

## Basic Climatological Station Metadata

Current status

Metadata compiled: 26 JUL 2020

**Station:** CAPE NATURALISTE

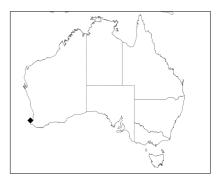
**Bureau of Meteorology station number:** 009519 **Bureau of Meteorology district name:** South Coast

State: WA

World Meteorological Organization number: 94600

**Identification:** CNTE **Network Classification: Station purpose:** Synoptic

**Automatic Weather Station:** Almos



	(	Current Station Locat	tion	
Latitude	Decimal	-33.5372	Hour Min Sec	33°32'14"S
Longitude	Decimal	115.0189	Hour Min Sec	115°1'8"E
Station Height	109 m	Barometer Height	109.5 m	
Method of station	n geographi	GPS		

**Year opened:** 1903 **Status:** Open

### **Station summary**

No summary for this site has been written as yet.	



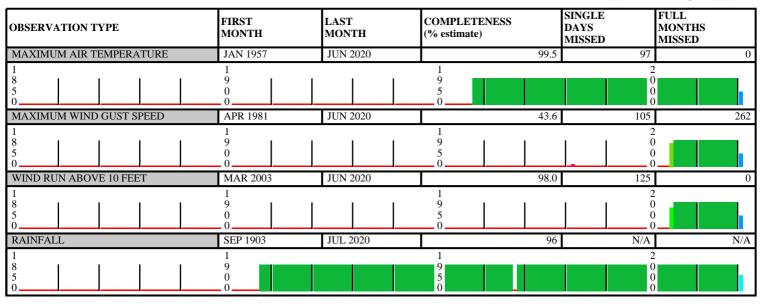
# Basic Climatological Station Metadata Current status

Station:	CAPE NATU	RALISTE		Location:	CAPE NA	ATURALISTE		State:	WA
Bureau No.:	009519	WMO No.:	94600	Aviation ID:	CNTE	Opened:	01 Jan 1903	Current Status:	Still open
Latitude:	-33.5372	Longitude:	115.0189	Elevation:	109 m	Barometer Elev:	109.5 m	Metadata compiled:	26 JUL 2020

### **Observation summary**

The table below indicates the approximate completeness of the record for individual element types within the Australian Data Archive for Meteorology. For elements not listed see the note below.

#### Completeness **DAILY DATA HOLDINGS** 0% 100%

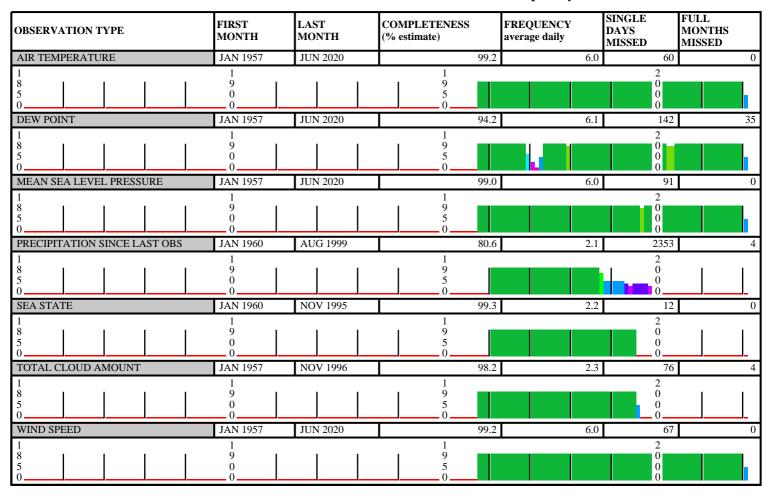




# Basic Climatological Station Metadata Current status

Station:	CAPE NATU	RALISTE		Location:	Location: CAPE NATURALISTE				WA
Bureau No.:	009519	WMO No.:	94600	Aviation ID:	ion ID: CNTE Opened: 01 Jan 1903			Current Status:	Still open
Latitude:	-33.5372	Longitude:	115.0189	Elevation:	109 m	Barometer Elev:	109.5 m	Metadata compiled:	26 JUL 2020

#### **HOURLY DATA HOLDINGS - from 1 to 24 observations per day**





### Basic Climatological Station Metadata

Current status

Station:	CAPE NATU	RALISTE		Location:	CAPE NATURALISTE			State:	WA
Bureau No.:	009519	WMO No.:	94600	<b>Aviation ID:</b>	CNTE	Opened:	Current Status:	Still open	
Latitude:	-33.5372	Longitude:	115.0189	Elevation:	109 m	Barometer Elev:	109.5 m	Metadata compiled:	26 JUL 2020

#### THERE ARE NO RAINFALL INTENSITY DATA HOLDINGS

#### ONE-MINUTE DATA HOLDINGS

OBSERVATION TYPE	FIRST MONTH			FREQUENCY		FULL MONTHS MISSED
ALL ELEMENTS	SEP 2013	JUL 2020	99.7	1435.4	N/A	0

#### HALF-HOURLY DATA HOLDINGS

OBSERVATION TYPE	FIRST MONTH			FREQUENCY	DAYS	FULL MONTHS MISSED
ALL ELEMENTS	NOV 1995	JUL 2020	72.0	34.6	N/A	0

#### THERE ARE NO UPPER-AIR EDT DATA HOLDINGS

#### Holdings calculated up to 01 Jul 2020

The % complete figure is the completeness of observations averaged over all months of record, for the given station and observation type, taking gaps into account. For hourly holdings, the completeness is relative to the maximum number of daily observations for the site each month, and is therefore an estimate. For daily holdings, the completeness figure shown is exact.

The single days missed figure is the total number of days for which no observation was received, not including full missed months. The full months missed figure is the total of full month gaps over the period of record. Where an element is not included assumptions can generally be made about availability, and the list to use has been suggested below.

Unlisted element

Minimum air temperature

Wet bulb temperature

Soil temperature at 20, 50 & 100cm

Relative humidity

Minimum temp. of water in evaporimeter

Visual observations eg. weather, visibility

Sea related observations

Listed element to use

Maximum air temperature

Dew point

10cm soil temperature

Dew point

Evaporimeter - max water temp

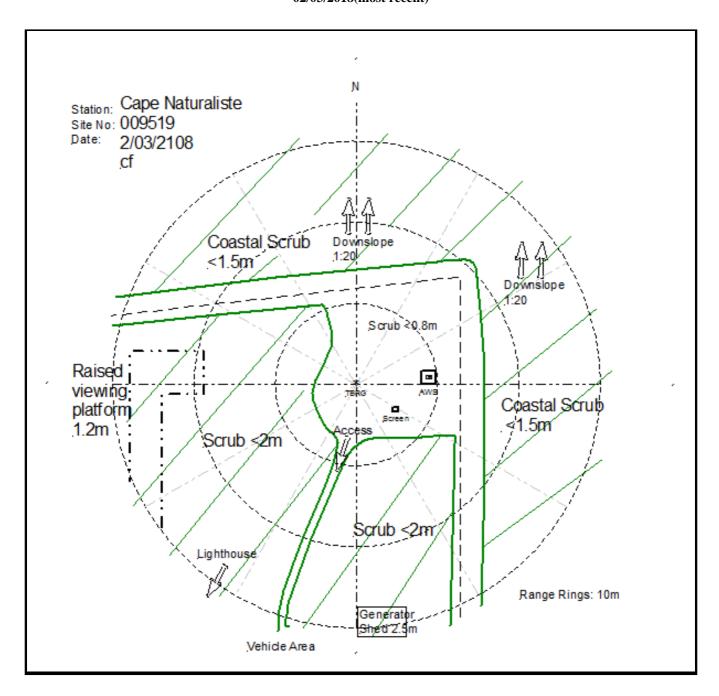
Total cloud amount

Sea state



Station:	CAPE NATU	RALISTE		Location:	CAPE NA	ATURALISTE		State:	WA
Bureau No.:	009519	WMO No.:	94600	Aviation ID:	CNTE Opened: 01 Jan 1903			Current Status:	Still open
Latitude:	-33.5372	Longitude:	115.0189	Elevation:	109 m	Barometer Elev:	109.5 m	Metadata compiled:	26 JUL 2020

