Amendement note: GBON National Contribution Plan of South Sudan for SOFF investment phase in South Sudan (due to change of the IE)

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Rational of this amendement

The GBON National Contribution Plan (NCP) for South Sudan was approved by the SOFF Steering Committee in November 2023. However, due to a recent change in the Implementing Entity (IE) for South Sudan, we have conducted a targeted review of the NCP. FAO has now taken over as the new Implementing Entity, and we are providing this amendment of the NCP together with the original NCP as the basis for a new Funding Request as per agreement with the SOFF secretariat.

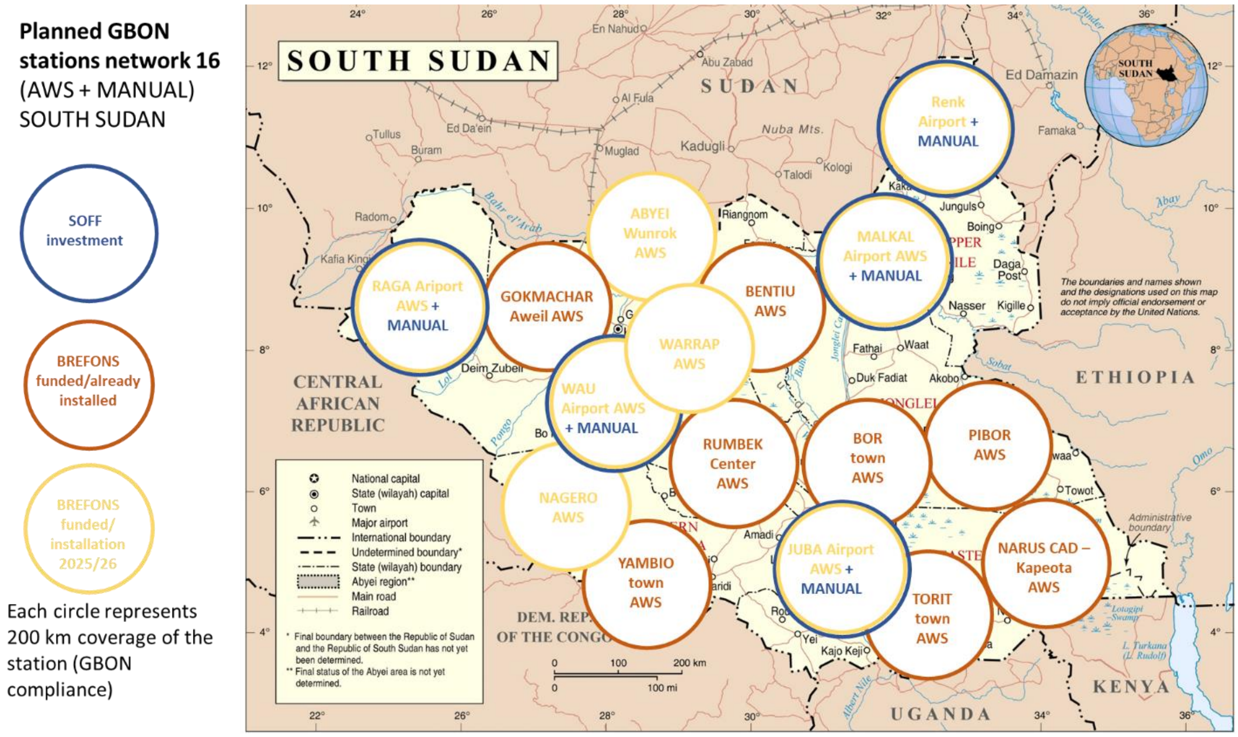
GBON Station‘s network South Sudan

Regarding the selected station network, the number of AWS stations as **GBON target has not changed: 16 surface stations are needed for South Sudan to reach GBON compliance.** Out of these**, 15 locations remain unchanged from the initial National Contribution Plan** (dated 26 October 2023). Originally, 2 AWS stations were planned for Juba – one at Juba University and one at Juba Airport. For the current approach we recommend to focus on the airport only (AWS) and advice to put a manual station for training purposes at the University (not necessarily operating 24/7). It is recommended to move one AWS location (planned by BREFONS) to Warrap state to achieve better coverage of the country.

