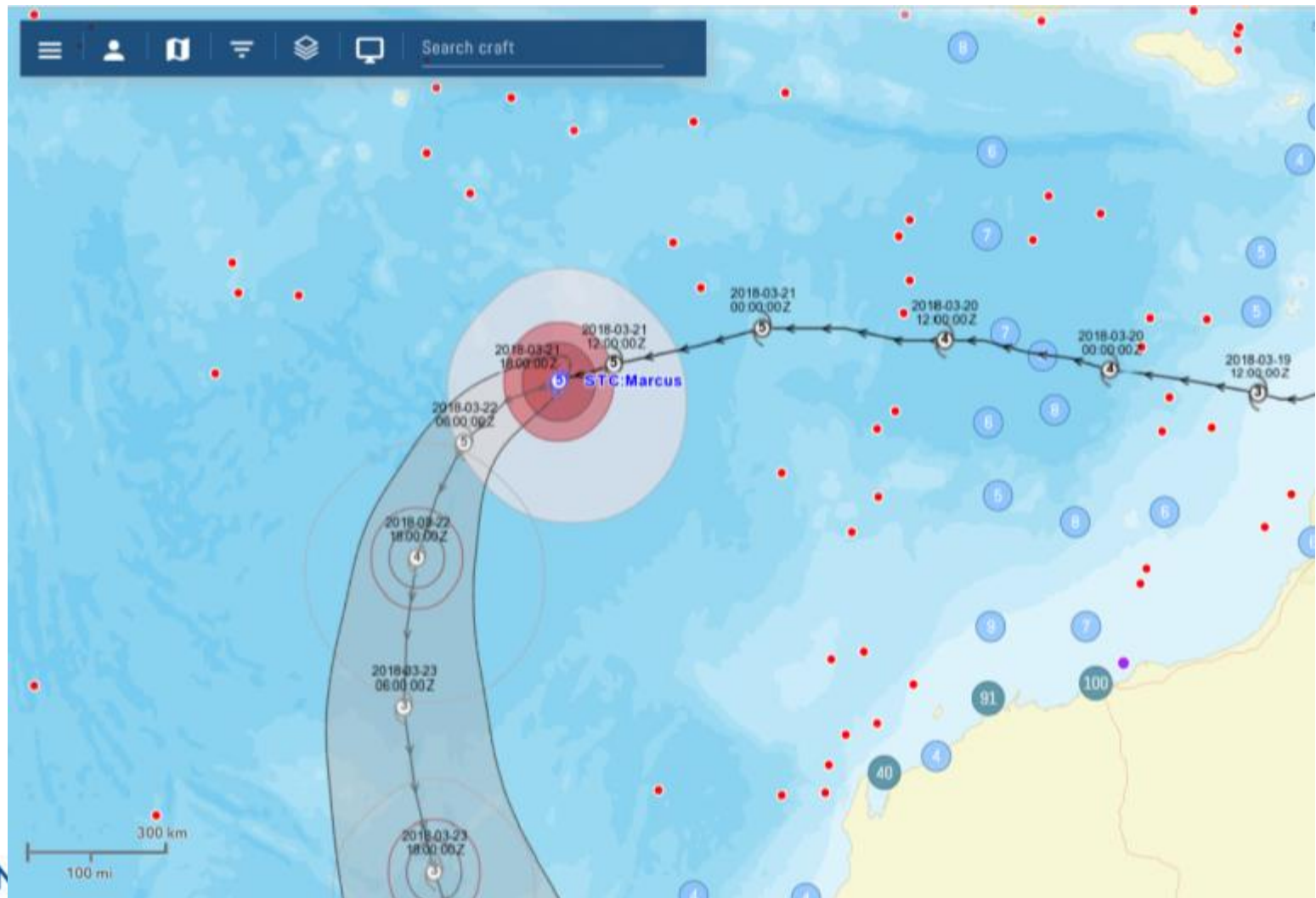
- The WWMIWS provides coordinated and uniform marine forecast and warning text products to mariners.
- Ships receive the products via SafetyNET and NAVTEX (and HF in the Arctic) communication systems.
- A web portal allows a one stop shop to view the same messages received by the vessels



# How the WWMIS is organised



# Are vessels taking notice? - Yes



WMU

# WWMIWS web portal weather.gmdss.org



## Worldwide Met-Ocean Information and Warning Service (WWMIWS)

Global  
Maritime  
Distress and  
Safety  
System

### HOME PAGE

METAREA I  
METAREA II  
METAREA III  
METAREA IV  
METAREA V  
METAREA VI  
METAREA VII  
METAREA VIII\_N  
METAREA VIII\_S  
METAREA IX  
METAREA X  
METAREA XI  
METAREA XII  
METAREA XIII  
METAREA XIV  
METAREA XV  
METAREA XVI  
METAREA XVII  
METAREA XVIII  
METAREA XIX  
METAREA XX  
METAREA XXI

### About the Worldwide Met-Ocean Information and Warning Service

This website displays the marine forecast and warning products that are provided to mariners via SafetyNet and Navtex, as part of the Worldwide Met-Ocean Information and Warning Service (WWMIWS), within the framework of the Global Maritime Distress and Safety System (GMDSS).

The world's oceans have been divided into 21 areas, called MetArea's, for the provision of marine products to shipping.

The products displayed are issued by the National Meteorological Services (NMS) appointed as WWMIWS Issuing Services. METAREA Coordinators are assigned to coordinate provision of the marine services for each area. [View the MetArea Coordinator contact list.](#)

Information on the Worldwide Navigational Warning Service (operated by the International Hydrographic Organization), may be found using the [NAVAREA co-ordinators websites.](#)

This website was developed and maintained by [Meteo-France](#). It has been operational since June 2003 and will continue to grow and evolve. Suggestions are welcomed ([Mireille Mayoka](#)).

Note for additional interesting websites : [JCOMM Marine Pollution Emergency Response Support System \(MPERSS\)](#), [WMO Severe Weather Information Centre](#), [EUMETNET meteoalarm](#)

The products displayed on this website may be subject to terms of use under Copyright or Creative Commons. Please contact the respective Meteorological office for these terms.

# View products for each METAREA



**Caution:**  
This website uses information that is transmitted by Meteorological Offices via the World Meteorological Organization's Information System (WIS), and the availability of products may be interrupted or delayed from time to time. Please refer to the respective Meteorological Office websites as the authoritative source.

