SASSCAL WeatherNet to support regional weather monitoring and climate-related research in Southern Africa

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Introduction

Considering projected climate scenarios and socio-economic development for sub-Saharan Africa, the overall challenge in the southern African region is to secure water at sufficient quality and quantity for both, the stability of ecosystems with their functions and services as well as for human wellbeing. Many countries of southern Africa face inadequate weather monitoring networks to provide reliable information for the development of efficient management strategies for sustainable water and land resources management, drought and flood risk analysis and forecasts as well as climate change impacts assessments.

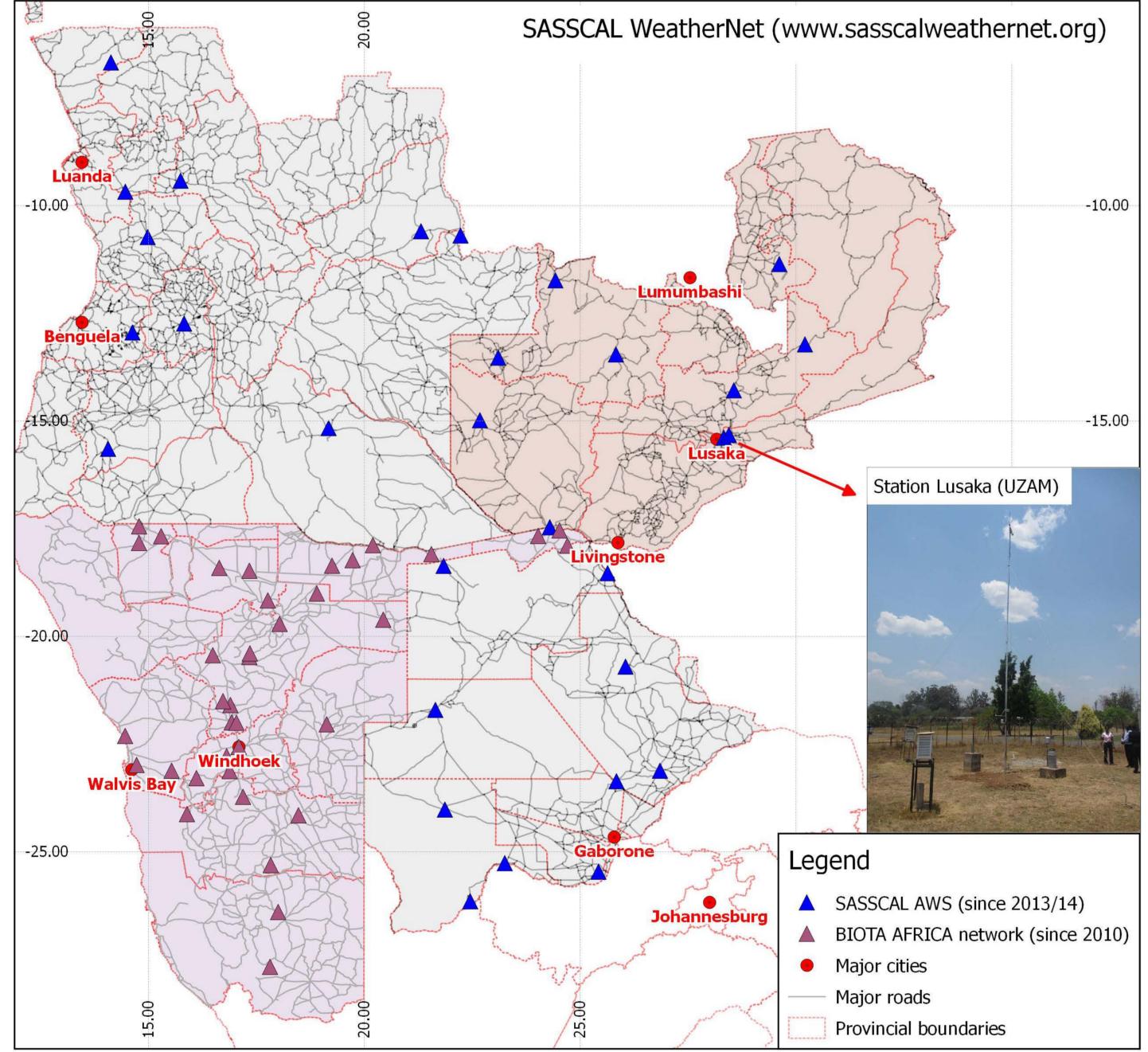
weather monitoring networks in order to provide reliable, consistent and up-to-date information for research, decision making authorities, stakeholders and the wider public.

