The Bureau of Meteorology

Spatial Data

User Guide

Information to assist users with interpreting and using Bureau of Meteorology spatial data.

Version 2.3 (updated 12 December 2025)

Contents

Introduction

This user guide provides a summary of the Bureau of Meteorology (Bureau) static shapefiles available via anonymous FTP. Many of these shapefiles are also available as WMS layers in the Bureau's GIS2Web service.

Overview

The XML versions of Bureau warnings and forecasts refer to Australian Meteorological and Oceanographic Codes (AMOC Area Codes, abbreviated to AACs). These codes can be used to link areas and sites to the Bureau's XML forecast and warning products. TXT, HTML and PDF versions contain defined names which can also be mapped to shapefiles. These static shapefiles (see Table 1) do not update in real time.

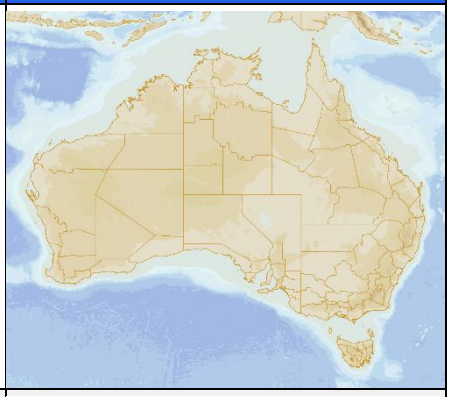
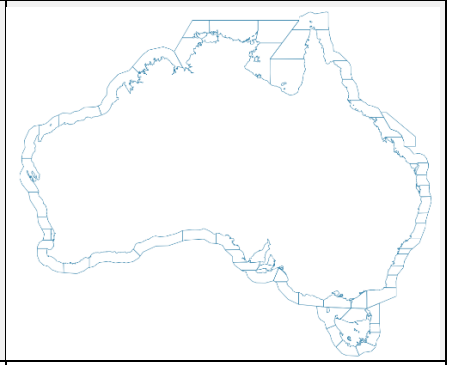
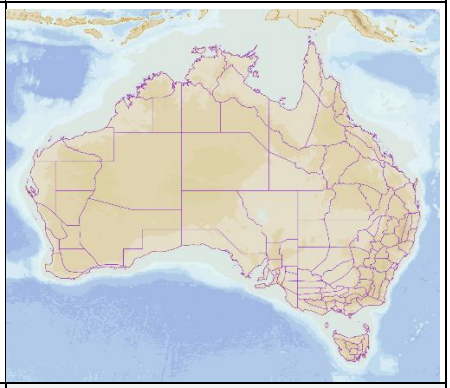
Please note that Bureau warnings have varied definitions of spatial service, which include:

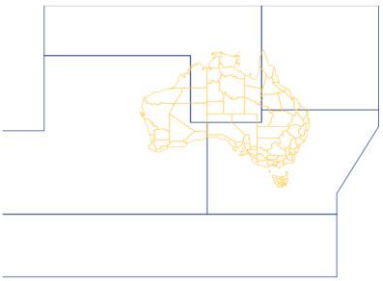
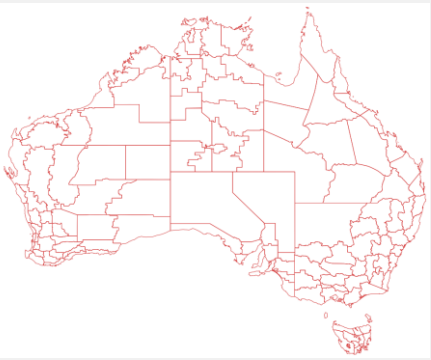
- Specific hazard area (tropical cyclone, severe thunderstorm, severe weather and coastal hazard warnings);
- Flood watch/warning catchment area (flood watches/warnings);
- Fire weather district (fire weather warnings);
- Forecast district (agricultural, tropical cyclone, severe thunderstorm, severe weather, coastal hazard and heatwave warnings);
- Coastal waters zones (hazardous surf and marine wind warnings);
- Tsunami warning zones (tsunami warnings).

