

NWCSAF for nowcasting in the GCRF African SWIFT project

University of Leeds/NCAS

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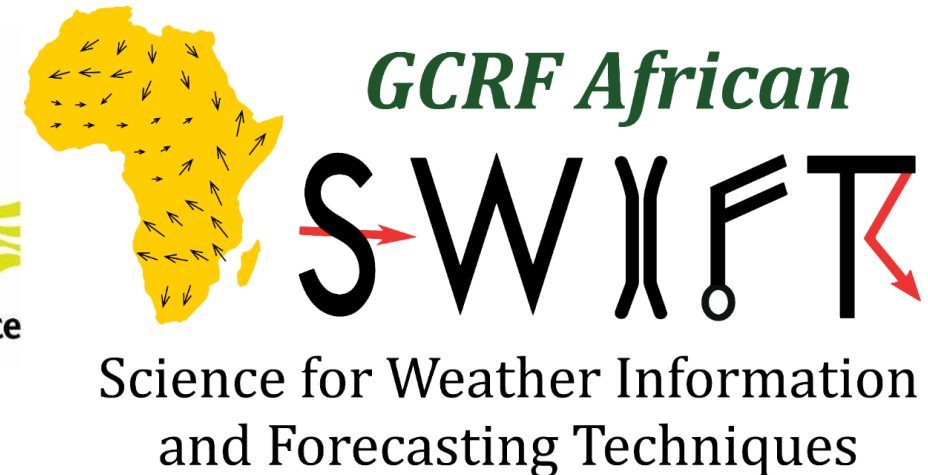
Science for Weather Information
and Forecasting Techniques