As a joint effort of Angola, Botswana, Germany, Namibia, South Africa and

For example, large areas in Angola, Botswana and Zambia are barely monitored, thus, there is a strong need to improve existing national

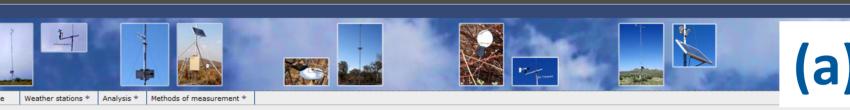
Zambia, the SASSCAL Initiative (Southern African Science Service Centre for Climate Change and Adaptive Land Management; www.sasscal.org) addresses this deficit and extends existing national monitoring networks in order to provide a consistent data set at regional scale. Funded by the German Federal Ministry of Education and Research (BMBF), altogether 67 weather stations of the SASSCAL WeatherNet provide accessible near-real time data of major climatological variables as well as up-to-date statistics for the SASSCAL region.

SASSCAL WeatherNet: Station network



WeatherNet website: www.sasscalweathernet.org

- station overview with up-to-date rainfall/temperature (a)
- station information sheet incl. position, google earth link, sensor setup, installation date (b)
- e-mail-based daily weather report, 70 users (c)
- near real-time data (hourly) (d)
- daily and ten days rainfall summaries (d)
- export functions (e,f)
- various statistics for selected variables like e.g.
- diagrams for selected variables (e,f)

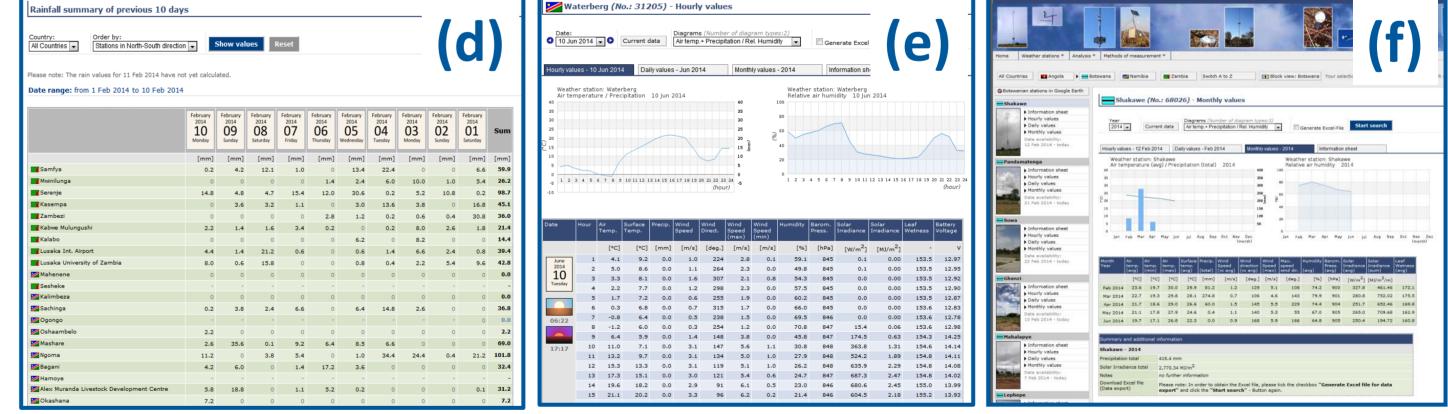




- Installation and operation of 30 AWS in 2013 (WMO standard)
- Recording rainfall, air temp, solar radiation, pressure, relative humidity, wind speed/direction, soil temperature (+ optional)
- Resolution: 15-mins, hourly intervals, daily, monthly