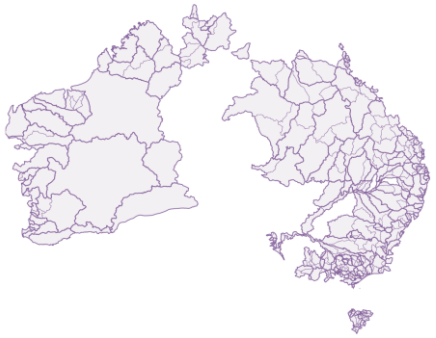
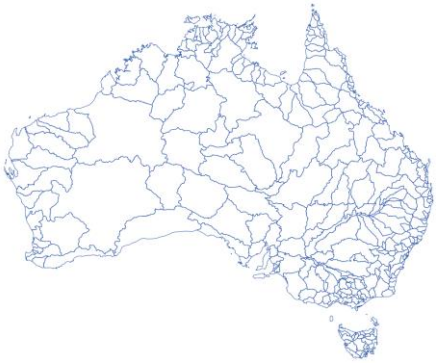
Warnings for a specific hazard area come with specific files containing information on the hazard area. For details on the spatial information available for each warning type and links to sample files, please see the Bureau_of_Meteorology_warning_products_user_guide.pdf (bom.gov.au).

Products

Table 1 provides a list of available static shapefile products, descriptions with links to further information and an example of each AMOC Area Code (AAC), where applicable. An image is shown for each layer included in the GIS2Web service. The IDM00001 layer is included as background, for scale, in the IDM00006, IDM00024, IDR00006 and IDR00007 images.

Product Code	Product Description	Example AAC	WMS Layer in GIS2Web Service
IDM00001	**Public Weather Forecast Districts** Forecasts for these districts (see maps for Queensland, New South Wales, Victoria, Tasmania, South Australia, Western Australia and the Northern Territory) are issued by the Bureau on a routine basis. The Northern Territory districts are used for warnings only.	NSW_PW001	
IDM00003	**Marine Zones** Forecasts for these zones, which include coastal, local and inland waters, are issued by the Bureau on a routine basis. Marine Wind Warnings for local and coastal waters and Hazardous Surf Warnings (for New South Wales and southern Queensland) are issued by the Bureau, when required.	NSW_MW001	
IDM00004	**Rainfall Districts** These standard rainfall boundaries were originally based on climatically homogeneous areas; with credence given to political boundaries. The districts are used to help assign station numbers to the majority of the Bureau's observation sites.	N/A	
IDM00005	**Tropical Cyclone Service Areas** The Bureau is responsible for warnings, advice and information for tropical cyclones affecting the Australian region. The Australian area of responsibility (see **IDM00024**) is divided into three regions: Eastern Region (Queensland); Northern Region (Northern Territory) and Western Region (Western Australia).	N/A	

Product Code	Product Description	Example AAC	WMS Layer in GIS2Web Service
IDM00006	**High Seas Forecast Areas** For shipping, the Bureau issues regular forecasts for these areas, and warnings as required. These areas represent sub-divisions of Australia's responsibility for providing Maritime Safety Information (MSI) for METAREA X, as part of the IMO/WMO Worldwide Met-Ocean Information and Warning Service (WWMIWS).	N/A	
IDM00007	**Fire Weather Districts** Fire Danger Ratings for these districts are issued by the Bureau on a routine basis. Fire Weather Warnings are issued when required.	NSW_FW001	
IDM00013	**Point Places (précis, fire, marine)** These point places are referenced in forecasts, including précis, town, marine and fire weather forecasts. Additional observation sites are also included.	TAS_PT014	
IDM00014	**Metropolitan and Other Forecast Areas** Metropolitan areas include regions used in Road Weather Alerts and Cell Based Thunderstorm Warnings. Other Forecast Areas include regions such as Alpine areas and National Parks.	NSW_ME001	
IDM00015	**Ocean Wind Warning Areas** This dataset shows the delineation of METAREA X Ocean Wind Warning region boundaries (WESTERN, NORTHERN, NORTH EAST, SOUTHERN and SOUTH EAST). Ocean Wind Warnings are prepared by the Bureau, as part of the IMO/WMO Worldwide Met-Ocean Information and Warning Service (WWMIWS) for mariners in the Australian high seas region, METAREA X.	N/A	

