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GCOS Lead Centre

WMO Region V (Southwest Pacific)

Activities Report for 2024

Compiled and released: June 2025



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Release history

Date	Version	Status	Approval
16 June 2025	0.1	Initial report completed by Dean Lockett, Bureau of Meteorology	N/A
16 June 2025	1.0	Reviewed and approved, Karl Monnik, Manager/Data Requirements and Quality	Approved



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1. Background

The Bureau of Meteorology (the Bureau), Australia, is designated by the World Meteorological Organization (WMO) and its Global Climate Observing System (GCOS) office as the Lead Centre for WMO Regional Association V (Southwest Pacific). The Bureau's role as the Lead Centre (LC) is described in the Terms of Reference as provided within Attachment 1. The national Members of WMO Region V are provided within Attachment 2.

The last formal report to WMO and GCOS was made by the Lead Centre in May 2011¹.

This report:

- Summarises the current status of the Lead Centre's compliance with the Lead Centre Terms of Reference.
- Outlines plans to improve the Bureau's compliance with the Terms of Reference.
- Reports on the known status of Region V GCOS Surface Network and GCOS Upper Air Network and highlights some discrepancies in the definition of the Region V GCOS Reference Upper Air Network.

The compilation of this report was coordinated by the Bureau's Focal Point for the GCO Lead Centre for RA V, Dean Lockett, who can be contacted via the WMO Experts Database².

¹ <https://gcos.wmo.int/sites/default/files/2024-12/GCOS-CBSLCBOM2011.pdf>

² <https://contacts.wmo.int/>

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2. Current status & future planned activities of the GCOS RA V Lead Centre

In summary, the high priority aims of the GCOS Lead Centre for Region V over the coming 12 months are:

1. Provide 2024 annual report on LC status and activities to WMO and GCOS (by June 2025).
2. Extend monitoring and reporting of availability and quality to Region V GUAN & GRUAN networks (over coming 12 months).
3. Develop utilisation of the WMO Issues Management System for GCOS LC monitoring (over coming 12 months).

The following table provides a status report for the current and planned future Lead Centre activities that address the GCOS Lead Centre Terms of Reference – see Attachment 1.

Role (ToR)	Current Status of LC activities	Plans for Future LC Activities & Development (next 1-3 years)
- Problem/issue diagnosis - Use of monitoring reports	- Receiving GSN monthly monitoring reports from DWD. - Forwarding Global LC reports to Member National Focal Points and requesting feedback on missing reports and related issues. - Using WDQMS & Bureau Monitoring tools to monitor status of RA V GCOS networks.	- Development of use of WMO Issue Management System. - Extension of Bureau monitoring reports based on WDQMS and other monitoring tools. - Monitoring, reporting, raising issues for GSN, GUAN & GRUAN.
Liaise with NFPs for GCOS Networks	- Adhoc Bureau IT Application Services contact with RA V NFPs as time and resources allows. - RA V GCOS NFPs email list has been established & is being used for LC communications with RA V Members.	- Develop monthly RA V LC report to FPs that includes monitoring of all GCOS networks. - Document national issues impacting availability and quality of GCOS data.
Incident management processing including use of WDQMS and WIGOS Tools	Bureau using WDQMS to determine availability and quality of GCOS network reports.	- LC to develop use of WMO Issue Management System to register GCOS network related issues in RA V. - Improve LC use of WDQMS and extend to GRUAN monitoring.
Interaction with other Centres, working groups	- Bureau unable to provide input to GCOS LCs meeting, November 2023. - Unable to attend online meeting, March 2024. - Report provided to INFCOM/RA V WIGOS working group, January 2025.	- Intention to attend future GCOS LC and RA V meetings. - SOFF Peer Advisors (Australia, New Zealand, UK) will continue to support SOFF investment phase activities to uplift observing networks and capability in the following beneficiary countries: PNG, Tuvalu, Cook Is, Solomon Is, Kiribati, Nauru, Niue, Samoa, Timor Leste, Tonga, Tuvalu, Vanuatu.
Reporting to GCOS & INFCOM	Did not provide a report for 2023 due to commitments to SOFF.	Development & provision to WMO, GCOS of Region V LC report for 2024 & subsequently produce an annual report.



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• Maintenance of GSN, GUAN station lists; NFP lists	• No current activities underway.	• Develop RA V station list monitoring report via OSCAR/Surface
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3. Australia WMO Global Information System Centre Status & Relevant Activities

A key issue for many Region V member agencies is to be able to provide GCOS data on the WMO Information System. Understanding this, the Bureau is working towards improved undertaking of its role in operation of a regional Global Information System Centre (GISC). The following brief report on relevant Bureau activities is provided:

- The Bureau is continuing issuing CLIMAT bulletin and Upper Air BUFR bulletins on the Global Telecommunication System (GTS) via its Central Message Switching Service (CMSS).
- The Bureau, as a designated Regional Telecommunications Hub (RTH), is also onforwarding CLIMAT bulletins from some RA V countries via the GTS.
- The Bureau is currently preparing for the implementation of a WMO Information System, WIS2.0 node for its own operation, with implementation expected to be completed within the next 1-2 years. Under this development, the Bureau is also preparing for collaboration with Region V countries to advance the WIS2.0 implementation within the Region and support regional requirements as necessary It is expected that these developments will enhance GCOS-related data communications reliability in Region V.
- A WMO Regional Association V Working Group on Infrastructure, Expert Team on the WMO Information System (ET-WIS) meeting was held on 5 June, 2025³.
- Of wider interest and related to global climate monitoring activities, the Australia, Integrated Marine Observing System (IMOS⁴) has recently been approved to be a WIS2.0 node and is working on its establishment, expected later in 2025, so as to be able to provide regional marine data on the WIS.

