

PRESENTATION ON RWANDA OBSERVATION NETWORK CAPABILITY AND NATIONAL REQUIREMENT FOR OBSERVATION

By
Godfrey HABUKURI

Rwanda profile

- Rwanda is hilly ,landlocked and beautiful country in East –Central Africa.
- Bordering with Uganda in north, Tanzania in east, Burundi in south and DRC in west.
- Size:26,338 sq. km
- Population:12,038,000
- Density:374 people/sq km
- Language: English, French and Kinyarwanda
- **Location:** 75 miles south of the equator in the Tropic of Capricorn, 880 miles west of the Indian Ocean and 1,250 miles east of the Atlantic Ocean
- Rainfall: Rainy seasons: March - May and October - November (Average of 110-200 mm. per month)

Rwanda on African Map



Use weather climate information in your
daily planning

¹	Station Category	Number	Parameters	Status	Observations & Reports
²	Surface synoptic stations	5	Pressure Temperature Rainfall Humidity Wind speed 2m, 10m Wind Direction 2m, 10m Sunshine Radiation	1 down	Only 1 at Kigali International Airport operates 24hrs /day Other report hourly 12h/day
³	Agro-meteorological stations	9	Temperature Rainfall Humidity Wind speed 2m Wind Direction 2m Evaporation Soil moisture Soil temperature Sunshine	9 operational	Report hourly 12h/day

Use weather climate information in your daily planning

	Station Category	Number	Parameters	Status	Observations & Reports
4	Climatic stations(CL)	58	Temperature Rainfall	All operational	Daily records/ monthly reports
5	Manual Rain gauge stations(MRG)	75	Rainfall	All operational	Daily records/ monthly reports
6	Automatic Weather stations(AWS)	57	Pressure Temperature Rainfall Humidity Wind speed and Direction 2m, 10m Sunshine Radiation	All operational	10 Min
7	Automatic Rain Gauge(ARG)	100	Rainfall	All operational	10 min
	Weather Radar	1	precipitation and wind shear	24hr/7day	6 min
	Ground Satellite Receivers	2	1 operates(Puma)	24hrs/7 days	Receives data 24hrs

OBSERVING SYSTEM NETWORK



Automatic station



Manual Station



Satellite Receiver



Weather Radar

Use weather climate information in
your daily planning

International Data Exchange, by AMSS

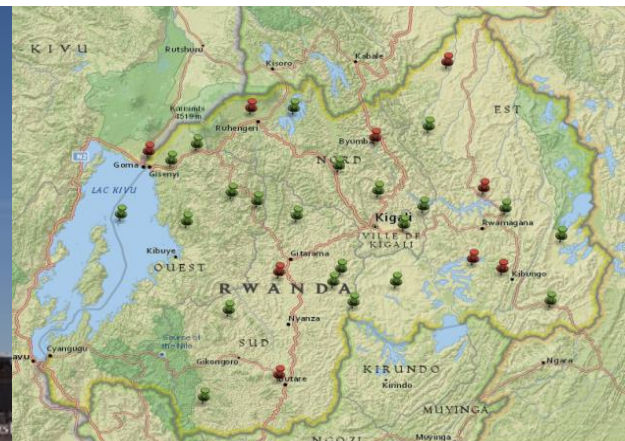
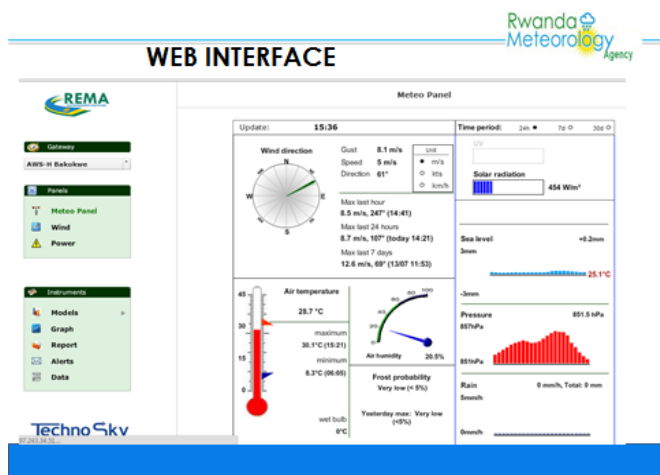
Global Telecommunication System Message switching System allows Meteo Rwanda to collect, ingest and distribute data from various sources all over the world.