Product Code	Product Description	Example AAC	WMS Layer in GIS2Web Service
IDM00016	**Tsunami Warning Zones** These zones cover Australia and its offshore territories including Christmas Island, Cocos (Keeling) Islands, Norfolk Island, Lord Howe Island, Macquarie Island, and the Australian Antarctic Stations of Casey, Mawson and Davis. Tsunami Warnings for these zones are issued by the Bureau, when required.	NT_TW001	
IDM00017	**Flood Warning Catchment Areas** Flood Warnings for these catchments are issued by the Bureau of Meteorology when required. Please note catchments are only delineated in areas where Flood Warnings are produced.	QLD_RC008	
IDM00018	**River Forecast Sites** River height forecast sites (stations) are locations at which the Bureau provides river height data and a river height prediction. Such sites are included in the Bureau's Flood Warning products.	NT_RS002	
IDM00019	**River Observation Sites** River observation sites are locations at which the Bureau provides river height data. This data is included in the latest river heights table at the end of the Bureau's Flood Warnings.	NT_RO0020	
IDM00020	**Flood Watch Catchment Areas** Flood Watches for these catchment areas are issued by the Bureau when required. The boundaries cover all catchments in Australia including catchments without flood forecasting systems and data networks. The service covers inland and desert areas without well-defined rivers and streams where flooding is predominantly overland flow.	TAS_FL001	
IDM00021	**Fire Weather Sub Areas** Detailed Fire Danger Ratings (for Federal and State Fire and Emergency Services agencies) are issued for these areas.	ACT_FS045	For Federal and State Fire and Emergency Services agencies only

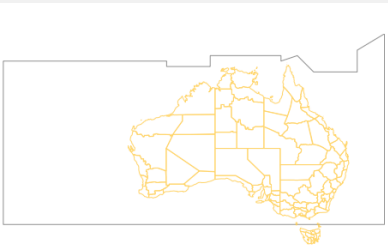
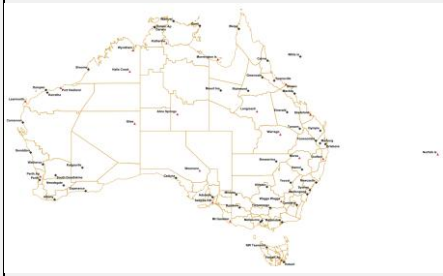
Product Code	Product Description	Example AAC	WMS Layer in GIS2Web Service
IDM00024	**Tropical Cyclone Area of Responsibility** (see also **IDM00005**) The Bureau is responsible for warnings, advice and information for tropical cyclones affecting the Australian region. This includes the coastal waters and land areas of Australia, incorporating: Christmas Island, Cocos Island, Lord Howe Island and Norfolk Island.	N/A	
IDR00006	**Radar Optimum Extent Areas** Generally, the optimal coverage area extends to approximately 200 km from each radar. Radar coverage can be restricted due to hills or mountains on the horizon and local trees or towers. The map displays the optimal coverage of each radar at 3,048 m (10 000 ft) above mean sea level.	N/A	
IDR00007	**Radar Locations**	N/A	

Table 1 List of static shapefile products.

File Location

Files can be found at: ftp://ftp.bom.gov.au/anon/home/adfd/spatial/

Please note that due to most browsers no longer supporting FTP, it is generally necessary to use an FTP client such as Filezilla to retrieve the sample files.

Alternatively, they can be accessed via Windows File Explorer by pasting the above link into the address bar.

