



## Basic Climatological Station Metadata

Current status

Metadata compiled: 27 JUL 2022

**Station:** TOWNSVILLE AERO

**Bureau of Meteorology station number:** 032040

**Bureau of Meteorology district name:** Herbert North Coast

**State:** QLD

**World Meteorological Organization number:** 94294

**Identification:** YBTL

**Network Classification:** CLIMAT Stations, CLIMAT TEMP Stations, GCOS  
Upper Air Network, National Benchmark Network for  
Agrometeorology, Regional Basic Synoptic Network

**Station purpose:** Synoptic, Upper Air, Aeronautical

**Automatic Weather Station:** Almos



Current Station Location				
<b>Latitude</b>	<b>Decimal</b>	-19.2483	<b>Hour Min Sec</b>	19°14'54"S
<b>Longitude</b>	<b>Decimal</b>	146.7661	<b>Hour Min Sec</b>	146°45'58"E
<b>Station Height</b>	4.34 m	<b>Barometer Height</b>	4.6 m	
<b>Method of station geographic positioning</b>			GPS	

**Year opened:** 1940

**Status:** Open

### Station summary

No summary for this site has been written as yet.

**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.**

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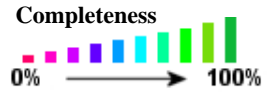
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<b>Bureau No.:</b> 032040	<b>WMO No.:</b> 94294	<b>Aviation ID:</b> YBTL	<b>Opened:</b> 01 Jan 1940	<b>Current Status:</b> Still open
<b>Latitude:</b> -19.2483	<b>Longitude:</b> 146.7661	<b>Elevation:</b> 4.34 m	<b>Barometer Elev:</b> 4.6 m	<b>Metadata compiled:</b> 27 JUL 2022

## 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.



### DAILY DATA HOLDINGS

OBSERVATION TYPE	FIRST MONTH	LAST MONTH	COMPLETENESS (% estimate)	SINGLE DAYS MISSED	FULL MONTHS MISSED
EVAPORATION	JUL 1969	JAN 2020	98.8	215	0
EVAPORIMETER - MAXIMUM WATER TEMPERATURE	NOV 1981	JUN 2011	96.3	300	3
GROUND MINIMUM TEMPERATURE	MAR 1995	APR 2016	99.2	61	0
MAXIMUM AIR TEMPERATURE	OCT 1940	JUN 2022	99.8	42	0
MAXIMUM WIND GUST SPEED	OCT 1940	JUN 2022	97.6	189	17
SUNSHINE HOURS	OCT 1957	APR 2016	99.2	69	3
WIND RUN ABOVE 10 FEET	JAN 1996	JUN 2022	97.9	135	2
WIND RUN BELOW 10 FEET	JUN 1981	JAN 2020	98.6	190	0
RAINFALL	NOV 1940	JUL 2022	100	N/A	N/A

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

OBSERVATION TYPE	FIRST MONTH	LAST MONTH	COMPLETENESS (% estimate)	FREQUENCY average daily	SINGLE DAYS MISSED	FULL MONTHS MISSED
<b>AIR TEMPERATURE</b>	NOV 1940	JUN 2022	99.8	9.3	2	0
<b>DEW POINT</b>	NOV 1940	JUN 2022	89.0	9.6	0	106
<b>MEAN SEA LEVEL PRESSURE</b>	JAN 1951	JUN 2022	99.2	9.7	30	5
<b>SOIL TEMPERATURE - 10cm</b>	AUG 1996	APR 2016	80.5	2.0	2	45
<b>TOTAL CLOUD AMOUNT</b>	NOV 1940	JUN 2022	97.6	7.5	199	0
<b>WIND SPEED</b>	NOV 1940	JUN 2022	99.8	9.3	2	0
<b>UPPER AIR TEMPERATURE</b>	MAY 1943	JAN 2020	75.8	1.4	1378	72
<b>UPPER AIR WIND SPEED</b>	APR 1946	JAN 2020	90.2	3.7	302	18

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### RAINFALL INTENSITY DATA HOLDINGS

OBSERVATION TYPE	FIRST MONTH	LAST MONTH	COMPLETENESS (% estimate)	SINGLE DAYS MISSED	FULL MONTHS MISSED
RAINFALL INTENSITY	MAR 1953	JAN 2016	89.5	850	51

### ONE-MINUTE DATA HOLDINGS

OBSERVATION TYPE	FIRST MONTH	LAST MONTH	COMPLETENESS (% estimate)	FREQUENCY average daily	SINGLE DAYS MISSED	FULL MONTHS MISSED
ALL ELEMENTS	SEP 2001	JUL 2022	99.3	1429.3	N/A	0

### HALF-HOURLY DATA HOLDINGS

OBSERVATION TYPE	FIRST MONTH	LAST MONTH	COMPLETENESS (% estimate)	FREQUENCY average daily	SINGLE DAYS MISSED	FULL MONTHS MISSED
ALL ELEMENTS	OCT 1995	JUL 2022	103.2	49.5	N/A	0

### UPPER-AIR EDT DATA HOLDINGS

OBSERVATION TYPE	FIRST MONTH	LAST MONTH	COMPLETENESS (% estimate)	FREQUENCY average daily	SINGLE DAYS MISSED	FULL MONTHS MISSED
Wind only flights	Jul 2000	Jul 2017	N/A	2.2	325	27
Wind, temperature and pressure flights	Jun 1991	Mar 2018	N/A	1.2	928	1

#### Holdings calculated up to 01 Jul 2022

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

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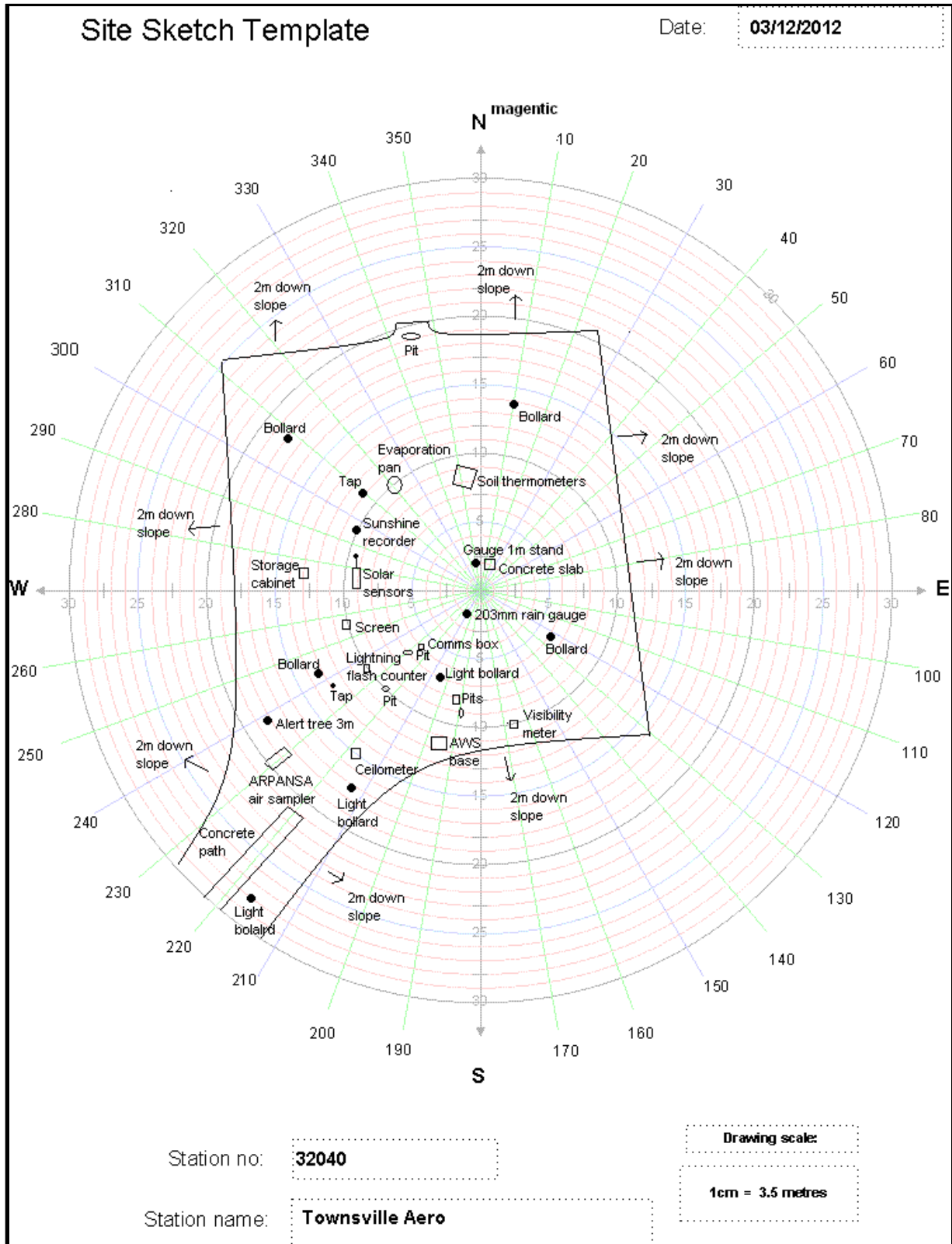
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## Extended Climatological Station Metadata All History

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### Instrument Location and Surrounding Features 03/12/2012(most recent)



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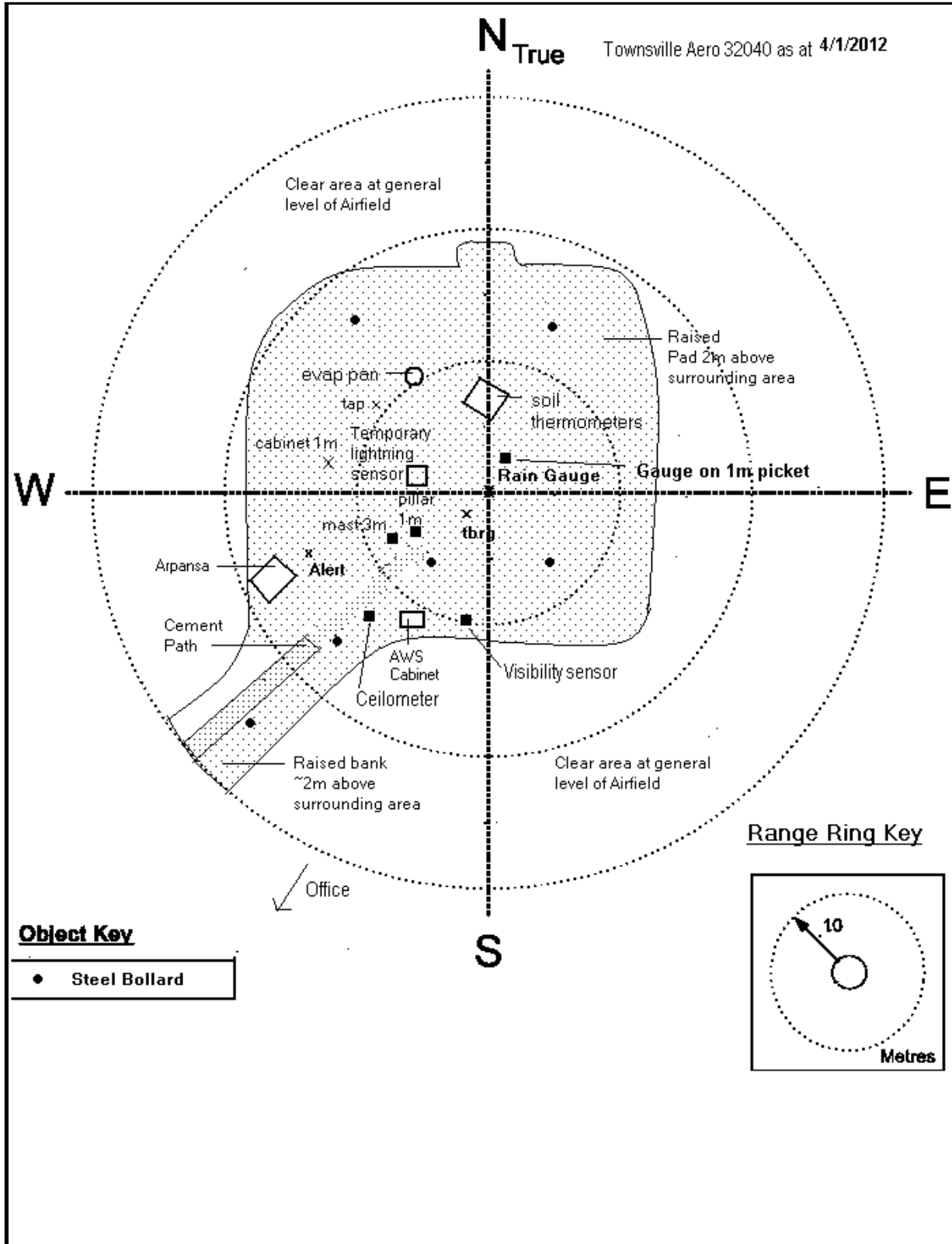
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All History