Overview

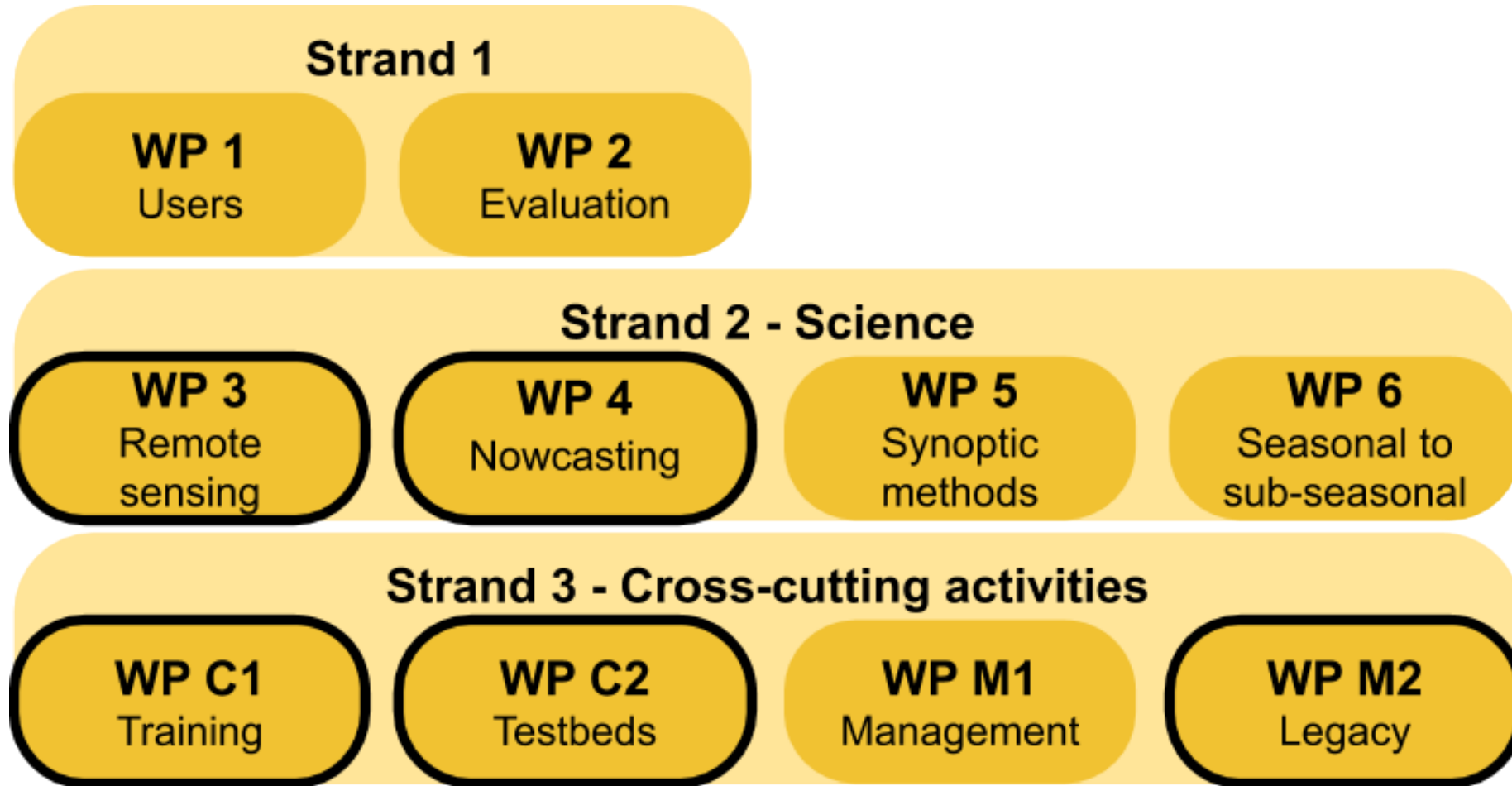
- Introduction to the GCRF African SWIFT project
- Nowcasting approaches for Africa
- SWIFT NWCSAF activities
- Use of NWCSAF products within SWIFT
- Future plans