All stations in Google Earth	Welcome to the wea	ther stations of Ango	la, Botswana, Namibi	a and Zambia		
velopment Centre Information sheet	Alex Muranda Livestock	Alto Dondo 💽 New	Bagani 🔀	Cacuso 💽 New	Chianga (Huambo) 🛃 New	Claratal 🔀
Hourly values	Development Centre	Alto Dondo Mew	bayan 🚬		chianga (nuambo) 🔤 New	Claratal
Daily values	10 Jun 2014 17:00 (UTC+2)	9 Jun 2014 20:30 (UTC+2)	10 Jun 2014 17:00 (UTC+2)			
Monthly values Data availability:	IT.	lt.	ſ	lt.		ſ
7 Oct 2010 - today	€ 26.1 °C	23.8 °C	26.2 °C	29.2 °C	₽ 25.9 °C	↓ 17.4 °C
Alto Dondo	0.0 mm	0.0 mm	💛 0.0 mm	O.0 mm	O.0 mm	😐 0.0 mm
 Information sheet 						
Hourly values	Hourly values	Hourly values	Hourly values	Hourly values	Hourly values	Hourly values
Daily values Monthly values	Daily values	Daily values	Daily values	Daily values	Daily values	Daily values
Data availability:	Monthly values	Monthly values	Monthly values	Monthly values	Monthly values	Monthly values
14 Apr 2014 - 9 Jun 2014 New station online	Damba 🌉 New	Dieprivier (Namib Desert	Erichsfelde 🜌	Gambos 💽 New	Ganab 🔀	Ganda New
Bagani	10 Jun 2014 17:00 (UTC+2)	Lodge) Z 10 Jun 2014 17:00 (UTC+2)	10 Jun 2014 17:00 (UTC+2)	10 Jun 2014 17:00 (UTC+2)	10 Jun 2014 17:00 (UTC+2)	10 Jun 2014 17:00 (UTC+2)
 Information sheet 	10 Jun 2014 17:00 (01C+2)	10 Jun 2014 17:00 (01C+2)	10 Jun 2014 17:00 (01C+2)	10 Jun 2014 17:00 (01C+2)	10 Jun 2014 17:00 (01C+2)	10 Jun 2014 17:00 (01C+2)
Hourly values Daily values	27.7 °C	23.0 °C	21.5 °C	28.4 °C	25.2 °C	30.8 °C
Monthly values	£ 27.7°C	23.0 °C	21.5 °C	20.4 °C	25.2 %	1 30.0 °C
Data availability: 19 Feb 2013 - today	○ 0.0 mm	○ 0.0 mm	O.0 mm	O.0 mm	○ 0.0 mm	O.0 mm
	Hourly values	Hourly values	Hourly values	Hourly values	Hourly values	Hourly values
acuso	Daily values	Daily values	► Daily values	Daily values	Daily values	Daily values
Information sheet Hourly values	Monthly values	Monthly values	► Monthly values	Monthly values	Monthly values	Monthly values
 Daily values 						
Monthly values	Gellap Ost 📂	Ghanzi 💻	Goodhope 🚍	Hamoye 📈	John Pandeni 📈	Kabwe Mulungushi
Data availability: 15 Apr 2014 - today						
New station online	10 Jun 2014 15:00 (UTC+2)	10 Jun 2014 17:00 (UTC+2)	10 Jun 2014 17:00 (UTC+2)		10 Jun 2014 17:00 (UTC+2)	
hianga (Huambo)	ſ			(F	l.	l
Information sheet	11.9 °C	21.4 °C	18.1 °C	No data available	24.3 °C	No data available
Hourly values						
Daily values	💛 0.0 mm	💛 0.0 mm	💛 0.0 mm	No data available	🗢 0.0 mm	No data available
Monthly values Data availability:			N Maurika analana	h Haudu ualuar	b Marrielium	h Haushaushaus
1 Mar 2014 - today	Hourly values	 Hourly values Daily values 	Hourly values	Hourly values	Hourly values	Hourly values
	Daily values	Monthly values	 Daily values Monthly values 			
New station online	Monthly values				Monthly values	