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### Instrument Location and Surrounding Features

04/01/2012



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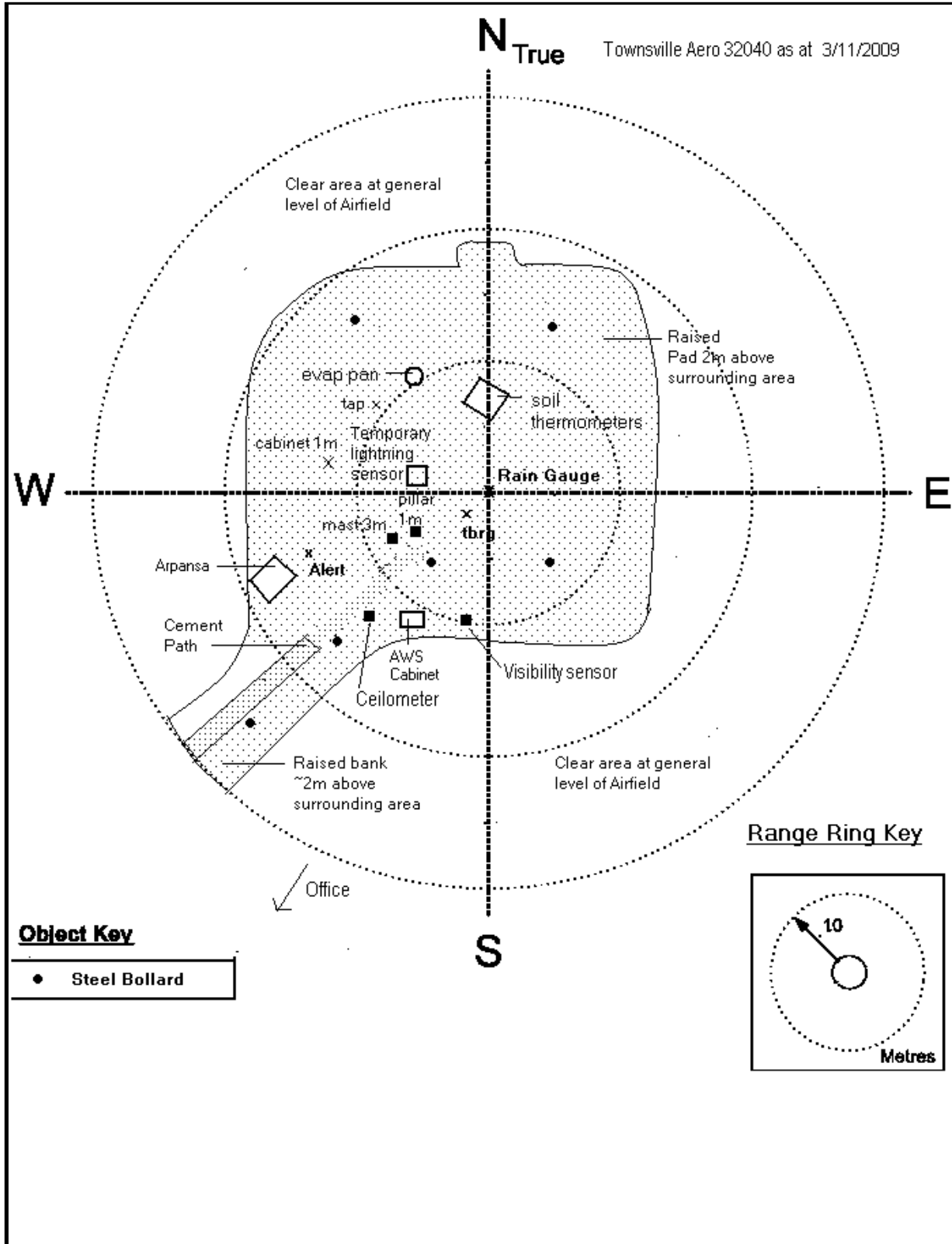
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### Instrument Location and Surrounding Features

03/11/2009



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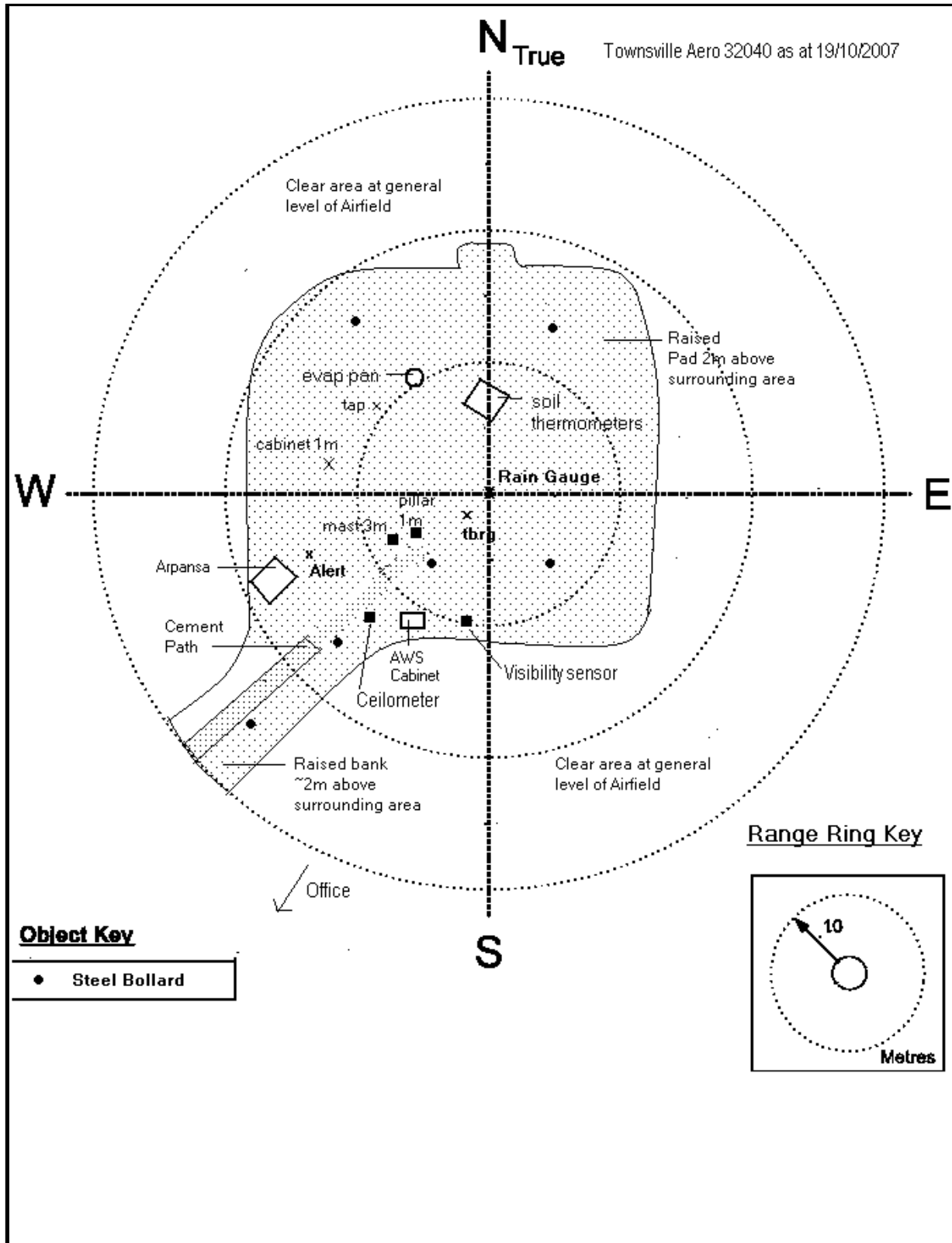
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### Instrument Location and Surrounding Features

19/10/2007



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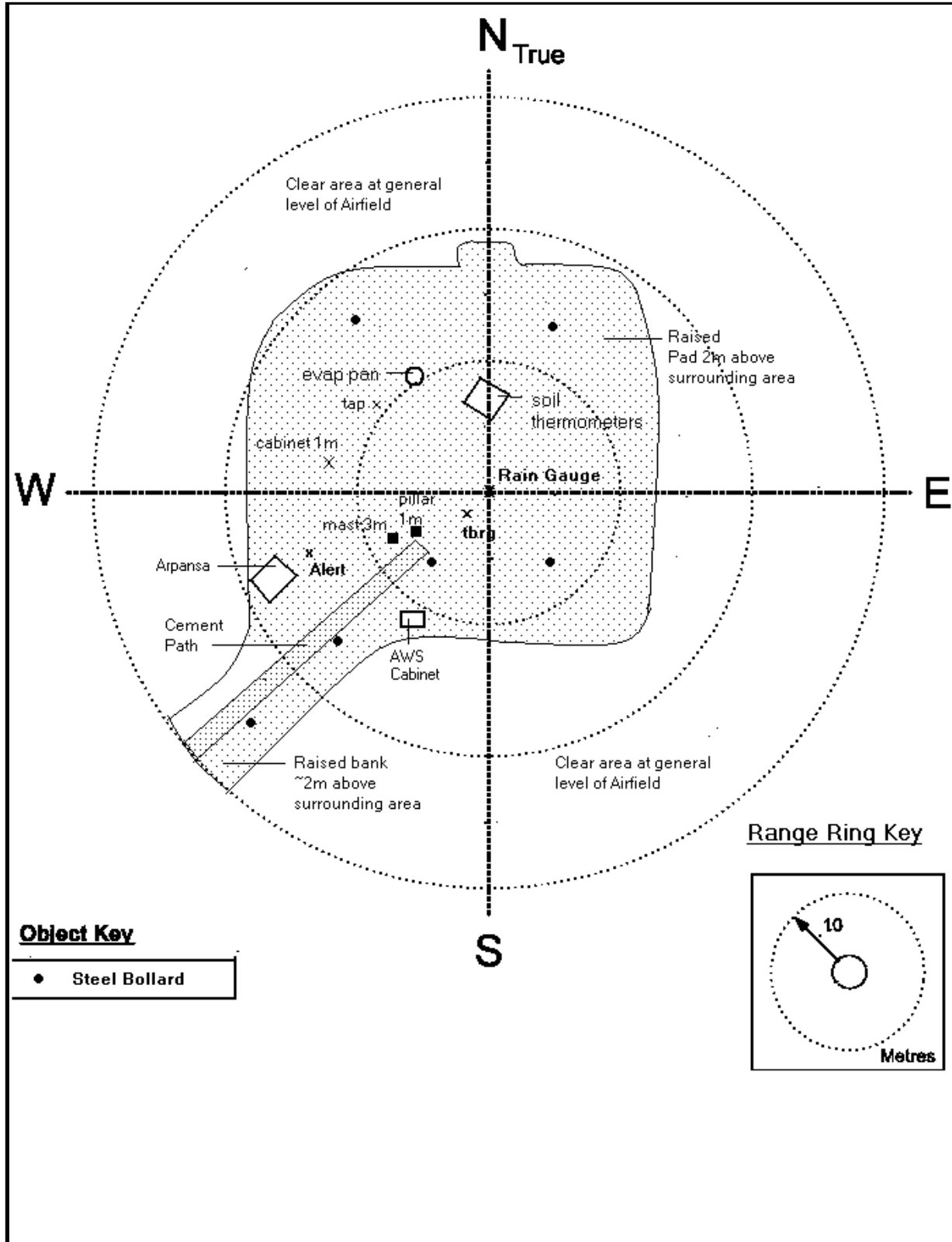
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### Instrument Location and Surrounding Features