³ See: <https://community.wmo.int/en/meetings/third-ra-v-et-wis-meeting>

⁴ <https://imos.org.au/>



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4. Status of Region V GCOS Networks & Related Issues

4.1. Summary

- GSN:
 - Has shown an improvement in reporting between 2023 and 2024. Overall performance is 83.7% in 2024.
 - 6 countries consisting of 14 stations are silent as listed in section 3.2.
 - 2 countries provided less than 50% of monthly reports, with 1 station silent.
- GUAN:
 - 3 countries consisting of 5 stations are silent as listed in section 3.3.
 - Only 1 RA V stations are providing more than 1 sounding per day.
 - All soundings made appear to be attaining the 30 hPa requirement.
- GRUAN:
 - Currently, the definition of the RA V contribution to GRUAN appears to be inconsistent with the official definition of the network as given by the GRUAN site and Lead Centre.
- When contacting RA V Member countries, NFPs for 4 of 24 countries responded, with input provided below in section 3.5.

4.2. Global Surface Network

The table below show summary statistics for 2023 and 2024 of CLIMAT reports being received by ECMWF and as reported in the WMO Data Quality Monitoring System (WDQMS).

It should be noted that:

- The following countries / territories are silent (not reporting) in 2024
 - Cook Islands – 4 stations:
 - AITUTAKI AWS
 - PENRHYN AWS
 - PUKAPUKA AWS*
 - RAROTONGA
 - Kiribati – 3 stations:
 - CHRISTMAS ISLAND
 - KANTON ISLAND
 - TARAWA
 - Solomon Islands – 2 stations:
 - HONIARA/HENDERSON
 - MUNDA
 - Tokelau – 1 station:
 - NUKUNONU AWS
 - Tuvalu – 2 stations:
 - FUNAFUTI
 - NANUMEA
 - Vanuatu – 2 stations:
 - ANEITYUM
 - PEKOA AIRPORT (SANTO)
- In addition to those silent above, the following countries / territories provided less than 50% of expected reports in 2024:

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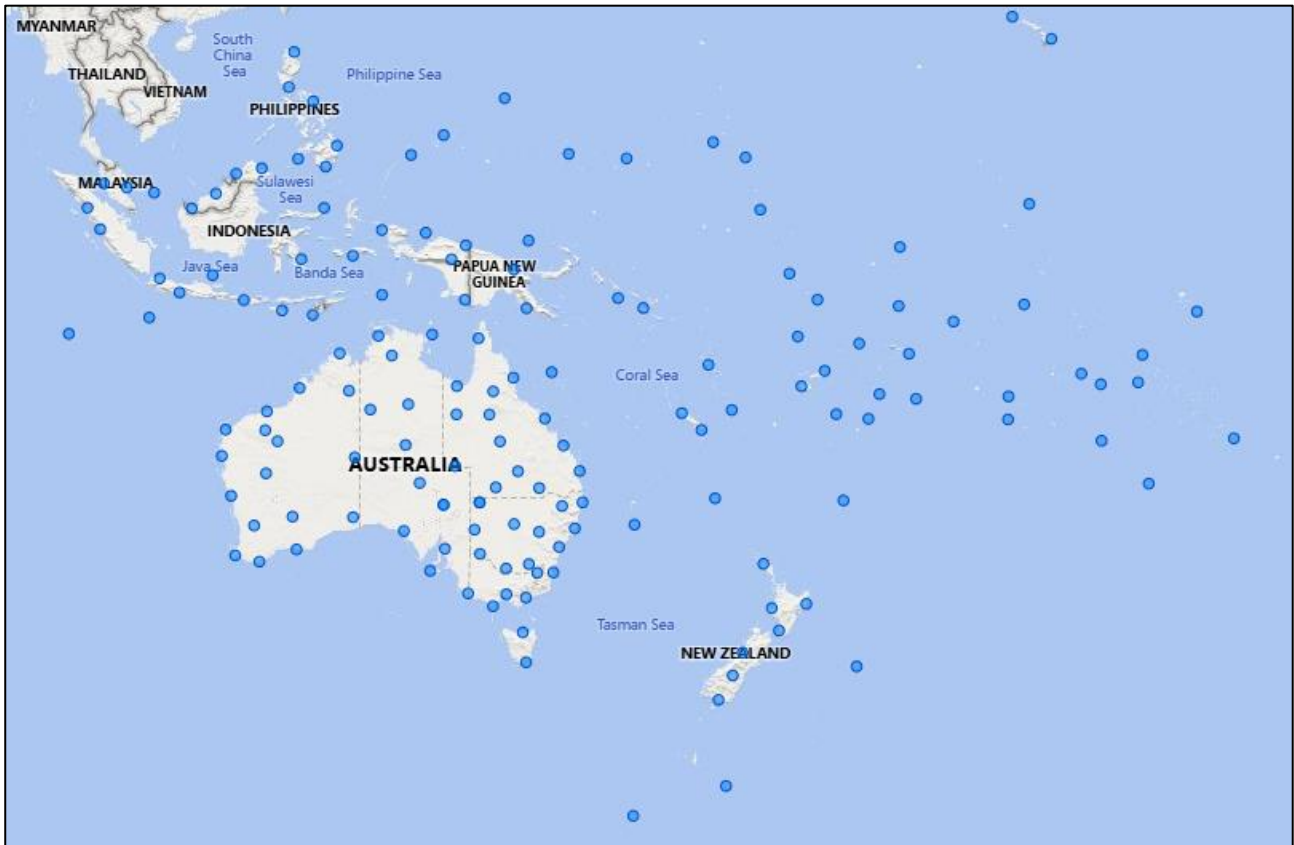
- Niue:
 - 1 report only received for: HANAN AIRPORT
- Tonga
 - 1 report only received for: LUPEPAU'U
 - 1 Silent station: NUKU'ALOFA
- Data was not available for the month of June 2024 in WDQMS
- Statistics are not updated in real-time or retrospectively in WDQMS, so these statistics may not be representative of the current availability of these data in permanent global CLIMAT databases and archives.
- A listing of available reports for 2024 is provided within Attachment 3.