North-South direction]	Rain (sum) [mm]	Amb. Temp (min) [°C]	Am Ter (ma [°C	(C)	
🛛 <u>Damba</u> (AO)		16.8	28.4	21.8	-
Cacuso (AO)	0.0	11.5	29.3	19.8	-
Alto Dondo (AO)	0.0	21.1	34.4	26.5	-
Kibala (Catofe) (AO)	0.0	12.9	27.4	,	-
Chianga (Huambo) (AO)	0.0	6.3	24.7	ails	-
Ganda (AO)	0.0	13.6	5	et .	-
Gambos (AO)	0.0	2.*	" let	14.3	-
Mahenene (NA)	0.0		e, 🔨	15.4	-
Kalimbeza (NA)	0	and the	23.7	14.7	-
Machinga (NA)	Q	8	27.2	13.0	-
<mark>∕ Oqonqo</mark> (NA)	N.O.	4.6	26.1	14.7	-
≥ Oshaambelo (NA)	J.0	-1.6	26.7	11.7	-
Mashare (NA)	0.0	-2.9	26.2	11.2	-
Mgoma (NA)	0.0	3.2	25.7	14.8	-
Bagani (NA)	0.0	2.3	27.6	14.0	-
Alex Muranda Livestock	0.0	-3.9	25.0	10.8	-
Shakawe (BW)	0.0	17.1	23.7	19.0	-
Okashana (NA)	0.0	2.0	27.7	15.2	-
Pandamatr No	0.0	14.5	22.4	17.0	-
Sonor (NA)	0.0	-5.8	25.2	11.0	-
	0.0	2.5	25.5	12.1	-
	0.0	-4.7	25.3	10.2	-
Alto Dondo (AO) Kibala (Catofe) (AO) Chianga (Huambo) (AO) Ganda (AO) Ganda (AO) Ganda (AO) Gambos (AO) Mahenene (NA) Kalimbeza (NA) Sachinga (NA) Ogongo (NA) Oshaambelo (NA) Mashare (NA) Mashare (NA) Mashare (NA) Alex Muranda Livestock r Shakawe (BW) Okashana (NA) Shakawe (BW) Okashana (NA) Pandamatr J. Ereeding Station (NA) Pandeni (NA) Mathematical Station (NA)	0.0	2.0	23.3	11.0	-
	0.0	2.9	22.5	12.0	1
<mark>⊘matjenne</mark> (NA)		-4.7	24.8	9.6	1



Data transmission/access

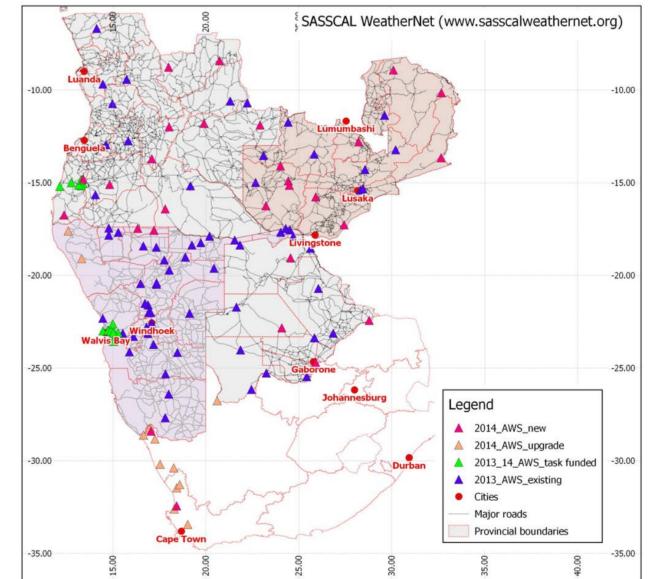
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 3 different transmission systems (provider-depending)

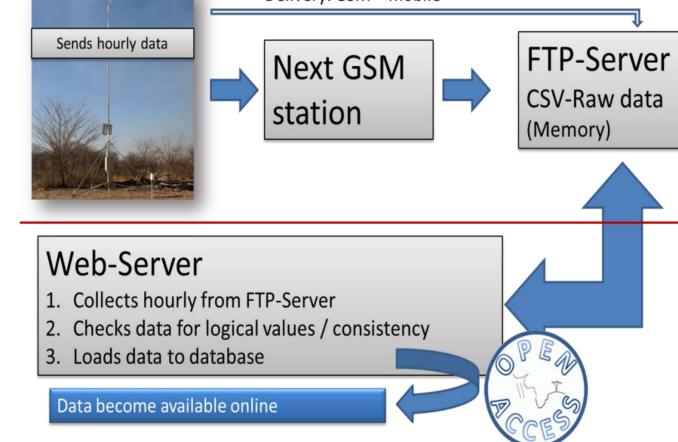
Delivery: GSM – mobile

Conclusion and outlook

In total, 67 weather stations of the SASSCAL WeatherNet provide



- basic setup (GSM/GPRS)
- near real-time data transmission and web upload (15 mins, hourly)
- data repositories/backups at each national weather service and SASSCAL
- Open access



SASSCAL WeatherNet provide accessible near-real time data of major climatological variables and upto-date statistics for the SASSCAL region. In 2014, the SASSCAL WeatherNet will be completed by additional 30-50 stations in selected areas of the region, some of them with satellite-based data transmission.

Funded by



Federal Ministry of Education and Research

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