Global  
Maritime  
Distress and  
Safety  
System

[HOME PAGE - Metarea II](#)

HOME PAGE

- METAREA I
- METAREA II**
- METAREA III
- METAREA IV
- METAREA V
- METAREA VI
- METAREA VII
- METAREA VIII\_N
- METAREA VIII\_S
- METAREA IX
- METAREA X
- METAREA XI
- METAREA XII
- METAREA XIII
- METAREA XIV
- METAREA XV
- METAREA XVI
- METAREA XVII
- METAREA XVIII
- METAREA XIX
- METAREA XX
- METAREA XXI

## METAREA II :

Atlantic waters east of 35°W, from 7°N to 48°27'N, and east of 20°W from 7°N to 6°S, including the Straits of Gibraltar

<b>Issuing Service</b> France	<b>Satellite Ocean Regions (scheduled bulletins)</b> AOR (E) AOR (W)
----------------------------------	--

### METAREA messages

NAME	DATE
HIGH SEAS FORECAST	July 13 2018 - 07:22:05 UTC

### NAVTEX messages *Choose a coastal NAVTEX station in the list below*

- France** : Cross Corsen [A]
- Spain** : Coruña [D], Tarifa [G], Las Palmas [I]
- Portugal** : Monsanto [R], Horta [F]
- Cape Verde** : Ribeira De Vinha [U]
- Senegal** : Dakar [C]

[French National Meteorological Service Website](#)

[General information \(including maps\)](#)

**Page Date** : July 13 2018 - 12:10:25 UTC

*You can bookmark this page for future direct access*



# View a forecast or warning

Close this Window

**METAREA5 / HIGH\_SEAS\_WARNING / 0300** *(Do not bookmark this window)*

*For downloading this bulletin, click on right mouse button "save link(target) as..." on [this link](#)*

WWST02 SBBR 130300

1 31 05 02 12 20

SECURITE

WARNING NR 524/2018

GALE WARNING

ISSUED AT 1300 UTC - WED - 11/JUL/2018

SOUTH OCEANIC AREA S OF 30S AND E OF 030W. WIND E/NE BACK NE/NW FORCE 7/8  
WITH GUSTS FORCE 9.

VALID UNTIL 140000 UTC.

THIS WARNING REPLACES THE WARNING NR 514/2018.

WARNING NR 526/2018

VERY ROUGH SEA WARNING

ISSUED AT 1300 UTC - WED - 11/JUL/2018

SOUTH OCEANIC AREA S OF 30S AND E OF 035W. WAVES FM SE/E BECOMING NE  
4.0/5.0 METERS.

VALID UNTIL 140000 UTC.

THIS WARNING REPLACES THE WARNING NR 518/2018.

WARNING NR 528/2018

VERY ROUGH SEA WARNING

ISSUED AT 1500 UTC - THU - 12/JUL/2018

SOUTH OCEANIC AREA S OF 32S AND W OF 035W STARTING AT 131200 UTC. WAVES FM  
NW/SW 4.0/5.0 METERS.

VALID UNTIL 141200 UTC.



# Access reference material



**Caution:**

This website uses information that is transmitted by Meteorological Offices via the World Meteorological Organization's Information System (WIS), and the availability of products may be interrupted or delayed from time to time. Please refer to the respective Meteorological Office websites as the authoritative source.

[Global Maritime Distress and Safety System](#)

## HOME PAGE - Metarea V

### HOME PAGE

- [METAREA I](#)
- [METAREA II](#)
- [METAREA III](#)
- [METAREA IV](#)
- [METAREA V](#)**
- [METAREA VI](#)
- [METAREA VII](#)
- [METAREA VIII\\_N](#)
- [METAREA VIII\\_S](#)
- [METAREA IX](#)
- [METAREA X](#)
- [METAREA XI](#)
- [METAREA XII](#)
- [METAREA XIII](#)
- [METAREA XIV](#)
- [METAREA XV](#)
- [METAREA XVI](#)
- [METAREA XVII](#)
- [METAREA XVIII](#)
- [METAREA XIX](#)
- [METAREA XX](#)
- [METAREA XXI](#)

## METAREA V :

Atlantic waters west of 20°W from 35°50'S to 7°N, narrowing in the coastal strips at the extremities to the Uruguay/Brazil frontier in 33°45'S and the French Guyana/Brazil frontier in 4°30'N

<b>Issuing Service</b> Brazil	<b>Satellite Ocean Regions (scheduled bulletins)</b> AOR (E)
----------------------------------	---

NAME	DATE
HIGH SEAS WARNING	July 13 2018 - 12:12:41 UTC
HIGH SEAS FORECAST	July 13 2018 - 12:12:31 UTC

<a href="#">Brazil National Meteorological Service Website</a>	<a href="#">General information (including maps)</a>
--	--

**Page Date** : July 13 2018 - 12:20:22 UTC

*You can bookmark this page for future direct access*



# View reference maps



WORLD  
METEOROLOGICAL  
ORGANIZATION

WEATHER CLIMATE WATER

Please visit our public website:  
<http://public.wmo.int>

[Home](#)

[WMO](#)>[WWW](#) >[WWW Operational Information Service \(OIS\)](#) > [GMDSS](#) >

## METAREA V

ISSUING SERVICE:	Brazil
COVERAGE:	Atlantic waters west of 20°W from 35°50'S to 7°N, narrowing in the coastal strips at the extremities to the Uruguay/Brazil frontier at 33°45'S and the Guyana/Brazil frontier at 4°30'N
SATELLITE OCEAN REGION:	AOR(E)

### SATELLITE SYSTEMS COMMUNICATION

<b>GMDSS</b>
<a href="#">Transmission Schedule For Full GMDSS</a>
<a href="#">Limits of METAREAS - World Map</a>

<b>MSI</b>
<a href="#">INMARSAT-C Land Earth Stations (LESs) accepting Short Access Code (SAC) 41 messages</a>

### TERRESTRIAL SYSTEMS COMMUNICATION

COUNTRY	MAPS	GMDSS			
		DSC	NAVTEX	FACSIMILE	HF-NBDP
World Map	<a href="#">NAVTEX stations</a>				
World Map	<a href="#">Radio-Facsimile</a>				
METAREA V	<a href="#">SafetyNET Forecasts</a>				
Brazil		DSC	NAVTEX	FACSIMILE	HF-NBDP
Suriname		DSC			
Uruguay	<a href="#">Forecast areas</a>	DSC	NAVTEX		

### FOCAL POINTS

<a href="#">METAREA Coordinator contacts for WMO Worldwide Met-Ocean information and warning service</a>
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<a href="#">Port Meteorological Offices and Weather Routeing Services</a>
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#### WORLD WEATHER WATCH