File Naming Convention

Files are in ESRI Shapefile format. Spatial data files conform to the following naming convention:

ID*nnnnnn*.ext

File-name key	
ID*nnnnnn*	Product Code as listed in Table 1
ext	File extension (dbf, idx, prj, sbn, sbx, shp, shx) or all files together (zip)

Note that DBF files can be opened using a spreadsheet application (e.g. Microsoft Excel).

Product Updates

Registered Users are notified of changes to these spatial data files via a Registered User Notice sent via email. As part of the notification process, samples of the updated spatial data files are placed in the following directory: ftp://ftp.bom.gov.au/anon/home/adfd/spatial/pending/ ahead of the change being implemented.

Attributes

Table 2 provides a list of attributes and descriptions and in some cases the scope of inclusion where this is limited to a small subset of the products in Table 1.

Attribute Name	Attribute Description	Scope of Inclusion
AAC_PARENT	The AAC of the parent catchment for sub-catchment areas. If the catchment has no sub-catchments, the AAC and AAC_PARENT will be identical. If the catchment has sub-catchments, AAC_PARENT is null.	Tsunami Warning Zones, Flood Watch and Warning Zones and Fire Weather Sub Areas only
AAC_FA	Area of state combined with coastal waters e.g. NSW_FA001 (AUS_FA001 for Australia)	
AAC_CW	AAC for a zone within a coastal, local or inland waters area used for warnings or forecast local effects areas	Point Places only
AAC_FW	AAC for a land fire weather forecast and/or warning area	Point Places only

Attribute Name	Attribute Description	Scope of Inclusion
AAC_ME	AAC for a metropolitan area or part thereof (e.g. suburban or municipal sub-division).	Point Places only
AAC_MW	AAC for a coastal, local or inland waters area	Point Places only
AAC_PW	AAC for a land public weather forecast and/or warning district	Point Places only
AAC_RC	AAC for a river basin, flood or catchment area	River Observation Sites only
ALT_REF	Bureau station number	Point Places and River Observation and Forecast Sites only
DIST_NO/ DISTRICT_/ DISTRICT_I	District number	
DIST_NAME	District/catchment/sub-catchment name	
GROUP_NAME	Name for a collection of districts, e.g. Southwest Land Division (public and fire weather only)	Public Weather Forecast and Fire Weather Districts only
STATE_CODE	State code e.g. NSW	
STATE_NAME/ STATE	State name e.g. New South Wales	
TYPE	Coastal zone type (Coastal, Inland, Local or Offshore) or radar type (Standard weather watch or Doppler)	Marine Zones and Radar only
PT_1_NAME	Coastal zone endpoint	Marine Zones only
PT_2_NAME	Coastal zone endpoint	Marine Zones only
SOURCE	Source of data e.g. BOM, DFES, RFS	Fire Weather Districts only
PT_NAME	Point name	River Forecast and Observation Sites only
Longitude/LON	Longitude of point location	
Latitude/LAT	Latitude of point location	
PT_NO	Point number	Point Places only
LAND_FLAG	Flag for land-based locations	Point Places only
MAR_FLAG	Flag for marine-based locations	Point Places only

Attribute Name	Attribute Description	Scope of Inclusion
PRECIS_FLG	Flag for précis locations	Point Places only
PRIORITY	Priority of locations	Point Places only
DISP_ORDER	Used primarily to sequence sub-catchments within Flood Warnings	
PRODUCT_ID	Product code for Flood Warning XML product	River Forecast Sites only
OFFICE	Bureau office responsible e.g. NSWRO (New South Wales Regional Office)	
TIME_ZONE	e.g. Australia/Sydney	Point Places and Tsunami Warning Zones only
ATWS_Zones	The Tsunami Warning zones	Tsunami Warning Zones only
Child_Name	Name of additional Coastal Water Forecast Zones, excluding ATWS_Zones name	Tsunami Warning Zones only
CWFZ_child	Coastal Waters Forecast Zone areas within the Tsunami Warning Zone	Tsunami Warning Zones only
EndPoint_1	Coastal zone endpoint	Tsunami Warning Zones only
EndPoint_2	Coastal zone endpoint	Tsunami Warning Zones only
Prior_Town	Priority towns	Tsunami Warning Zones only
Sig_Locati	Significant locations	Tsunami Warning Zones only
TWZ	Tsunami Warning Zone Code	Tsunami Warning Zones only
Radar_id/ LocationID	Radar ID Number	Radar only

Table 2 List of attributes.