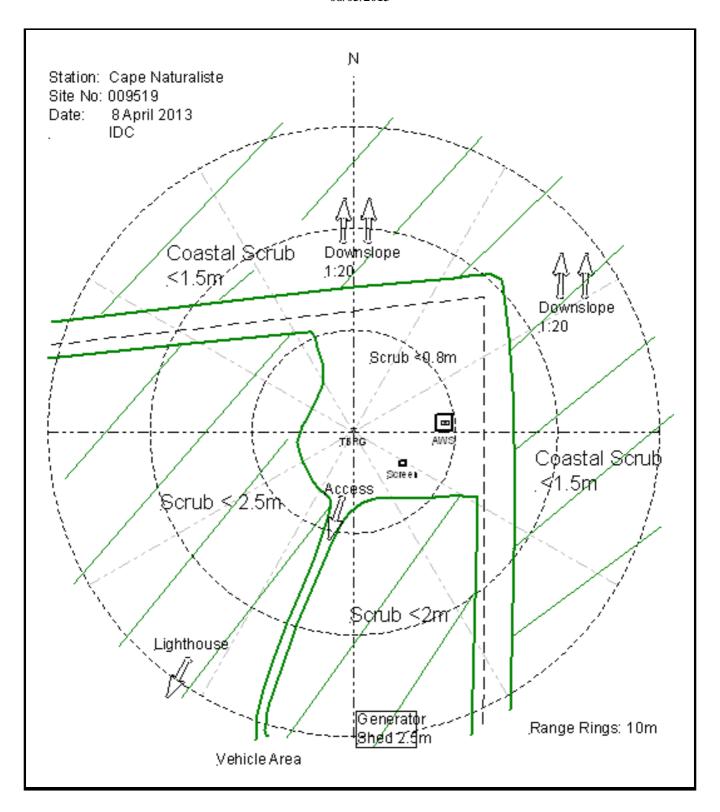
# Instrument Location and Surrounding Features 02/03/2018(most recent)





Station:	CAPE NATU	RALISTE		Location:	CAPE NA	ATURALISTE		State:	WA
Bureau No.:	009519	WMO No.:	94600	Aviation ID:	CNTE	Opened:	Current Status:	Still open	
Latitude:	-33.5372	Longitude:	115.0189	Elevation:	109 m	Barometer Elev:	109.5 m	Metadata compiled:	26 JUL 2020

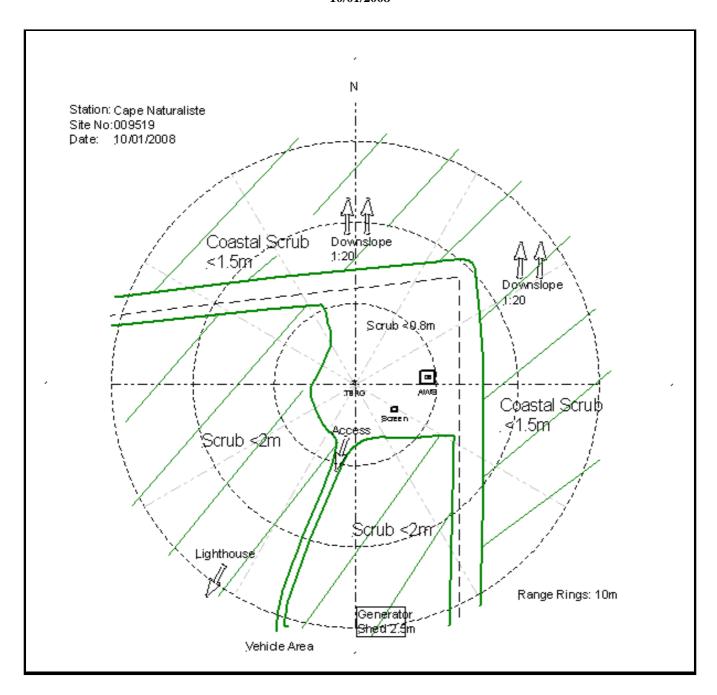
## **Instrument Location and Surrounding Features** 08/05/2013





Station:	CAPE NATU	RALISTE		Location:	CAPE NA	ATURALISTE		State:	WA
Bureau No.:	009519	WMO No.:	94600	Aviation ID:	CNTE Opened: 01 Jan 1903			Current Status:	Still open
Latitude:	-33.5372	Longitude:	115.0189	Elevation:	109 m	Barometer Elev:	109.5 m	Metadata compiled:	26 JUL 2020

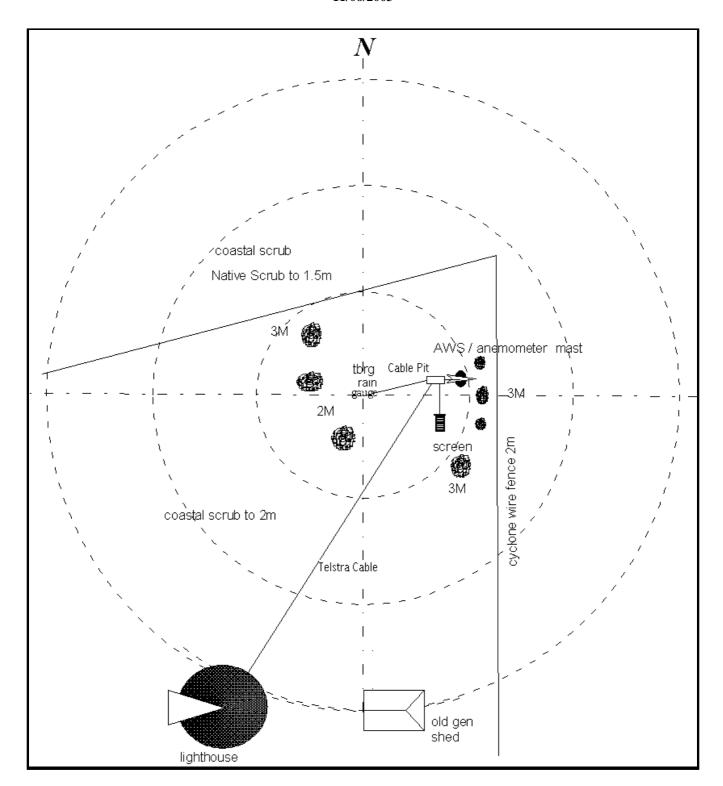
# **Instrument Location and Surrounding Features**