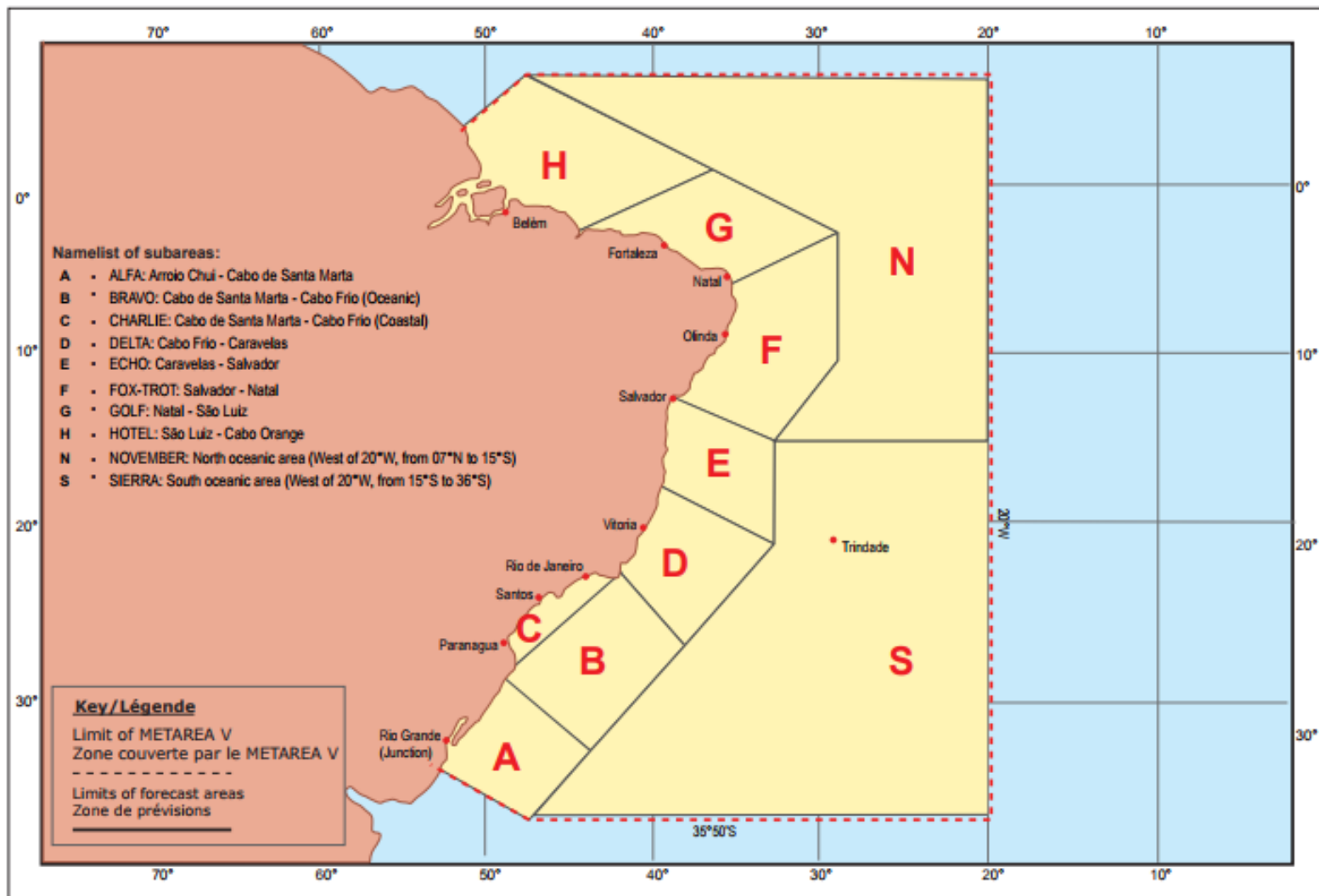
- [CBS Meetings](#)
- [Reports of Meetings](#)
- OPERATIONAL INFORMATION SERVICE**
- [Current News](#)
- [Best Practices](#)
- [Contact Information](#)

#### → GMDSS

- [WMO No 9 - Volume D](#)
- [Limits of METAREAS](#)
- [Metarea I](#)
- [Metarea II](#)
- [Metarea III](#)
- [Metarea IV](#)
- [Metarea V](#)
- [Metarea VI](#)
- [Metarea VII](#)
- [Metarea VIII](#)
- [Metarea IX](#)
- [Metarea X](#)
- [Metarea XI](#)
- [Metarea XII](#)
- [Metarea XIII](#)
- [Metarea XIV](#)
- [Metarea XV](#)
- [Metarea XVI](#)
- [Metarea XVII](#)
- [Metarea XVIII](#)
- [Metarea XIX](#)
- [Metarea XX](#)
- [Metarea XXI](#)



# Example reference map - Brazil



# Includes sea-ice products



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Global  
Maritime  
Distress and  
Safety  
System

## HOME PAGE - Metarea XVIII

### METAREA XVIII :

A position on the Canadian Coastline at the 120°W meridian to 90°N and 120°W, 90°N and 35°W to 67°N and 35°W

<b>Issuing Service</b> Canada	<b>Preparation Service</b> Denmark	<b>Satellite Ocean Regions (scheduled bulletins)</b>
----------------------------------	---------------------------------------	--

NAME	DATE
COASTAL WARNING GREENLAND	July 12 2018 - 22:20:15 UTC
COASTAL FORECAST GREENLAND	July 13 2018 - 11:50:12 UTC
HIGH SEAS FORECAST NORTH OF 75N	July 13 2018 - 03:02:17 UTC
HIGH SEAS FORECAST SOUTH OF 75N	July 13 2018 - 03:02:17 UTC
ICE FORECAST NORTH	July 13 2018 - 02:48:12 UTC
ICE FORECAST SOUTH	July 13 2018 - 02:48:12 UTC

**NAVTEX messages** Choose a coastal NAVTEX station in the list below

Iqaluit [T], Kook [W].

[Canada Meteorological Service Website](#)

[General information \(including maps\)](#)

[Metarea map](#)

Page Date : July 13 2018 - 12:30:22 UTC

You can bookmark this page for future direct access

## HOME PAGE

- METAREA I
- METAREA II
- METAREA III
- METAREA IV
- METAREA V
- METAREA VI
- METAREA VII
- METAREA VIII\_N
- METAREA VIII\_S
- METAREA IX
- METAREA X
- METAREA XI
- METAREA XII
- METAREA XIII
- METAREA XIV
- METAREA XV
- METAREA XVI
- METAREA XVII
- METAREA XVIII**
- METAREA XIX
- METAREA XX
- METAREA XXI

# View sea-ice bulletin

FICN03 CWIS 130245

ICE BULLETIN FOR METAREA XVIII NORTH OF 75N ISSUED BY ENVIRONMENT CANADA AT 0300 UTC 13 JULY 2018.

SECURITE.

AT 130300 UTC.

AVERAGE AREAL SEA ICE COVERAGE OF MARINE REGIONS GIVEN IN TENTHS.  
ABBREVIATION: OW=OPEN WATER.

MCCLURE:

SEA ICE: 9+.

ICEBERGS: HIGHLY UNLIKELY.

BYAM, GRIPER, FITZWILLIAM, BALLANTYNE, WILKINS, HAZEN:

SEA ICE: 10.

ICEBERGS: HIGHLY UNLIKELY.

QUEENS:

SEA ICE: 7.

ICEBERGS: ISOLATED.

MACLEAN, PEARY, SOUTH ELLEF RINGNES, ELLEF RINGNES, SOUTH AXEL HEIBERG,  
AXEL HEIBERG, ELLESMERE, WARD HUNT, CW5, CW4, CX3, CX4, CX5, CW6:

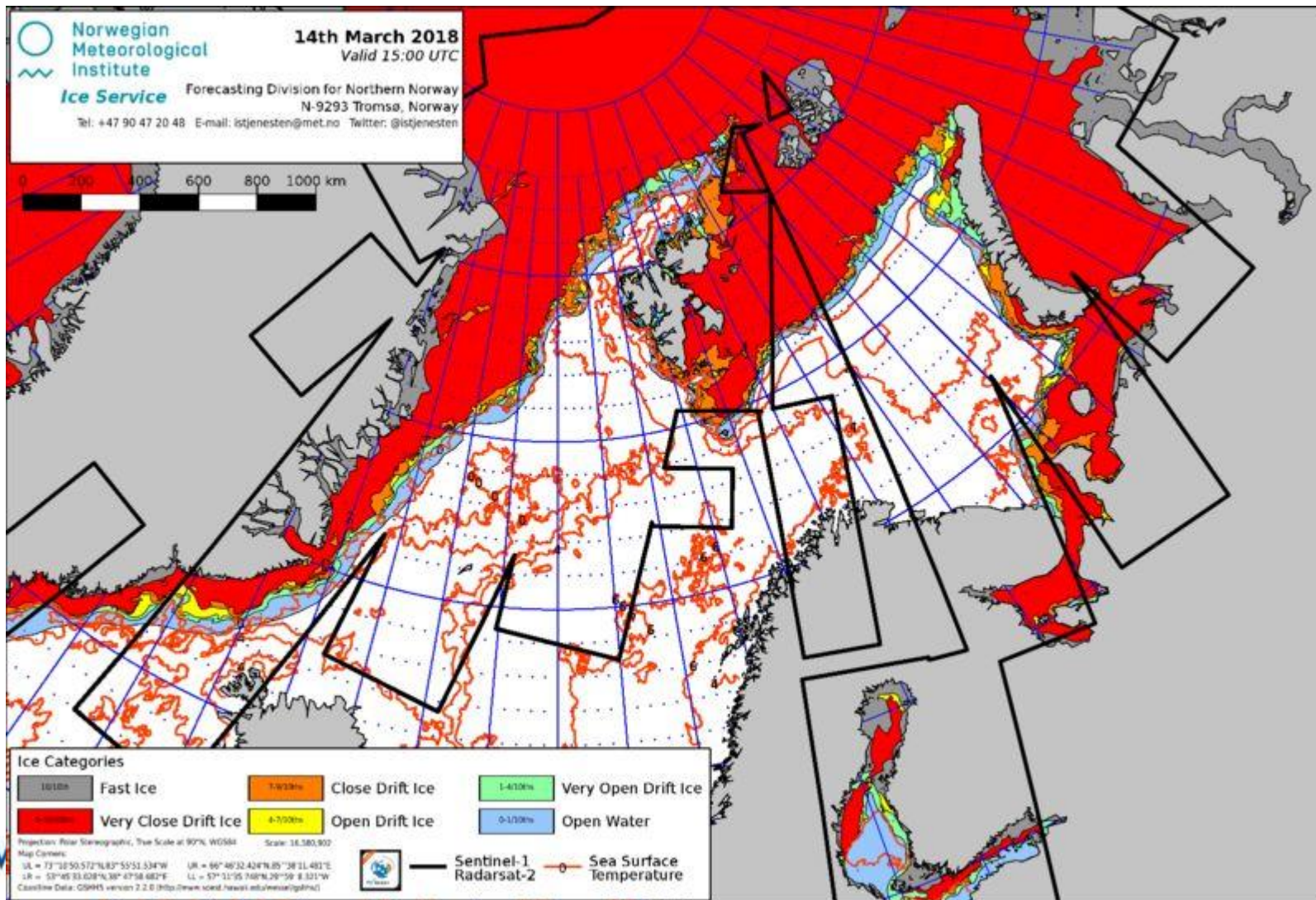
SEA ICE: 9+.

ICEBERGS: ISOLATED.



# Ice Logistics Portal

[www.bsis-ice.de/IcePortal/](http://www.bsis-ice.de/IcePortal/)

