

05th November 2024

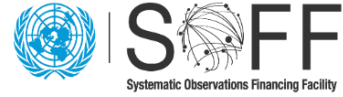


GBON National Gap Analysis

Systematic Observations
Financing Facility

**Weather
and climate
data for
resilience**





Screening of the National Gap Analysis (NGA) of Marshall Islands

WMO Technical Authority screens the GBON National Gap Analysis to ensure consistency with the GBON regulations and provides feedback for revisions as needed. *The screening of the NGA is conducted according to the SOFF Operational Guidance Handbook, version: 04.07.2023 and the provisions in Decision 5.7 of the SOFF Steering Committee.*

Following iterations with the peer advisor and beneficiary country, WMO Technical Authority confirms that the National Gap Analysis is consistent with GBON regulations.

Date: 6 November 2024

Signature:

Albert Fischer

Director, WIGOS Branch, Infrastructure Department, WMO

GBON National Gap Analysis Report Republic of the Marshall Islands (RMI)

Beneficiary Country Focal Point and Institute	Reginald White, Meteorologist in Charge, Weather Service Office (WSO) Majuro, RMI
Peer Advisor Focal Point and Institute	Tim Donovan, Senior International Development Manager, Met Office, UK

1. Country information from the GBON Global Gap Analysis

Table I. WMO GBON Global Gap Analysis (June 2023). Illustration of the information that the WMO Secretariat provides to each country

A. GBON horizontal resolution requirements	B. Target	C. Reporting (GBON compliant) ¹	D. Gap to improve	E. Gap new	F. Gap total
	[# of stations]				
Surface stations Standard density ² 200 km	9	0	7	2	9
Upper-air stations over land Standard density ² 500km	3	1	1	1	2

¹ The rationale for classifying surface and upper-air stations as reporting is based on the WIGOS Data Quality Monitoring System (WDQMS) for the chosen time period (WMO GBON Global Gap analysis, June 2023). Stations with data availability more than 80% on at least 80% of days, are considered as reporting. Other listed stations are counted as having the possibility to be improved.

² For SIDS, for the WMO GBON Global Gap Analysis in June 2023, the EEZ area has been added to the total surface area which is the basis for the target number of stations. The standard density requirements for SIDS have been calculated with 500 km for surface stations and 1000 km for upper-air stations.

2. Analysis of existing GBON stations and their status against GBON requirements

Table II. Assessment of existent stations per their operational status and network ownership

GBON Requirements	Existing observation stations (# of stations)			
	NMHS network		Third-party network	
	Reporting (GBON compliant) ³	To improve	Reporting (GBON compliant) ³	To improve
Surface land stations Standard density ⁴ 200km Variables: SLP, T, H, W, P, SD	0	7	0	0
Upper-air stations operated from land Horizontal resolution ⁴ : 500km Vertical resolution: 100m, up to 30 hPa Variables: T, H, W	1	0	0	1
Surface marine stations in Exclusive Economic Zones: ⁷ 500 km Variables: SLP, SST				
Upper-air stations operated in Exclusive Economic Zones: ⁵ 1000 km Vertical resolution: 100m, up to 30 hPa Variables: T, H, W				

³ The rationale for classifying surface and upper-air stations as reporting is based on the WIGOS Data Quality Monitoring System (WDQMS) for the chosen time period during the development of National Gap Analysis Stations with data availability more than 80% on at least 80% of days, are considered as reporting. Other listed stations are counted as having the possibility to be improved.

⁴ For SIDS, for the WMO GBON Global Gap Analysis in June 2023, the EEZ area has been added to the total surface area which is the basis for the target number of stations. The standard density requirements for SIDS have been calculated with 500 km for surface stations and 1000 km for upper-air stations.

⁵ Although GBON marine stations and stations in EEZ are not part of initial SOFF scope, peer advisors are encouraged to analyze in this step when considered relevant e.g. SIDS, the status of current marine stations for future GBON marine observations investments.