Station:	CAPE NATU	RALISTE		Location:	CAPE NATURALISTE			State:	WA
Bureau No.:	009519	WMO No.:	94600	Aviation ID:	CNTE Opened: 01 Jan 1903			Current Status:	Still open
Latitude:	-33.5372	Longitude:	115.0189	Elevation:	109 m	Barometer Elev:	109.5 m	Metadata compiled:	26 JUL 2020

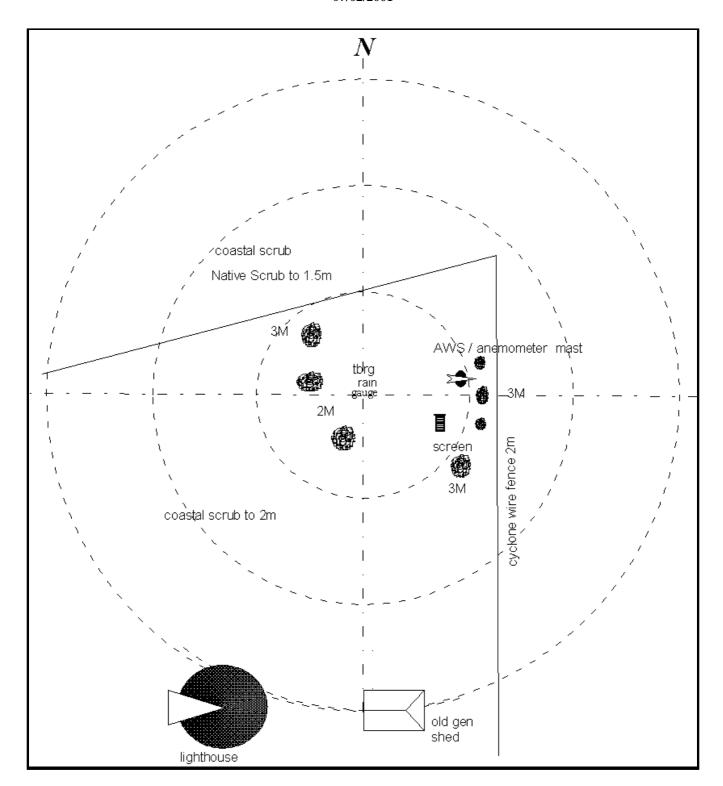
# Instrument Location and Surrounding Features 11/06/2003





Station:	CAPE NATU	RALISTE		Location:	CAPE NA	ATURALISTE		State:	WA
Bureau No.:	009519	WMO No.:	94600	Aviation ID:	CNTE	Opened:	01 Jan 1903	Current Status:	Still open
Latitude:	-33.5372	Longitude:	115.0189	Elevation:	109 m	Barometer Elev:	109.5 m	Metadata compiled:	26 JUL 2020

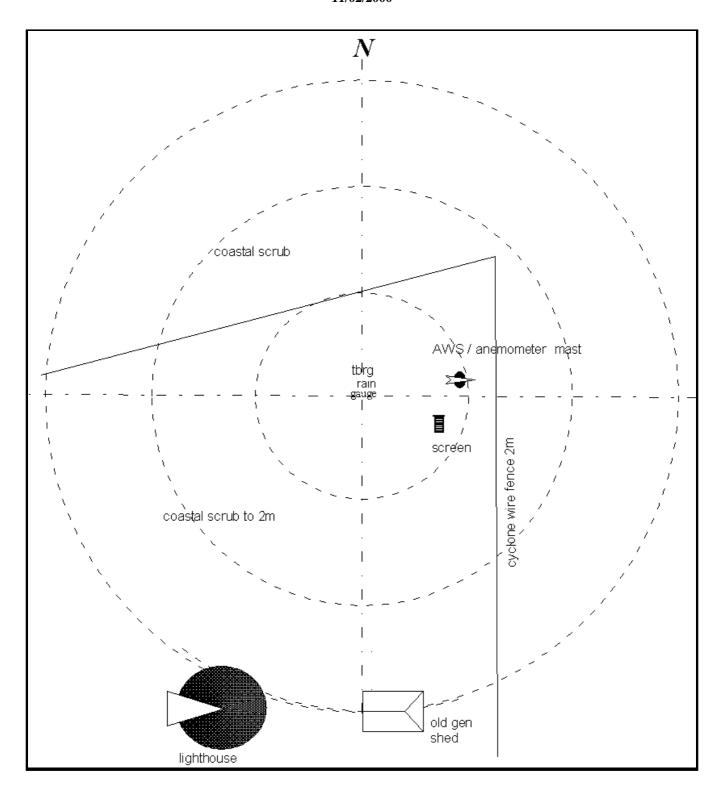
# ${\bf Instrument\ Location\ and\ Surrounding\ Features}\atop{\bf 07/02/2001}$





Station:	CAPE NATU	CAPE NATURALISTE			CAPE NATURALISTE			State:	WA
Bureau No.:	009519	WMO No.:	94600	Aviation ID:	CNTE	Opened:	Current Status:	Still open	
Latitude:	-33.5372	Longitude:	115.0189	Elevation:	109 m Barometer Elev: 109.5 m			Metadata compiled:	26 JUL 2020

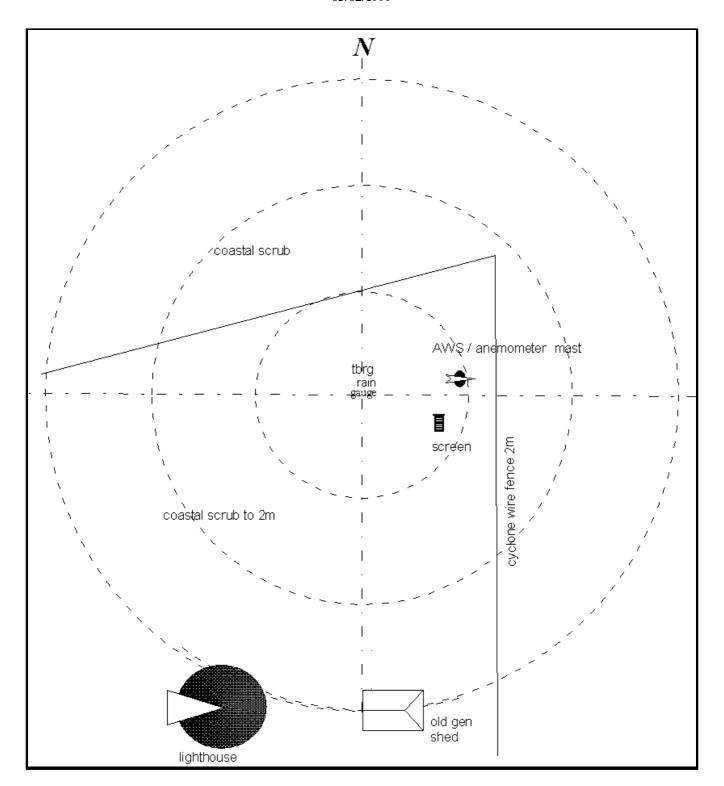
# Instrument Location and Surrounding Features 11/02/2000