Use weather climate information in your daily planning

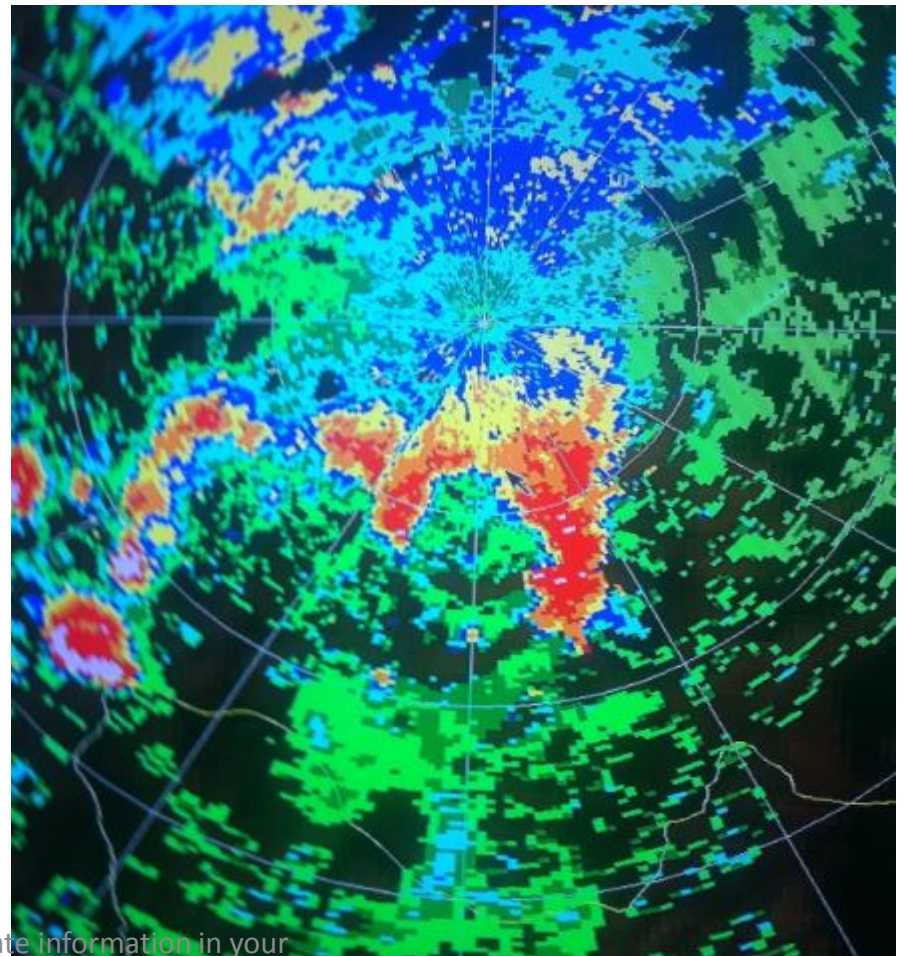
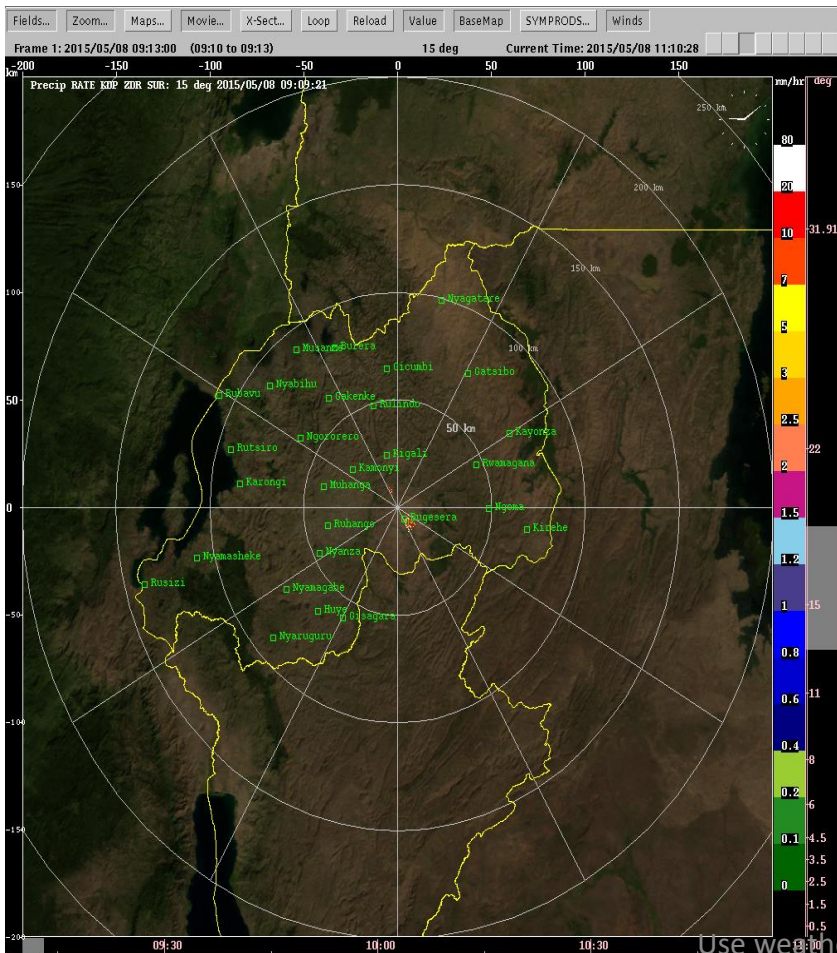
Current meteorological Infrastructure