Year	2023			2024		
Country / Territory	Reported	Not Reported	%Reported	Reported	Not Reported	%Reported
Australia	644	136	82.6	715	0	100
Christmas Island	10	2	83.3	11	0	100
Cocos (Keeling) Islands	10	2	83.3	11	0	100
Cook Islands	0	48	0	0	44	0
Fiji	29	19	60.4	35	9	79.5
France	12	0	100	11	0	100
French Polynesia	84	12	87.5	77	11	87.5
Indonesia	164	52	75.9	158	40	79.8
Kiribati	2	34	5.6	0	33	0
Malaysia	70	2	97.2	66	0	100
Marshall Islands	24	0	100	18	4	81.8
Micronesia, Federated States of	34	2	94.4	27	6	81.8
New Caledonia	24	0	100	22	0	100
New Zealand	111	9	92.5	110	0	100
Niue	1	11	8.3	1	10	9.1
Palau	10	2	83.3	9	2	81.8
Papua New Guinea	33	3	91.7	33	0	100
Philippines	72	0	100	61	5	92.4
Solomon Islands	0	24	0	0	22	0
Tokelau	0	12	0	0	11	0
Tonga	3	21	12.5	1	21	4.5
Tuvalu	0	24	0	0	22	0
United States (the)	48	0	100	34	10	77.3
Vanuatu	0	24	0	0	22	0
Total	1385	439	75.9	1400	272	83.7

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GCOS Surface Network Region V (Southwest Pacific), May 2025. Source: WMO OSCAR/Surface

4.3. Global Upper Air Network

The table below shows the no. soundings for GUAN RA V stations by country and is a summary of the detailed WDQMS statistics provided in Attachment 4.

It should be noted that:

- The following countries / territories appear to be silent
 - Marshall Island – 1 station:
 - MAJURO/MARSHALL IS. INTNL.
 - Micronesia – 1 station:
 - WEATHER SERVICE OFFICE, CHUUK, ECI
 - The United States – 3 stations:
 - WEATHER FORECAST OFFICE, GUAM, MARIANA IS.
 - HILO HI, HAWAII
 - PAGO PAGO/INT.AIRP. AMERICAN SAMOA

Country / Territory	Number GUAN Stations	Number Soundings < 30 hPa (15 months)
Australia	15	240
Brunei Darussalam	1	15
Cook Islands	1	15
Fiji	1	15

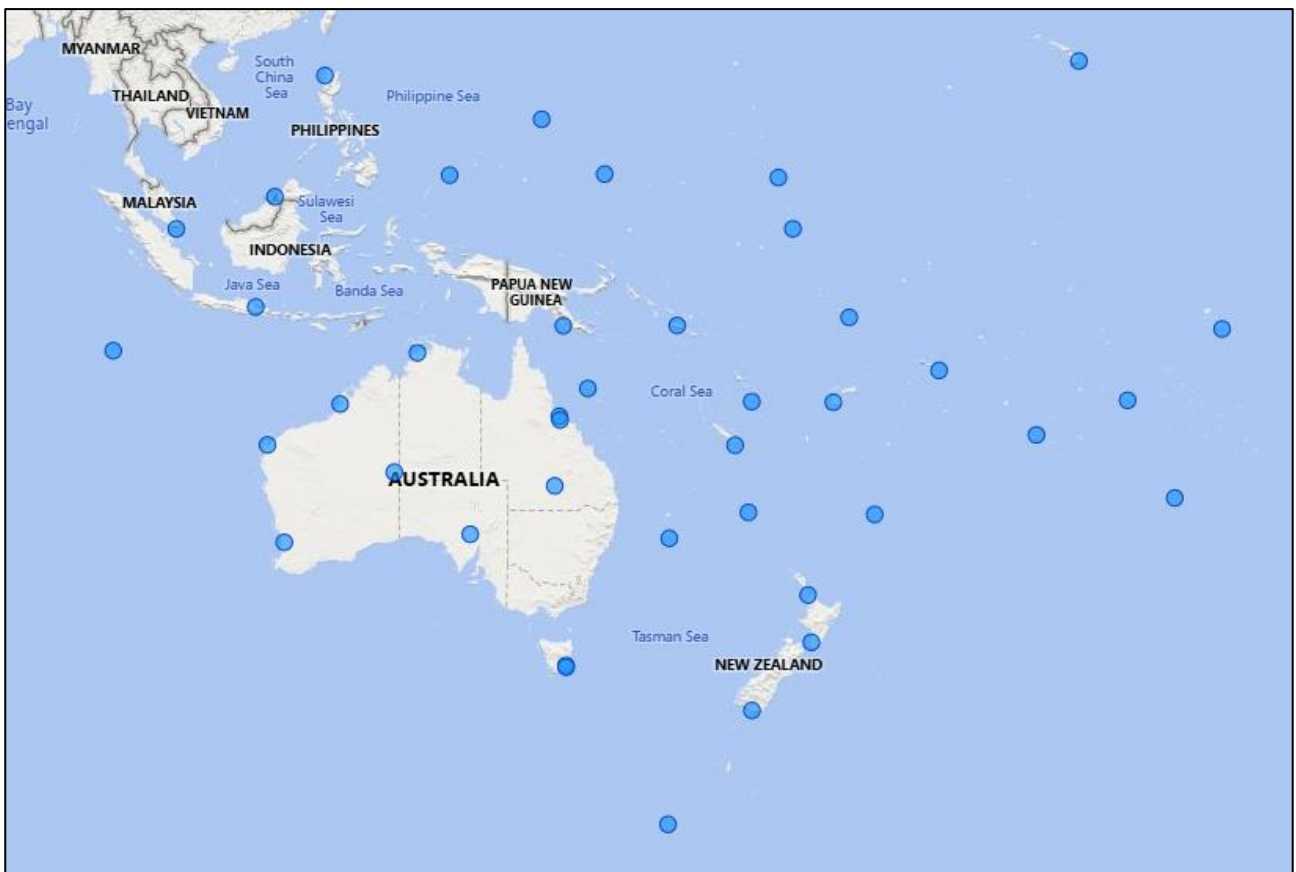
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French Polynesia	3	45
Indonesia	1	15
Kiribati	1	15
Marshall Islands	1	0
Micronesia, Federated States of	1	0
New Caledonia	1	15
New Zealand	4	60
Palau	1	0
Papua New Guinea	1	15
Philippines	1	15
Singapore	1	28
Solomon Islands	1	15
Tuvalu	1	15
United States (the)	3	0
Vanuatu	1	15
Total	41	538

