10 January 2024 (v1.0)

GBON National Gap Analysis of Samoa

Systematic Observations Financing Facility

Weather and climate data for resilience

WEATHER CLIMATE WATER

Screening of the National Gap Analysis (NGA) of Samoa

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

While the WMO GBON Global Gap Analysis identified the need for 1 surface land station and 1 upper air station to meet the GBON horizontal requirement, the **WMO Technical Authority confirms the NGA results which indicate the need for 2 surface land stations and 1 upper air station based on specific national circumstances.**

Date: 16 May 2024

Signature:

Albert Fischer
Director, WIGOS Branch, Infrastructure Department, WMO

GBON National Gap Analysis Report

Samoa

Beneficiary Country Focal Point and Institute	Dr Luteru Tauvale, Assistant CEO, Samoa Meteorology Division
Peer Advisor Focal Point and Institute	Andrew Jones, General Manger International Development, Bureau of Meteorology, Australia

1. Country information from the GBON Global Gap Analysis

Table 1: 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 to req.	D. Gap to improve	E. Gap new	F. Gap total
Surface stations Standard density 200 km	1	0	1	0	1
Upper-air stations over land Standard density 500km	1	0	0	1	1

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 to req. *	To improve **	Reporting to req.	To improve
Surface land stations *Standard density [4] 200km Variables: SLP, T, H, W, P, SD	0	15	0	0
Upper-air stations operated from land Horizontal resolution: 500km Vertical resolution: 100m, up to 30 hPa Variables: T, H, W	0	0	0	0
Surface marine stations in Exclusive Economic Zones:[7] 500 km Variables: SLP, SST	0	0	0	1

*Based on 'orange' or better in WDQMS July 2023
**This is the number theoretically possible to improve, not the proposed number to improve

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: weather 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		
APIA SYNOP*	S	NHMS	NHMS	X	X	X	X	X			8	N
APIA	S	NHMS	NHMS/JICA	X	0	0	X	0			0	N
FALEOLO AIRPORT*	S	NHMS	NHMS	X	X	X	X	X			8	N
LE MAFA	S	NHMS	AID/JICA	0	0	0	X	0			0	N
LE PIU TAI	S	NHMS	AID/JICA	X	0	0	X	X			0	N
LUFI-LUFI	S	NHMS	AID/JICA	X	X	X	X				0	N
MAOTA AIRPORT	S	NHMS	AID/JICA	0	0	0	X	0			0	N
FALEOLO INT EAST	S	NHMS	AID/JICA	X	X	X	X	X			0	N
FALEOLO INT WEST	S	NHMS	AID/JICA	0	0	0	X	X			0	N
MANONO	S	NHMS	AID/JICA	X	X	X	X	X			0	N
MT TALU	S	NHMS	AID/JICA	X	X	X	X	X			0	N
TOGITOGIGA	S	NHMS	AID/JICA	X	X	X	X	X			0	N
NUU	S	NHMS	AID/NIWA	X	X	X	X	X			8	N
SAOLUAFATA UTA	S	NHMS	AID/NIWA	X	X	X	X	X			0	N
SALAILUA	S	NHMS	AID/NIWA	X	X	X	X	X			0	N
AFIAMALU AWS	S	NHMS	AID/NIWA	X	X	X	X	X			0	N
ALAFUA	S	NHMS	AID/NIWA	X	X	X	X	X			0	N
NAFANUA	S	NHMS	AID/NIWA	X	X	X	X	X			0	N
VAIAATA	S	NHMS	AID/NIWA	X	X	X	X	X			Closed	N
ASAU	S	NHMS	AID/NOAA		X	X	X				0	N
APIA Wharf NTC	M	BOM	BOM	X							0	N

* Staffed stations
^ - AWS Supplier also shown after slash
X - is currently being measured
0 - has been measured previously, requires replacement sensors to resume reporting

3. Results of the GBON National Gap Analysis

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	GBON target (# of stations)	GBON Compliant stations (#)	Stations gap	
			To improve	New
Surface land stations Standard density[7] 200km Variables: SLP, T, H, W, SD Observing cycle: 1h	1	0	2*	0
Upper-air stations operated from land Standard density 500km Vertical resolution: 100m, up to 30 hpa Variables: T, H, W Observing cycle: twice a day	1	0	0	1
Surface marine stations in Exclusive Economic Zones:[8] Density 500 km Variables: SLP, SST Observing cycle: 1h	N/A		1**	