Further Information

Further information can be found in the Bureau's XML schema and AMOC schema.

For further enquiries please email webreg@bom.gov.au

Appendix A: AMOC Information

The format of Bureau of Meteorology amoc.xml files is shown in Figure 1.

```
<amoc>
  <source>
    <sender> sssssssssssssssssss </sender>
    <region> rrrrrrrrrrrrrrrrrrrrrrrrrrrrrrr </region>
    <office> xxxxx </office>
    <copyright> ccccccccccccccccccc </copyright>
    <disclaimer> ddddddddddddddddddddd </disclaimer>
    <description> pppppppppppppppppppp </description>
  </source>
  <identifier> IDrxxxxx </identifier>
  <issue-time-utc> yyyy-mm-ddThh:nn:ssZ </issue-time-utc>
  <issue-time-local tz="zzz"> yyyy-mm-ddThh:nn:ss+/-hh:mm </issue-time-local>
  <sent-time > yyyy-mm-ddThh:nn:ssZ </sent-time>
  <expiry-time> yyyy-mm-ddThh:nn:ssZ </expiry-time>
  <validity-bgn-time-local tz="zzz"> yyyy-mm-ddThh:nn:ss+/-hh:mm </validity-bgn-time-local>
  <validity-end-time-local tz="zzz"> yyyy-mm-ddThh:nn:ss+/-hh:mm </validity-end-time-local>
  <next-routine-issue-time-utc> yyyy-mm-ddThh:nn:ssZ </next-routine-issue-time-utc>
  <next-routine-issue-time-local tz="zzz"> yyyy-mm-ddThh:nn:ss+/-hh:mm </next-routine-issue-time-local>
  <status> x </status>
  <service> xxx </service>
  <sub-service> xxx </sub-service>
  <product-type> x </product-type>
  <phase> ppp </phase>
  <hazard index="ii" type="ttt" severity="sssss" start-time-utc="yyyy-mm-ddThh:nn:ssZ" end-time-utc="yyyy-mm-ddThh:nn:ssZ">
    <area-list>
      <area aac="rrr_ttnnn(n)" phase="ppp"/>
      <area aac="rrr_ttnnn(n)" phase="ppp"/>
      ...
    </area-list>
    <phenomenon-list>
      <phenomenon type="pp"/>
      <phenomenon type="pp"/>
      ...
    </phenomenon-list>
    <priority> x </priority>
    <headline> hhhhhhhhhhhhhhhhhhhh </headline>
</hazard >
...
```

Figure 1 Format of amoc.xml files.

More information on the components of this file is provided in the following sections.

Date/Time Formats

yyyy-mm-ddThh:nn:ssZ

yyyy-mm-ddThh:nn:ss+/-hh:mm

Attribute	Definition
yy	year
mm	month

Attribute	Definition
dd	day
T	fixed time indicator
hh	hour
nn	minute
ss	second
Z	fixed UTC indicator
+/-hh:mm	local time-zone offset
zzz	local time-zone descriptor

Table 3 List of Date/Time format attributes and definitions.

<status>

Attribute	Definition
O	Operational
T	Test
E	Experimental
S	System

Table 4 List of <status> attributes and definitions.

<service>

Attribute	Definition
COM	Commercial Services
HFW	Flood Warning Service
TWS	Tsunami Warning Services
WAP	Analysis and Prediction
WSA	Aviation Weather Services
WSD	Defence Weather Services
WSF	Fire Weather and Heatwave Services
WSM	Marine Weather Services
WSP	Public Weather Services
WSS	Cost Recovery Services

Attribute	Definition
WSW	Disaster Mitigation

Table 5 List of <service> attributes and definitions.