*Australia operates 3 GUAN stations in Antarctica.



GCOS Upper Air Network Region V (Southwest Pacific), May 2025. Source: WMO OSCAR/Surface

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4.4. GCOS Reference Upper Air Network

It should be noted that the GCOS Reference Upper Air Network is primarily the responsibility of the GRUAN Lead Centre⁵ operated by DWD, Germany and overseen by the GCOS Working Group on GRUAN⁶. Information and reports on data availability are available at the GRUAN site at:

<https://www.gruan.org/data/data-products/data-availability>

This report only reviews the GRUAN network RA V composition and identifies some inconsistencies between the GRUAN site and OSCAR/Surface.

According to the GRUAN Lead Centre and site, the table below provides the list and status of the 8 GRUAN RA V stations.

Name	Country / Territory	Latitude	Longitude	Altitude	WMO / WIGOS No.	Status
Alice Springs	Australia	-23.79°	133.89°	546 m	94326	to be certified
Darwin	Australia	-12.43°	130.89°	30 m	94120	to be certified
Macquarie Island	Australia	-54.50°	158.94°	6 m	94998	to be certified
Melbourne	Australia	-37.67°	144.83°	113 m	94866	to be certified
Nauru	Nauru	-0.52°	166.92°	7 m		inactive
Lauder	New Zealand	-45.05°	169.68°	370 m	93817	certified
Manus	Papua New Guinea	-2.06°	147.42°	6 m		inactive
Singapore	Singapore	1.30°	103.80°	21 m	48698	certified

The GRUAN RA V stations listing provided by OSCAR/Surface is given below.

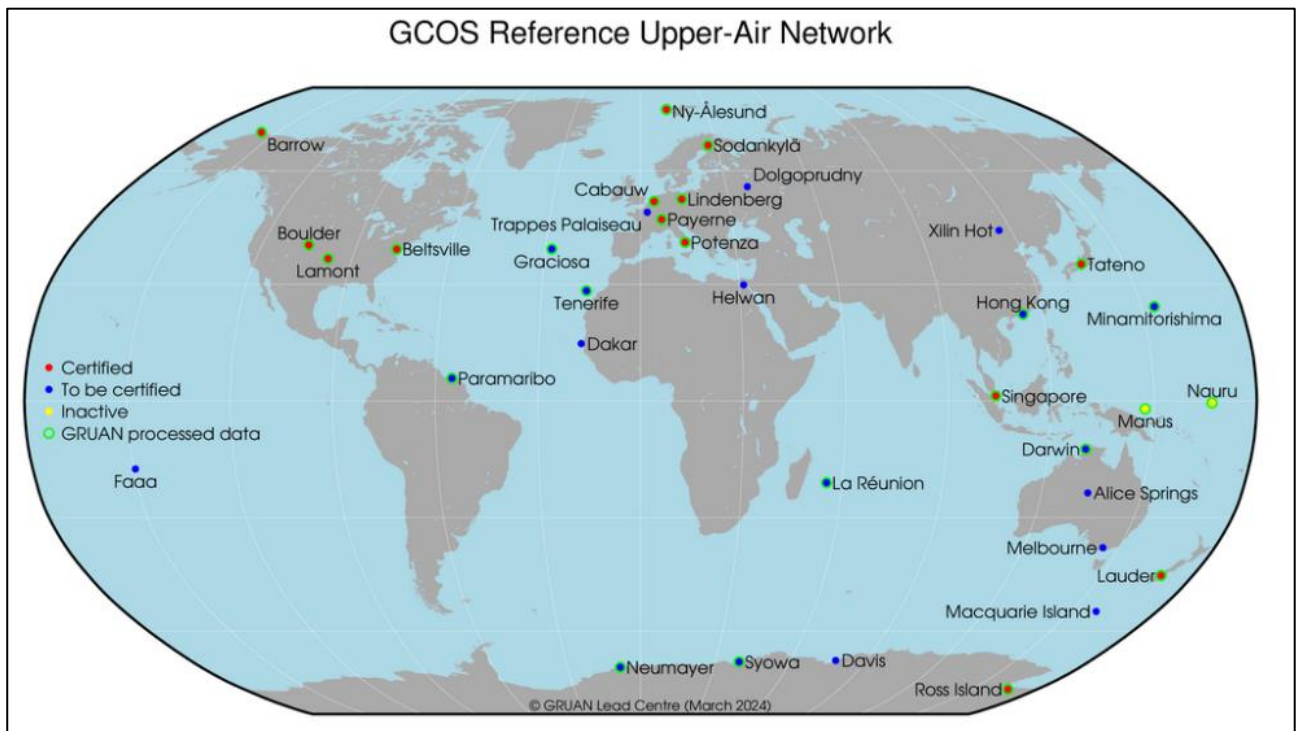
Country / Territory	WIGOS ID	Station Name
Australia	0-20000-0-94120	DARWIN AIRPORT
Australia	0-20000-0-94326	ALICE SPRINGS AIRPORT
Australia	0-20000-0-94866	MELBOURNE AIRPORT
Australia	0-20000-0-94998	MACQUARIE ISLAND
French Polynesia	0-20000-0-91938	TAHITI-FAAA
New Zealand	0-20000-0-93817	Lauder Observatory
New Zealand	0-20000-0-93844	INVERCARGILL AIRPORT
Singapore	0-702-0-48698	Singapore Upper Air Observatory