Table III. Assessment of existing GBON stations per station characteristics. Station type: S: Surface, UA: Upper-Air; M: Marine; Owner of the station: NMHS or name of third-party; GBON variables: SLP: Atmospheric pressure; T: Temperature; H: Humidity; W: wind; P: Precipitation; SD: Snow depth; SST: Sea surface temperature; Reporting cycle: Number of observation reports exchanged internationally per day (0-24); GBON compliance: whether the station is GBON compliant or not (see GBON guide on compliance criteria).

Station name	Station type (S/UA/M ⁶)	Owner (NMHS /3rd party)	Funding source	GBON variable measured						Reporting cycle (obs/day)	GBON Compliant (Y/N)	
				SLP	T	H	W	P	SD			SST
Majuro WSO	UA	NMHS	NOAA	x	x	x	x	x	NA	NA	2	N
Kwajalein	UA	US Army Kwajalein Atoll (USAKA)	US Army Kwajalein Atoll (USAKA)	x	x	x	x	x	NA	NA	<1	N
Majuro WSO	S	NMHS	NOAA	x	x	x	x	x	NA	NA	24	N
Kwajalein	S	US Army Kwajalein Atoll (USAKA)	US Army Kwajalein Atoll (USAKA)	X	X	X	X	X	NA	NA	24	N
Ailinglapalap	S	NMHS	NOAA	X	X	X	X	X	NA	NA	24	N
Jaluit Atoll	S	NMHS	NOAA	X	X	X	X	X	NA	NA	24	N
Utirik	S	NMHS	NOAA	X	X	X	X	X	NA	NA	24	N
Wotje Atoll	S	NMHS	NOAA	X	X	X	X	X	NA	NA	24	N
Mili Atoll	S	NMHS	NOAA	X	X	X	X	X	NA	NA	24	N

⁶ Please see guidance on marine stations in Section 2 on Scope.

3. Results of the GBON National Gap Analysis

Please complete the two tables below and add remarks and technical details in Annexes as needed.

Table IV. Results of the GBON national gap analysis. SLP: Atmospheric pressure; T: Temperature; H: Humidity; W: wind; P: Precipitation; SD: Snow depth; SST: Sea surface temperature.

GBON requirements	Global GBON target	Approved national target	Reporting	Gap	
				To improve	New
[# of stations]					
Surface land stations	9	9	0	9*	0
Upper-air stations operated from land	3	3	1	1	1
Surface marine stations in Exclusive Economic Zones:⁷ Density 500 km Variables: SLP, SST Observing cycle: 1h					
Upper-air stations operated in Exclusive Economic Zones:⁸ Density 1000 km Vertical resolution: 100 m, up to 30 hPa Variables: T, H, W Observing cycle: twice a day					

* These are 9 stations to be selected from 24 stations to be installed under CIS-Pac5, see Annex; improvements relate to the implementation of WIS2.0

⁷ Although GBON marine stations are not part of initial SOFF scope, peer advisors are encouraged to analyze in this step when considered relevant e.g. SIDS, the need for future GBON marine observations investments according to the GBON requirements.

⁸ Although GBON marine stations are not part of initial SOFF scope, peer advisors are encouraged to analyze in this step when considered relevant e.g. SIDS, the need for future GBON marine observations investments according to the GBON requirements.

3.1 Recommended existing surface, upper-air and marine¹⁰ stations to be designated to GBON

Table V. Recommended existing surface, upper-air and marine stations to be designated to GBON.

Station name	Station type (S/UA/M ¹¹)
Majuro WSO	UA
Majuro airport (PKMJ)	S
Kwajalein	UA
Kwajalein	S
Enewetok	UA
Enewetok	S
Rongelap	S
Utirik	S
Mejit	S
Ujae	S
Ebon	S
Mili	S

⁹ Although GBON marine stations are not part of initial SOFF scope, peer advisors are encouraged to analyze in this step when considered relevant e.g., SIDS, the need for future GBON marine observations investments according to the GBON requirements.

¹⁰ Although GBON marine stations are not part of initial SOFF scope, peer advisors are encouraged to analyze in this step when considered relevant e.g., SIDS, the need for future GBON marine observations investments according to the GBON requirements.

¹¹ Please see guidance on marine stations in Section 2 on Scope.