GCRF African SWIFT

- Science for Weather Information and Techniques
- £9 million program funded by the Global Challenges Research Fund.



GCRF African SWIFT – project structure



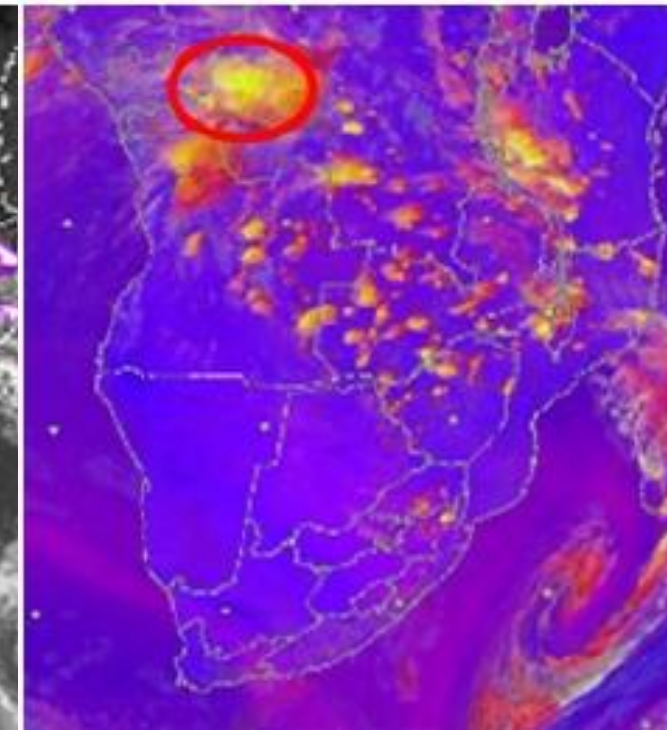
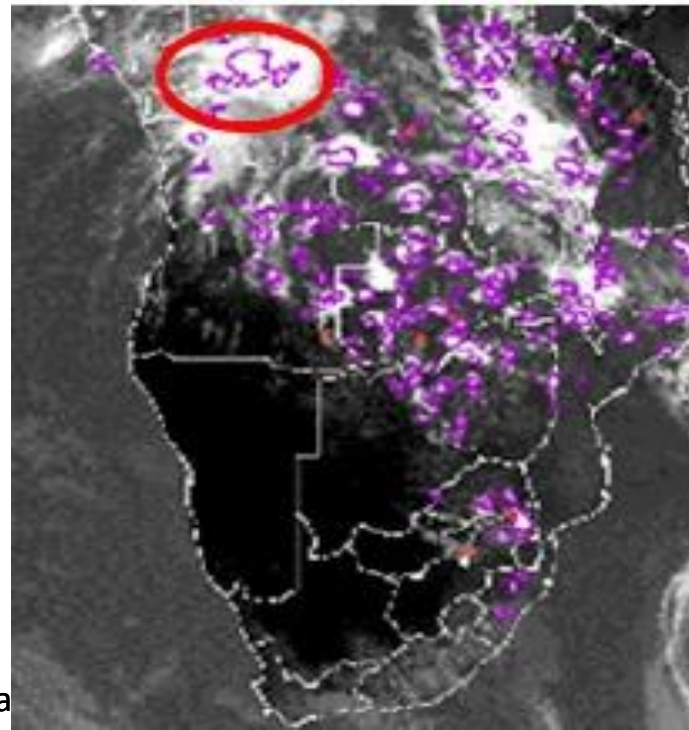
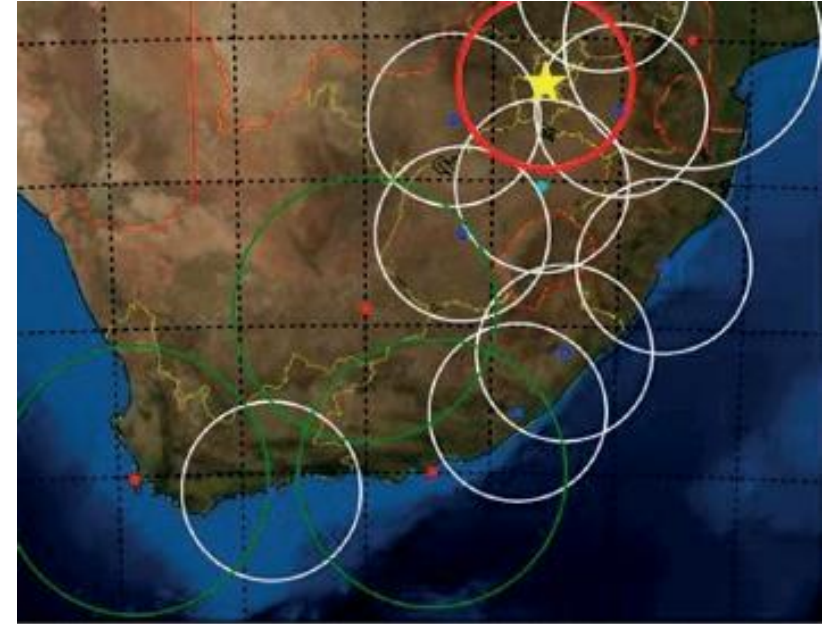
What is nowcasting?

“the detailed description of the current weather along with forecasts obtained by extrapolation for a period of 0 to 6 hours”

WMO

Nowcasting in Africa?

- Practically none!
- South African Weather Service (SAWS) is the exception.
- Radar network.
- Use of multichannel SEVIRI imagery & EUMETSAT Nowcasting Satellite Application Facility (NWCSAF) software.