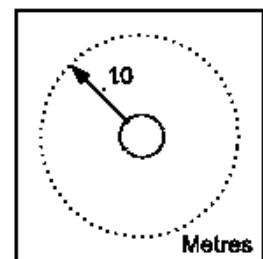
25/10/2004



**Object Key**

- Steel Bollard

**Range Ring Key**



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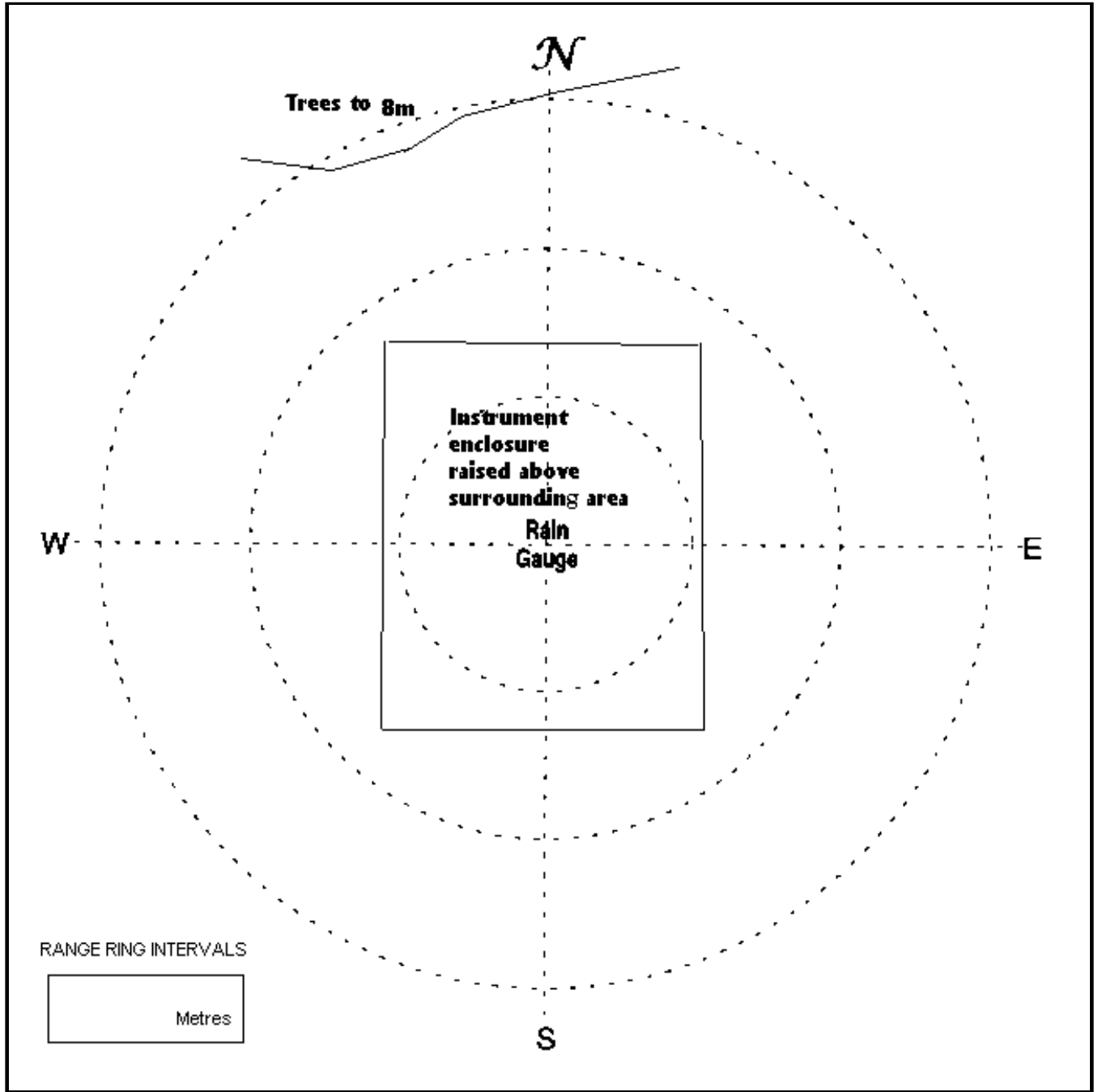
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### Instrument Location and Surrounding Features

25/09/1999



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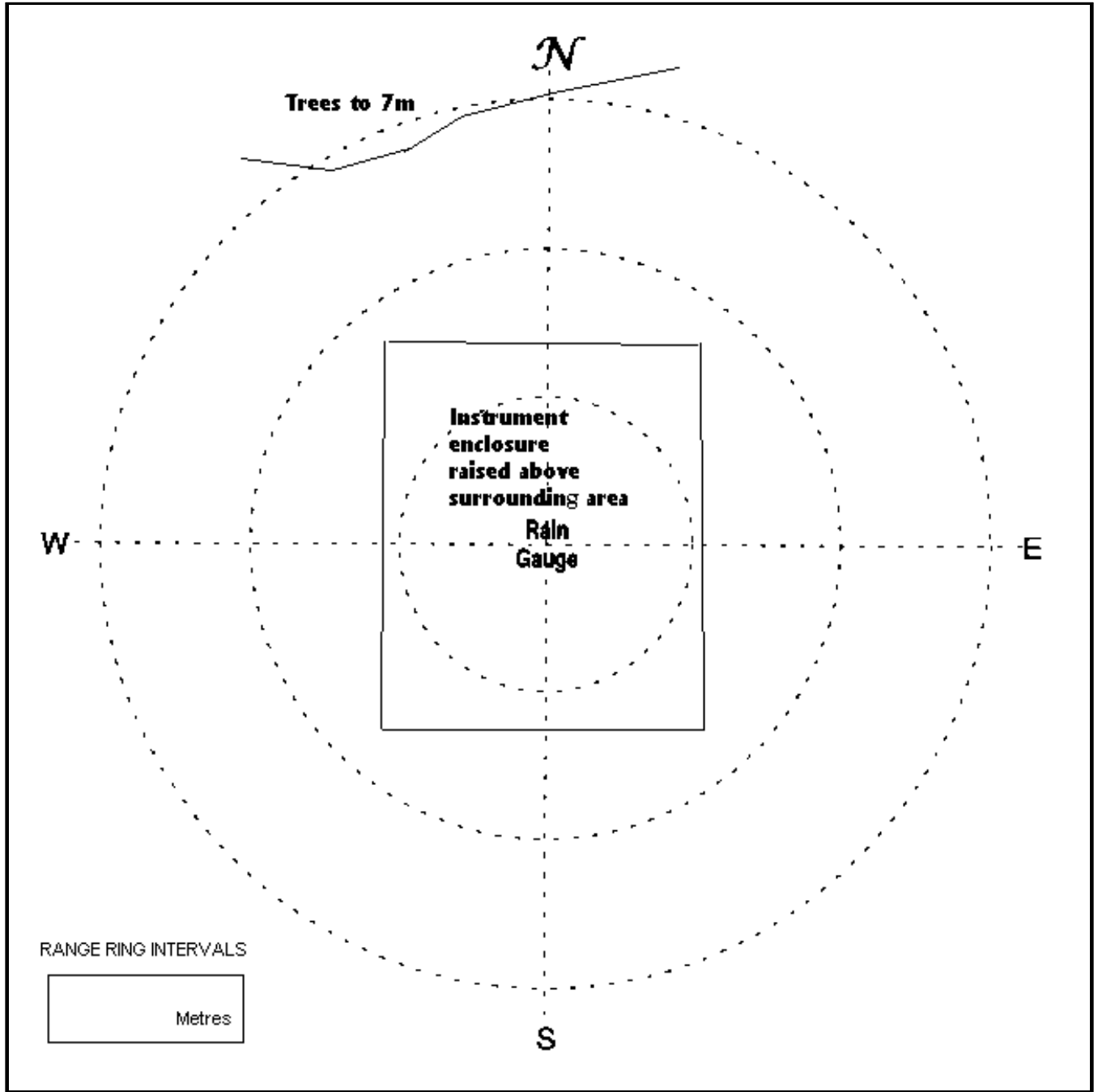
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### Instrument Location and Surrounding Features