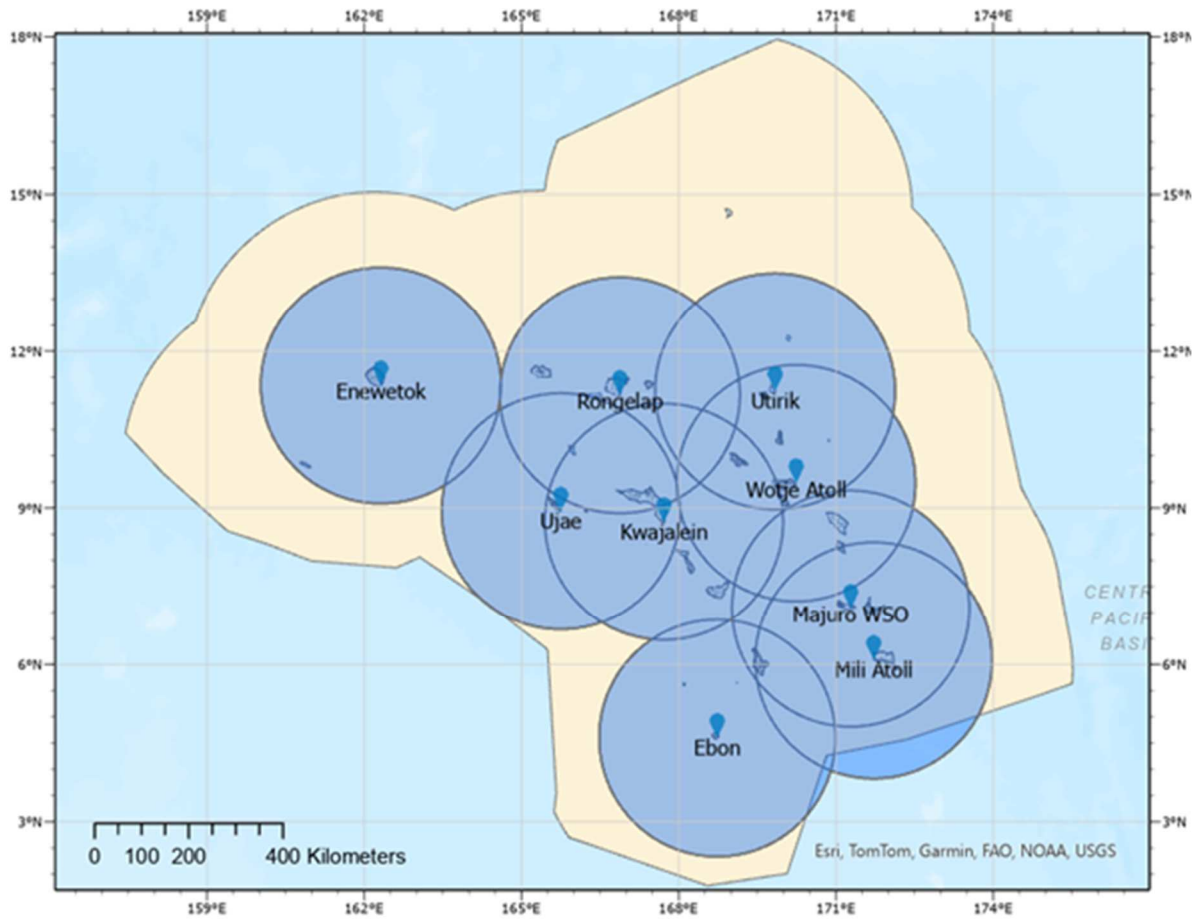


Figure 1 – Proposed GBON stations in blue showing 250km radius circles. Republic of Marshall Islands Exclusive Economic Zone (EEZ) area shown in yellow. Note: these are 9 of the 24 AWS stations to be installed under the CIS-Pac5 project – see Annex for details.