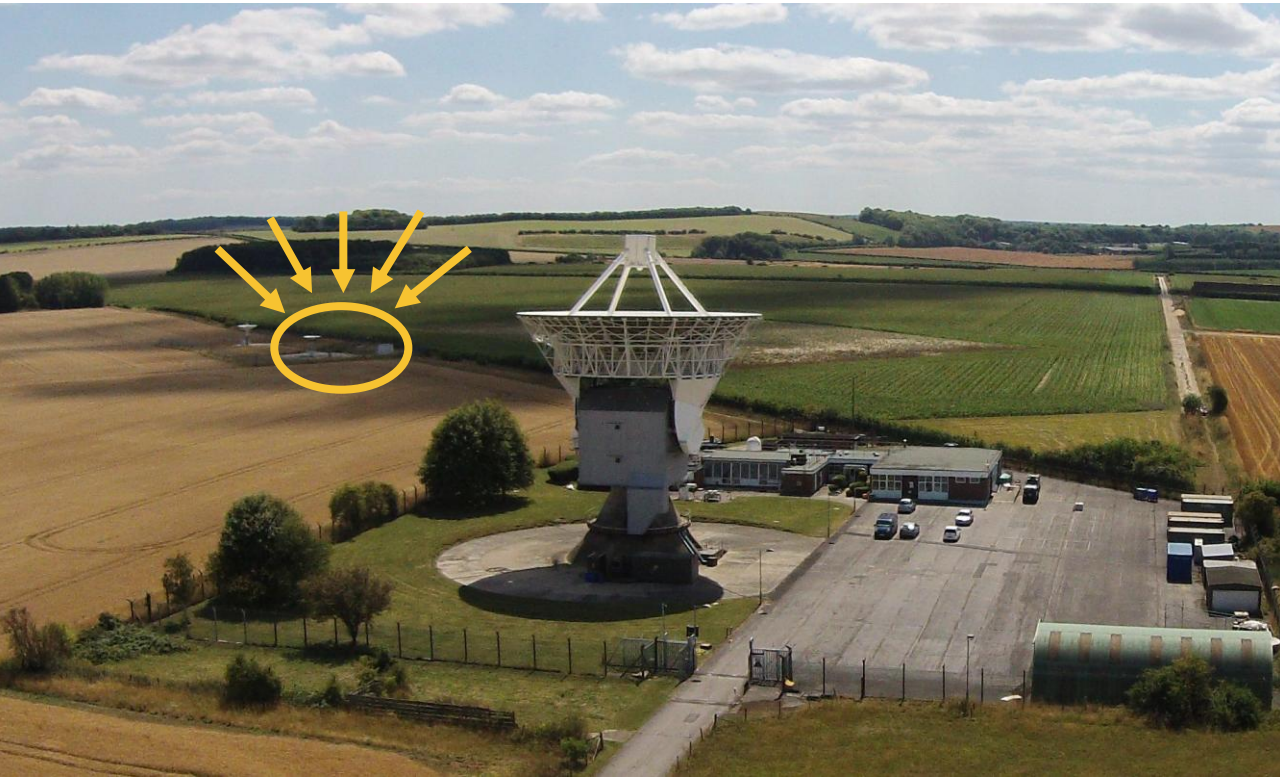
Nowcasting in Africa?