06/10/1998



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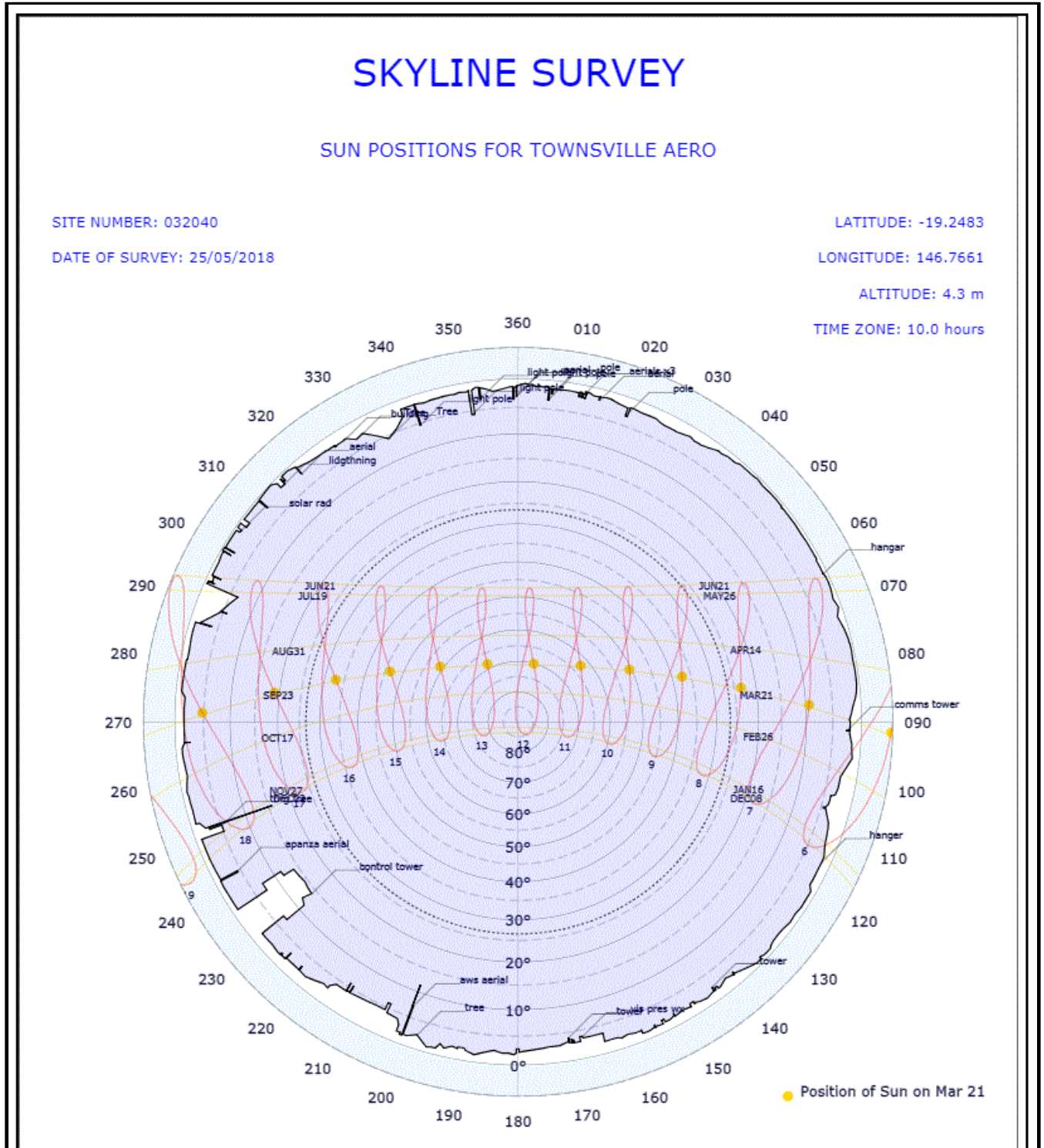


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### Skyline Diagram 25/05/2018(most recent)



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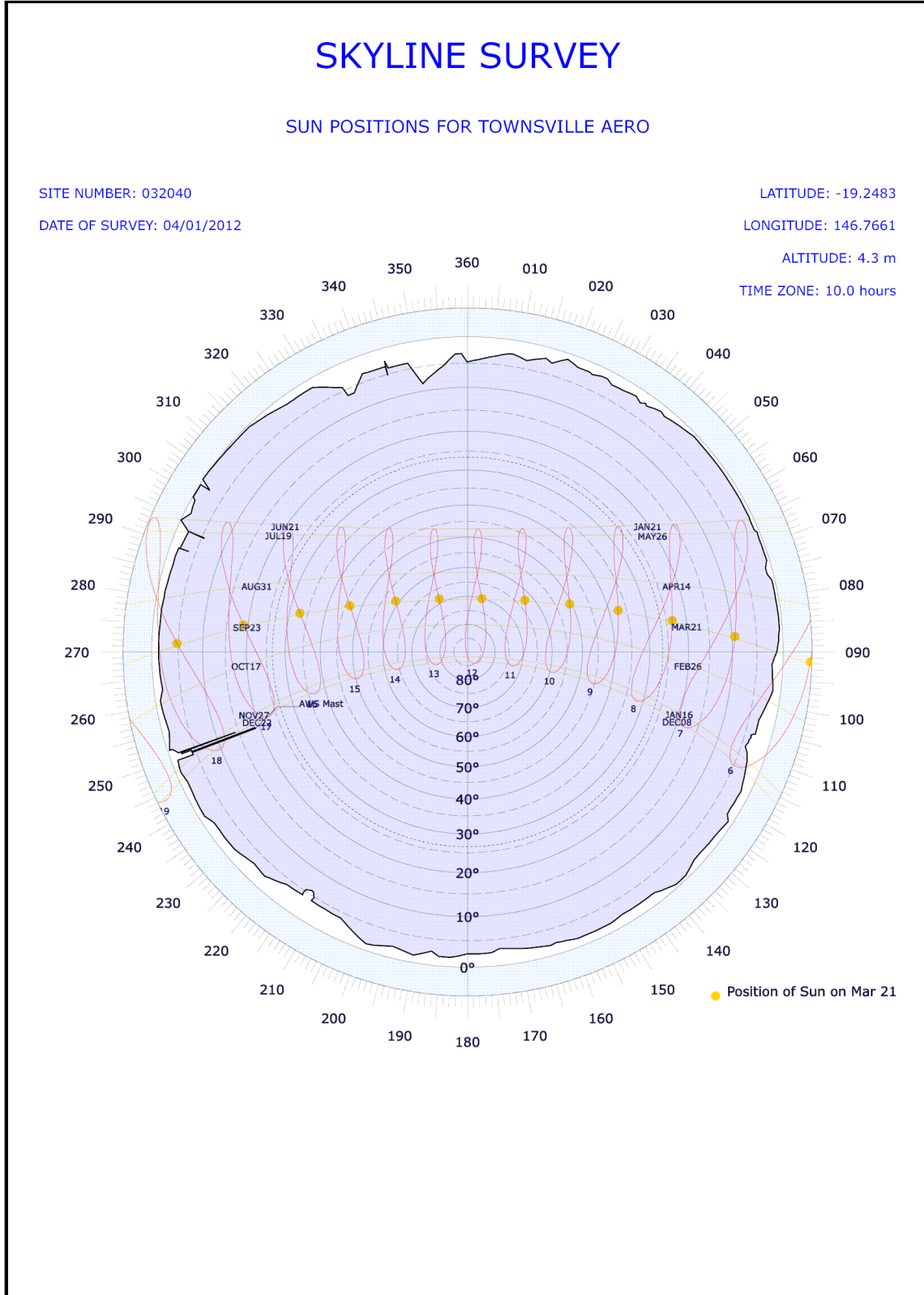


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### Skyline Diagram 04/01/2012



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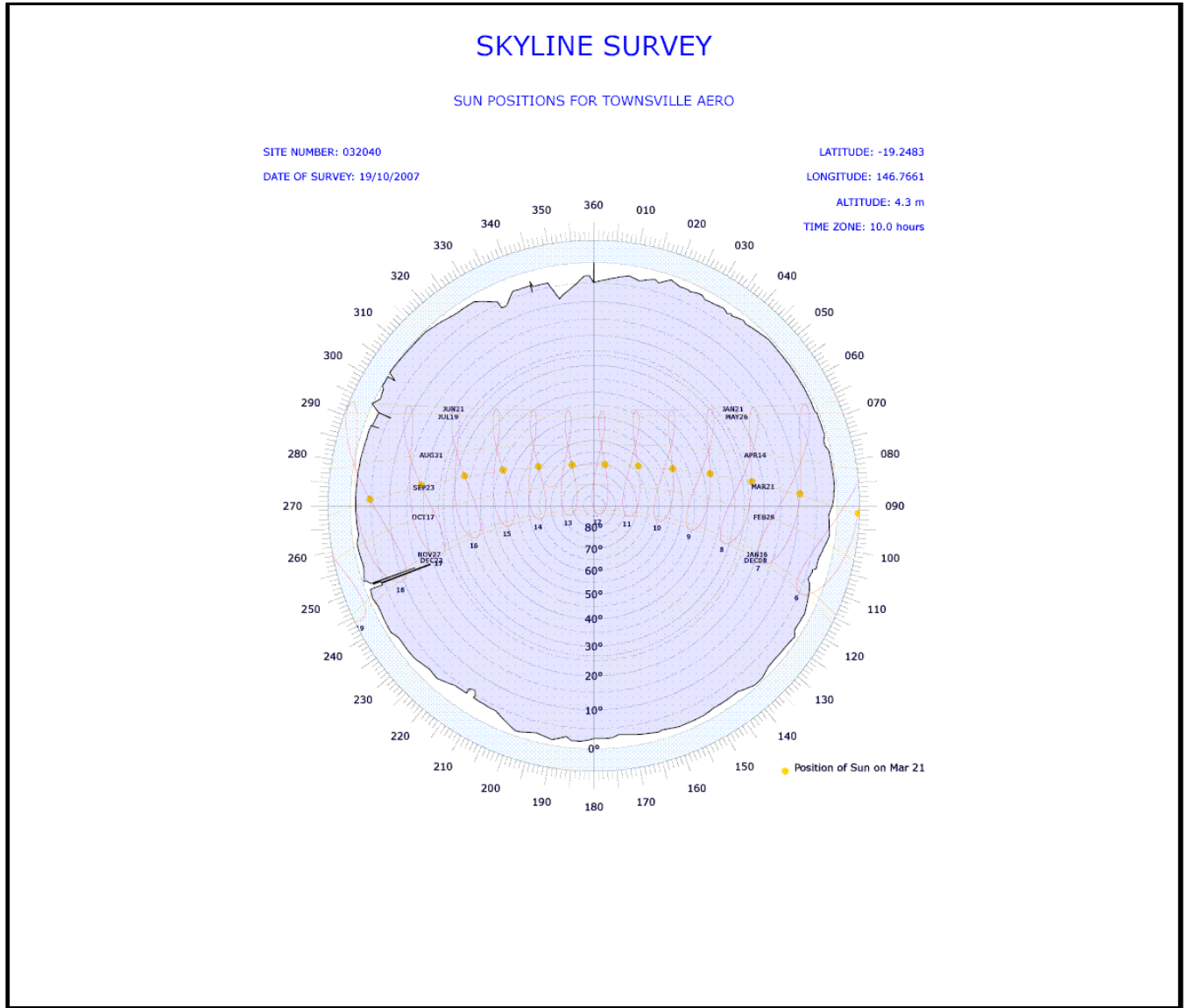
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### Skyline Diagram