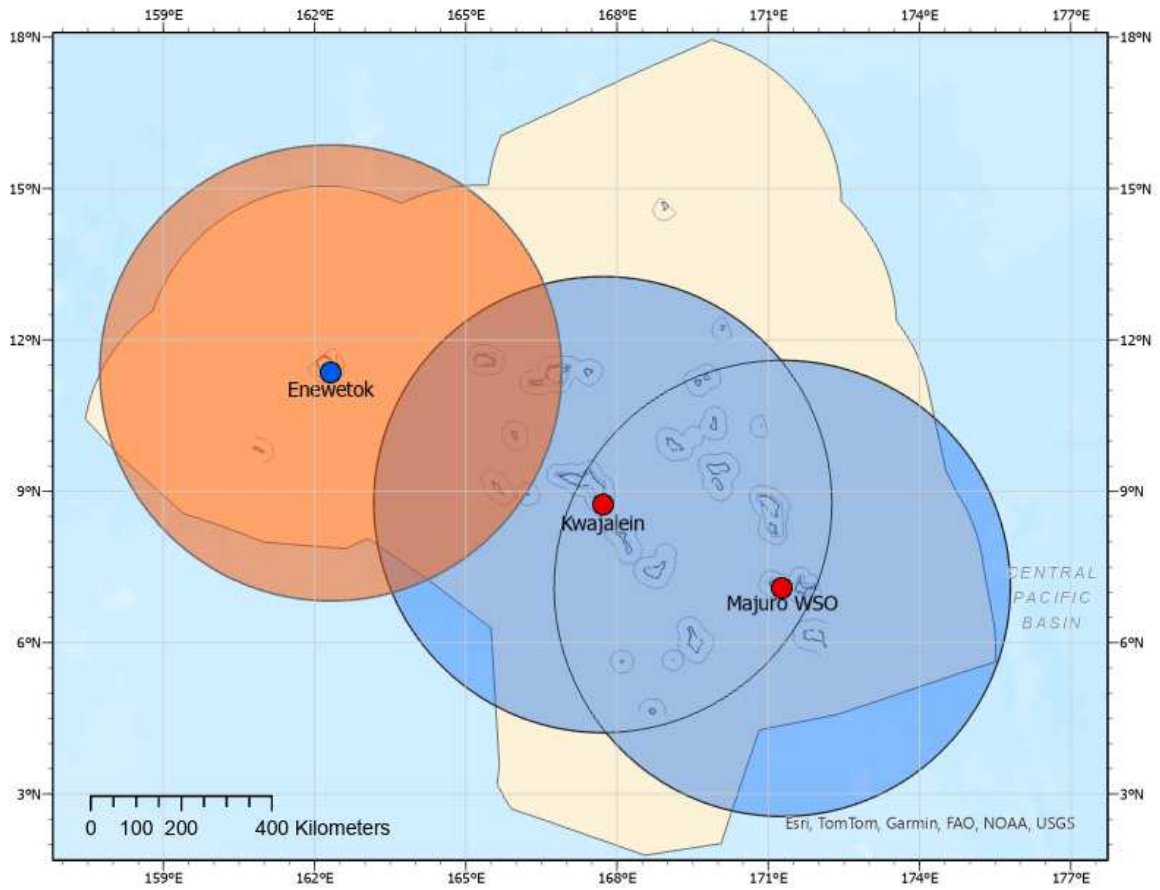


Figure 2 - Existing upper air stations in red dot showing 500km spacing. Proposed new upper air station with blue dot. Republic of Marshall Islands Exclusive Economic Zone (EEZ) area shown in yellow.

4. Report completion signatures

Peer Advisor signature



Beneficiary Country signature



WMO Technical Authority screening signature



Annex:

The United Nations Environment Programme (UNEP) are managing a Green Climate Fund (GCF) funded project in RMI, Enhancing Climate Information and Knowledge Services for resilience in 5 Pacific countries (UNEP CIS-Pac5) <https://www.greenclimate.fund/project/fp147#documents>. CIS-Pac5 is installing 12 AWS this year and a further 12 AWS to be added once the first batch is complete – see figure 3. Of these 24 installations, 7 will be at existing Weather Service Office (WSO) locations listed above. With support from SOFF to implement WIS2.0 as detailed in the National Contribution Plan, the GBON requirement for 9 surface observations will be fully satisfied by this installation campaign. It will exceed the GBON requirement and there is an expectation from the programme that SOFF will support this observations network in the future. The sustainability strategy of the programme developed as a part of the funding request jointly with WMO mentioned SOFF as one of its key components. The details of the transition from the current to the future network as well as the need to support the additional stations installed under CIS-Pac5 project will be outlined in the National Contribution Plan.