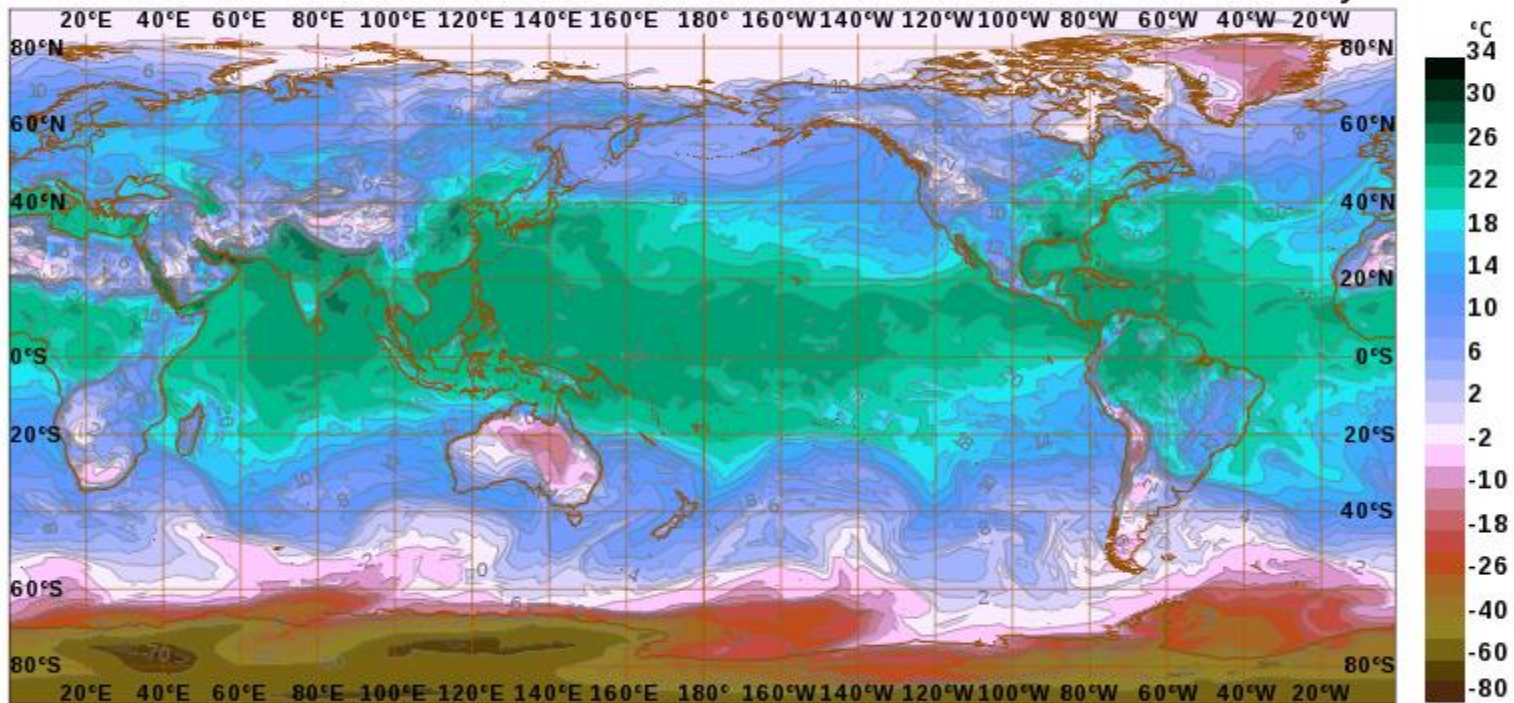


# Global datasets

MONDAY			TUESDAY			WEDNESDAY			THURSDAY			FRIDAY			SATURDAY			
10	16	22	04	10	16	22	04	10	16	22	04	10	16	22	04	10	16	22

Screen Dewpoint Temperature  
Valid 00UTC Mon 16 Jul 2018

ACCESS-Global  
Analysis

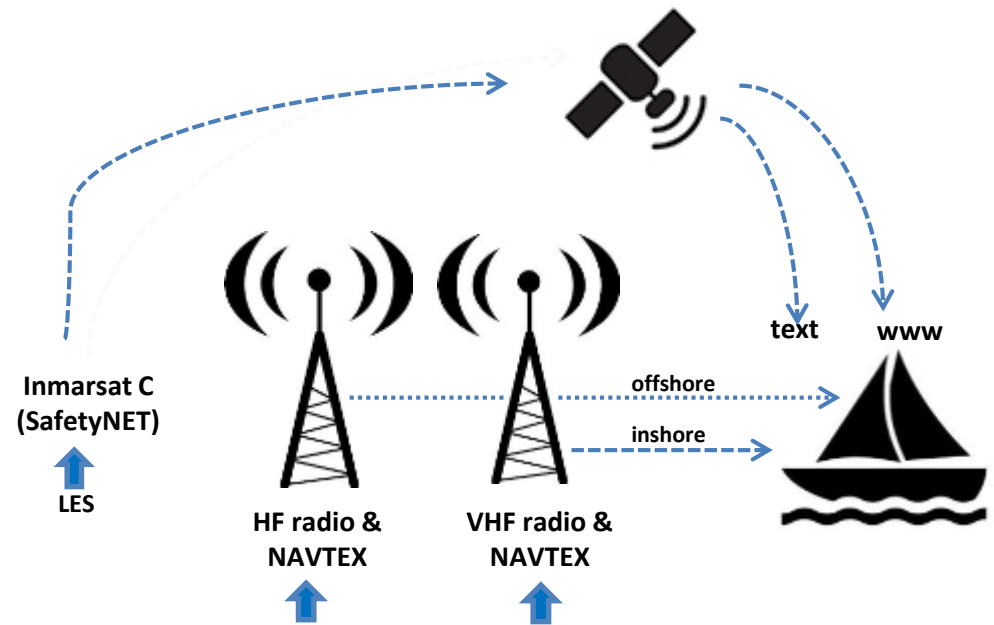
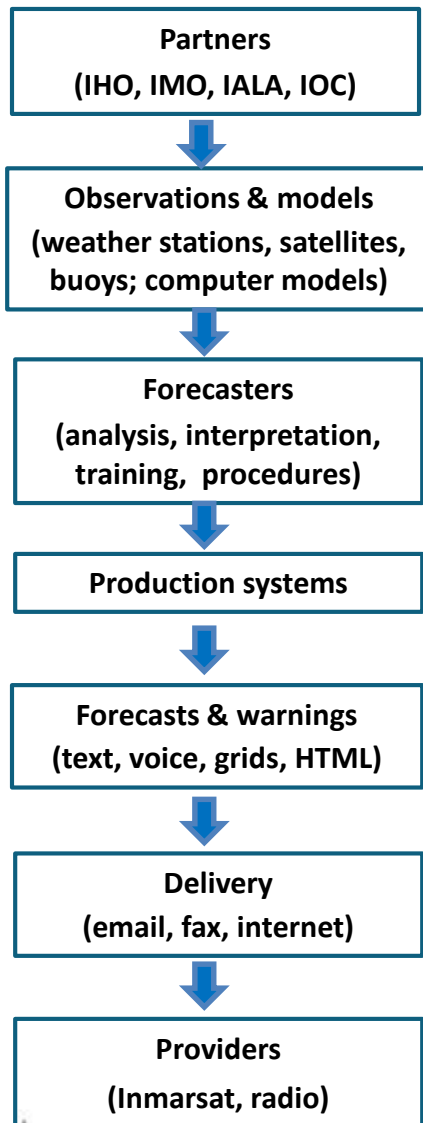


© Copyright Commonwealth of Australia 2018, Australian Bureau of Meteorology

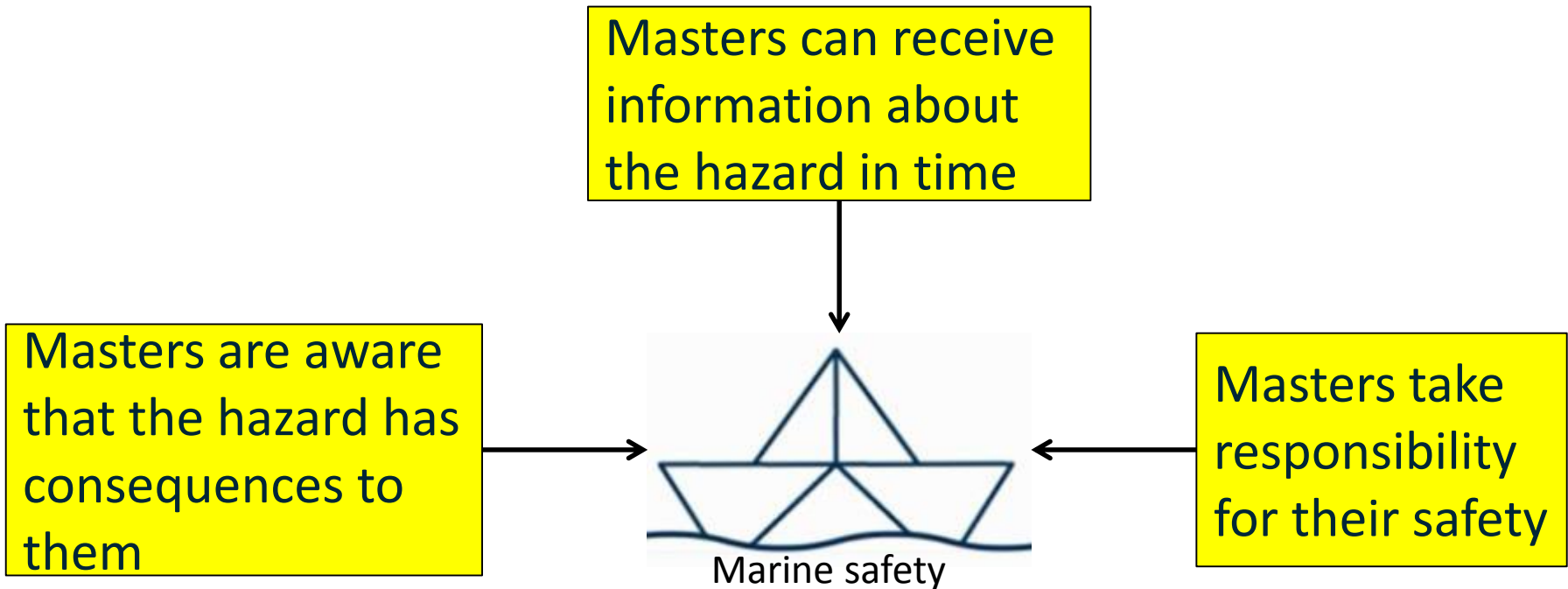
Forecast for 10:00 AEST on Monday 16 July 2018



# End to end service delivery framework



# Systems approach to weather safety



# Hazards to vessels explained

BUREAU OF METEOROLOGY

BOATING DURING THUNDERSTORMS IS DANGEROUS   

**GUSTY WINDS** CAN MAKE YOUR BOAT HARD TO CONTROL, PUSH IT OFF-COURSE, OR CAUSE IT TO TIP OVER   

[www.bom.gov.au/marine](http://www.bom.gov.au/marine)

BUREAU OF METEOROLOGY

BOATING DURING THUNDERSTORMS IS DANGEROUS   

**HEAVY RAIN** CAN MAKE YOU LOSE YOUR BEARINGS,         

**INCREASING RISK OF COLLISION** 

[www.bom.gov.au/marine](http://www.bom.gov.au/marine)

BUREAU OF METEOROLOGY

BOATING DURING THUNDERSTORMS IS DANGEROUS   

**LIGHTNING** CAN BE      

**LIFE-THREATENING TO YOU AND YOUR CREW**

[www.bom.gov.au/marine](http://www.bom.gov.au/marine)

BUREAU OF METEOROLOGY

BOATING DURING THUNDERSTORMS IS DANGEROUS   

**HAIL** HURTS WHEN YOU  

**HAVE NO COVER**           

[www.bom.gov.au/marine](http://www.bom.gov.au/marine)

# Wind speed vs wind force explained

60 KNOTS =  
60 KG/SQ  
METRE



15 KNOTS =  
4 KG/SQ  
METRE



**WIND PRESSURE INCREASES DRAMATICALLY AS WIND SPEED RISES**



# Average wind vs wind gust vs squalls

The infographic features a blue background with white text and icons. At the top, it says 'BUREAU OF METEOROLOGY' in white on a dark blue banner. Below that, 'MARINE WINDS' is written in large white letters on a blue banner. The main text, in dark blue, states: 'WIND GUSTS CAN BE 40% STRONGER THAN THE FORECAST AVERAGE WIND SPEED ...AND STRONGER STILL IN STORMS AND SQUALLS'. To the right of the text is a stylized illustration of a coastline with a boat, waves, and a cloud. At the bottom right, a dark blue banner contains the website address 'www.bom.gov.au/marine' in white.