- Over 304 observation stations operational
- SADIS installed at airport office
- AWOS system at the air port and it is operational
- 2 satellite ground receivers (SYNERGY and PUMA)
- High capacity computing systems (cluster) for databank management and NWP modeling
- Weather Radar which is operational
- Automatic Weather Observing Station at Kigali International Airport
- Modern forecasting system in place



Use weather climate information in your
daily planning

Radar operational

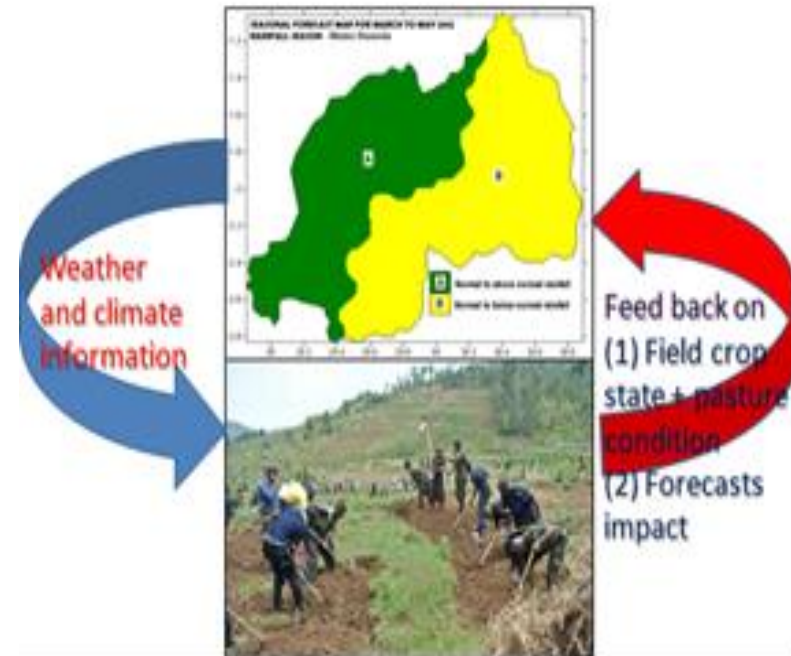


Use weather climate information in your daily planning

Current Products:

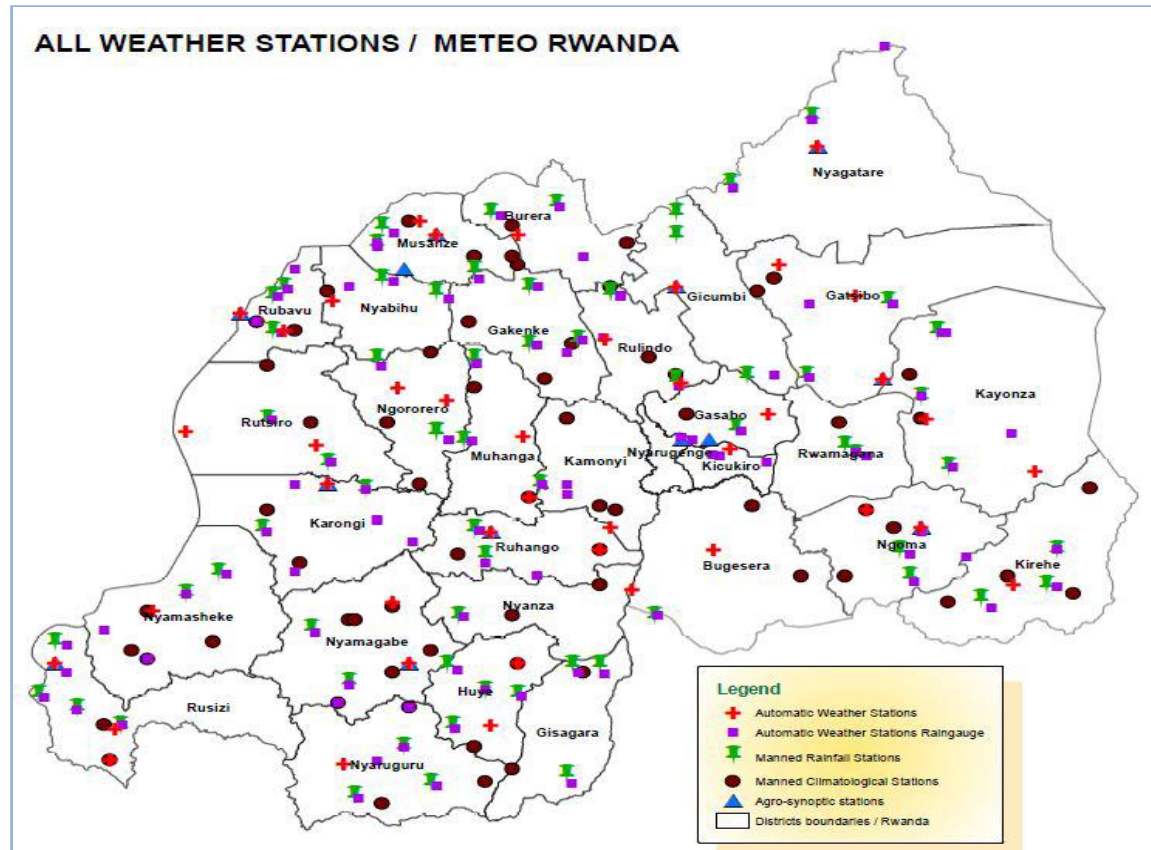
❖ Weather forecast

- ✓ Now casting
- ✓ 6hours forecast
- ✓ Daily forecast
- ✓ 3 Days Forecast
- ✓ 5 Days Forecast
- ✓ 10 Days Forecast
- ✓ Monthly Forecast
- ✓ Aviation services
- ✓ Seasonal forecast
- ✓ Early Warning Forecasts



