

UNHAS Operational Notice 2021-03-26.

To: Airfield Focal Points (AFP), DZ Coordinators, UNHAS Staff, contracted Air Operators and partners, UNHAS Radio Room.

Subject: Weather observation and reporting in support of WFP aviation operations.

Date: March 26, 2021

This Operational Notice prescribes the recommended practices for observing, recording, and reporting basic weather conditions to support safety of WFP aviation operations in South Sudan. It has been prepared in accordance with internationally recommended procedures and best practices with consideration of local context and available resources.

Disclaimer

Weather observations play a key role in assuring flight safety and performed at different levels based on observer's skills and qualification. All weather observations received in support of WFP aviation operations in South Sudan shall be treated as an advisory nature and cannot assume the same responsibilities as official aviation meteorological products in respect of weather reporting.

Weather observer duties and responsibilities

Weather observations in support of WFP aviation operations may be facilitated by any person who received a basic training on recognition, evaluation and reporting of meteorological elements and not only limited to Airfield Focal Points (AFP), Drop Zone Coordinators (DZC), UNHAS personnel and partners. It is the duty of the weather observer to report weather conditions as they actually exist at the time and place of observation. While on duty, weather observers are required to keep a close and continuous watch on the weather. Weather observations shall be incorporated into location reports (*ref. UNHAS Operational Notice 2017-06-05 R2*), communicated to UNHAS Radio Room and shall be as complete and accurate as possible. Prompt and accurate reporting is vital for flight safety and weather warning advisories. They may be the means of preventing property damage and loss of life. Delayed reports rapidly lose their value. However, if communication or other difficulties delay or prevent timely distribution of reports, the observer shall use all available means to notify UNHAS Radio Room.

Weather observation technique

Weather observations can be carried visually or with the help of instruments (WX Station, rain gauge, windsock etc) where available.

The location report and weather observation report

Weather report is an integral part of the location report what need to be provided with the most accurate information gathered at the planned UNHAS airfield/DZ destination whenever possible. If there are any changes to the weather observation, after the report has been provided, this needs to be immediately communicated to the UNHAS Radio Room.

Weather report as minimum shall contain:

1. Surface wind strength and direction from.
2. Approximate visibility.
3. Present weather (rain, showers, sandstorm, fog, dust, smoke etc)
4. Information about most recent precipitation (rain) occurred (*days/hours ago*),
5. Cloud coverage and approximate height.
6. Temperature and dew point (*only for locations equipped with WX stations*).
7. QNH Altimeter Pressure Settings (*only for locations equipped with WX stations*).
8. Any hazardous weather phenomena observed (thunderstorm, lightning, hail, fog, dust, poor visibility).
9. Runway/Helipad/Drop Zone conditions (dry, wet, flooded, dusty).

Visual report examples:

Boma: Wind from South East, about 5-10 knots; visibility estimated as 10 KM; light rain yesterday; scattered clouds about 6000 feet; runway is wet but operational with caution.

Agok: Wind is calm; visibility is about 5 KM; Haze, no rain recorded for past 30 days; broken mid-level clouds; runway is dry and operational.

Instrument report example: (*for the locations equipped with WX stations*):

Rubkong: Wind 230 at 15 knots; visibility estimated as 5 KM; Light rain; overcast about 4000 feet; Temperature 25 C, Dew point: 23 C; QNH 1013; thunderstorm NE of the station; runway wet, 10% covered with a standing water.

Basic weather theory and weather observation

1. Surface winds

Wind speed should be reported in nautical miles per hour (NMH). This is an estimate for the locations not equipped with WX stations. Wind direction is always reported as the direction **from which the wind is blowing** and is stated in degrees (for locations not equipped with a WX station use compass or approximate cardinal direction example: North (N), East (E), South (S), West (W)).

- CALM: No wind.
- LIGHT WIND: Three to 5 NMH.
- MODERATE WIND: Five to 10 NMH.
- STRONG WIND: Ten to 20 NMH.
- GUSTING.

Note: Windsack, flag, smoke or other mean can be used to estimate wind speed and direction.

2. Visibility:

Should be reported in meters (kilometres). This is an estimate. Weather observer must learn to judge distance in order to collect correct information for weather report. Recommended to establish a visual reference marker from the observation point with knowing distance to (tree, building, radio mast etc). The following terms can also be used.