A key update is that the required SOFF funding will not be increased, as fewer (even none) Automatic Weather Stations (AWSs) purchasing and installing need to be financed through SOFF. This is thanks to the BREFONS (ADRiFi) project, which has successfully installed 13 GBON-compliant AWSs and which is exploited in the SOFF activities, following the principles of capitalising on existing infrastructure. Some of these stations are already transmitting data internationally via the WIS 2-in-a-Box system, supported by the CREWS East Africa initiative. Additional AWSs of the same type are planned to be procured by FAO under the same BREFONS project. With FAO now serving as the Implementing Entity for SOFF, we can ensure full alignment between both project activities in South Sudan. **We expect that all 16 selected locations for the GBON network can be covered through AWSs installed via BREFONS**. Nevertheless, due to difficulties in maintenance and limited capacities of the South Sudanese Met Service (SSMS) we anticipate that several of the BREFONS stations will require repair/rehabilitation work quite soon.

Instead of investing only in an AWS network, it is highly recommended that South Sudan stick to the 5 additional manual stations as back – up for its AWS network. Please refer to the map and table below for a detailed overview of the selected station locations and the associated funding source.

- Blue circles represent manual stations funded by SOFF,
- Orange circles indicate AWSs that have already been installed via BREFONS,
- Yellow circles show AWSs that are expected to be installed through BREFONS in 2025/2026 and are planned to be included in the SOFF GBON network.



CMap: Map of selected stations for GBON network in South Sudan (target of 16 stations for full compliance)

	Station	SOFF station planned NCP (october 2023) 16 stations	Planned funding NCP 2023	Suggestion for NCP /Funding Request 2025	AWS and manual stations funded by AWS/MANUAL
1	Juba Airport	planned station no 1 (phase 1 manual and automatic)	SOFF	phase 1 manual station and AWS via Brefons; Phase 2+3 maintenance by SOFF	BREFONS/SOFF
2	Malkal Airport	planned station no 3 (phase 1 manual phase 2 automatic)	SOFF	phase 1 manual station and AWS via Brefons; Phase 2+3 maintenance by SOFF	BREFONS/SOFF
3	Wau Airport	planned station no 4 (phase 1 manual phase 2 automatic)	SOFF	phase 1 manual station and AWS via Brefons; Phase 2+3 maintenance by SOFF	BREFONS/SOFF
4	Renk	planned station no 5 (phase 1 manual phase 2 automatic)	SOFF	phase 1 manual station and AWS via Brefons; Phase 2+3 maintenance by SOFF	BREFONS/SOFF
5	Raga	planned station no 14 (automatic phase 3 planned for SOFF)	SOFF	phase 1 manual station and AWS via Brefons; Phase 2+3 maintenance by SOFF	BREFONS/SOFF
6	Gokmachar (Awiel)	planned station no 6 Aweil - Gok Machar (automatic - phase 3 for Brefons project)	BREFONS	AWS already installed by Brefons; phase 1 station check; phase 2+3 maintenance by SOFF	BREFONS/SOFF
7	Rumbek center	planned station no 7 Rumbek (phase 3 automatic)	SOFF	AWS already installed by Brefons; phase 1 station check; phase 2+3 maintenance by SOFF	BREFONS/SOFF