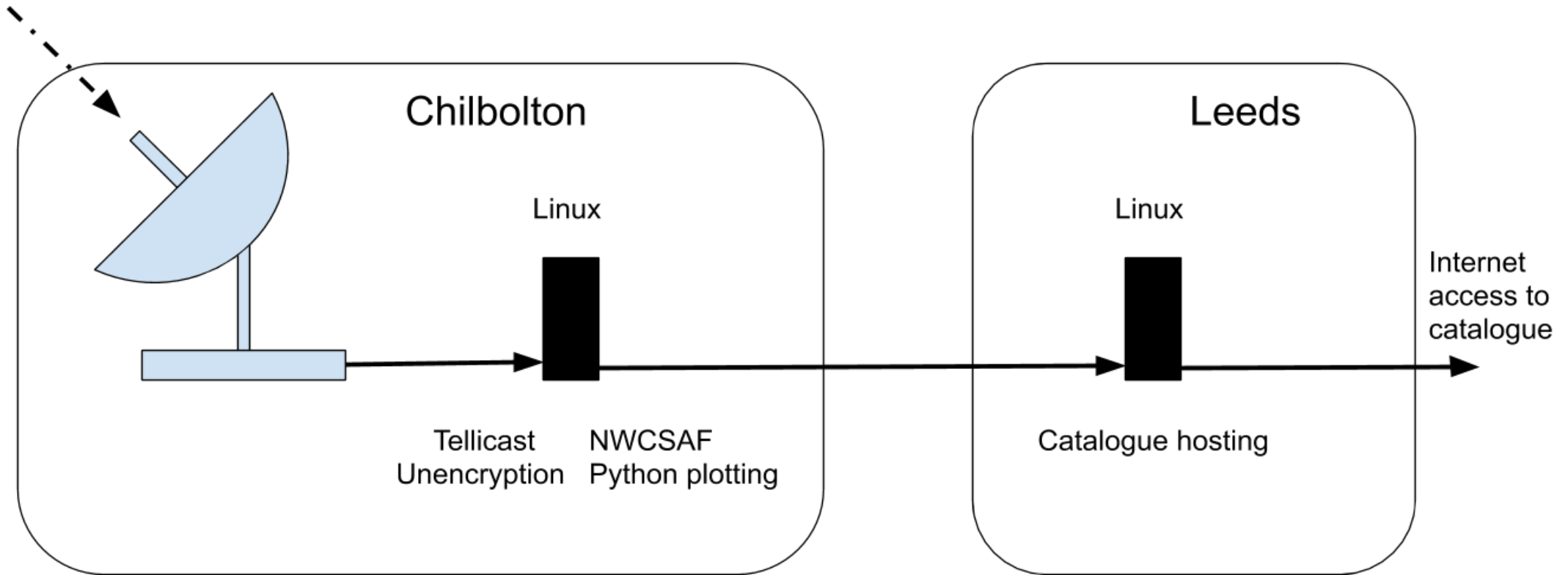
- Satellite nowcasting offers the best solution for African NMHSs.
- Most of the required hardware is in place (therefore low cost).
- Avoids some limitations of existing infrastructure (e.g. unreliable internet connection).
- Extant (but underutilised) solution in form of NWCSAF software.

Nowcasting in SWIFT

- Satellite antenna installation.



Nowcasting in SWIFT



sci.ncas.ac.uk/swift/

NWCSAF in SWIFT — Testbed 1b

Apr-May 2019

- Forecasters and researchers from across Africa and UK.
- 24 hour shifts performing operational forecasting and nowcasting.
- Familiarised forecasters with nowcasting techniques and products



NWCSAF in SWIFT — Work package training Jul-Aug 2019

sites.google.com/ncas.ac.uk/swiftsafnwctraining



- SWIFT Science meeting and Summer School.
- Training on hardware and software installation (satellite antenna, NWCSAF).
- Automation, running NWCSAF in operational mode and visualisation with python.
- Slack channel for troubleshooting and sharing experience.
- More training planned for June 2020.