19/10/2007



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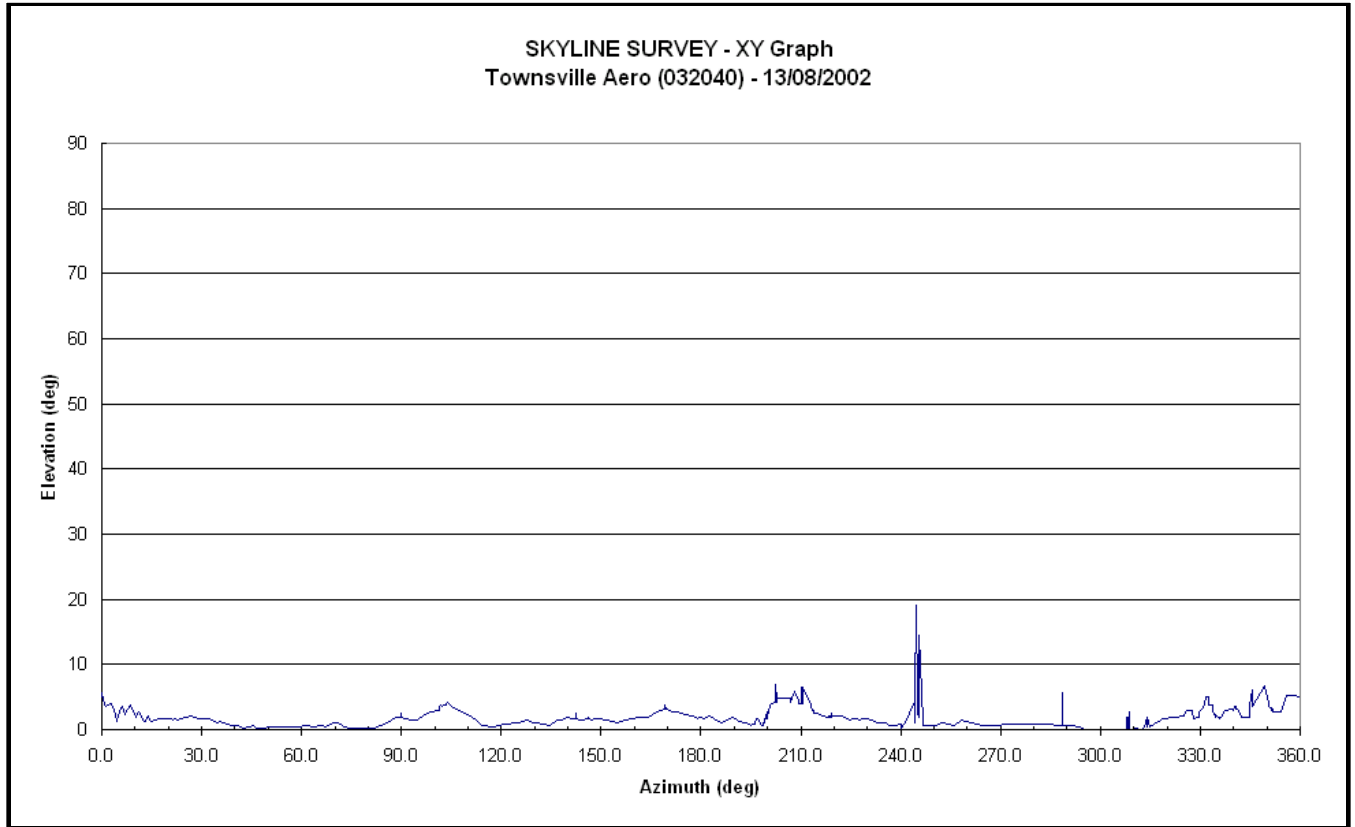
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						<b>Current Status:</b>	Still open
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### Skyline Diagram

13/08/2002



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## Extended Climatological Station Metadata

All History

<b>Station:</b>	TOWNSVILLE AERO			<b>Location:</b>	TOWNSVILLE AERO			<b>State:</b>	QLD
<b>Bureau No.:</b>	032040	<b>WMO No.:</b>	94294	<b>Aviation ID:</b>	YBTL	<b>Opened:</b>	01 Jan 1940	<b>Current Status:</b>	Still open
<b>Latitude:</b>	-19.2483	<b>Longitude:</b>	146.7661	<b>Elevation:</b>	4.34 m	<b>Barometer Elev:</b>	4.6 m	<b>Metadata compiled:</b>	27 JUL 2022

### Station Observation Program Summary (Surface Observations) from 01/11/1940 to 11/09/2001

Current Observation	Continuous	Half Hourly	Hourly
Surface Observations	-	Y	Y

Current Observation	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) from 11/09/2001 to 28/04/2016

Current Observation	Continuous	Half Hourly	Hourly
Surface Observations	Y	Y	Y

Current Observation	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) 27 JUL 2022 (most recent)

Current Observation	Continuous	Half Hourly	Hourly
Surface Observations	Y	Y	Y

Current Observation	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	-	-	-	-	-	-	-	-

### Upper Air Routine 01/07/1999 to 01/01/2009

Flight type	Time UTC	Mon	Tue	Wed	Thur	Fri	Sat	Sun
Wind & Temp.	00:00	Y	Y	Y	Y	Y	Y	Y
Wind & Temp.	06:00	-	-	-	-	-	-	-
Wind & Temp.	12:00	-	-	-	-	-	-	-
Wind & Temp.	18:00	-	-	-	-	-	-	-
Wind	00:00	Y	Y	Y	Y	Y	Y	Y
Wind	06:00	Y	Y	Y	Y	Y	Y	Y
Wind	12:00	Y	Y	Y	Y	Y	Y	Y
Wind	18:00	Y	Y	Y	Y	Y	Y	Y

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All History

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<b>Bureau No.:</b>	032040	<b>WMO No.:</b>	94294	<b>Aviation ID:</b>	YBTL	<b>Opened:</b>	01 Jan 1940	<b>Current Status:</b>	Still open
<b>Latitude:</b>	-19.2483	<b>Longitude:</b>	146.7661	<b>Elevation:</b>	4.34 m	<b>Barometer Elev:</b>	4.6 m	<b>Metadata compiled:</b>	27 JUL 2022

### Upper Air Routine 01/01/2009 to 31/08/2014

Flight type	Time UTC	Mon	Tue	Wed	Thur	Fri	Sat	Sun
Wind & Temp.	00:00	Y	Y	Y	Y	Y	Y	Y
Wind & Temp.	06:00	-	-	-	-	-	-	-
Wind & Temp.	12:00	-	-	-	-	-	-	-
Wind & Temp.	18:00	-	-	-	-	-	-	-
Wind	00:00	Y	Y	Y	Y	Y	Y	Y
Wind	06:00	Y	Y	Y	Y	Y	Y	Y
Wind	12:00	Y	Y	Y	Y	Y	Y	Y
Wind	18:00	-	-	-	-	-	-	-

### Upper Air Routine 01/09/2014 to 17/01/2020

Flight type	Time UTC	Mon	Tue	Wed	Thur	Fri	Sat	Sun
Wind & Temp.	00:00	Y	Y	Y	Y	Y	Y	Y
Wind & Temp.	06:00	-	-	-	-	-	-	-
Wind & Temp.	12:00	-	-	-	-	-	-	-
Wind & Temp.	18:00	-	-	-	-	-	-	-
Wind	00:00	Y	Y	Y	Y	Y	Y	Y
Wind	06:00	-	-	-	-	-	-	-
Wind	12:00	-	-	-	-	-	-	-
Wind	18:00	-	-	-	-	-	-	-

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All History

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<b>Current Status:</b>							Still open
<b>Metadata compiled:</b>							27 JUL 2022

### Station Equipment History

#### Equipment Install/Remove

##### Cloud Height

30/JUN/2005 INSTALL Ceilometer (Type Vaisala CT25K S/N - Z10206) Surface Observations  
 06/AUG/2015 REPLACE Ceilometer (Now Vaisala CL31 S/N - K4820007) Surface Observations  
 07/APR/2010 REPLACE Ceilometer (Now Vaisala CT25K S/N - C04203) Surface Observations  
 11/APR/2012 REPLACE Ceilometer (Now Vaisala CT25K S/N - U14502) Surface Observations  
 31/JAN/2006 REPLACE Ceilometer (Now Vaisala CT25K S/N - W09409) Surface Observations  
 15/FEB/2007 REPLACE Ceilometer (Now Vaisala CT25K S/N - Y08112) Surface Observations  
 01/JAN/1941 INSTALL Cloud Base Searchlight (Type 90 Degree S/N - Unknown) Surface Observations  
 14/OCT/2005 REMOVE Cloud Base Searchlight (Type 90 Degree S/N - Unknown) Surface Observations

##### River Height (No Electronic History)

##### Wind Run

01/AUG/1969 INSTALL Wind Run Anemometer (Type Munro S/N - Unknown) Surface Observations  
 01/NOV/1940 INSTALL Wind Run Anemometer (Type Unknown S/N - Unknown) Surface Observations  
 20/MAY/2020 REMOVE Wind Run Anemometer (Type Synchrotac Cups - Type 732 S/N - CBM356) Surface Observations  
 31/JUL/1969 REMOVE Wind Run Anemometer (Type Unknown S/N - Unknown) Surface Observations  
 14/SEP/2000 REPLACE Wind Run Anemometer (Now Munro S/N - 7204) Surface Observations  
 20/FEB/2013 REPLACE Wind Run Anemometer (Now Synchrotac Cups - Type 732 S/N - 2765) Surface Observations  
 24/AUG/2012 REPLACE Wind Run Anemometer (Now Synchrotac Cups - Type 732 S/N - 7456) Surface Observations  
 30/JUL/2018 REPLACE Wind Run Anemometer (Now Synchrotac Cups - Type 732 S/N - CBM356) Surface Observations  
 12/AUG/2016 REPLACE Wind Run Anemometer (Now Synchrotac Cups - Type 732 S/N - CBM635) Surface Observations  
 13/MAR/2012 REPLACE Wind Run Anemometer (Now Synchrotac S/N - 808) Surface Observations  
 16/FEB/1995 REPLACE Wind Run Anemometer (Now Synchrotac S/N - 824) Surface Observations

##### Spectral Radiation (No Electronic History)

##### Sea Surface Temperature (No Electronic History)

##### Sea Water Temperature

22/JUN/2018 INSTALL Temperature Probe - Water (Type TEMP CONTROLS TCBMP02A S/N - Unknown) Surface Observations

##### Evaporation

22/JUN/2018 INSTALL Equipment Reset Device (Type Watchdog Automatic Evaporation Pan S/N - NONE) Surface Observations  
 01/AUG/1969 INSTALL Evaporation Pan (Type Class A S/N - NONE) Surface Observations  
 22/JUN/2018 INSTALL Evaporation Pan (Type SS Class A Automatic S/N - NONE) Surface Observations  
 20/MAY/2020 REMOVE Evaporation Pan (Type Class A S/N - NONE) Surface Observations  
 30/MAR/2006 REPLACE Evaporation Pan (Now Class A S/N - NONE) Surface Observations  
 07/AUG/2004 REPLACE Evaporation Pan (Now Class A S/N - NONE) Surface Observations  
 15/JAN/2020 REPLACE Evaporation Pan (Now Class A S/N - NONE) Surface Observations

##### Minimum Temperature

27/AUG/2005 INSTALL Thermometer, Alcohol, Min (Type Dobbie S/N - 24293) Surface Observations  
 01/NOV/1940 INSTALL Thermometer, Alcohol, Min (Type Unknown S/N - Unknown) Surface Observations  
 30/APR/2010 INSTALL Thermometer, Alcohol, Min (Type WIKA S/N - 29042) Surface Observations  
 18/JUN/2007 INSTALL Thermometer, Alcohol, Min (Type WIKA S/N - 43090) Surface Observations  
 30/APR/2016 REMOVE Thermometer, Alcohol, Min (Type Dobbie S/N - 43036) Surface Observations  
 01/MAY/2007 REMOVE Thermometer, Alcohol, Min (Type Dobbie S/N - 43096) Surface Observations  
 21/JAN/2017 REMOVE Thermometer, Alcohol, Min (Type WIKA S/N - 29042) Surface Observations  
 21/JUN/2007 REMOVE Thermometer, Alcohol, Min (Type WIKA S/N - 43090) Surface Observations

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## Extended Climatological Station Metadata