8	Yambio town (Bakindo) - State Ministry of Agriculture and Forestry Headquater	planned station no 8 Yambio (phase 3 automatic)	SOFF	AWS already installed by Brefons; phase 1 station check; phase 2+3 maintenance by SOFF	BREFONS/SOFF
9	Torit town (Gumbo) State Ministry of Agriculture and Forestry Headquater	planned station no 9 Torit (phase 3 automatic)	SOFF	AWS already installed by Brefons; phase 1 station check; phase 2+3 maintenance by SOFF	BREFONS/SOFF
10	Bor town smoaf-tibek	planned station no 10 Bor - FAO Campus (automatic phase 3)	BREFONS	AWS already installed by Brefons; phase 1 station check; phase 2+3 maintenance by SOFF	BREFONS/SOFF
11	Bentiu	planned station no 11 (automatic phase 3 planned for Brefons project)	BREFONS	AWS already installed by Brefons; phase 1 station check; phase 2+3 maintenance by SOFF	BREFONS/SOFF
12	Abyei	planned station no 12 (automatic phase 3 planned for Brefons project)	BREFONS	AWS already installed by Brefons; phase 1 station check; phase 2+3 maintenance by SOFF	BREFONS/SOFF
13	Pibor Post Administrative Post	planned station no 13 (automatic phase 3 planned for SOFF)	SOFF	AWS already installed by Brefons; phase 1 station check; phase 2+3 maintenance by SOFF	BREFONS/SOFF
14	Narus cad - Kapeota	planned station no 15 Narus - Kapoeta (automatic phase 3)	BREFONS	AWS already installed by Brefons; phase 1 station check; phase 2+3 maintenance by SOFF	BREFONS/SOFF
15	Nagero	planned station no 16 (automatic phase 3)	SOFF	AWS already installed by Brefons; phase 1 station check; phase 2+3 maintenance by SOFF	BREFONS/SOFF
16	Kuajok	Not planned		AWS already installed by Brefons; phase 1 station check; phase 2+3 maintenance by SOFF	BREFONS/SOFF

Table: List of stations – comparision of the original NCP (2023) and the review of the NCP (2025)

We consider manual stations as curcial to sustain the network in South Sudan in the long run. It is based on challenges related to energy supply and unreliable data transmission via the cellular network at many stations. Installing a back-up manual station at each major airport — including Juba, Raga, Wau, Renk and Malkal has high prioritiy for the country but also for GBON compliance. There is a big need to consider further manual stations to cover other remote locations (not covered by SOFF) like i.e. Abyei, Bentiu, Narus Cad and Pibor. We anticipate that all AWSs will have troubles due to the limited capacities and resources of the SSMS rather sooner than later. **Starting with 5 manual stations will give the SSMS enough time to build up their capacities.** In addition, the newly recruited observers (funded via a planned LoA between FAO and the Civil Aviation Authority/SSMS) could assure the safety and security of these manual stations, but also provide basic local maintenance to the AWSs. In the future, this staff would be able to, through additional training, contribute to other activities of SSMS.

For training purposes we recommend to install one additional manual station at the University of Juba but shift the planned AWS to Warrap as data from the new AWS station at the airport can be used by the University. The Juba university station will serve for training purposes only and will not be operational 24/7, due to lack of personnel during the night.

Phased activity plan and milestones

The proposed **six-year timeframe** was reduced to 4-years. We still believe that capacity development within the South Sudan Meteorological Services (SSMS) must progress gradually and consistently but as less procurement is needed, we think 4 years will be adequate to cover the below listed activities. A potential continuation (beyond the SOFF funding request for the investment phase) would include the procurement and installment of future upper-air stations – but only if the feasibility study confirms that SSMS has enough capacity to sustain it.

Given that none Automatic Weather Stations (AWSs) now need to be procured via SOFF, we strongly recommend **reallocating parts of the unused equipment budget** to **additional capacity-building activities** within the the project duration and to **an increased rehab & maintenance budget** (for installed BREFONS stations) and a planned LoA with the Civil Aviation to support SSMS building up their own capacity. Below is an updated overview of the main activities. Some activities from the NCP (2023) are no longer required, as fewer stations need to be procured.

<u>Phase 1: Initial Deployment and Capacity Building (1 years)</u>

Technical components:

- Initiate procurement of 6 manual stations (including one at the University for training purposes)
- Deploy 5 manual stations at all main airports (Juba, Renk, Malakal, Raga, Wau)
- Install the manual station at the University
- Detect easy fixes in the existing AWS network (selected BREFONS AWSs)
- Launch ICT and data management systems; Database is already supported via CREWS: Climsoft was already installed
- Begin discussions on a calibration plan (in coordination with the WMO-designated Calibration Center in Nairobi)

Human capacity development:

- Start a training collaboration between the University of Juba and the WMO Regional Training Center (RTC) in Nairobi
- Begin recruitment of observers (4*5=20) for manual stations, to be trained as observers & meteorologists (via a LoA)
- Technical staff: recruitment of two technicians and two IT staff (via a LoA)
- Start training of the first staff members (new and exisiting)