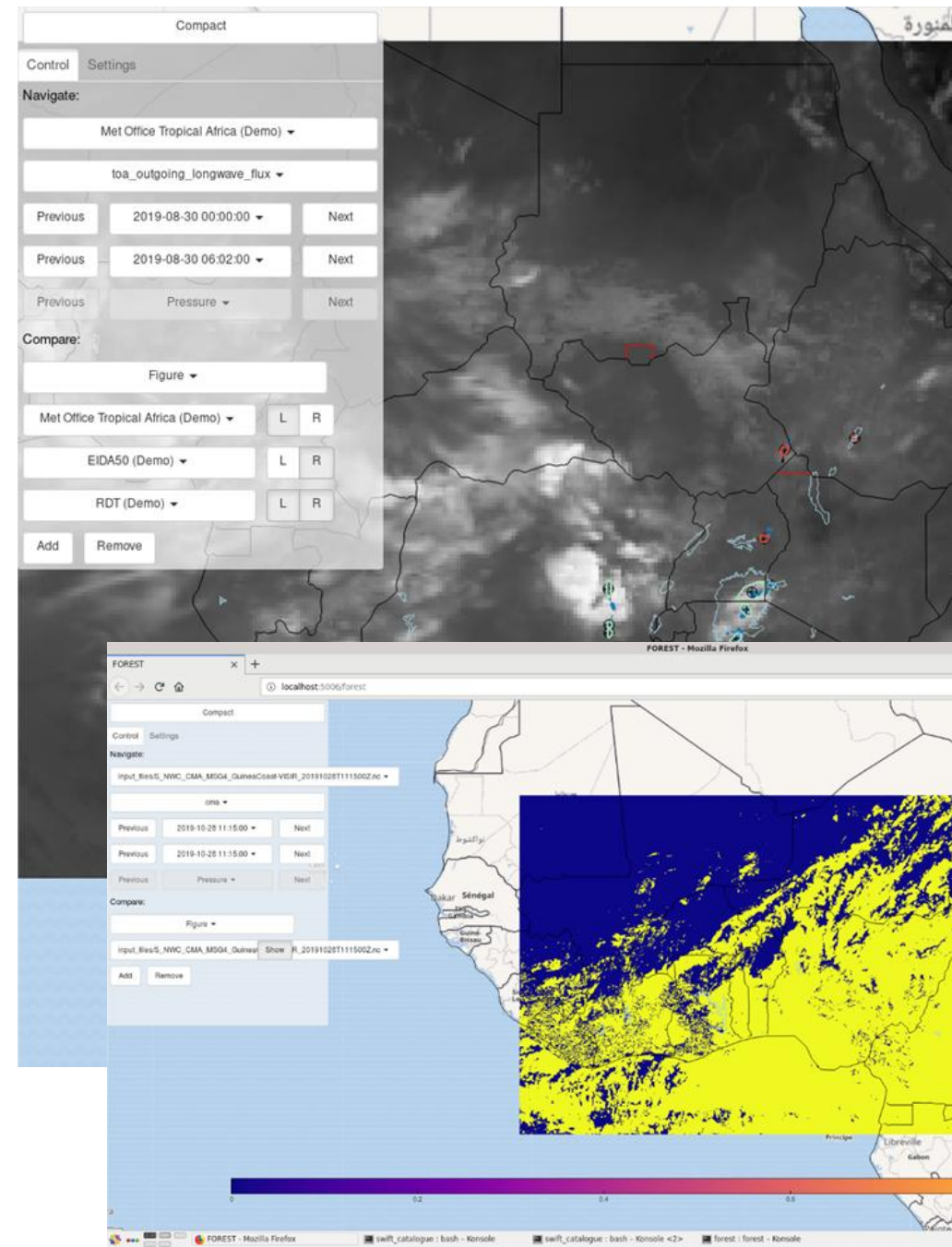
NWCSAF in SWIFT — additional funding for infrastructure



- Satellite antenna (and associated hardware) purchased and dispatched to SWIFT partner Universities.
- UCAD (Dakar, Senegal)
- KNUST (Kumasi, Ghana: arrived, set up and functioning)
- FUTA (Akure, Nigeria)
- UoN (Nairobi, Kenya)
- Enables university level training in NWCSAF and reinforces use of nowcasting techniques in future generation of forecasters.