Station:	CAPE NATURALISTE Location:			Location:	CAPE NATURALISTE			State:	WA
Bureau No.:	009519	WMO No.:	94600	Aviation ID:	CNTE	Opened:	Current Status:	Still open	
Latitude:	-33.5372	Longitude:	115.0189	Elevation:	109 m Barometer Elev: 109.5 r		109.5 m	Metadata compiled:	26 JUL 2020

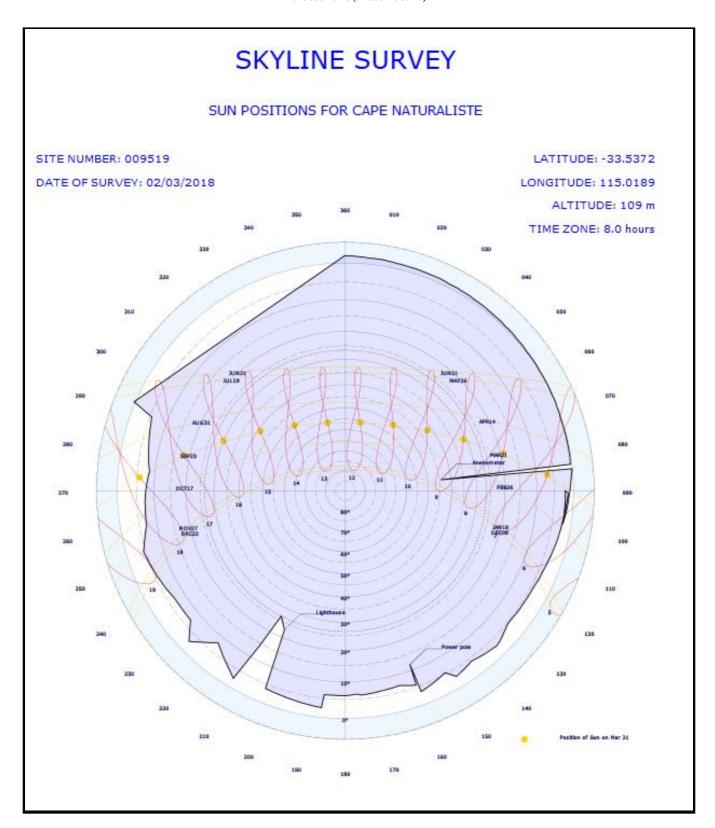
# Instrument Location and Surrounding Features 05/02/1999





Station:	CAPE NATURALISTE			Location:	CAPE NATURALISTE			State:	WA
Bureau No.:	009519	WMO No.:	94600	Aviation ID:	CNTE	Opened:	Current Status:	Still open	
Latitude:	-33.5372	Longitude:	115.0189	Elevation:	109 m	Barometer Elev:	109.5 m	Metadata compiled:	26 JUL 2020

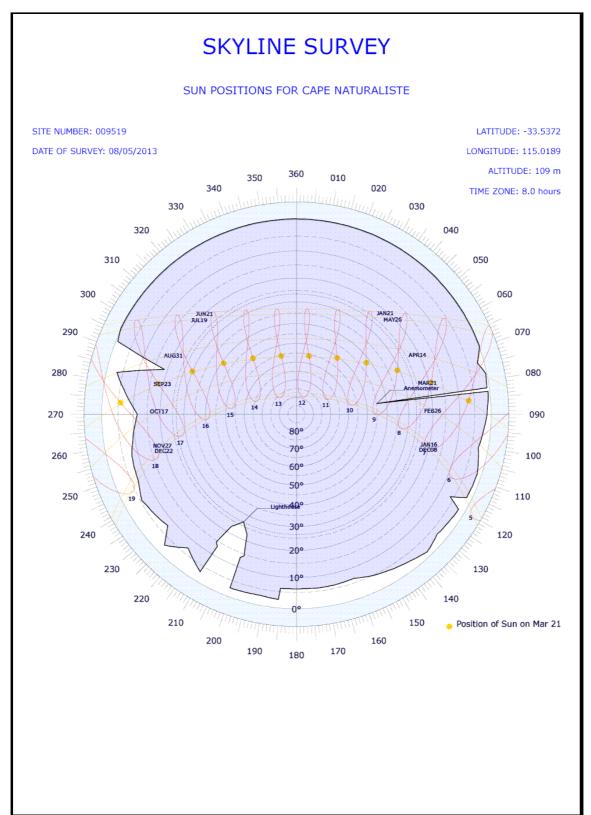
# Skyline Diagram 02/03/2018(most recent)





Station:	n: CAPE NATURALISTE			Location:	CAPE NATURALISTE			State:	WA
Bureau No.:	009519	WMO No.:	94600	Aviation ID:	CNTE	Opened:	Current Status:	Still open	
Latitude:	-33.5372	Longitude:	115.0189	Elevation:	109 m	Barometer Elev:	109.5 m	Metadata compiled:	26 JUL 2020

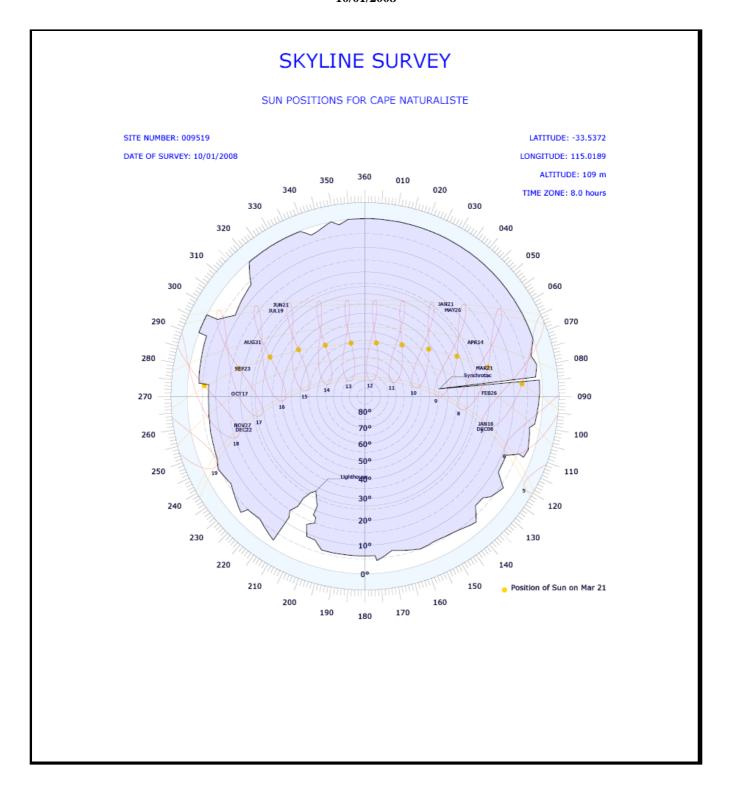
# Skyline Diagram 08/05/2013





Station:	CAPE NATURALISTE			Location:	CAPE NATURALISTE			State:	WA
Bureau No.:	009519	WMO No.:	94600	Aviation ID:	CNTE	Opened:	Current Status:	Still open	
Latitude:	-33.5372	Longitude:	115.0189	Elevation:	109 m	Barometer Elev:	109.5 m	Metadata compiled:	26 JUL 2020

