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White Rose
university consortium
Universities of Leeds, Sheffield & York

eprints@whiterose.ac.uk
https://eprints.whiterose.ac.uk/

Testbed 3

Synoptic working group daily schedule

The following schedule was developed to match as closely as possible with the standard operating procedures (SOPs) currently used by the SWIFT partner countries operational forecasting centres (Ghana, Kenya, Nigeria and Senegal).

The SOP is for both East and West Africa forecasts however the times are different for each and so have been reflected in the timings given. East Africa shift timings are in blue and West Africa shift timings in red.

Order of procedures	Activity	Time frame	Tools	Outputs	Responsibility	Supervision
1	Shift starts – shift lead goes through the Nowcasting forecast for the previous day/ evening and also the synoptic forecast produced for the next 24 hours by the previous shift	*30 minutes* Suggested timings: 0800 EST (0500 UTC/0600UK) 0800 UTC (0800 Ghana/ Senegal 0900 Nigeria/ UK)	• Participate in briefing • Computers • Beamers • Internet connection • Latest synergie products • Updates on Current model runs • Output from Nowcasting shift • Previous day's synoptic forecast	Brief the team on the synoptic forecast produced for the day along with a discussion of what occurred overnight (or the previous evening) in the Nowcasting shift.	Shift-lead to lead the briefing with all synoptic groups participating	Shift lead
2	• Begin by analyzing the pan-Africa plots from GFS and the automated synthetic analysis charts to get an overall idea of the mean-sea level pressure surrounding the continent and wind directions. • Analysis of satellite images received	*1 hour* Suggested timings: 0830 EST (0530 UTC/0630UK) 0830 UTC (0830 Ghana/ Senegal 0930 Nigeria/ UK)	• Analyze Plotted surface charts @ 0600Z and 0900Z • Internet access • Access to GFS imagery for pan Africa MSLP/ winds/ streamlines • Plots from most current GFS run (00Z or 18Z) • Accessibility of synergie products: - Pressure fields: • Surface to upper levels.	Create a pan-Africa synoptic forecast. Predominantly using the automated synthetic analysis chart.	All on shift	

	from MSG available on SYNERGIE/PUMA and from the web, and UKMet • Analysis of the streamlines and relative humidity at 925, 850, 700, 500, and 200hPa levels for the analysis and the three (03) next days; • GFS 00Z plots should be available if not use the 18Z ones. Perhaps use of synergie too for additional variables if required. • Retrieve various current satellite imageries *(Dust, Airmass, Day Microphysics – RGB, Visible, Infrared, water vapour channels)* on any available satellite imagery platform to find out the initiation, position, movement, and intensities of storms as well as decay by animation.		• Latest synergie products updates • Automated synthetic analysis charts • Streamlines and wind flow patterns (surface, medium and upper levels). • Precipitable water/Low level relative humidity, CAPE, Convergence===/Divergence		

	• Analyze wind speeds and directions at various atmospheric pressure levels *(surface, 925hPa, 850hPa, 700hPa, 200hPa)* respectively to indicate troughs, ridges, cyclonic **(C)** and anticyclonic **(A)** vortices.				
3	• Examine the GFS model output, automated synthetic analysis plots (what features will these plots show?). • Create synoptic forecast for the next 72 -120 hours	1 hour Suggested timings: 0930 EST (0630 UTC/0730UK) 0930 UTC (0930 Ghana/ Senegal 0930 Nigeria/ UK)	• Internet connection • Computers • GFS automated synthetic analysis plots for East and West Africa • Features to look at – - MSLP, moisture, humidity, winds, streamlines, convergence/ divergence, dew point temperature • Current satellite imagery.	• Create synoptic forecast for the next 3 days. • Should be kept in a consistent format from day to day.	All on shift
4	• Based on the synoptic forecasts create daily guidance bulletins for 1-3 days. • If time allows create a medium range 3-5 day bulletin.	1 hour Suggested timings: 1100 EST (0800 UTC/0900UK) 1100 UTC (1100 Ghana/ Senegal 1200 Nigeria/ UK)	• Computer • Internet • Synthetic analysis automated plots • Extra GFS plots to be downloaded	• Daily guidance bulletins. • Should be kept in a consistent format from day to day.	All on shift – probably one person works on each day