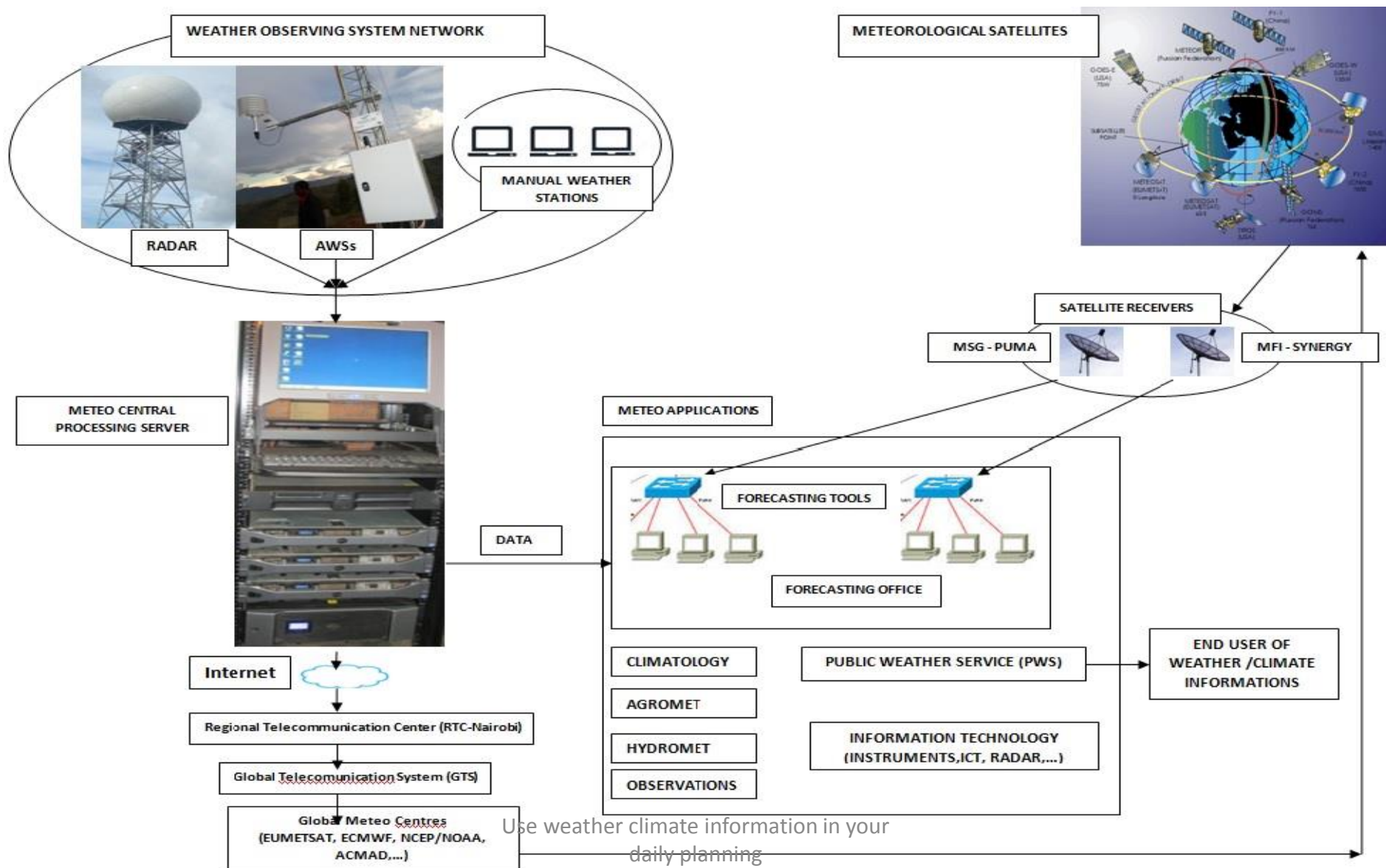
Use weather climate information in your daily planning