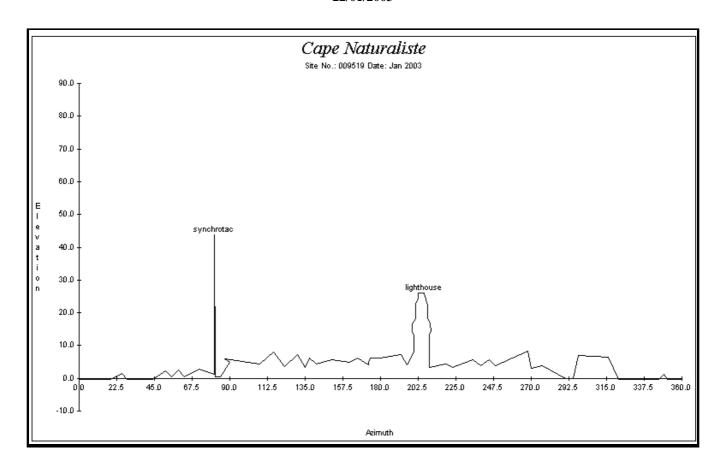
# Skyline Diagram





Station:	CAPE NATURALISTE			Location:	CAPE NATURALISTE			State:	WA
Bureau No.:	009519	WMO No.:	94600	Aviation ID:	CNTE	Opened:	Current Status:	Still open	
Latitude:	-33.5372	Longitude:	115.0189	Elevation:	109 m	Barometer Elev:	109.5 m	Metadata compiled:	26 JUL 2020

# Skyline Diagram 22/01/2003





Station:	CAPE NATURALISTE			Location:	CAPE NATURALISTE			State:	WA
Bureau No.:	009519	WMO No.:	94600	Aviation ID:	CNTE	Opened:	Current Status:	Still open	
Latitude:	-33.5372	Longitude:	115.0189	Elevation:	109 m	Barometer Elev:	109.5 m	Metadata compiled:	26 JUL 2020

### Station Observation Program Summary (Surface Observations) from 01/09/1903 to 30/11/1995

<b>Current Observation</b>	Continuous	Half Hourly	Hourly
Surface Observations	-	-	-

<b>Current Observation</b>	Program Type	12 AM	3 AM	6 AM	9 AM	12 PM	3 PM	6 AM	9 AM
Surface Observation	PERFORMED	Y	Y	Y	Y	Y	Y	Y	Y
Surface Observation	REPORTED	Y	Y	Y	Y	Y	Y	Y	Y
Surface Observation	SEASONAL	-	-	-	-	-	-	-	-

### Station Observation Program Summary (Surface Observations) 26 JUL 2020 (most recent)

<b>Current Observation</b>	Continuous	Half Hourly	Hourly
Surface Observations	=	=	Y

<b>Current Observation</b>	Program Type	12 AM	3 AM	6 AM	9 AM	12 PM	3 PM	6 AM	9 AM
Surface Observation	PERFORMED	Y	Y	Y	Y	Y	Y	Y	Y
Surface Observation	REPORTED	Y	Y	Y	Y	Y	Y	Y	Y
Surface Observation	SEASONAL	-	-	-	-	-	-	-	-



Station:	on: CAPE NATURALISTE			Location:	CAPE NATURALISTE			State:	WA
Bureau No.:	009519	WMO No.:	94600	Aviation ID:	CNTE	Opened:	Current Status:	Still open	
Latitude:	-33.5372	Longitude:	115.0189	Elevation:	109 m	Barometer Elev:	109.5 m	Metadata compiled:	26 JUL 2020

### **Station Equipment History**

#### **Equipment Install/Remove**

Cloud Height (No Electronic History)

River Height (No Electronic History)

Wind Run (No Electronic History)

Spectral Radiation (No Electronic History)

Sea Surface Temperature (No Electronic History)

Sea Water Temperature (No Electronic History)

**Evaporation (No Electronic History)** 

#### **Minimum Temperature**

01/JAN/1904 INSTALL Thermometer, Alcohol, Min (Type Unknown S/N - 5691) Surface Observations

30/NOV/1995 REMOVE Thermometer, Alcohol, Min (Type Dobbie S/N - 3120) Surface Observations

09/JUN/1980 REPLACE Thermometer, Alcohol, Min (Now Dobbie S/N - 3120) Surface Observations

31/DEC/1976 REPLACE Thermometer, Alcohol, Min (Now Dobbie S/N - Unknown) Surface Observations

#### Soil Temperature 50cm (No Electronic History)

Sub Surface Temperature (No Electronic History)

**Electrical Conductivity (No Electronic History)** 

#### **Maximum Temperature**

01/JAN/1904 INSTALL Thermometer, Mercury, Max (Type Unknown S/N - Unknown) Surface Observations

30/NOV/1995 REMOVE Thermometer, Mercury, Max (Type Dobbie S/N - 3360) Surface Observations

28/JUN/1984 REPLACE Thermometer, Mercury, Max (Now Dobbie S/N - 3360) Surface Observations

09/MAR/1972 REPLACE Thermometer, Mercury, Max (Now Dobbie S/N - 8067) Surface Observations

11/DEC/1970 REPLACE Thermometer, Mercury, Max (Now Dobbie S/N - Unknown) Surface Observations

24/AUG/1972 REPLACE Thermometer, Mercury, Max (Now Dobbie S/N - Unknown) Surface Observations

#### Soil Temperature 20cm (No Electronic History)

Solar Radiation (No Electronic History)

Soil Temperature 5cm (No Electronic History)

Oxygen Content (No Electronic History)

Sea Water Level (No Electronic History)

Surface Inclination (No Electronic History)

Terrestial Minimum Temperature (No Electronic History)

Visibility (No Electronic History)

Solar Radiation (Direct) (No Electronic History)

Magnetic Bearing (No Electronic History)

#### Wind Direction

15/JUL/2004 INSTALL Anemometer (Type Synchrotac Cups - Type 732 S/N - 82659) Surface Observations

30/NOV/1995 INSTALL Anemometer (Type Synchrotac Vane - Type 706 S/N - 64452) Surface Observations

01/JAN/1957 INSTALL Anemometer (Type Unknown S/N - Unknown) Surface Observations

15/FEB/2000 INSTALL Mast Anemometer (Type Pivot, Standard 8m S/N - NONE) Infrastructure

30/NOV/1995 REMOVE Anemometer (Type Synchrotac - dial S/N - 201/66) Surface Observations

01/JUN/1969 REPLACE Anemometer (Now Synchrotac - dial S/N - 201/66) Surface Observations

15/JUL/2004 REPLACE Anemometer (Now Synchrotac Vane - Type 706 S/N - KXD07) Surface Observations

#### Air Temperature

30/NOV/1995 INSTALL Humidity Probe (Type Unknown S/N - Unknown) Surface Observations

14/APR/1999 REPLACE Humidity Probe (Now Rotronics S/N - 11666-008) Surface Observations