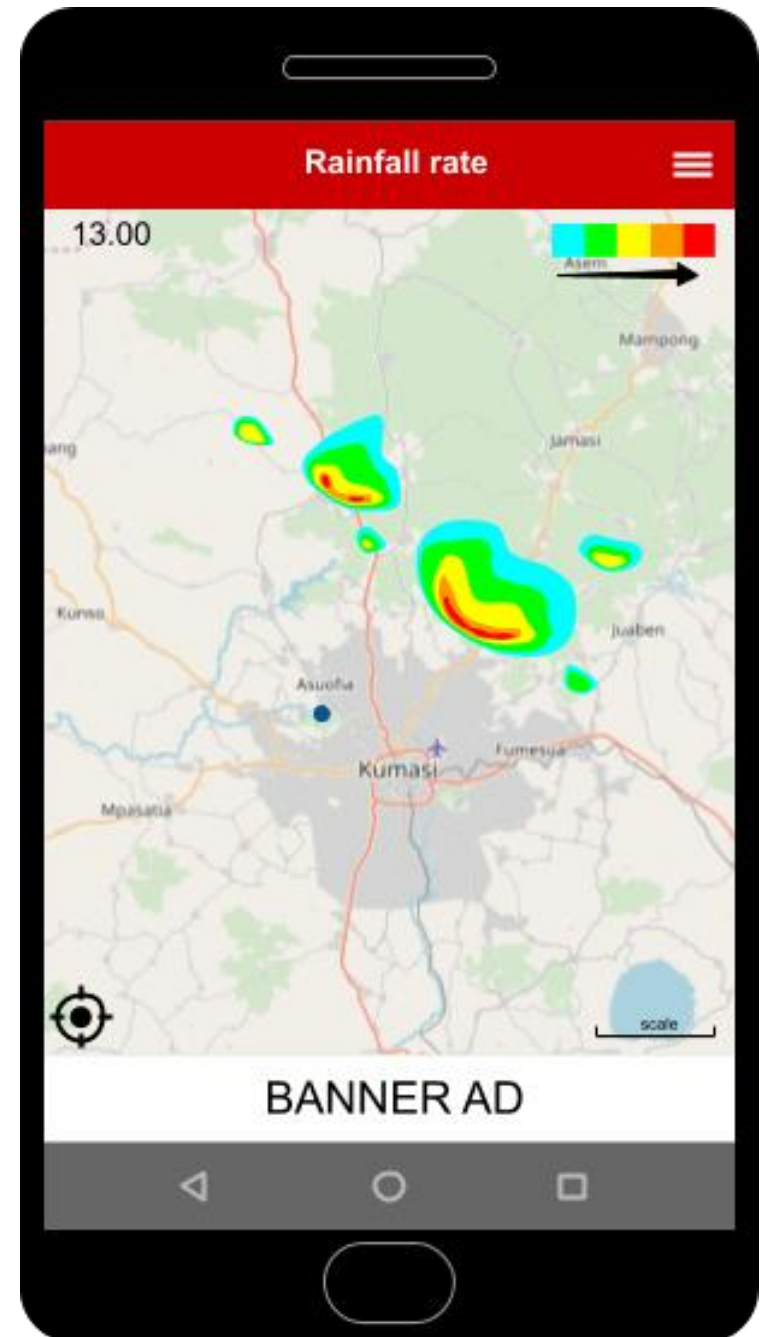
Future work - FOREST

- FOREST (Forecast Observations and Research Evaluation and Survey Toolkit).
- Developed by the UK Met Office Informatics Lab.
- Flexible, data agnostic and fast browser-based visualisation tool.
- Development as part of SWIFT to make NWCSAF NetCDFs viewable on-the-fly.



Future work — FASTA nowcasting app

- Forecasting **A**frican **S**Torms **A**pplication (FASTA)
- Funding secured for app development for nowcasting.
- Method of distribution of warnings based on NWCSAF products.
- Alerts generated by SWIFT partner met agencies.
- “Spin-in” of University of Leeds – potential for longevity beyond SWIFT.



Future work — Legacy



- Previous projects have failed to make lasting change. Change must be African led and be at institution level.
- Development of forecast methodologies to include nowcasting by working with training centres and universities.
- Supply training materials and opportunities to learn important skills (python etc.)
- Work toward a critical mass of expertise for institutional resilience.

Thank you!

Questions