⁵ <https://www.gruan.org/network/lead-centre>

⁶ <https://www.gruan.org/network/working-group>



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GRUAN Network from the GRUAN site⁷ at May 2025

⁷ <https://www.gruan.org/network/sites>

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4.5. Feedback & Comments from National Focal Points

Where national focal points were able to be contacted, they were invited to provide feedback on the content of the report, noting in particular any national issues that are impacting the availability and/or quality of GCOS network data and network composition.

Country / Territory	Name of Respondent / National Focal Point	Comment GSN	Comment GUAN	Comment GRUAN	General Comments
Australia	Karl Monnik, Dean Lockett	- Stations list is correct, with the following changes made or to be made: - East Sale Airport changed to East Sale, May 2024.	- Australia would like to be able to better meet requirements for GUAN and GBON by performing 2 soundings per day but have not yet managed to find the resources. - Hobart Airport West: this site is now closed with the upper air program moved to Clifton Beach.	- Station list is correct. - The 4 stations are not yet certified.	Nil.
Brunei Darussalam					No input received.
Christmas Island					No input received.
Cocos (Keeling) Islands					No input received.
Cook Islands					No input received.
Fiji					No input received.
France					No input received.
French Polynesia					No input received.
Indonesia					No input received.
Kiribati					No input received.

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Country / Territory	Name of Respondent / National Focal Point	Comment GSN	Comment GUAN	Comment GRUAN	General Comments
Malaysia	Nor Khafiza binti Manan	- Stations list is correct - No CLIMAT data received for Jan & Feb 2025 due to header format issued. - Therefore, data was resent with the correct header for Jan & Feb 2025 CLIMAT.			Report on Region V GCOS Lead Centre activities has been reviewed.
Marshall Islands					No input received.
Micronesia, Federated States of					No input received.
Nauru					No input received.
New Caledonia	Valerie Deschamps	Nothing to report.	Nothing to report.	Nothing to report.	Nothing to report.
New Zealand					No input received.
Niue					No input received.
Palau					No input received.
Papua New Guinea					No input received.
Philippines					No input received.
Samoa					No input received.
Singapore	Gavin Yeap	Not applicable.	No issues with operation of upper air station.	No issues with operation of upper air station.	Report on Region V GCOS Lead Centre activities has been reviewed
Solomon Islands					No input received.
Timor-Leste					No input received.
Tokelau					No input received.
Tonga	Seluvaia Ilolahia	Tonga is ending CLIMAT reports via email to: weltklimaATdwd.de Requests confirmation that this is correct.	Not applicable.	Not applicable.	Report on Region V GCOS Lead Centre activities has been reviewed

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Country / Territory	Name of Respondent / National Focal Point	Comment GSN	Comment GUAN	Comment GRUAN	General Comments
Tuvalu					No input received.
United States (the)					No input received.
Vanuatu	Grace Johnolson	The two stations remained silent for a very long time. There has been an issue with staff turnover and a lack of transfer of knowledge to recruited staff. Also, Instrument spares, such as ordinary thermometers, are an issue to replace faulty ones. Orders of digital thermometers have been placed. Once the ordinary thermometers arrive and the CLIDE database is resolved, then CLIMAT reports for the two stations should be submitted as required.	Vanuatu Met wants to meet the criteria of two ascents per day, but it is not possible. The reason is due to budget constraints, and SOFF is yet to be implemented for financial assistance	Not applicable.	Once the CLIDE database is restored and ordinary thermometers are installed, then GCOS activities should be updated.

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Attachment 1 - Terms of Reference of the GCOS Lead Centres & for GCOS National Focal Points

Following terms of reference are from the GCOS website⁸⁹.

Lead Centre Terms of Reference

1. Diagnose problems in the GSN and GUAN by using the monitoring reports produced for the GCOS Networks.
2. Liaise with the nominated National Focal Points for GCOS Networks, and other responsible officials, to improve data & metadata availability and quality, and to provide capacity development.
3. In collaboration with the Regional WIGOS Centres (RWC), support the incident management process for the GCOS Network Issues, applying the WIGOS Data Quality Management functions and using relevant WIGOS Tools.
4. Co-ordinate activities with other WMO centres and Export Teams, including the collection of related climatological data.
5. Monitor and report to INFCOM and GCOS on actions taken, progress achieved, concerns and recommendations.
6. Assist GCOS Panel AOPC in the revisions of GSN and GUAN stations.
7. Assist the WMO Secretariat in maintaining the list of National Focal Points for GCOS Networks.

Terms of Reference for the National Focal Points for GCOS Networks

1. Liaise within the National Meteorological and Hydrological Services on GCOS related networks (including GSN and GUAN) issues related to data availability and quality.
2. Inform the INFCOM (WMO Commission for Observation, Infrastructure and Information Systems) and Lead Centres for GCOS on current and potential problems that might impact data availability and quality.
3. Respond to requests from the GCOS Secretariat and Lead Centres for GCOS regarding metadata, and data availability and quality.

⁸ <https://gcoss.wmo.int/site/global-climate-observing-system-gcos/cooperation/lead-centres-gcos>

⁹ <https://gcoss.wmo.int/site/global-climate-observing-system-gcos/cooperation/gcos-national-level/national-focal-points-gcos-networks?book=22923>

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Attachment 2 – WMO Region V Members & GSN Stations

Following are Region V Member Countries, with number of GCOS network stations as listed in OSCAR/Surface within WMO Region V at 29 April 2025.