SPATIAL DISTRIBUTION OF OBSERVING SYSTEM NETWORK



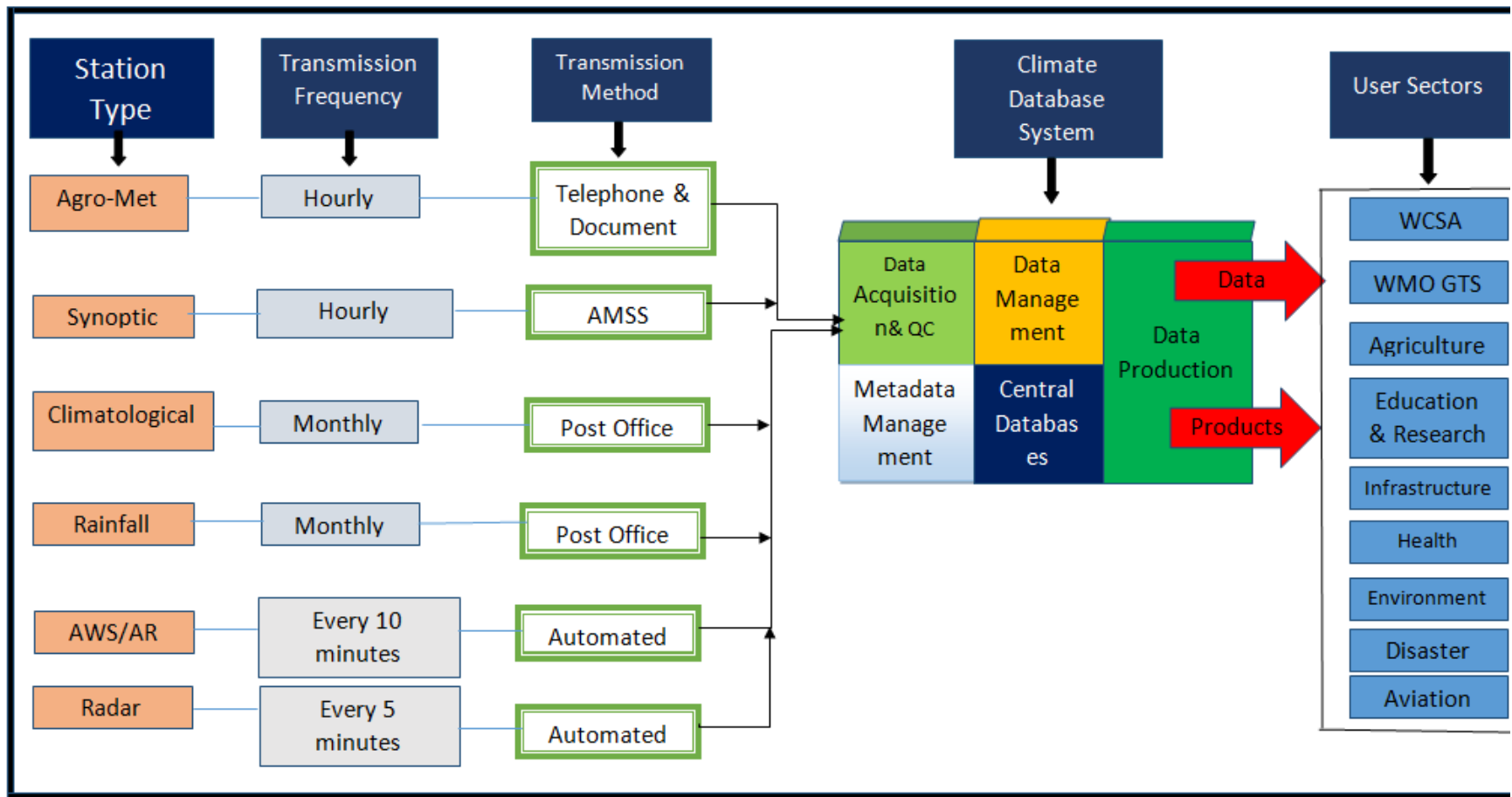
Use weather climate information in your daily planning