<sub-service>

Attribute	Definition
ATC	Tropical Cyclone Advice
ATW	Tsunami Advice
AVA	Volcanic Ash Advice
FAA	Alpine Area Forecast
FAM	AIRMET Forecast
FCT	City Forecast
FCW	Coastal Waters Forecast
FDS	District Forecast
FFW	Fire Weather Forecast
FHS	High Seas Forecast
FIS	Island Forecast
FLF	Landing Area Forecast
FLW	Local Waters Forecast
FOS	Oil Spill Forecast
FPR	Precis Forecast
FSF	Spot Fire Forecast
FST	State Forecast
FTC	Tropical Cyclone Forecast
FTF	Terminal Aerodrome Forecast
FTW	Town Forecast
WAE	Aerodrome Warning
WBU	Bushwalkers Alert
WCH	Coastal Hazard Warning

Attribute	Definition
WCW	Coastal Waters Warning
WFL	Flood Warning
WFR	Frost Warning
WFT	Flood Watch
WFW	Fire Weather Warning
WHS	Hazardous Surf Warning
WHW	Heatwave Warning
WMS	Marine Wind Warning Summary
WOW	Ocean Wind Warning
WRW	Road Weather Alert
WSG	Sheep Graziers Warning
WSI	Storm Tide Advice
WSM	Significant Meteorological Hazard
WST	Severe Thunderstorm Warning
WSW	Severe Weather Warning
WTC	Tropical Cyclone Warning
WTW	Tsunami Warning

Table 6 List of <sub-service> attributes and definitions.

<product-type>

Attribute	Definition
A	Advice
B	Bundle
C	Climate
D	Metadata
E	Analysis
F	Forecast
M	Numerical Weather Prediction

Attribute	Definition
O	Observation
Q	Reference
R	Radar
S	Special
T	Satellite
W	Warning
X	Mixed

Table 7 List of <product-type> attributes and definitions.

<phase>

Attribute	Definition
NEW	New event
REN	Renewal
UPD	Update
UGD	Upgrade
DGD	Downgrade
CAN	Cancellation
FIN	Final

Table 8 List of <phase> attributes and definitions.

<hazard>/<area>

AAC Format: *rrr_ttnnn(n)*

rrr = Region

Attribute	Definition
NSW	New South Wales
NT	Northern Territory
QLD	Queensland
SA	South Australia
TAS	Tasmania
VIC	Victoria
WA	West Australia

Attribute	Definition
INT	International

Table 9 List of Region attributes and definitions.

tt = Area Type

Attribute	Definition
FA	Area under the jurisdiction of a regional office, e.g. GFE forecast area of responsibility
FA	A subdivision of a region, e.g. Southern & Northern WA
PT	A point place such as a city CBD, town, suburb, observation location or general point place
ME	A metropolitan area or part thereof (e.g. suburban or municipal sub-division)
PW	A land public weather forecast and/or warning district
FW	A land fire weather forecast and/or warning area
MW	A coastal, local or inland waters area
CW	A zone within a coastal, local or inland waters area used for warnings or forecast local effects areas
TP	Tidal prediction location
TS	Tidal stream prediction location or area
RC	A river basin, flood or catchment area
RS	A point place along a river system used for forecasting purposes
RO	A point place along a river system where observations are recorded
FL	A flood watch area
PC	Point places used for aviation forecast purposes specified by Planning Chart Australia (PCA)
AL	An aerodrome, e.g. airport, airfield; usually the recipient of a terminal aerodrome forecast (TAF)
QH	An aviation forecast area, e.g. AreaQNH or ARFOR Area
FR	An aviation flight information region (FIR)
SP	Universal locale, typically used for arbitrary spot or area forecasts
EV	An arbitrary area associated with a specific event, e.g. warning, spot forecast

Table 10 List of Area Type attributes and definitions.

nnn(n) = 3 digit number (RO: 4)