The column "NFP Contact" indicates Y for "yes" if a contact has been identified to receive email contact from the Lead Centre.

Country / Territory	NFP Contact	No. GSN	No. GUAN	No. GRUAN
Australia	Y	67	15	4 [#]
Brunei Darussalam	Y		1	
Christmas Island	N/A	1		
Cocos (Keeling) Islands	N/A	1	1	
Cook Islands	Y	4	1	
Fiji	Y	4	1	
France	N/A	1		
French Polynesia	Y	8	3	
Indonesia	Y	18	1	
Kiribati	Y	3	1	
Malaysia	Y	6		
Marshall Islands	N	2	1	
Micronesia, Federated States of	Y	3	1	
Nauru	N	0	0	1 [*]
New Caledonia	Y	2	1	
New Zealand	Y	10	4	1
Niue	N	1		
Palau	N	1	1	
Papua New Guinea	Y	3	1	1 [*]
Philippines	Y	6	1	
Samoa	Y			
Singapore	Y		1	1
Solomon Islands	Y	2	1	
Timor-Leste	Y			
Tokelau	N	1		
Tonga	Y	2		
Tuvalu	Y	2	1	
United States (the)	N/A	4	3	
Vanuatu	Y	2	1	
Total		154	41	8

* Stations are currently inactive.

Stations have status "to be certified".



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Attachment 3 – Region V GCOS Surface Network CLIMAT Availability 2024

The table below shows availability of CLIMAT reports by country / territory for the indicated month as received (Y) / not received (N red highlighted) at ECMWF and registered in the WMO Data Quality Monitoring System.

It should be noted that:

- Statistics are not updated in real-time or retrospectively in WDQMS, so these statistics may not be representative of the current availability of these data in permanent global CLIMAT databases and archives.

Country / Territory	Station	Jan 2024	Feb 2024	Mar 2024	Apr 2024	May 2024	Jul 2024	Aug 2024	Sep 2024	Oct 2024	Nov 2024	Dec 2024	Jan 2025	Feb 2025
Australia	ALBANY AIRPORT	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
	ALICE SPRINGS AIRPORT	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
	BIRDSVILLE AIRPORT	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
	BROKEN HILL AIRPORT AWS	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
	BROOME AIRPORT	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
	BURKETOWN AIRPORT	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
	CABRAMURRA SMHEA AWS	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
	CAIRNS AERO	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
	CAPE BORDA	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
	CAPE BRUNY (CAPE BRUNY)	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
	CAPE LEEUWIN	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
	CAPE OTWAY LIGHTHOUSE	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y

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Country / Territory	Station	Jan 2024	Feb 2024	Mar 2024	Apr 2024	May 2024	Jul 2024	Aug 2024	Sep 2024	Oct 2024	Nov 2024	Dec 2024	Jan 2025	Feb 2025
	CARNARVON AIRPORT	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
	CEDUNA AMO	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
	CHARLEVILLE AERO	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
	COBAR MO	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
	CUNDERDIN AIRFIELD	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
	DARWIN AIRPORT	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
	DENILIQUIN AIRPORT AWS	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
	DUBBO AIRPORT AWS	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
	EAST SALE					Y	Y	Y	Y	Y	Y	Y	Y	Y
	EAST SALE AIRPORT	Y	Y	Y	Y									
	ESPERANCE	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
	FORREST	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
	GEORGETOWN AIRPORT	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
	GERALDTON AIRPORT	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
	GILES METEOROLOGICAL OFFICE	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
	GLADSTONE RADAR	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
	GOVE AIRPORT	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
	HALLS CREEK AIRPORT	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
	INVERELL (RAGLAN ST)	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y

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Country / Territory	Station	Jan 2024	Feb 2024	Mar 2024	Apr 2024	May 2024	Jul 2024	Aug 2024	Sep 2024	Oct 2024	Nov 2024	Dec 2024	Jan 2025	Feb 2025
	KALGOORLIE-BOULDER AIRPORT	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
	KALUMBURU	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
	KARIJINI NORTH	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
	LEARMONTH AIRPORT	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
	LONGREACH AERO	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
	LORD HOWE ISLAND AERO	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
	LOW HEAD	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
	MACKAY M.O	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
	MACQUARIE ISLAND	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
	MARREE AERO	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
	MEEKATHARRA AIRPORT	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
	MELBOURNE (OLYMPIC PARK)	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
	MILDURA AIRPORT	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
	MORUYA HEADS PILOT STATION	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
	MOUNT GAMBIER AERO	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
	MOUNT ISA AERO	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
	NEWMAN AERO	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
	NORFOLK ISLAND AERO	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y

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Country / Territory	Station	Jan 2024	Feb 2024	Mar 2024	Apr 2024	May 2024	Jul 2024	Aug 2024	Sep 2024	Oct 2024	Nov 2024	Dec 2024	Jan 2025	Feb 2025
	OODNADATTA AIRPORT	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
	PORT HEDLAND AIRPORT	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
	RABBIT FLAT	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
	RAYVILLE PARK	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
	RICHMOND AIRPORT	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
	RICHMOND RAAF	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
	ST GEORGE AIRPORT	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
	TAREE AIRPORT AWS	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
	TENNANT CREEK AIRPORT	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
	TEWANTIN RSL PARK	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
	THARGOMINDAH AIRPORT	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
	TIBOOBURRA AIRPORT	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
	TINDAL RAAF	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
	WAGGA WAGGA AMO	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
	WEIPA AERO	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
	WILLIS ISLAND	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
	YAMBA PILOT STATION	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Christmas Island	CHRISTMAS ISLAND AERO	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y