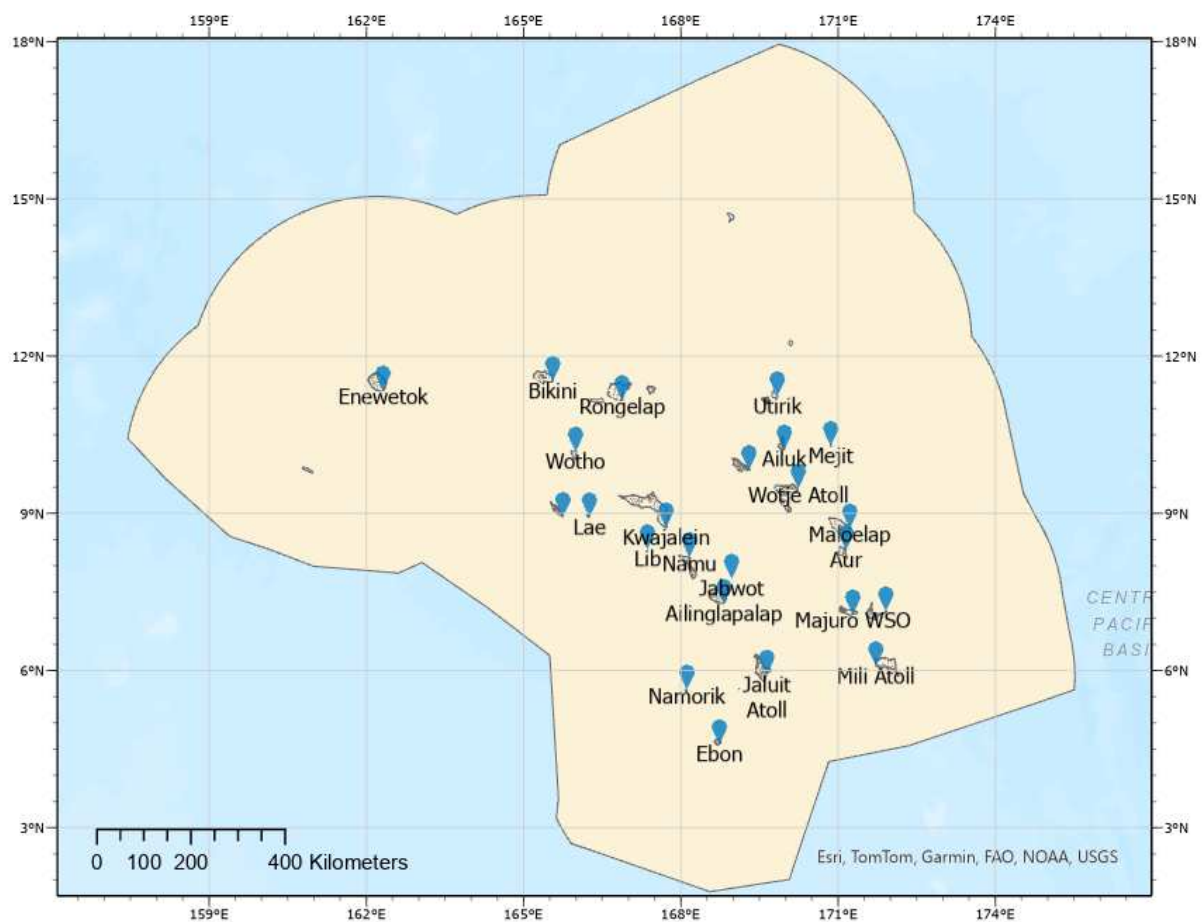


Figure 3 - Locations of the 24 AWS to be installed under UNEP CIS-Pac5. Republic of Marshall Islands Exclusive Economic Zone (EEZ) area shown in yellow.