Station:	tion: CAPE NATURALISTE			Location:	CAPE NATURALISTE			State:	WA
Bureau No.:	009519	WMO No.:	94600	Aviation ID:	CNTE	Opened:	01 Jan 1903	Current Status:	Still open
Latitude:	-33.5372	Longitude:	115.0189	Elevation:	109 m	Barometer Elev:	109.5 m	Metadata compiled:	26 JUL 2020

## **Station Equipment History (continued)**

Equipment	Install/Remove(Continued)
21/FEB/2001	REPLACE Humidity Probe (Now Rotronics S/N - 1468400/8) Surface Observations
07/AUG/1998	REPLACE Humidity Probe (Now Rotronics S/N - 509100/36) Surface Observations
20/JUN/2002	REPLACE Humidity Probe (Now Vaisala HMP45D S/N - V0720024) Surface Observations
30/NOV/1995	INSTALL Temperature Probe - Dry Bulb (Type Rosemount S/N - 0071) Surface Observations
01/APR/1904	INSTALL Thermometer, Mercury, Dry Bulb (Type Unknown S/N - 287745) Surface Observations
30/NOV/1995	REMOVE Thermometer, Mercury, Dry Bulb (Type Dobbie S/N - 1355) Surface Observations
26/MAR/1987	REPLACE Thermometer, Mercury, Dry Bulb (Now Dobbie S/N - 1355) Surface Observations
Wet Bulb Ten	nperature
01/JAN/1905	INSTALL Thermometer, Mercury, Wet Bulb (Type Unknown S/N - 1160) Surface Observations
30/NOV/1995	REMOVE Thermometer, Mercury, Wet Bulb (Type Dobbie S/N - 5334) Surface Observations
14/APR/1972	REPLACE Thermometer, Mercury, Wet Bulb (Now Dobbie S/N - 2608) Surface Observations
26/MAR/1987	REPLACE Thermometer, Mercury, Wet Bulb (Now Dobbie S/N - 5334) Surface Observations
Lightning (No	Electronic History)
Turbidity (No	Electronic History)
Total Column	Ozone Amount (No Electronic History)
Pressure	
01/JAN/1957	INSTALL Barometer (Type Kew pattern mercury S/N - M4614) Surface Observations
01/DEC/1995	INSTALL Barometer (Type Vaisala PA11A S/N - P3730022) Surface Observations
30/NOV/1995	REMOVE Barometer (Type Kew pattern mercury S/N - 1874) Surface Observations
11/OCT/1982	REPLACE Barometer (Now Kew pattern mercury S/N - 1874) Surface Observations
24/AUG/1972	REPLACE Barometer (Now Kew pattern mercury S/N - 2020) Surface Observations
14/APR/1975	REPLACE Barometer (Now Kew pattern mercury S/N - 2075) Surface Observations
10/NOV/2011	REPLACE Barometer (Now Vaisala PTB220B S/N - D3540115) Surface Observations
Humidity	
30/NOV/1995	INSTALL Humidity Probe (Type Unknown S/N - Unknown) Surface Observations
14/APR/1999	REPLACE Humidity Probe (Now Rotronics S/N - 11666-008) Surface Observations
21/FEB/2001	REPLACE Humidity Probe (Now Rotronics S/N - 1468400/8) Surface Observations
	REPLACE Humidity Probe (Now Rotronics S/N - 509100/36) Surface Observations
20/JUN/2002	REPLACE Humidity Probe (Now Vaisala HMP45D S/N - V0720024) Surface Observations
	rs (No Electronic History)
Pressure Tren	d (No Electronic History)
Snow Height (	No Electronic History)
Wind Speed	
15/JUL/2004	INSTALL Anemometer (Type Synchrotac Cups - Type 732 S/N - 82659) Surface Observations
	INSTALL Anemometer (Type Synchrotac Vane - Type 706 S/N - 64452) Surface Observations
	INSTALL Anemometer (Type Unknown S/N - Unknown) Surface Observations
15/FEB/2000	INSTALL Mast Anemometer (Type Pivot, Standard 8m S/N - NONE) Infrastructure
30/NOV/1995	REMOVE Anemometer (Type Synchrotac - dial S/N - 201/66) Surface Observations
	REPLACE Anemometer (Now Synchrotac - dial S/N - 201/66) Surface Observations
	REPLACE Anemometer (Now Synchrotac Vane - Type 706 S/N - KXD07) Surface Observations
Rainfall	
01/SEP/1903	INSTALL Raingauge (Type 203 mm (8in) - 200mm capacity S/N - Unknown) Surface Observations
20/NOV/1005	INSTALL Daingauge (Type Dimes 7/00 TDDC S/N 70871) Surface Observations

Historical metadata for this site has not been quality controlled for accuracy and completeness. Data other than current station information, particularly earlier than 1998, should be considered accordingly. Information may not be complete, as backfilling of historical data is incomplete.

30/NOV/1995 INSTALL Raingauge (Type Rimco 7499 TBRG S/N - 70871) Surface Observations



Station:	tion: CAPE NATURALISTE			Location:	CAPE NATURALISTE			State:	WA
Bureau No.:	009519	WMO No.:	94600	Aviation ID:	CNTE	Opened:	01 Jan 1903	Current Status:	Still open
Latitude:	-33.5372	Longitude:	115.0189	Elevation:	109 m	Barometer Elev:	109.5 m	Metadata compiled:	26 JUL 2020

### **Station Equipment History (continued)**

### **Equipment Install/Remove(Continued)**

30/NOV/1995 REMOVE Raingauge (Type 203 mm (8in) - 200mm capacity S/N - Unknown) Surface Observations

15/JUL/2004 REPLACE Raingauge (Now Rimco 7499 TBRG S/N - 84537) Surface Observations

25/OCT/2019 REPLACE Raingauge (Now Rimco 8020 TBRG S/N - 78074) Surface Observations

07/AUG/1998 REPLACE Raingauge (Now Rimco TBRG (type unspecified) S/N - 70871) Surface Observations

29/JAN/2002 REPLACE Raingauge (Now Rimco TBRG (type unspecified) S/N - CBM-244) Surface Observations

01/OCT/2002 REPLACE Raingauge (Now Rimco TBRG (type unspecified) S/N - CBM-444) Surface Observations

Soil Temperature 100cm (No Electronic History)

Soil Temperature 10cm (No Electronic History)

Solar Radiation (Long Wave) (No Electronic History)

RF Reflectivity (No Electronic History)

The following table summarises information on field performance checks available electronically over the period indicated. The number of instances an instrument was found to fail field performance checks should only be used as a guide. A system of data quality flags is implemented by the Bureau of Meteorology to indicate the data quality of an observation as determined by a mutli-stage quality control process.