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Country / Territory	Station	Jan 2024	Feb 2024	Mar 2024	Apr 2024	May 2024	Jul 2024	Aug 2024	Sep 2024	Oct 2024	Nov 2024	Dec 2024	Jan 2025	Feb 2025
Cocos (Keeling) Islands	COCOS ISLAND AERO	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Cook Islands	AITUTAKI AWS	N	N	N	N	N	N	N	N	N	N	N	N	N
	PENRHYN AWS	N	N	N	N	N	N	N	N	N	N	N	N	N
	PUKAPUKA AWS*	N	N	N	N	N	N	N	N	N	N	N	N	N
	RAROTONGA (91843-0)	N	N	N	N	N	N	N	N	N	N	N	N	N
Fiji	NADI AIRPORT	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
	ONO-I-LAU AWS	N	Y	Y	N	Y	Y	Y	Y	Y	Y	Y	N	N
	ROTUMA	Y	Y	N	N	N	N	N	N	N	Y	Y	Y	Y
	UDU POINT	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
France	HIHIFO (ILE WALLIS)	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
French Polynesia	ANAA	N	N	N	N	N	N	N	N	N	N	N	N	N
	BORA-BORA-MOTU-AERO	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
	HIVA-OA	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
	MANGAREVA	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
	RAPA	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
	TAHITI-FAAA	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
	TAKAROA	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
	TUBUAI AERO	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Indonesia	AMBON/PATTIMURA	N	N	N	N	N	N	N	N	N	N	N	N	N

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Country / Territory	Station	Jan 2024	Feb 2024	Mar 2024	Apr 2024	May 2024	Jul 2024	Aug 2024	Sep 2024	Oct 2024	Nov 2024	Dec 2024	Jan 2025	Feb 2025
	BIAK/FRANS KAISIEPO	Y	Y	Y	Y	Y	Y	Y	Y	Y	N	Y	Y	Y
	CILACAP	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
	DEO SORONG	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
	JAKARTA/OBSERVATORY	N	N	Y	N	N	Y	Y	Y	N	N	N	Y	Y
	JAYAPURA/SENTANI	Y	Y	N	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
	KENDARI/WOLTER MONGINSIDI	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
	KUPANG/ELTARI	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	N	Y	Y
	MENADO/ SAM RATULANGI	Y	Y	Y	Y	Y	Y	N	N	Y	N	Y	Y	Y
	MERAUKE/MOPAH	Y	Y	Y	Y	Y	Y	Y	Y	N	Y	Y	Y	Y
	MIA PADANG	Y	Y	Y	N	Y	Y	Y	Y	Y	Y	Y	Y	N
	PRAYA LOMBOK	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
	SANGKAPURA (BAWEAN IS.)	Y	Y	Y	N	Y	N	N	N	Y	N	Y	N	Y
	SAUMLAKI/OLILIT	N	N	N	N	N	Y	Y	Y	Y	Y	Y	N	N
	SIBOLGA/PINANGSORI	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
	TAREMPA	Y	N	Y	N	Y	Y	Y	Y	Y	N	Y	Y	Y
	WAINGAPU/MAU HAU	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
	WAMENA	Y	Y	Y	Y	Y	Y	N	Y	Y	Y	Y	Y	N
Kiribati	CHRISTMAS ISLAND (91490-0)	N	N	N	N	N	N	N	N	N	N	N	N	N

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Country / Territory	Station	Jan 2024	Feb 2024	Mar 2024	Apr 2024	May 2024	Jul 2024	Aug 2024	Sep 2024	Oct 2024	Nov 2024	Dec 2024	Jan 2025	Feb 2025
	KANTON ISLAND	N	N	N	N	N	N	N	N	N	N	N	N	N
	TARAWA	N	N	N	N	N	N	N	N	N	N	N	N	N
Malaysia	BINTULU	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	N*	N*
	KUANTAN	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	N*	N*
	KUCHING	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	N*	N*
	LABUAN	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	N*	N*
	PERAK,SITIAWAN	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	N*	N*
	SANDAKAN	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	N*	N*
Marshall Islands	KWAJALEIN/BUCHOLZ AAF, MARSHALL IS.	Y	Y	Y	Y	Y	Y	Y	N	N	Y	Y	Y	N
	MAJURO/MARSHALL IS. INTNL.	Y	Y	Y	Y	Y	Y	Y	N	N	Y	Y	Y	N
Micronesia , Federated States of	WEATHER SERVICE OFFICE, CHUUK, ECI	Y	Y	Y	Y	Y	Y	Y	N	N	Y	Y	Y	N
	WEATHER SERVICE OFFICE, POHNPEI, CAROLINE IS.	Y	Y	Y	Y	Y	Y	Y	N	N	Y	Y	Y	N
	WEATHER SERVICE OFFICE, YAP, CAROLINE IS.	Y	Y	Y	Y	Y	Y	Y	N	N	Y	Y	Y	N
New Caledonia	KOUMAC (NLLE-CALEDONIE)	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
	NOUMEA (NLLE-CALEDONIE)	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
	CAMPBELL ISLAND AWS	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y

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Country / Territory	Station	Jan 2024	Feb 2024	Mar 2024	Apr 2024	May 2024	Jul 2024	Aug 2024	Sep 2024	Oct 2024	Nov 2024	Dec 2024	Jan 2025	Feb 2025
New Zealand	CHATHAM ISLAND AIRPORT	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
	GISBORNE AERO AWS	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
	HOKITIKA AERO AWS	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
	INVERCARGILL AIRPORT AWS	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
	KAITAIA OBSERVATORY	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
	NEW PLYMOUTH AERO AWS	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
	PARAPARAUMU AERO AWS	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
	RAOUL ISLAND AWS	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
	TARA HILLS AWS	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Niue	HANAN AIRPORT	N	N	N	N	Y	N	N	N	N	N	N	N	N
Palau	WEATHER SERVICE OFFICE, KOROR, PALAU WCI.	Y	Y	Y	Y	Y	Y	Y	N	N	Y	Y	Y	N
Papua New Guinea	MADANG W.O.	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
	MOMOTE W.O.	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
	PORT MORESBY W.O.	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Philippines	APARRI COMPLEX	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
	GENERAL SANTOS	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
	HINATUAN	Y	Y	N	N	N	N	N	Y	Y	Y	Y	Y	Y
	LEGASPI	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y