All History

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<b>Bureau No.:</b>	032040	<b>WMO No.:</b>	94294	<b>Aviation ID:</b>	YBTL	<b>Opened:</b>	01 Jan 1940
<b>Latitude:</b>	-19.2483	<b>Longitude:</b>	146.7661	<b>Elevation:</b>	4.34 m	<b>Barometer Elev:</b>	4.6 m
<b>Current Status:</b>							Still open
<b>Metadata compiled:</b>							27 JUL 2022

### Station Equipment History (continued)

#### Equipment Install/Remove(Continued)

30/SEP/2001 REPLACE Thermometer, Alcohol, Min (Now Dobbie S/N - 13256) Surface Observations  
 10/AUG/2004 REPLACE Thermometer, Alcohol, Min (Now Dobbie S/N - 19203) Surface Observations  
 29/SEP/2006 REPLACE Thermometer, Alcohol, Min (Now Dobbie S/N - 43036) Surface Observations  
 28/JAN/2006 REPLACE Thermometer, Alcohol, Min (Now Dobbie S/N - 43096) Surface Observations  
 06/OCT/1998 REPLACE Thermometer, Alcohol, Min (Now Dobbie S/N - M6598) Surface Observations

#### Soil Temperature 50cm

01/JAN/1998 INSTALL Thermometer, Soil, 50cm (Type Dobros S/N - M6103) Surface Observations  
 21/JAN/2017 REMOVE Thermometer, Soil, 50cm (Type Amarol S/N - 9725154) Surface Observations  
 04/APR/2000 REPLACE Thermometer, Soil, 50cm (Now Amarol S/N - 9725154) Surface Observations  
 21/OCT/1998 REPLACE Thermometer, Soil, 50cm (Now Dobros S/N - 9725171) Surface Observations

#### Sub Surface Temperature (No Electronic History)

#### Electrical Conductivity (No Electronic History)

#### Maximum Temperature

01/NOV/1940 INSTALL Thermometer, Mercury, Max (Type Unknown S/N - Unknown) Surface Observations  
 30/APR/2016 REMOVE Thermometer, Mercury, Max (Type Dobbie S/N - 13431) Surface Observations  
 27/JAN/2014 REPLACE Thermometer, Mercury, Max (Now Dobbie S/N - 13431) Surface Observations  
 06/OCT/1998 REPLACE Thermometer, Mercury, Max (Now Dobbie S/N - M2388) Surface Observations  
 16/MAR/2003 REPLACE Thermometer, Mercury, Max (Now Dobros S/N - 13378) Surface Observations  
 30/DEC/1998 REPLACE Thermometer, Mercury, Max (Now Dobros S/N - M1356) Surface Observations

#### Soil Temperature 20cm

17/MAR/1995 INSTALL Thermometer, Soil, 20cm (Type Dobros S/N - CBM4068) Surface Observations  
 21/JAN/2017 REMOVE Thermometer, Soil, 20cm (Type Amarol S/N - 0398742) Surface Observations  
 11/DEC/2010 REPLACE Thermometer, Soil, 20cm (Now Amarol S/N - 0398742) Surface Observations

#### 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)

#### Terrestrial Minimum Temperature

01/MAY/2007 INSTALL Thermometer, Terrestrial, Min (Type Dobbie S/N - 43032) Surface Observations  
 01/NOV/1940 INSTALL Thermometer, Terrestrial, Min (Type Unknown S/N - Unknown) Surface Observations  
 27/AUG/2005 REMOVE Thermometer, Terrestrial, Min (Type Dobbie S/N - 19445) Surface Observations  
 30/APR/2010 REMOVE Thermometer, Terrestrial, Min (Type WIKA S/N - 27673) Surface Observations  
 29/JAN/2000 REPLACE Thermometer, Terrestrial, Min (Now Dobbie S/N - 13256) Surface Observations  
 30/SEP/2001 REPLACE Thermometer, Terrestrial, Min (Now Dobbie S/N - 19445) Surface Observations  
 06/OCT/1998 REPLACE Thermometer, Terrestrial, Min (Now Dobbie S/N - M1540) Surface Observations  
 12/JUL/2009 REPLACE Thermometer, Terrestrial, Min (Now WIKA S/N - 27673) Surface Observations

#### Visibility

30/JUN/2005 INSTALL Visibility Meter (Type Vaisala FD12 S/N - Z09209) Surface Observations  
 05/AUG/2019 REPLACE Visibility Meter (Now Vaisala FS11 S/N - P3720675) Surface Observations

#### Solar Radiation (Direct) (No Electronic History)

#### Magnetic Bearing (No Electronic History)

#### Wind Direction

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All History

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<b>Current Status:</b>							Still open
<b>Metadata compiled:</b>							27 JUL 2022

### Station Equipment History (continued)

#### Equipment Install/Remove(Continued)

- 13/MAR/1979 INSTALL Anemometer (Type Dines - Hi Speed S/N - NONE) Surface Observations
- 16/MAY/2005 INSTALL Anemometer (Type Synchronac Cups - Type 732 S/N - 71618) Surface Observations
- 08/DEC/1994 INSTALL Anemometer (Type Synchronac Vane - Type 706 S/N - WS=69033 WD=69052) Surface Observations
- 01/JAN/2000 INSTALL Mast Anemometer (Type Pivot, Standard 10m S/N - NONE) Infrastructure
- 01/AUG/1969 INSTALL Wind Run Anemometer (Type Munro S/N - Unknown) Surface Observations
- 01/NOV/1940 INSTALL Wind Run Anemometer (Type Unknown S/N - Unknown) Surface Observations
- 20/MAY/2020 REMOVE Wind Run Anemometer (Type Synchronac Cups - Type 732 S/N - CBM356) Surface Observations
- 31/JUL/1969 REMOVE Wind Run Anemometer (Type Unknown S/N - Unknown) Surface Observations
- 16/MAY/2005 REPLACE Anemometer (Now Synchronac Vane - Type 706 S/N - 71639) Surface Observations
- 05/MAR/2004 REPLACE Anemometer (Now Synchronac Vane - Type 706 S/N - WD69443-WS77557) Surface Observations
- 08/MAY/2000 REPLACE Anemometer (Now Synchronac Vane - Type 706 S/N - WS:65780-WD:12) Surface Observations
- 11/MAY/2004 REPLACE Anemometer (Now Synchronac Vane - Type 706 S/N - WS:77557-WD:73432) Surface Observations
- 14/SEP/2000 REPLACE Wind Run Anemometer (Now Munro S/N - 7204) Surface Observations
- 20/FEB/2013 REPLACE Wind Run Anemometer (Now Synchronac Cups - Type 732 S/N - 2765) Surface Observations
- 24/AUG/2012 REPLACE Wind Run Anemometer (Now Synchronac Cups - Type 732 S/N - 7456) Surface Observations
- 30/JUL/2018 REPLACE Wind Run Anemometer (Now Synchronac Cups - Type 732 S/N - CBM356) Surface Observations
- 12/AUG/2016 REPLACE Wind Run Anemometer (Now Synchronac Cups - Type 732 S/N - CBM635) Surface Observations
- 13/MAR/2012 REPLACE Wind Run Anemometer (Now Synchronac S/N - 808) Surface Observations
- 16/FEB/1995 REPLACE Wind Run Anemometer (Now Synchronac S/N - 824) Surface Observations

#### Air Temperature

- 16/JAN/2020 INSTALL Humidity Probe (Type Vaisala HMP45D S/N - X4150011) Surface Observations
- 08/DEC/1994 INSTALL Temperature Probe - Dry Bulb (Type Rosemount S/N - NONE) Surface Observations
- 17/SEP/2002 REPLACE Temperature Probe - Dry Bulb (Now Rosemount ST2401 S/N - 0246) Surface Observations
- 01/NOV/1940 INSTALL Thermograph (Type Fielden S/N - Unknown) Surface Observations
- 08/DEC/1994 REMOVE Thermograph (Type Fielden S/N - Unknown) Surface Observations
- 01/NOV/1940 INSTALL Thermometer, Mercury, Dry Bulb (Type Unknown S/N - Unknown) Surface Observations
- 30/APR/2016 REMOVE Thermometer, Mercury, Dry Bulb (Type Dobbie S/N - 20377) Surface Observations
- 18/APR/2014 REPLACE Thermometer, Mercury, Dry Bulb (Now Dobbie S/N - 20377) Surface Observations
- 06/OCT/1998 REPLACE Thermometer, Mercury, Dry Bulb (Now Dobbie S/N - M6233) Surface Observations

#### Wet Bulb Temperature

- 08/DEC/1994 INSTALL Temperature Probe - Wet Bulb (Type Rosemount S/N - NONE) Surface Observations
- 16/JAN/2020 REMOVE Temperature Probe - Wet Bulb (Type Rosemount ST2401 S/N - 0250) Surface Observations
- 17/SEP/2002 REPLACE Temperature Probe - Wet Bulb (Now Rosemount ST2401 S/N - 0250) Surface Observations
- 01/NOV/1940 INSTALL Thermometer, Mercury, Wet Bulb (Type Unknown S/N - Unknown) Surface Observations
- 30/APR/2016 REMOVE Thermometer, Mercury, Wet Bulb (Type Dobbie S/N - M4939) Surface Observations
- 06/OCT/1998 REPLACE Thermometer, Mercury, Wet Bulb (Now Dobbie S/N - M4939) Surface Observations

#### Lightning

- 02/DEC/1986 INSTALL Lightning Flash Counter (Type CIGRE - Vertical Aerial S/N - NONE) Surface Observations
- 11/MAR/2015 REMOVE Lightning Flash Counter (Type CIGRE - Vertical Aerial S/N - NONE) Surface Observations
- 20/AUG/2010 INSTALL Lightning Sensor (Type Vaisala TSS928 (Thunderstorm Sensor) S/N - D4940001) Surface Observations

#### Turbidity (No Electronic History)

#### Total Column Ozone Amount (No Electronic History)

#### Pressure

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							<b>Metadata compiled:</b>	27 JUL 2022

### Station Equipment History (continued)

#### Equipment Install/Remove(Continued)

- 01/NOV/1940 INSTALL Barometer (Type Kew pattern mercury S/N - 2036) Surface Observations
- 07/APR/2005 INSTALL Barometer (Type Negretti and Zambra Mk II S/N - CBM152) Surface Observations
- 08/DEC/1994 INSTALL Barometer (Type Vaisala PA11A S/N - 659034) Surface Observations
- 08/DEC/1994 REMOVE Barometer (Type Kew pattern mercury S/N - 2036) Surface Observations
- 11/APR/2005 REMOVE Barometer (Type Negretti and Zambra Mk II S/N - CBM152) Surface Observations
- 01/MAY/2002 REPLACE Barometer (Now Vaisala PA11A S/N - 433537) Surface Observations
- 21/OCT/1996 REPLACE Barometer (Now Vaisala PA11A S/N - P3720016) Surface Observations
- 04/AUG/2005 REPLACE Barometer (Now Vaisala PTB220B S/N - V0430013) Surface Observations
- 12/NOV/2013 REPLACE Barometer (Now Vaisala PTB330B (General Use) S/N - J4030012) Surface Observations

#### Humidity

- 16/JAN/2020 INSTALL Humidity Probe (Type Vaisala HMP45D S/N - X4150011) Surface Observations
- 01/NOV/1940 INSTALL Hygrograph (Type Fielden S/N - Unknown) Surface Observations
- 08/DEC/1994 REMOVE Hygrograph (Type Fielden S/N - Unknown) Surface Observations