Governance and stakeholder engagement:

- Advocate for support at the ministerial and para-ministerial levels; CREWS is starting in bringing in some regional experts to assist SSMS and the government to prepare a legal framework which is missing so far. SOFF activities can leverage on these acitivities.
- Initiate dialogue with relevant stakeholders

<u>Phase 2: System Optimization and Continued Capacity Building (1 years)</u>

Technical components:

- Review AWS operations and perform calibrations — ensuring the initial stations remain operational throughout; ***keep Milestone: 5 AWS stations/manual stations operational for one year***
- Expand ICT and data management infrastructure to all AWSs if needed
- Identify operational bottlenecks and adjust maintenance plans accordingly

Human capacity development:

- Continue the training programme of the University of Juba with the support ofWMO RTC and WMO ETR
- Continue training and capacity building of staff

Governance and stakeholder engagement:

- Maintain advocacy and stakeholder engagement activities

Phase 3: Network Maintenance and Expansion Feasibility (2 years)

Technical components:

- Ensure reliable operations of ***a minimum of 10 AWSs/manual stations (keep milestone),*** with consistent international data transmission
- Maintain and expand ICT and data infrastructure if needed
- Procure spare parts to ensure full network functionality
- Conduct a feasibility study for implementing upper-air observations, beginning with one upper-air station at Juba Airport

Human capacity development:

- Continue staff training and operational development

Governance and stakeholder engagement:

- Work towards a long-term cooperation plan with Implementing Entities, UN partners, and others to secure sustainable funding
- Explore partnerships with the private sector (i.e. the oil industry)

Summary of Network Investment

The station network will include:

- **16 AWSs**, of which **16 will be funded through coordination with the ongoing BREFONS (ADRiFi) project**, and
- **6 manual stations** (5 stations will be GBON stations as Back-Up of the AWSs, 1 station will be for training purposes only located at the University of Juba

Procurement and maintenance will be closely coordinated with FAO (the current Implementing Entity), and all AWSs will be of the same type as those already installed by the BREFONS project.

Engagement With CREWS EA, EW4ALL and BREFONS

CREWS East Africa (EA) will play a key role in the deployment of **WIS 2-in-a-Box** systems across all stations. Several newly installed stations are already transmitting data internationally via this system.

EW4ALL roadmap South Sudan: SOFF investment will be a crucial aspect for the Early Warnings 4 All initiative where SSMS has the lead for the pillar 2 „detection, monitroing, analysis and forecasting" (including i.e. more AWSs and manual stations, training activities and maintenance)

Coordination with the BREFONS (ADRiFi) project — also implemented by FAO — is critical for the SOFF investment. Many of the selected GBON stations have already been financed and installed through BREFONS. Joint planning will enable **synergies that reduce SOFF investment needs in South Sudan**. We will continue working closely with FAO to define the **exact savings potential** resulting from this alignment.

A continuous and structured exchange with the most important actors will be a cornerstone of the project's success. Regular dialogue and coordination will be maintained between the Beneficiary Country, the Implementing Entity, the Peer Advisor (GeoSphere Austria), and key partners such as CREWS, EW4ALL and BREFONS. This ongoing interaction will ensure alignment of priorities, early identification of challenges, and timely sharing of technical expertise and lessons learned. In addition, continuous engagement with regional and national stakeholders, including universities, and private sector actors, will foster synergies with complementary initiatives, avoid duplication, and maximize the impact of investments. By maintaining these open communication channels, the project will create a collaborative environment that supports effective implementation, strengthens ownership, and enhances sustainability.

Report completion signatures

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Directorate General GeoSphere Austria

Date 23.10.2025

Beneficiary Country signature

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SOUTH SUDAN CIVIL AVIATION AUTHORITY
DIRECTOR GENERAL
31 OCT 2025
SSCAA
OFFICE OF THE DIRECTOR GENERAL

Hon. John Woga Elinana
Director General for South Sudan Civil Aviation Authority (SSCAA)

Date 31/10/2025

WMO Technical Authority signature

Date