5	• High impact weather (HIW) forecasts for Kenya, Ghana, Senegal and Nigeria. • Use synoptic forecasts as guidance for areas to look out for. • For HIW forecast use UKMO forecasts – deterministic and ensemble products.	2 hours Suggested timings: 1200 EST (0900UTC/UK) 1200 UTC (1200 Ghana/ Senegal 1300 Nigeria/ UK)	• Internet connection • Updated model runs • Access to Africa VCP viewer for UKMO deterministic models. • Access to ensemble products on website. • Automated figure downloads to a PowerPoint presentation for ease and speed of analysis. • Precipitation forecasts – particularly the chance of precipitation ensemble plots. • Windspeed probability plots. • Meteograms for point location forecasts	• Create HIW forecast which follows a consistent format each day. • Create forecasts for a hourly/ three hourly basis and make sure they are for smaller areas rather than a forecast for an entire country or region as a whole.	All on shift split into groups by country	
6	• Produce briefing to give to the Nowcasting team. • This will include filling out a table that will ask for the same information each day to keep things consistent. • Split into two groups i.e., synoptic briefing and HIW briefing. • Give more specific instructions below in bullet points.	1 Hour Suggested timings: 1400 EST (1100 UTC/1200UK) 1400 UTC (1400 Ghana/ Senegal 1500 Nigeria/ UK)	• PowerPoint • Charts • Table to fill out	Create briefing for the Nowcasting team which will follow the same format every day.	All on shift split into groups	

7	• Give briefing to Nowcasting team • Potentially not all of the synoptic team will give the briefing to allow for the others in the group to finalize the forecast document.	1 hour Suggested timings: 1500 EST (1200 UTC/1300UK) 1500 UTC (1500 Ghana/ Senegal 1600 Nigeria/ UK)	• Internet connection for zoom meetings • Zoom • PowerPoint • Completed table/ document from stage 6.	Present the briefing created in the previous step	All on shift split into groups	

Detailed information on each of the stages of the forecast process:

Stage 1)

Time allocated to this stage: 30 minutes

- Shift lead will complete a briefing to the rest of the synoptic group. The briefing will consist of briefly going through the synoptic forecast created the day before for today along with highlighting what occurred in the Nowcasting shift overnight. This will allow the team to get an idea of the forecast expected today.

Stage 2)

Time allocated to this stage: 1 hour

- The synoptic team will work together to produce a Pan-Africa synoptic forecast for the next 72 hours. The forecast will be produced using:
  - Automated Pan-Africa synthetic analysis/ forecast charts:

  To give an idea of the position and strength of the four subtropical high-pressure systems; St Helena, Mascarene, Azores and Arabian.

To determine direction of wind flow at low-levels using streamlines.

- o Satellite imagery: Satellite images can be accessed from the Met Office VCP viewer and can be used to give a picture of the current weather along with an indication of where the ITCZ is located related to where the moisture/ clouds are forming.

Stage 3)

Time allocated to this stage: 1 hour 30 minutes

- The synoptic team will work together to produce the East / West Africa synoptic forecast for the next 72 hours. The forecast will be created by using the various automated synthetic analysis/ forecast charts. In conjunction with these, GFS imagery can also be used to look at variables/ levels that are not included in the synthetic charts but the overall aim is that the automated charts will be the predominately utilized tool since these will allow for a much quicker synoptic forecast to be created.

Stage 4)

Time allocated to this stage: 1 hour

- This stage will be in tandem to stage 3 and will require the synoptic team to produce daily guidance bulletins for the next three days regarding the synoptic forecast. The purpose of this will be to give an overview of the large scale conditions for the next three days so that these can be expanded upon when the high impact weather forecast is completely later in the shift.
  - o These forecasts will include things like: AEJ position, any AEWs, ITCZ location, any convergence…
  - o These guidance's will be filled out using a sheet that will be provided to the team and the same sheet will be filled out each day to create consistency within the guidance products/ forecasts. **This sheet needs to be created by Synoptic working group leads.**

Stage 5)

Time allocated to this stage: 2 hours

- The purpose of this stage is to produce an in-depth analysis of the Met Office deterministic and ensemble products for both the global and convection permitting simulations to produce a high impact weather forecast for your country. These forecasts should be for 1-3 hour timescales and for more small scales rather than forecasting for a whole country or regions within a country. This stage will also require a document/ table to be filled out that can be used to not only produce a HIW forecast but can be used in stage 6) for the Nowcasting briefing. **Sheet needs to be created by the synoptic working group leads**.

Stage 6)

Time allocated to this stage: 1 hour

- This stage is to produce a briefing for the Nowcasting team. This briefing will be kept to a consistent format each day by filling out a table/ document that will be provided which will be produced in collaboration with the Nowcasting team so that we can guarantee we are providing them with the most relevant information they require. **Table/document needs creating in collaboration between the synoptic working group leads and the nowcasting working group leads.**

Stage 7)

Time allocated to this stage: 1 hour

- Nowcasting briefing: not all of the synoptic team will participate in this. Anticipate that 1 or 2 people will give the briefing to the team. This briefing will go through the document created in stage 6) and will allow time for the Nowcasting team to ask questions.
- In the meantime, the rest of the synoptic team can finalise any documents that have been created and upload them to Redmine.