Available Date Range	Element	Fail Field Performance Check
02/DEC/1996 - 12/FEB/2019	Wind Direction	5
02/DEC/1996 - 12/FEB/2019	Air Temperature	4
20/JAN/1997 - 12/FEB/2019	Pressure	0
20/JAN/1997 - 12/FEB/2019	Humidity	4
02/DEC/1996 - 12/FEB/2019	Wind Speed	5
02/DEC/1996 - 12/FEB/2019	Rainfall	7

#### **Station Detail Changes**

30/NOV/1995 CLASSIFICATION Basic & Severe (FBS)

10/JAN/2011 CLASSIFICATION Critical (ASOSCRIT)

01/JUL/2018 CLASSIFICATION HQ RAINFALL (HQRAIN)

01/JUL/2017 CLASSIFICATION Observing Operations Hub - Perth (OOH-P)

21/MAR/2016 CLASSIFICATION Processed by ASOS (PBA)

23/MAR/2011 OBJECT Document/BAROMETER COEFFICIENTS

23/JUN/2008 OBJECT Document/SITE LEASE

02/MAR/2018 OBJECT Document/SKYLINE DATA

08/MAY/2013 OBJECT Document/SKYLINE DATA

10/JAN/2008 OBJECT Document/SKYLINE DATA

22/JAN/2003 OBJECT Document/SKYLINE DATA

01/JAN/1903 STATION - (nondb seeding) Opened

01/JAN/1903 STATION - (nondb seeding) bar\_ht Changed to 109.5

01/JAN/1903 STATION - (nondb seeding) bar\_ht\_deriv Changed to SURVEY

01/JAN/1903 STATION - (nondb seeding) latitude Changed to -33.5381

01/JAN/1903 STATION - (nondb seeding) longitude Changed to 115.0183

01/JAN/1903 STATION - (nondb seeding) name Changed to CAPE NATURALISTE

01/JAN/1903 STATION - (nondb seeding) stn\_ht Changed to 109



Station:	tion: CAPE NATURALISTE			Location:	CAPE NATURALISTE			State:	WA
Bureau No.:	009519	WMO No.:	94600	Aviation ID:	CNTE	Opened:	01 Jan 1903	Current Status:	Still open
Latitude:	-33.5372	Longitude:	115.0189	Elevation:	109 m	Barometer Elev:	109.5 m	Metadata compiled:	26 JUL 2020

### **Station Equipment History (continued)**

### **Station Detail Changes(Continued)**

01/JAN/1903 STATION - (nondb seeding) stn\_ht\_deriv Changed to SURVEY

01/JAN/1903 STATION - (nondb seeding) wmo\_num Changed to 94600

31/OCT/1997 STATION aviation\_id Changed to CNTE

22/JAN/2003 STATION latitude Changed to -33.5372WGS84 system

01/JAN/1903 STATION latlon\_deriv Changed to GPS

22/JAN/2003 STATION latlon\_deriv Changed to GPS

22/JAN/2003 STATION longitude Changed to 115.0189WGS84 system

04/FEB/1999 STATION lu 0 100m Changed to Coastal or Island

05/FEB/1999 STATION lu\_0\_100m Changed to Coastal or Island

04/FEB/1999 STATION lu\_100m\_1km Changed to Coastal or Island

05/FEB/1999 STATION lu\_100m\_1km Changed to Coastal or Island

04/FEB/1999 STATION lu\_1km\_10km Changed to Coastal or Island

05/FEB/1999 STATION lu\_1km\_10km Changed to Coastal or Island

04/FEB/1999 STATION soil\_type Changed to sand

05/FEB/1999 STATION soil\_type Changed to sand

04/FEB/1999 STATION surface\_type Changed to sand

05/FEB/1999 STATION surface\_type Changed to sand

### **System Changes**

15/FEB/2000 SYSTEM Infrastructure Commenced

01/SEP/1903 SYSTEM Surface Observations Commenced



The following notes have been compiled to assist with interpreting the metadata provided in this document. These notes are subject to change as the network evolves. Changes in station-specific metadata occur more frequently, both as recent changes are recorded and historical information is transferred from paper file to electronic database.

### Reliability of the metadata

The Commonwealth Bureau of Meteorology maintains information on more than 20,000 stations which have operated since observations began in the mid 1800s. The amount of information available for each of these sites and its associated uncertainty are influenced by a number of factors including the type and purpose of the station and the time over which it operated.

Early information about stations was held only on paper file. In 1998 a corporate electronic database was established to help maintain information about the network and its components. The number of parameters recorded about a station is now much greater than before this database was established. The national database has also helped improve consistency in the metadata through the implementation of predefined fields. As a result, and through the refinement of operating procedures, station metadata recorded since 1998 are of a higher overall standard than previously, although occasional omissions and errors are still possible.

The Bureau is part way through a task of entering historical information held on paper file into the corporate database. Until this process is completed there will remain large gaps in the information contained in these metadata documents and considerable caution should be used when deriving conclusions from the metadata. As an example, two consecutive entries about a rain gauge dated 50 years apart may appear in the equipment metadata. This may either mean that nothing happened to that instrument over the 50 years, or that information for the intervening period has yet to be entered into the database. Similarly, if no information was available about instruments at a site when it was first established, fields which were required to have a value present may have used the earliest information available as a best-guess estimate. Sometimes this was the metadata current when the database was established in 1998. In some instances there may be gaps in metadata relevant to the post 1998 period.

For the above reasons it is recommended that all metadata prior to 1998 be considered as indicative only, and used with caution, unless it has been quality controlled. The Bureau of Meteorology should be contacted if further information or confirmation of the data is required. Depending on the nature of the inquiry there may be a fee associated with this request. Contact details are provided in the telephone book for each capital city or the Bureau's web site at: http://www.bom.gov.au

The following pages contain explanatory notes for selected terms found in this document.

#### **Station Number**

The Bureau of Meteorology station number uniquely specifies a station and is not intended to change over time time, although on very rare occasions a station number may change or be deleted from the record (usually to correct an error). Generally a new station number is established if an existing station changes in a way that would affect the climate data record for that site (measured in terms of air temperature and precipitation). Significant station moves are an example of this.

Some stations also possess a World Meteorological Organization (WMO) station number. The WMO number is different to the Bureau of Meteorology number. It also uniquely specifies a station at any given time but can be reassigned to another station if the new station takes priority in the global reporting network. Only selected stations will have a WMO number. Significant stations may maintain their WMO number for many decades.



### **Network Classification**

SUPPORTING the BASIC CLIMATE SERVICE
Global Climate Observing System (GCOS)
GCOS Upper Air Network (GUAN)
GCOS Surface Network (GSN)
National Climate Network {not yet assigned}
Reference Climate Stations (RCS)
Regional Basic Climatological Network (RBCN)
CLIMAT Stations (CLC)
CLIMAT TEMP Stations (CLT)
SUPPORTING the NATIONAL WEATHER WATCH SYSTEM
WMO Global Observing System (GOS)
GOS Upper Air Network
GOS Satellite Network
Global Atmospheric Watch
Background Atmospheric Pollution Monitoring Network (BAPMON)
Basic Ozone Network
Basic Solar and Terrestrial Radiation Network
Regional Basic Synoptic Network (RBSN)
WMO Global Oceanic Observing System (GOOS)
SUPPORTING the BASIC WEATHER SERVICE (BWS)
BWS Land Network
Significant Land Locations
Capital City Mesonets
National Benchmark Network for Agrometeorology (NBNA)
BWS Marine Network
Significant Coastal Loactions
Open Ocean Network
BWS Upper Air Network
Major Significant Locations
BWS Remote Sensing Network
Weather Watch Radar Network
Fire Weather Wind Mesonets
High Resolution Satellite
SUPPORTING the BASIC HYDROLOGICAL SERVICE
Regional Flood Warning Network
Water Resources Assessment Network
Global Hydrological Network
Global Terrestrial Observing System (GTOS)
World Hydrological Cycle Observing System (WHYCOS)
National Hydrological Network

Networks of stations are defined for a variety of purposes (as defined in above table).