#### Sunshine Hours

- 01/NOV/1957 INSTALL Sunshine Recorder (Type Campbell-Stokes S/N - 021) Surface Observations
- 01/MAY/2016 REMOVE Sunshine Recorder (Type Campbell-Stokes S/N - 021) Surface Observations

#### Pressure Trend

- 01/NOV/1940 INSTALL Barograph (Type Weekly S/N - CBM204) Surface Observations

#### Snow Height (No Electronic History)

#### Wind Speed

- 13/MAR/1979 INSTALL Anemometer (Type Dines - Hi Speed S/N - NONE) Surface Observations
- 16/MAY/2005 INSTALL Anemometer (Type Synchrotac Cups - Type 732 S/N - 71618) Surface Observations
- 08/DEC/1994 INSTALL Anemometer (Type Synchrotac Vane - Type 706 S/N - WS=69033 WD=69052) Surface Observations
- 01/JAN/2000 INSTALL Mast Anemometer (Type Pivot, Standard 10m S/N - NONE) Infrastructure
- 01/AUG/1969 INSTALL Wind Run Anemometer (Type Munro S/N - Unknown) Surface Observations
- 01/NOV/1940 INSTALL Wind Run Anemometer (Type Unknown S/N - Unknown) Surface Observations
- 20/MAY/2020 REMOVE Wind Run Anemometer (Type Synchrotac Cups - Type 732 S/N - CBM356) Surface Observations
- 31/JUL/1969 REMOVE Wind Run Anemometer (Type Unknown S/N - Unknown) Surface Observations
- 16/MAY/2005 REPLACE Anemometer (Now Synchrotac Vane - Type 706 S/N - 71639) Surface Observations
- 05/MAR/2004 REPLACE Anemometer (Now Synchrotac Vane - Type 706 S/N - WD69443-WS77557) Surface Observations
- 08/MAY/2000 REPLACE Anemometer (Now Synchrotac Vane - Type 706 S/N - WS:65780-WD:12) Surface Observations
- 11/MAY/2004 REPLACE Anemometer (Now Synchrotac Vane - Type 706 S/N - WS:77557-WD:73432) Surface Observations
- 14/SEP/2000 REPLACE Wind Run Anemometer (Now Munro S/N - 7204) Surface Observations
- 20/FEB/2013 REPLACE Wind Run Anemometer (Now Synchrotac Cups - Type 732 S/N - 2765) Surface Observations
- 24/AUG/2012 REPLACE Wind Run Anemometer (Now Synchrotac Cups - Type 732 S/N - 7456) Surface Observations
- 30/JUL/2018 REPLACE Wind Run Anemometer (Now Synchrotac Cups - Type 732 S/N - CBM356) Surface Observations
- 12/AUG/2016 REPLACE Wind Run Anemometer (Now Synchrotac Cups - Type 732 S/N - CBM635) Surface Observations
- 13/MAR/2012 REPLACE Wind Run Anemometer (Now Synchrotac S/N - 808) Surface Observations
- 16/FEB/1995 REPLACE Wind Run Anemometer (Now Synchrotac S/N - 824) Surface Observations

#### Rainfall

- 01/FEB/1953 INSTALL Pluviograph (Type Dines syphoning S/N - Unknown) Rainfall Intensity
- 01/OCT/1997 REMOVE Pluviograph (Type Dines syphoning S/N - Unknown) Rainfall Intensity
- 01/NOV/1940 INSTALL Raingauge (Type 203 mm (8in) - 200mm capacity S/N - NONE) Surface Observations

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## Extended Climatological Station Metadata

All History

<b>Station:</b>	TOWNSVILLE AERO		<b>Location:</b>	TOWNSVILLE AERO		<b>State:</b>	QLD
<b>Bureau No.:</b>	032040	<b>WMO No.:</b>	94294	<b>Aviation ID:</b>	YBTL	<b>Opened:</b>	01 Jan 1940
<b>Latitude:</b>	-19.2483	<b>Longitude:</b>	146.7661	<b>Elevation:</b>	4.34 m	<b>Barometer Elev:</b>	4.6 m
<b>Current Status:</b>							Still open
<b>Metadata compiled:</b>							27 JUL 2022

### Station Equipment History (continued)

#### Equipment Install/Remove(Continued)

08/DEC/1994 INSTALL Raingauge (Type HS TB3A-0.2 S/N - 96-959) Surface Observations  
 22/JUN/2018 INSTALL Raingauge (Type HS-TB3/0.1/P S/N - 00039) Surface Observations  
 20/NOV/2020 REMOVE Raingauge (Type 203 mm (8in) - 200mm capacity S/N - NONE) Surface Observations  
 04/MAR/2009 REPLACE Raingauge (Now Rimco 7499 TBRG S/N - 177) Rainfall Intensity  
 04/MAR/2009 REPLACE Raingauge (Now Rimco 7499 TBRG S/N - 177) Surface Observations  
 30/MAR/2021 REPLACE Raingauge (Now Rimco 7499 TBRG S/N - 92405) Rainfall Intensity  
 30/MAR/2021 REPLACE Raingauge (Now Rimco 7499 TBRG S/N - 92405) Surface Observations  
 20/MAR/2000 REPLACE Raingauge (Now Rimco TBRG (type unspecified) S/N - 836) Rainfall Intensity  
 20/MAR/2000 REPLACE Raingauge (Now Rimco TBRG (type unspecified) S/N - 836) Surface Observations  
 27/OCT/1999 SHARE Raingauge (Type HS TB3A-0.2 S/N - 96-959) Rainfall Intensity  
 27/OCT/1999 SHARE Raingauge (Type Rimco 7499 TBRG S/N - 177) Rainfall Intensity  
 27/OCT/1999 SHARE Raingauge (Type Rimco TBRG (type unspecified) S/N - 836) Rainfall Intensity  
 09/JUN/2020 UNSHARE Raingauge (Type Rimco 7499 TBRG S/N - 92405) Rainfall Intensity

#### Soil Temperature 100cm

01/JAN/1998 INSTALL Thermometer, Soil, 100cm (Type Amarol S/N - 9603289) Surface Observations  
 21/JAN/2017 REMOVE Thermometer, Soil, 100cm (Type Amarol S/N - 9990148) Surface Observations  
 13/NOV/2011 REPLACE Thermometer, Soil, 100cm (Now Amarol S/N - 9990148) Surface Observations

#### Soil Temperature 10cm

17/MAR/1995 INSTALL Thermometer, Soil, 10cm (Type Dobros S/N - CBM471) Surface Observations  
 21/JAN/2017 REMOVE Thermometer, Soil, 10cm (Type Dobros S/N - CBM471) Surface Observations

#### Solar Radiation (Long Wave) (No Electronic History)

#### RF Reflectivity

01/DEC/1955 INSTALL Radar (Type 277F S/N - Unknown) Upper Air  
 01/DEC/1955 INSTALL Radar (Type 277F S/N - Unknown) WeatherWatch  
 13/SEP/1985 INSTALL Radar (Type WF100-5C S/N - 00047) Upper Air  
 13/SEP/1985 INSTALL Radar (Type WF100-5C S/N - 00047) WeatherWatch  
 01/DEC/1955 INSTALL Radar Tower (Type Lattice 277 - 6.0 m S/N - Unknown) Infrastructure  
 01/AUG/1985 REMOVE Radar (Type 277F S/N - Unknown) Upper Air  
 01/AUG/1985 REMOVE Radar (Type 277F S/N - Unknown) WeatherWatch  
 22/MAY/2015 REMOVE Radar (Type WF100-5C S/N - 00047) Upper Air  
 22/MAY/2015 REMOVE Radar (Type WF100-5C S/N - 00047) WeatherWatch  
 01/DEC/1994 REMOVE Radar Tower (Type Lattice 277 - 6.0 m S/N - Unknown) Infrastructure

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 multi-stage quality control process.

Available Date Range	Element	Fail Field Performance Check
28/OCT/2010 - 29/APR/2021	Cloud Height	2
30/SEP/2001 - 13/AUG/2018	Wind Run	2
30/SEP/2001 - 30/MAR/2021	Evaporation	1
30/SEP/2001 - 13/NOV/2015	Minimum Temperature	0

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## Extended Climatological Station Metadata

All History

<b>Station:</b> TOWNSVILLE AERO	<b>Location:</b> TOWNSVILLE AERO			<b>State:</b> QLD
<b>Bureau No.:</b> 032040	<b>WMO No.:</b> 94294	<b>Aviation ID:</b> YBTL	<b>Opened:</b> 01 Jan 1940	<b>Current Status:</b> Still open
<b>Latitude:</b> -19.2483	<b>Longitude:</b> 146.7661	<b>Elevation:</b> 4.34 m	<b>Barometer Elev:</b> 4.6 m	<b>Metadata compiled:</b> 27 JUL 2022

### Station Equipment History (continued)

Available Date Range	Element	Fail Field Performance Check
30/SEP/2001 - 13/NOV/2015	Soil Temperature 50cm	0
30/SEP/2001 - 13/NOV/2015	Maximum Temperature	0
30/SEP/2001 - 13/NOV/2015	Soil Temperature 20cm	0
01/OCT/2013 - 01/OCT/2013	Soil Temperature 5cm	0
30/SEP/2001 - 03/NOV/2009	Terrestrial Minimum Temperature	0
23/NOV/2005 - 29/APR/2021	Visibility	3
21/MAY/1998 - 29/APR/2021	Wind Direction	2
21/MAY/1998 - 29/APR/2021	Air Temperature	2
21/MAY/1998 - 16/JAN/2020	Wet Bulb Temperature	2
12/NOV/2007 - 26/NOV/2012	Lightning	6
21/MAY/1998 - 29/APR/2021	Pressure	0
16/JAN/2020 - 29/APR/2021	Humidity	2
31/JUL/1969 - 13/NOV/2015	Pressure Trend	0
21/MAY/1998 - 29/APR/2021	Wind Speed	2
21/MAY/1998 - 29/APR/2021	Rainfall	1
30/SEP/2001 - 13/NOV/2015	Soil Temperature 100cm	0
30/SEP/2001 - 13/NOV/2015	Soil Temperature 10cm	0
13/OCT/2004 - 02/JUL/2014	RF Reflectivity	2

#### Station Detail Changes

30/JUN/2015	CLASSIFICATION AWS Funding - Aviation Funded Assets (AVAF)
12/OCT/2020	CLASSIFICATION AWS Priority 2 - Important (SLP2-AWS)
01/JUL/2011	CLASSIFICATION Australian Climate Observations Reference Network - Surface Air Temperature (ACORN-SAT)
29/AUG/2001	CLASSIFICATION Building (FBL)
26/JUN/2002	CLASSIFICATION CLIMAT Stations (CLC)
26/JUN/2002	CLASSIFICATION CLIMAT TEMP Stations (CLT)
09/MAY/2006	CLASSIFICATION Category A (TAF A)
10/JAN/2011	CLASSIFICATION Critical (ASOSCRIT)
10/JUN/2014	CLASSIFICATION Critical Aviation or Defence (AVCRIT) ENDED 16-10-2020
14/FEB/1997	CLASSIFICATION GCOS Upper Air Network (GUAN)
01/JUL/2018	CLASSIFICATION HQ EVAPORATION (HQEVAP)
01/JUL/2018	CLASSIFICATION HQ RAINFALL (HQRAIN)
30/AUG/2021	CLASSIFICATION Mastered in EAMS (EAMS)
01/MAY/1989	CLASSIFICATION National Benchmark Network for Agrometeorology (NBNA)
01/JUL/2017	CLASSIFICATION Observing Operations Hub - Cairns (OOH-C)
21/MAR/2016	CLASSIFICATION Processed by ASOS (PBA)
01/JUL/1998	CLASSIFICATION Rawinsonde Stations (RS)
01/SEP/1992	CLASSIFICATION Reference Climate Stations (RCS) ENDED 30-06-2011
14/FEB/1997	CLASSIFICATION Regional Basic Synoptic Network (RBSN)
01/JAN/1940	CLASSIFICATION Restricted Images (XIMG)
01/JUL/2017	CLASSIFICATION SLS Flood forecasting priority â€ˆ Low (FWP-L)
01/JUL/1998	CLASSIFICATION Sub-reg Forecasting, Information and Observations (SRFO)
29/JAN/2016	OBJECT Document/(Yearly Hydrogen Inspection) TSV_F611 2016