BUREAU OF METEOROLOGY

MARINE WINDS

WIND GUSTS CAN BE  
**40% STRONGER**  
THAN THE FORECAST AVERAGE WIND SPEED  
...AND STRONGER STILL IN STORMS AND SQUALLS

[www.bom.gov.au/marine](http://www.bom.gov.au/marine)

# Wave height values explained

## Wave height



It is normal for waves to vary in height from one to the next. To give you an idea of the range of waves to expect at a given time, the Bureau provides the **significant wave height** in its marine forecasts.

### Most frequent waves

The most frequent wave height will be about half the height of the significant wave

### Significant waves

About 14% of waves will be higher than the **significant wave height** (about 1 in every 7 waves)

### Maximum waves

It is normal to expect a wave of twice the height of the significant wave about 3 times in 24 hours.

***This means you need to be prepared for a wave of this height before heading out on the water.***



# How to be confident that you are using high quality information

## Why is this important?

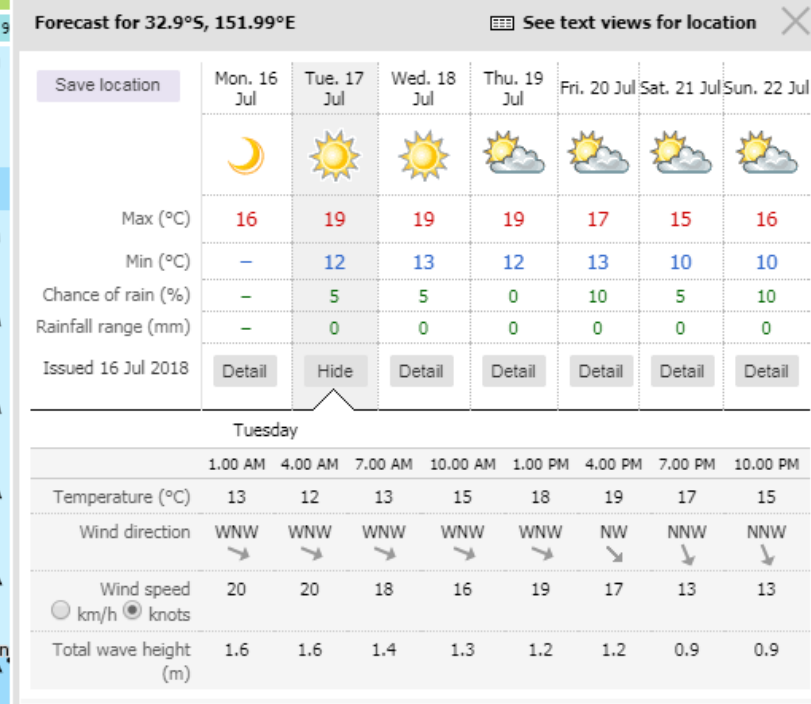
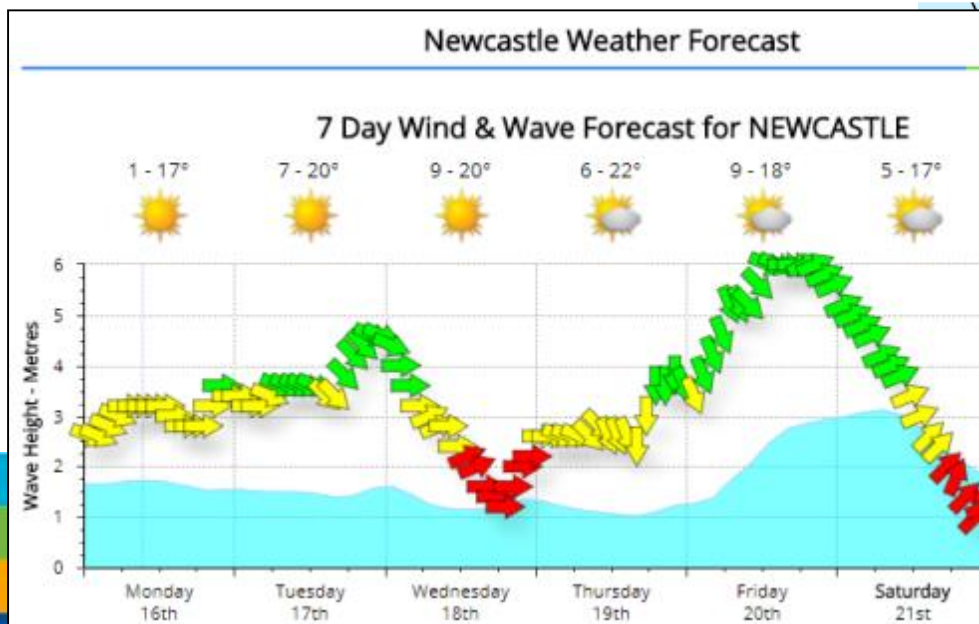
- Weather and climate models are becoming more commoditised. (Easier to build your own computer model)
- Fake news can also impact on interpretation of meteorological and climate information.
- The following guidelines will help you identify the features of high quality information.

# Guidelines to identify high quality information

1. Does it clearly show the exact location or area the forecast/information covers?
  - This could also mean the size of the grids used in the dataset, or to create the map.