### **Network Classification Continued....**

Stations may be included in several different networks, which may change over time. The table on the previous page lists current network classifications related to the scientific purpose of the network. Some of these networks - the GCOS network for instance - are components of a global network. Entries in the database for some networks may not be complete, thus not properly representing the status of the network. The composition of the network will usually change over time. While several of the networks have international significance, other network classifications have been developed to aid operational management.

### **Station Purpose**

The station purpose can be classified according to the observation program listed below. Parameters in brackets list some of the various different configurations which occur.

- Synoptic [Seasonal, River Height, Climatological, Telegraphic Rain, Aeronautical, Upper Air]
- Climatological [Seasonal, Telegraphic Rain]
- Aeronautical
- Rainfall [River Height]
- River Height
- Telegraphic Rain [Non-Telegraphic River Height, Telegraphic River Height]
- Non-Telegraphic Rain [Telegraphic River Height]
- Evaporation [Rainfall, River Height, Telegraphic River Height, Non-Telegraphic River Height, Telegraphic Rain, Non-Telegraphic Rain]
- Pluviograph [Rainfall, Telegraphic Rain, Non-Telegraphic Rain, River Height, Telegraphic River Height, Non-Telegraphic River Height]
- Radiation
- Lightning Flash Counter
- Public Information
- Local Conditions
- Radar Site
- · Unclassified
- No Routine Observations

Note: Telegraphic observations are those which are sent by some electronic means be it a phone or telegram to the responsible Bureau office. It is a term which is historically linked to analogue non automatic data transmission.

### **Station Observation Program Summary**

#### **Surface Observations**

The following terms are used to describe the frequency of surface observations at a site. Historical observation programs will typically be missing for many sites until the database is backfilled with information.

### Set a)

- Continuous Program
  - · More than half hourly observations sent (eg an automatic weather station {AWS} which continuously transmits 10 minute observations). This will automatically include half hourly and hourly observations programs.
- Half hourly observations
  - · Half hourly observations sent. This will automatically include hourly observations.
- Hourly observations
  - · Hourly observations sent only. Stations report on non-synoptic hours (ie. 0100, 0200, 0400, 0500, etc)



#### Surface observations continued....

Set b)

- · Performed
  - · Observations performed, instruments read and observations recorded
- Reported
  - · Observations performed, instruments read and reported real time
- Seasonal
  - The program may only be performed during a defined season (such as Fire Weather observations) or the routine program may increase in reporting frequency and/or parameters. The program dates are currently modified at the start and end of each season for stations performing seasonal observations. Historically this was not always the case.

### **Current Station Equipment Summary**

Equipment listed in this metadata product is catalogued under one of systems listed below, appropriate to its application. The "Infrastructure" category has been included since it contains information about the mast height of an anemometer (if present).

- Flood Warning
- Infrastructure
- Radiation
- Rainfall Intensity
- Surface Observations
- Upper Air
- Weather Watch {RADAR}

### **Station Equipment History**

#### **Equipment Install/Remove**

One of four types of actions can be performed on an instrument in this listing:

**Install -** A new instrument is installed at the site. This can be either a completely new addition (eg the first barometer at the site), or the replacement of an existing instrument with a different type (eg replacing mercury barometer with electronic barometer)

**Remove** - An instrument can be removed either when it is no longer necessary to measure a particular element, or when the element is to be measured by an instrument of a different type ( see under "Install" above)

**Replace -** This occurs when one instrument is replaced with another of the same type (eg Kew pattern mercury barometer replacing another Kew pattern mercury barometer)

**Share -** The same instrument is used for observations under two (or more) systems (eg a rain gauge may be used within both Surface Observations and Rainfall Intensity systems)

Unshare - The instrument is no longer shared between systems



#### **Calibration**

During a site inspection an instrument will be calibrated as either being within or not within the specified tolerance in accuracy.

Where a quantative calibration result can be achieved by comparison to a transfer standard (eg barometer comparisons and tipping bucket rain gauge calibrations), the instrument will be recorded as being within or outside the required tolerance. Instruments (such as 203mm rain gauges, screens and evaporation pans) where quantitative calibrations cannot be derived should be regarded as meeting specifications when the instrument is in 'good working order'.

This product provides a summary table of the number of times an instrument was found to be out of calibration

### **Station Detail Changes**

This set of metadata indicates when some aspect of the general information about a station has changed.

#### - STATION

Metadata which are categorised as pertaining to STATION are items of (textual) information describing a specific attribute of the station. A reference to (nondB seeding) indicates initial information of this field has been sourced from a previous database.

#### **Station position**

- Latitude and longitude

Derivation of station latitude and longitude, defined by the location of the rain gauge when it is present, has changed over time. Current practice is to locate or verify open and operational station latitude and longitude based on Global Positioning System equipment. Methods used to locate a station as described in this product (latlon\_deriv) are as follows: GPS, MAP 1:10000, MAP 1:2500, MAP 1:25000, MAP 1:50000, MAP 1:100000, MAP 1:250000, SURVEY, and Unknown (which is more commonly represented by a null value). The field latlon\_error should be used with caution as the method of determining this value has been interpreted in different ways over time.

### - Height

Determination of heights for observing sites is by survey where possible. Otherwise height may be determined using a Digital Aneroid Barometer and a known surveyed point, or derived from map contours. The source of height is provided in the corresponding parameter with a suffix of "\_deriv".

Heights which may appear in these metadata are:

- aero\_ht
  - The official elevation of the aerodrome which normally corresponds to the altitude of the highest threshold of the runways at that airport;
- bar ht
  - this represents the height of the mercury barometer cistern or the digital aneroid barometer above mean sea level (MSL);
- stn\_ht
  - this normally represents the height of the rain gauge above MSL



#### - Land Use

To assist the long term understanding of climate change it is important to be able to determine the differences over time which are attributed to variations in the climate. Since land use has an effect on the micro climate around the site, and changes in land use will therefore affect the climate record, it is important that the characteristics of the site are monitored. Soil types are recorded as they affect the land use and also add to the knowledge of the site details.

#### **Defined Land use Types.**

- Non-vegetated (barren, desert)
- Coastal or Island
- Forest
- Open farmland, grassland or tundra
- Small town, less than 1000 population
- Town 1000 to 10,000 population
- City area with buildings less than 10 metres (3 stories)
- City area with buildings greater than 10 metres (3 stories)
- Airport

The land use code is entered on the station inspection form in the ranges 0 to 100 m, 100 to 1 km and 1km to 10 km; ie:

• lu 0 100m: Land Use 0 to 100 metres from the enclosure

lu\_100m\_1km: Land Use 100 metres to 1 kilometre
 lu 1km 10km: Land Use 1 kilometre to 10 kilometres

### Defined Soil Type (At Enclosure).

- unable to determine
- sand
- · black soil
- clav
- rock
- red soil
- other

### **Surface Type (At Enclosure).**

- unable to determine
- fully covered by grass
- mostly covered by grass
- partly covered by grass
- · bare ground
- sand
- concrete
- asphalt
- rock
- other