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Extended Climatological Station Metadata  
All History

<b>Station:</b>	TOWNSVILLE AERO		<b>Location:</b>	TOWNSVILLE AERO		<b>State:</b>	QLD	
<b>Bureau No.:</b>	032040	<b>WMO No.:</b>	94294	<b>Aviation ID:</b>	YBTL	<b>Opened:</b>	01 Jan 1940	
<b>Latitude:</b>	-19.2483	<b>Longitude:</b>	146.7661	<b>Elevation:</b>	4.34 m	<b>Barometer Elev:</b>	4.6 m	
							<b>Current Status:</b>	Still open
							<b>Metadata compiled:</b>	27 JUL 2022

**Station Equipment History (continued)**

**Station Detail Changes(Continued)**

20/JAN/2017 OBJECT Document/(Yearly Hydrogen Inspection) TSV\_F611 Jan\_2017  
13/MAY/2015 OBJECT Document/(Yearly Hydrogen Inspection)TSV\_F611 2015  
28/OCT/2010 OBJECT Document/AWS SITE AUDIT  
27/JUN/2019 OBJECT Document/BAROMETER COEFFICIENTS  
21/AUG/2019 OBJECT Document/Bar height 42139-001-01 Certificate  
04/MAY/2011 OBJECT Document/CEILOMETER STATUS  
11/OCT/2011 OBJECT Document/CEILOMETER STATUS  
08/NOV/2012 OBJECT Document/CEILOMETER STATUS  
24/JUN/2013 OBJECT Document/CEILOMETER STATUS  
03/OCT/2013 OBJECT Document/CEILOMETER STATUS  
23/APR/2014 OBJECT Document/CEILOMETER STATUS  
09/OCT/2014 OBJECT Document/CEILOMETER STATUS  
04/MAY/2015 OBJECT Document/CEILOMETER STATUS  
05/AUG/2015 OBJECT Document/CEILOMETER STATUS  
06/AUG/2015 OBJECT Document/CEILOMETER STATUS  
16/OCT/2015 OBJECT Document/CEILOMETER STATUS  
11/APR/2016 OBJECT Document/CEILOMETER STATUS  
21/OCT/2016 OBJECT Document/CEILOMETER STATUS  
22/JUN/2017 OBJECT Document/CEILOMETER STATUS  
02/FEB/2018 OBJECT Document/CEILOMETER STATUS  
29/APR/2021 OBJECT Document/CEILOMETER STATUS  
11/APR/2012 OBJECT Document/CEILOMETER STATUS  
26/FEB/2019 OBJECT Document/CEILOMETER STATUS  
20/NOV/2020 OBJECT Document/CEILOMETER STATUS  
03/DEC/2019 OBJECT Document/CEILOMETER STATUS  
13/AUG/2018 OBJECT Document/CEILOMETER STATUS  
28/NOV/2013 OBJECT Document/Metconsole config YBTL\_131128\_MSCA11\_0  
04/OCT/2005 OBJECT Document/RAPIC TX CAL DATA  
25/JAN/2017 OBJECT Document/RBL MAINTENANCE CHECKSHEET  
04/JAN/2012 OBJECT Document/SKYLINE DATA  
13/AUG/2002 OBJECT Document/SKYLINE DATA  
19/OCT/2007 OBJECT Document/SKYLINE DATA  
20/NOV/2020 OBJECT Document/Sea-Saw \_Mast\_Inspection\_122429-4  
09/FEB/2014 OBJECT Document/TSV\_WHS 6-monthly Audit February 2014  
27/FEB/2015 OBJECT Document/Townsville WHS Audit inspection Feb 2015  
27/JUL/2015 OBJECT Document/Townsville WHS Inspection July 2015  
04/MAY/2011 OBJECT Document/VISIBILITY METER STATUS  
11/OCT/2011 OBJECT Document/VISIBILITY METER STATUS  
21/MAR/2012 OBJECT Document/VISIBILITY METER STATUS  
24/JUN/2013 OBJECT Document/VISIBILITY METER STATUS  
25/OCT/2013 OBJECT Document/VISIBILITY METER STATUS  
23/APR/2014 OBJECT Document/VISIBILITY METER STATUS  
09/OCT/2014 OBJECT Document/VISIBILITY METER STATUS

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## Extended Climatological Station Metadata

All History

<b>Station:</b>	TOWNSVILLE AERO		<b>Location:</b>	TOWNSVILLE AERO		<b>State:</b>	QLD
<b>Bureau No.:</b>	032040	<b>WMO No.:</b>	94294	<b>Aviation ID:</b>	YBTL	<b>Opened:</b>	01 Jan 1940
<b>Latitude:</b>	-19.2483	<b>Longitude:</b>	146.7661	<b>Elevation:</b>	4.34 m	<b>Barometer Elev:</b>	4.6 m
<b>Current Status:</b>							Still open
<b>Metadata compiled:</b>							27 JUL 2022

### Station Equipment History (continued)

#### Station Detail Changes(Continued)

04/MAY/2015 OBJECT Document/VISIBILITY METER STATUS  
 16/OCT/2015 OBJECT Document/VISIBILITY METER STATUS  
 11/APR/2016 OBJECT Document/VISIBILITY METER STATUS  
 21/OCT/2016 OBJECT Document/VISIBILITY METER STATUS  
 22/JUN/2017 OBJECT Document/VISIBILITY METER STATUS  
 02/FEB/2018 OBJECT Document/VISIBILITY METER STATUS  
 29/APR/2021 OBJECT Document/VISIBILITY METER STATUS  
 20/NOV/2020 OBJECT Document/VISIBILITY METER STATUS  
 03/DEC/2019 OBJECT Document/VISIBILITY METER STATUS  
 13/AUG/2018 OBJECT Document/VISIBILITY METER STATUS  
 29/JAN/2013 OBJECT Document/YBTL\_130129\_MSCA11\_0 Metconsole config  
 01/JAN/1940 STATION - (nondb seeding) Opened  
 01/JAN/1940 STATION - (nondb seeding) aero\_ht Changed to 5.5  
 01/JAN/1940 STATION - (nondb seeding) name Changed to TOWNSVILLE AERO  
 01/JAN/1940 STATION - (nondb seeding) stn\_ht Changed to 7.5  
 01/JAN/1940 STATION - (nondb seeding) stn\_ht\_deriv Changed to MAP 1:250 000  
 01/JAN/1940 STATION - (nondb seeding) wmo\_num Changed to 94294  
 31/OCT/1997 STATION aviation\_id Changed to YBTL  
 25/JUN/2019 STATION bar\_ht Changed to 4.63  
 26/AUG/2019 STATION bar\_ht Changed to 4.63  
 01/JAN/1940 STATION bar\_ht Changed to 9.1  
 01/JAN/1940 STATION bar\_ht\_deriv Changed to SURVEY  
 25/JUN/2019 STATION bar\_ht\_deriv Changed to SURVEY  
 26/AUG/2019 STATION bar\_ht\_deriv Changed to SURVEY  
 08/DEC/1994 STATION latitude Changed to -19.2483  
 01/JAN/1940 STATION latitude Changed to -19.2492Seeded from NonDb - Co-ords corrected from Aerodrome Reference Point to the location of rain gauge.  
 08/DEC/1994 STATION latlon\_deriv Changed to GPS  
 08/DEC/1994 STATION latlon\_error Changed to  
 01/JAN/1940 STATION longitude Changed to 146.7647Seeded from NonDb - Co-ords corrected from Aerodrome Reference Point to the location of rain gauge.  
 08/DEC/1994 STATION longitude Changed to 146.7661  
 06/OCT/1998 STATION lu\_0\_100m Changed to Airport  
 06/OCT/1998 STATION lu\_100m\_1km Changed to Airport  
 06/OCT/1998 STATION lu\_1km\_10km Changed to City area, buildings > 10 metres (3 storey)  
 06/OCT/1998 STATION soil\_type Changed to sand  
 08/DEC/1994 STATION stn\_ht Changed to 4.34  
 08/DEC/1994 STATION stn\_ht\_deriv Changed to SURVEY  
 06/OCT/1998 STATION surface\_type Changed to partly covered by grass

#### System Changes

01/MAY/2000 SYSTEM Flood Warning Commenced  
 01/NOV/1940 SYSTEM Infrastructure Commenced  
 13/MAR/1971 SYSTEM Radiation Commenced

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## Extended Climatological Station Metadata

All History

<b>Station:</b>	TOWNSVILLE AERO		<b>Location:</b>	TOWNSVILLE AERO		<b>State:</b>	QLD	
<b>Bureau No.:</b>	032040	<b>WMO No.:</b>	94294	<b>Aviation ID:</b>	YBTL	<b>Opened:</b>	01 Jan 1940	
<b>Latitude:</b>	-19.2483	<b>Longitude:</b>	146.7661	<b>Elevation:</b>	4.34 m	<b>Barometer Elev:</b>	4.6 m	
							<b>Current Status:</b>	Still open
							<b>Metadata compiled:</b>	27 JUL 2022

### Station Equipment History (continued)

#### System Changes(Continued)

09/JUN/2020 SYSTEM Rainfall Intensity Ceased  
 01/FEB/1953 SYSTEM Rainfall Intensity Commenced  
 23/JUL/2011 SYSTEM Reference Standards Commenced  
 02/MAY/2007 SYSTEM Surface Observations Ceased  
 01/MAY/2007 SYSTEM Surface Observations Commenced  
 01/NOV/1940 SYSTEM Surface Observations Commenced  
 01/NOV/1940 SYSTEM Upper Air Commenced  
 22/DEC/2016 SYSTEM WeatherWatch Ceased  
 01/DEC/1955 SYSTEM WeatherWatch Commenced

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## Notes on these metadata

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, 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.

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## Notes on these metadata

### Network Classification

<b>SUPPORTING the BASIC CLIMATE SERVICE</b>
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)
<b>SUPPORTING the NATIONAL WEATHER WATCH SYSTEM</b>
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)
<b>SUPPORTING the BASIC WEATHER SERVICE (BWS)</b>
BWS Land Network
Significant Land Locations
Capital City Mesonets
National Benchmark Network for Agrometeorology (NBNA)
BWS Marine Network
Significant Coastal Locations
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
<b>SUPPORTING the BASIC HYDROLOGICAL SERVICE</b>
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).

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## Notes on these metadata

### 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)

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## Notes on these metadata

### 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

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## Notes on these metadata

### Calibration

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

Where a quantitative 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 1:12500, 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

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## Notes on these metadata

### - 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
- clay
- 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

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