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Country / Territory	Station	Jan 2024	Feb 2024	Mar 2024	Apr 2024	May 2024	Jul 2024	Aug 2024	Sep 2024	Oct 2024	Nov 2024	Dec 2024	Jan 2025	Feb 2025
	SCIENCE GARDEN	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
	ZAMBOANGA	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Solomon Islands	HONIARA/HENDERSON	N	N	N	N	N	N	N	N	N	N	N	N	N
	MUNDA	N	N	N	N	N	N	N	N	N	N	N	N	N
Tokelau	NUKUNONU AWS	N	N	N	N	N	N	N	N	N	N	N	N	N
Tonga	LUPEPAU'U	N	Y	N	N	N	N	N	N	N	N	N	N	N
	NUKU'ALOFA	N	N	N	N	N	N	N	N	N	N	N	N	N
Tuvalu	FUNAFUTI (91643-0)	N	N	N	N	N	N	N	N	N	N	N	N	N
	NANUMEA	N	N	N	N	N	N	N	N	N	N	N	N	N
United States (the)	HILO HI, HAWAII	Y	Y	Y	Y	Y	Y	Y	N	N	Y	Y	Y	N
	LIHUE, KAUAI, HAWAII	Y	Y	Y	Y	Y	Y	Y	N	N	Y	Y	Y	N
	PAGO PAGO/INT.AIRP. AMERICAN SAMOA	Y	Y	Y	Y	Y	Y	Y	N	N	Y	Y	Y	N
	WEATHER FORECAST OFFICE, GUAM, MARIANA IS.	Y	Y	Y	Y	Y	Y	Y	N	N	N	N	N	N
Vanuatu	ANEITYUM	N	N	N	N	N	N	N	N	N	N	N	N	N
	PEKOA AIRPORT (SANTO)	N	N	N	N	N	N	N	N	N	N	N	N	N

*Reports for Malaysia GSN stations have since been correctly resubmitted.

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Attachment 4 – Region V GCOS Upper Air Network Data Availability 2024

The table below shows number of Upper Air soundings reaching 30 hPa or less by country / territory for the indicated month at ECMWF and registered in the WMO Data Quality Monitoring System.

It should be noted that:

- Statistics are not updated in real-time or retrospectively in WDQMS, so these statistics may not be representative of the current availability of these data in permanent global databases and archives.

Country / Territory	Month Station	Jan 2024	Feb 2024	Mar 2024	Apr 2024	May 2024	Jun 2024	Jul 2024	Aug 2024	Sep 2024	Oct 2024	Nov 2024	Dec 2024	Jan 2025	Feb 2025	Mar 2025	Tot. (15 months)
Australia	BROOME AIRPORT	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	15
	CASEY	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	15
	CHARLEVILLE AERO	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	15
	CLIFTON BEACH												1	1	1	1	4
	DARWIN AIRPORT	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	15
	DAVIS	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	15
	GILES METEOROLOGICAL OFFICE	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	15
	HOBART AIRPORT WEST	1	1	1	1	1	1	1	1	1	1	1					11
	LEARMONTH AIRPORT	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	15
	LORD HOWE ISLAND AERO	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	15
	MACQUARIE ISLAND	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	15
	MAWSON	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	15
	NORFOLK ISLAND AERO	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	15

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Country / Territory	Month Station	Jan 2024	Feb 2024	Mar 2024	Apr 2024	May 2024	Jun 2024	Jul 2024	Aug 2024	Sep 2024	Oct 2024	Nov 2024	Dec 2024	Jan 2025	Feb 2025	Mar 2025	Tot. (15 months)
	PERTH AIRPORT	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	15
	WILLIS ISLAND	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	15
	WOODSTOCK	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	15
	WOOMERA AERODROME	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	15
Brunei Darussalam	BRUNEI AIRPORT	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	15
Cook Islands	RAROTONGA (91843-0)	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	15
Fiji	NADI AIRPORT	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	15
French Polynesia	HIVA-OA	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	15
	RAPA	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	15
	TAHITI-FAAA	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	15
Indonesia	JUANDA SURABAYA	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	15
Kiribati	TARAWA	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	15
New Caledonia	NOUMEA (NLLE-CALEDONIE)	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	15
New Zealand	INVERCARGILL AIRPORT	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	15
	PARAPARAUMU AERODROME	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	15
	RAOUL ISLAND	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	15
	WHENUAPAI	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	15
Papua New Guinea	PORT MORESBY W.O.	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	15
Philippines	LAOAG	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	15
Singapore	Singapore Upper Air Observatory	2	2	2	2	2	2	2	4	2	2	2	1	1	1	1	28

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Country / Territory	Month Station	Jan 2024	Feb 2024	Mar 2024	Apr 2024	May 2024	Jun 2024	Jul 2024	Aug 2024	Sep 2024	Oct 2024	Nov 2024	Dec 2024	Jan 2025	Feb 2025	Mar 2025	Tot. (15 months)
Solomon Islands	HONIARA	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	15
Tuvalu	FUNAFUTI (91643-0)	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	15
Vanuatu	BAUERFIELD (EFATE)	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	15
	Total (network)	36	36	36	36	36	36	36	38	36	36	36	35	35	35	35	538

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