- Data collection, quality control and archives
- Data analysis and processing

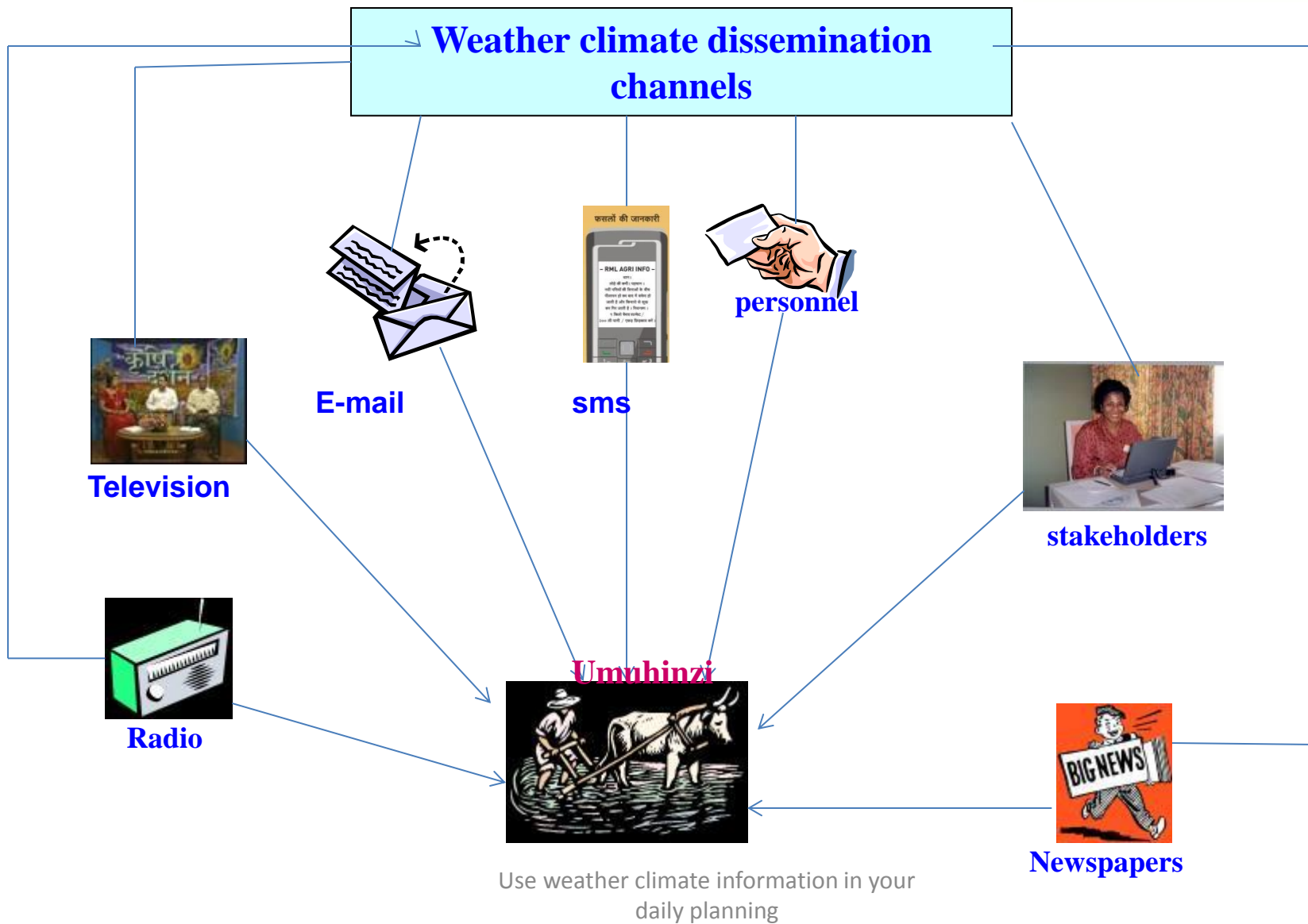


Use weather climate information in your daily planning

Meteo Rwanda Climate Data Management Process



Use weather climate information in your daily planning



GTS exchange/OSCAR registered

s/n	Station type	number	GTS exchange	Oscar registered	Active	Inactive
1	Synoptic	5	5	5	4	1
2	Agro-Met	9	0	9	9	0
3	Climatologic	58	0	0	58	0
4	Manual Rain fall	75	0	0	75	0
5	Automatic weather stations	56	0	0	56	0
6	Automatic rain gauge	100	0	0	100	0

Use weather climate information in your
daily planning

National plan for observation network

- To Acquire 3 additional x-band weather Radar(mosaic) to fill the gaps of existing C-band radar ,in southwest and northwest to cover Congo basin and two airports in that region.
- 10 Lightning detector to be acquired
- 1 radiosondes is required for upper air information
- 9 agro-met stations registered in Oscar tool and plan to register as many as Observing stations in Oscar/surface tool.
- To operate main stations 24hrs/7days
- To procure 1Hydro-meteorological stations to be put in lake Kivu and has been accepted to be procured by WMO under HIGHWAY project.

Challenges

- Lack of 24hrs Weather observation to the Main stations
- Stations Maintenance and instrument calibrations
- Lack of capacity building on radar system
- Radar Spare parts are also expensive
- Radar data storage and backup (expensive)
- Radar Maintenance is also a problem and needs big budget
- Problem of maintaining stations at the top of mountain (Volcanoes and Lake Kivu's islands)

THANK YOU FOR YOUR ATTENTION!!!