- VERY GOOD VISIBILITY: Greater than 15 KM.
- GOOD VISIBILITY: 8 to 15 KM.
- POOR VISIBILITY: 3 to 8 KM.
- VERY POOR VISIBILITY: Less than 3 KM.

3. Current weather

Any significant weather phenomena observed at location. Rain (with indication of intensity -heavy, light), fog, smoke, dust, thunderstorm, lightning.

4. Information about most recent precipitation:

Required for proper evaluation of a landing site conditions based on a type of soil. Examples: Heavy rain at the moment, started 30 minutes ago; Last rain 2 weeks ago; Drizzling since 05:00 UTC.

5. Cloud coverage:

An observation of the sky requires an examination and identification of the clouds and obscuring phenomena (fog, smoke, precipitation, etc.) which prevent an uninterrupted view of the sun, or other visual reference. Such obstructions occur as layers aloft with comparatively level bases or as surface-based layers. For the purpose of this ops note, observers shall focus on cumulonimbus cloud type what have the capacity to produce severe thunderstorms including lightening, hail, heavy rain and strong winds.

- *CUMULUS CLOUDS* are billowy clouds that look like popcorn. Small cumulus clouds may not pose a problem to flight. They tend to build up quickly especially during the heat of the afternoon. Cumulus build-ups (CBs) can be very turbulent. Once a CB has turned into a Cumulonimbus (Thunderhead) it will contain violent turbulence and is extremely dangerous for aircraft. Thunderheads can move very quickly, and they can form in lines (squalls). When the thunderhead has built up to the point where the top is beginning to spread out (anvil), then the storm has reached maturity and will contain heavy rains, violent winds and lightening.

5.1 Cloud heights:

Height of clouds should be given to the pilot in feet above the ground. They are reported as cloud base (bottom) or cloud tops. It can be difficult to estimate the height of clouds in feet. If it is not possible then use the following terminology.

- *LOW CLOUDS*: Bases that are less than 1,000 feet above the ground.
- *MID-LEVEL CLOUDS*: Bases that are 1,000 feet to 5,000 feet above the ground.
- *HIGH CLOUDS*: Bases that are 5,000 to 10,000 feet above the ground.

5.3 Clouds cover:

The relative area of the sky that is covered in clouds is called cloud cover. Cloud cover is referred to in the following terms.

- *CLEAR*: No clouds. 0/8
- *FEW*: 0/8 – 2/8
- *SCATTERED*: 3/8 – 4/8, 50% and less of the sky covered in clouds.
- *BROKEN*: 5/8 – 7/8, more than 50% of the sky covered in clouds.
- *OVERCAST*: 8/8, entire sky covered in clouds. 100% of the sky in covered clouds.
- *OBSCURED*: No visible horizon due to clouds, rain, smoke, fog, dust, etc.

6. Temperature and dew point (only for locations equipped with WX stations).

Use WX station for temperature and dew point measurements.

7. QNH Altimeter Pressure Settings (only for locations equipped with WX stations).

Altimeter setting is the value of the atmospheric pressure used to adjust the sub-scale of a pressure altimeter so that it indicates the height of an aircraft above a known reference surface. Use WX station for QNH measurement.

8. Any hazardous weather phenomena observed

Reduced visibility, thunderstorms, lightning, fog, sandstorm, smoke, strong wind gusts, hail. Example: thunderstorm observed 5 KM from the airstrip moving North West. Visibility at Leer helipad reduced to 500 meters due to bush fires around the area.

9. Runway/Helipad/Drop Zone conditions:

Surface contamination what affecting aircraft performance. Dry, wet, flooded, slippery, dump, soft ground. Example: Yida runway is wet, 20% along the centerline covered with standing water. Nyal helipad is wet and muddy. Buaw DZ is flooded, standing water about 30 cm depth.

Contact Information UNHAS RADIROOM, JUBA SOUTH SUDAN

HF	Call sign: SJF2 HF FREQUENCY: 7545. CH:23. HF FQ: 7948.5 CH:22
VHF	Call sign: JF BASE 2
MTN:	+211 (0)922465692, +211 (0)920403219
ZAIN	+211 (0)912380160
Stateline phone	+8821621111138
VSAT	1369-4400
E-mail	UNHASJUBA.RADIROOM@WFP.ORG
Skype	UNHASJUBA.RADIROOM

Note: Online training for weather observation and reporting in support of WFP aviation operations, can be facilitated on request by UNHAS Training Unit. For queries please contact: southsudan.aviationtraining@wfp.org