<hazard> combinations of types, severities and phenomena

ttt	Description	Valid Severities	Valid Phenomena
BWA	Bushwalkers Weather Alert	CAN, STD	SN, CH
CHW	Coastal Hazard Warning	CAN, STD	HT, DS
FLA	Flood Watch	MIN, MINMOD, MOD, MAJ, MINMAJ, MODMAJ, UNK	
FLW	Flood Warning	BLWMIN, UNCL, MIN, MOD, MAJ	
FRW	Frost Warning	CAN, STD, SEV	
FWW	Fire Weather Warning	CAN, HIGH, EXT, CAT	
HSW	Hazardous Surf Warning	CAN, STD	
HWW	Heatwave Warning	CAN, SEV, EXT	
MWW	Marine Wind Warning	CAN, SMCRFT, STR, GALE, STO, HURR	
RWA	Road Weather Alert	CAN, STD	W, W+, SL, IC, SN, FL, RA, FG, DU, SM
SHW	Warning to Sheep Graziers	CAN, STD, SEV	
STW	Severe Thunderstorm Warning	CAN, STD	W, W+, FF, TO, LH, LH+, R, R+
SWW	Severe Weather Warning	CAN, STD	W, W+, FF, TO, BZ, R, R+
TCW	Tropical Cyclone Watch/ Warning	CAN, TCLOW, TCCAT1, TCCAT2, TCCAT3, TCCAT4, TCCAT5	
TSW	Tsunami Threat	CAN	
TSW	Tsunami Threat	NOTHRT	
TSW	Tsunami Threat	WATCH, WARN	

Table 11 List of <hazard> combinations of types, severities and phenomena.

<hazard> phenomena

pp	Description
??	Unknown
BZ	Blizzard Conditions
CH	Chill Conditions
CL	Cloud lightning present
DS	Damaging Surf
DU	Dust
FF	Flash Flooding
FG	Fog
FL	Floodwaters
GL	Ground lightning present
HT	Abnormally High Tides
IC	Icing of Roads
L1	At least one lightning strike within 5 nm of sensor
L2	At least one lightning strike within 10 nm of sensor
L3	At least one lightning strike within 30 nm of sensor
LH	Large Hail
LH+	Giant Hail
R	Heavy Rainfall
R+	Intense Rainfall
RA	Heavy Rain or Showers
SC	Storm cells present
SL	Slippery Roads
SM	Smoke
SN	Snow Covered Roads
TO	Tornadoes
W	Damaging Winds
W+	Destructive Winds
XCL	Equipment is faulty and is not currently reporting cloud lightning

pp	Description
XGL	Equipment is faulty and is not currently reporting ground lightning
XSC	Equipment is faulty and is not currently reporting storm cells

Table 12 List of <hazard> phenomena.

<hazard> severities

sssss	Description
BLWMIN	Below Minor
CAN	Cancellation
CAPEXT	Extreme
CAPMIN	Minor
CAPMOD	Moderate
CAPSEV	Severe
CAPUNK	Unknown
CAT	Catastrophic
EXT	Extreme
FINAL	Final
GALE	Gale
HIGH	High alert
HURR	Hurricane force wind
LOW	Low alert
MAJ	Major
MARG	Marginal
MED	Medium alert
MIN	Minor
MINMAJ	Minor to Major
MINMOD	Minor to Moderate
MOD	Moderate
MODMAJ	Moderate to Major
NONE	No alert

sssss	Description
NOTHRT	No threat
SEV	Severe
SMCRFT	Small craft alert
STD	Standard
STO	Storm force wind
STR	Strong wind
TCCAT1	Category 1
TCCAT2	Category 2
TCCAT3	Category 3
TCCAT4	Category 4
TCCAT5	Category 5
TCLOW	Low
UNCL	Unclassified Severity in generalised prediction type warnings
UNK	Alert status unknown
VH	Very High
WARN	Warning
WATCH	Watch

Table 13 List of <hazard> severities.

<hazard>/<priority>

Attribute	Definition
W	Warning
S	SEWS signal required

Table 14 List of <hazard> priorities.