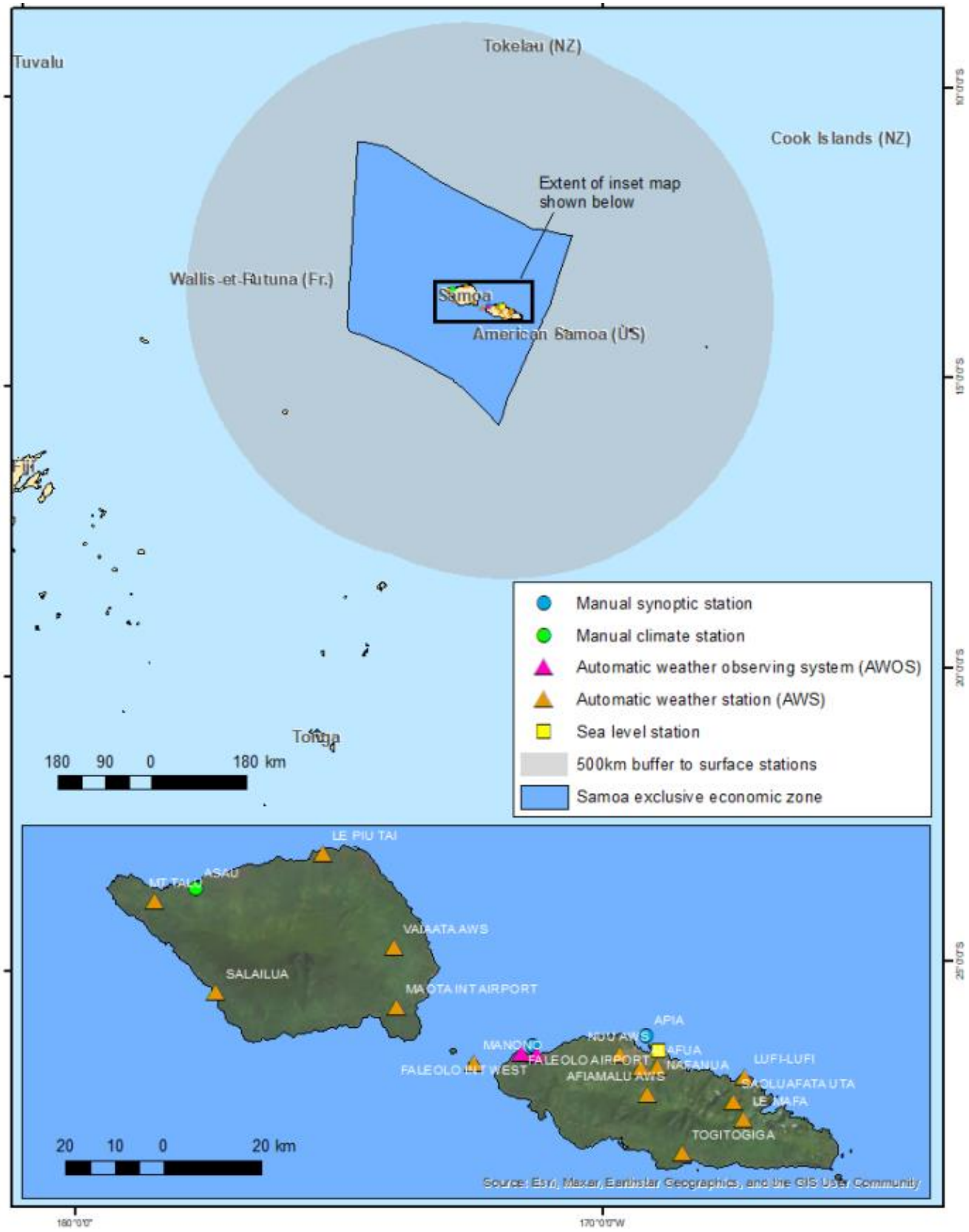
* Although the global gap analysis identifies one station, Samoa will be seeking to improve two stations via SOFF, one on each major island. The second could be considered an "easy win" given Samoa effectively operates a high-density network. The rationale for keeping the second easy win improve station has been explored and justified in the National Contribution Plan.

**Bureau-operated tide gauge site will be improved to report internationally for sea level pressure.

3.1 Recommended existing surface, upper-air and marine[11] 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[12])
Nil currently compliant.	


Tuvalu
Tokelau (NZ)
Cook Islands (NZ)
Extent of inset map shown below
Wallis et Futuna (Fr.)
Samoa
American Samoa (US)
Tonga
180 90 0 180 km
Manual synoptic station
Manual climate station
Automatic weather observing system (AWOS)
Automatic weather station (AWS)
Sea level station
500km buffer to surface stations
Samoa exclusive economic zone
LE PIU TAI
ASAU
MT TALO
VAIAATA AWS
SALAILUA
MAOTA INT AIRPORT
APIA
NOU AWS
MANONO
FALEOLO AIRPORT
AFUA
NATAUA
LUFI-LUFI
FALEOLO MT WEST
AFIAMALU AWS
SAOLUAFATA UTA
LE MAFA
TOGITOGIGA
20 10 0 20 km
Source: Esri, Maxar, Earthstar Geographics, and the GIS User Community
180°0'0"
170°0'0"W
10°0'0"S
15°0'0"S
20°0'0"S
25°0'0"S

Report completion signatures

Peer Advisor signature (Australia) Andrew Jones, General Manager International Development Bureau of Meteorology, Australia
WMO Technical Authority screening signature
Beneficiary Country signature (Samoa) Ms Peseta Noumea Simi, CEO Ministry of Foreign Affairs and Trade