# Guidelines to identify high quality information

1. Does it clearly show the exact location or area the forecast/information covers?



# Guidelines to identify high quality information

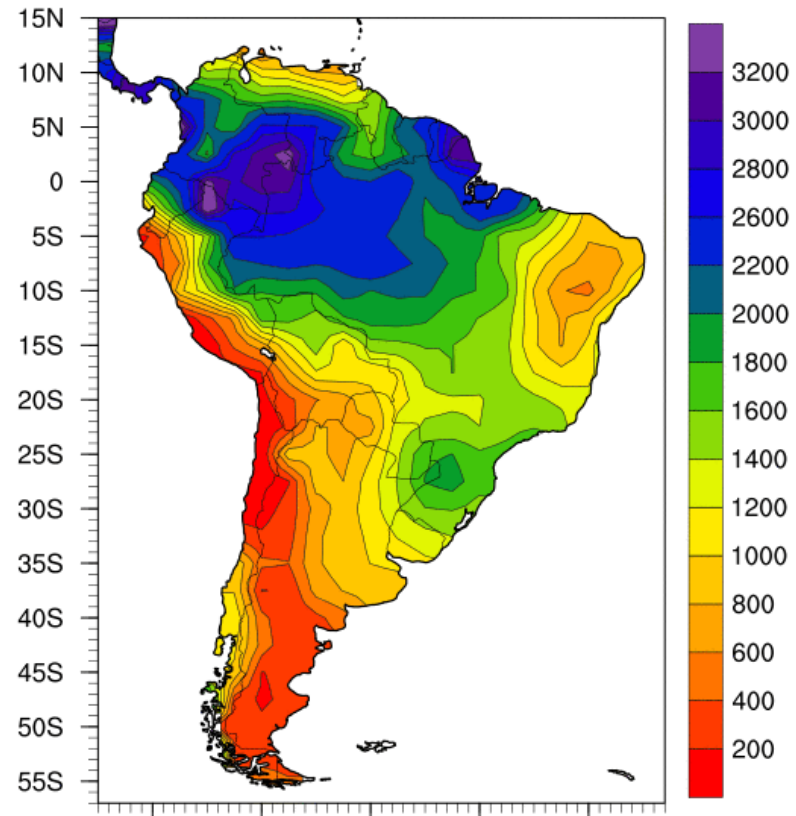
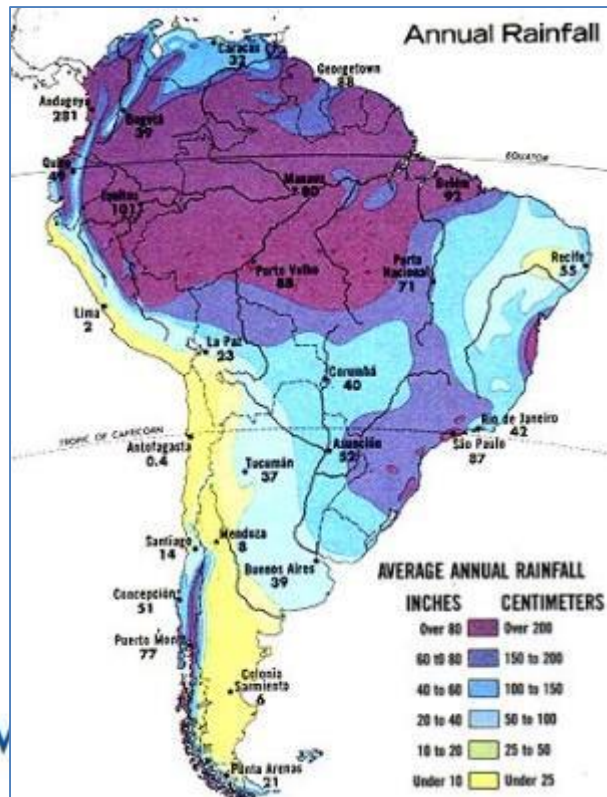
2. Does it show when the forecast/information was issued?
  - Information on the internet can be old – so looking for this information is important.

# Guidelines to identify high quality information

2. Does it show when the forecast/information was issued?

## Observed Annual Total Precipitation

1976-2009, 2.5 degree grid



# Guidelines to identify high quality information

3. Does it show the source of the information?
  - Is the source reputable and trustworthy?
  - Important when comparing information/maps of the same element



# Guidelines to identify high quality information

## 3. Does it show the source of the information?

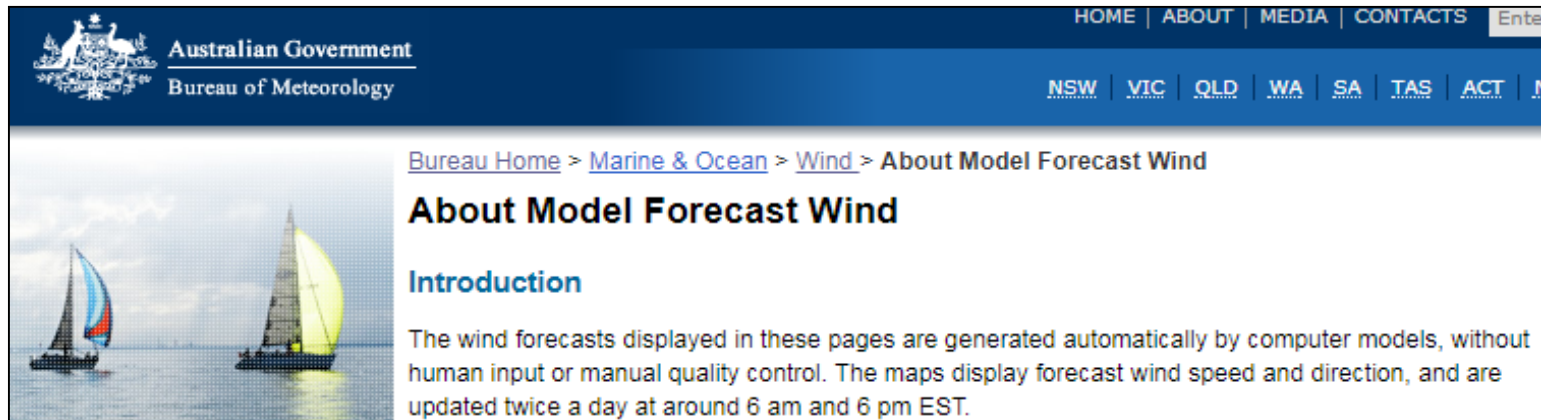


# Guidelines to identify high quality information

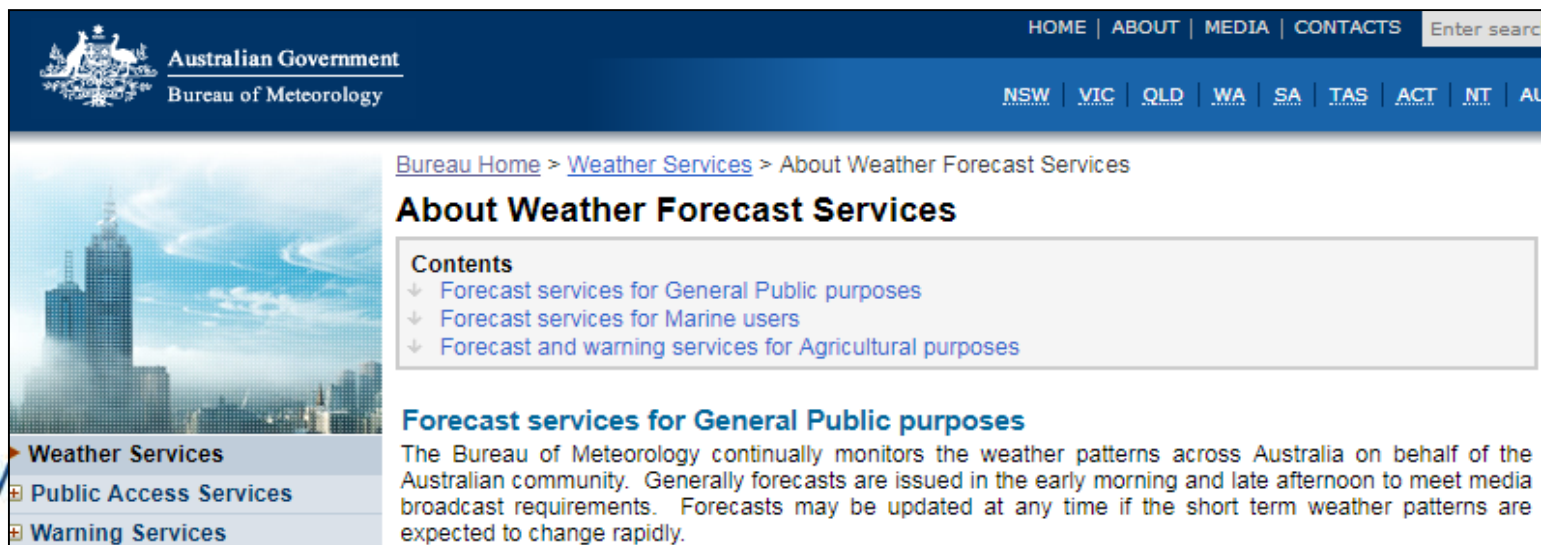
4. Can the forecasts be updated at any time?
  - Some websites are setup directly from computer model output which is produced at set times.
  - Meteorological offices have staff that can update information at any time, 24/7. Important during severe weather.

# Guidelines to identify high quality information

## 4. Can the forecasts be updated at any time?



The screenshot shows the top navigation bar of the Bureau of Meteorology website with links for HOME, ABOUT, MEDIA, CONTACTS, and a search field. Below the navigation bar, the breadcrumb trail reads: Bureau Home > Marine & Ocean > Wind > About Model Forecast Wind. The main heading is "About Model Forecast Wind" and the sub-heading is "Introduction". The introductory text states: "The wind forecasts displayed in these pages are generated automatically by computer models, without human input or manual quality control. The maps display forecast wind speed and direction, and are updated twice a day at around 6 am and 6 pm EST." On the left side of the page, there is an image of two sailboats on the water.



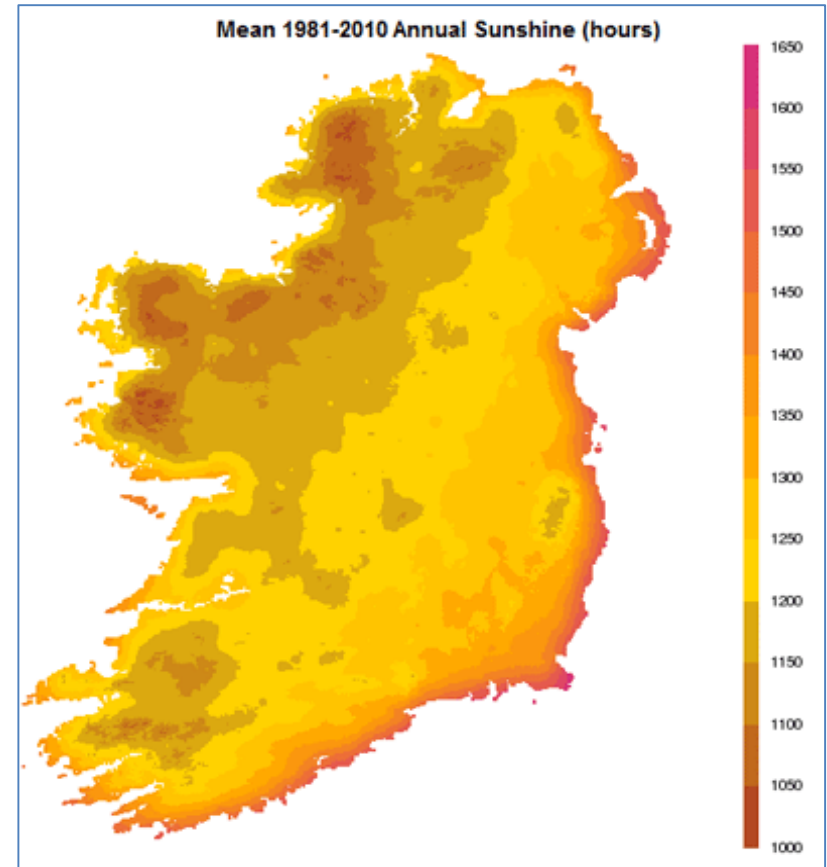
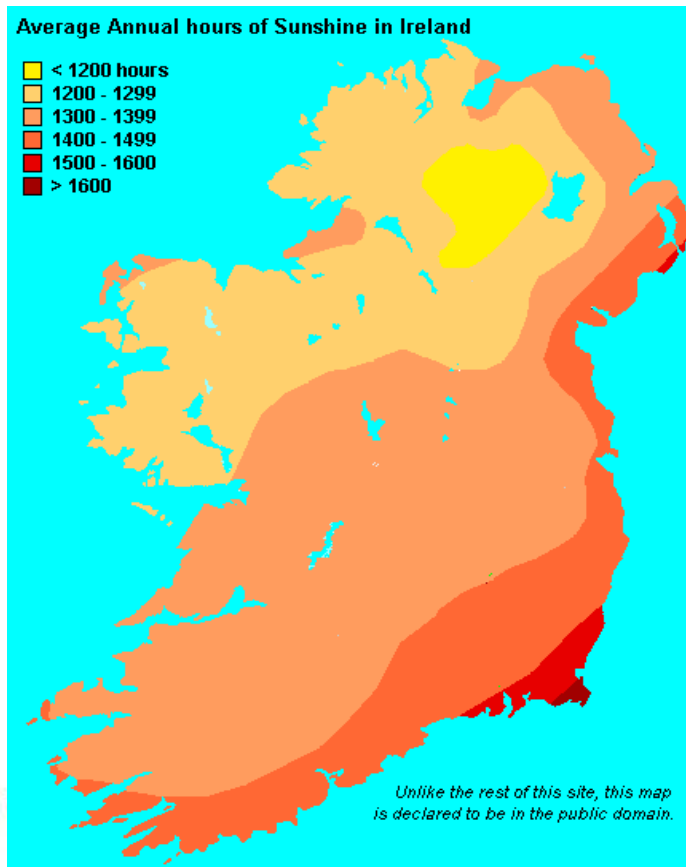
The screenshot shows the top navigation bar of the Bureau of Meteorology website with links for HOME, ABOUT, MEDIA, CONTACTS, and a search field. Below the navigation bar, the breadcrumb trail reads: Bureau Home > Weather Services > About Weather Forecast Services. The main heading is "About Weather Forecast Services" and the sub-heading is "Contents". The contents list includes: Forecast services for General Public purposes, Forecast services for Marine users, and Forecast and warning services for Agricultural purposes. Below the contents list, the sub-heading is "Forecast services for General Public purposes" and the text states: "The Bureau of Meteorology continually monitors the weather patterns across Australia on behalf of the Australian community. Generally forecasts are issued in the early morning and late afternoon to meet media broadcast requirements. Forecasts may be updated at any time if the short term weather patterns are expected to change rapidly." On the left side of the page, there is an image of a city skyline with a skyscraper. At the bottom left, there is a sidebar menu with the following items: Weather Services, Public Access Services, and Warning Services. A small logo of the United Nations is visible in the bottom left corner of the overall image.

# Guidelines to identify high quality information

5. For climate averages, does it show the period of years that the data was averaged over?
  - Comparing the average temperature for an 8 year period may provide significantly different results than a longer 30 year period.
  - You may be looking at an average that doesn't include the most recent years.

# Guidelines to identify high quality information

5. For climate averages, does it show the period of years that the data was averaged over?





# Thank you Merci



WMO OMM

World Meteorological Organization  
Organisation météorologique mondiale