

MEDIA STATEMENT

12 OCTOBER 2017

THE SOUTH AFRICAN WEATHER SERVICE'S RESPONSE TO THE TWO SEVERE WEATHER EVENTS IN GAUTENG AND KZN IN THE MONTH OF OCTOBER 2017: MR JERRY LENGOASA, CHIEF EXECUTIVE OFFICER

The CEO of the South African Weather Service, Mr Jerry Lengoasa, on 12 October 2017 briefed the media about how the South African Weather Service responded to the two severe weather events in Gauteng and KZN during October 2017.

The occasion provided an opportunity to share details of SAWS' reviewed strategic intent and action plans to help build a **smart weather service for a WeatherSMART nation**, a service that works much better in partnership with others.

The South African Weather Service is a technical, scientific and service oriented entity of the state with a responsibility to reach 57 million South African every day with life and limb saving information. It is in the above context that there was reflection on these extreme weather events, the role as SAWS, the challenges that emerge from such events and what is required to for the nation to be ready for such events in future, recalling that we are only at the beginning of our summer season.

Mr Lengoasa mentioned that "Globally, 80 to 90% of disasters are caused by hydro-meteorological (weather, water and climate) or are exacerbated by such hazards. These of course range from Droughts (the Western Cape is a current example), floods, wind storms, etc. South Africa is not exempt to such extremes. In the face of a changing climate through global warming these extremes are expected to increase, some in frequency and intensity. Whilst some of these hazards are predictable well in advance (e.g. Tropical Cyclone Dineo), others such as this week's severe thunderstorms whilst predictable in advance as severe weather systems their rapid evolution and thus the lead time available to issue warning is limited".

Severe thunderstorms with heavy downpours, strong damaging winds and large hail, hit parts of the eastern parts of North-West, Gauteng, eastern Free State, KwaZulu-Natal, Mpumalanga and Limpopo between the 9th and 10th October 2017. Areas that were most affected were the Mogale City, City of Johannesburg and Ekurhuleni Metropolitan Municipalities. There were 2 sightings of tornadoes in Ruimsig (adjacent to Roodepoort and Krugersdorp) and Eloff, near Delmas (Mpumalanga) which

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Tornadoes caused extensive damage to property. Elsewhere in the Free State, a tornado was also observed near Bethulie. Extremely large hail (golf ball to tennis ball size) was also reported near Krugersdorp.

The system moved rapidly east affecting KZN and Durban in particular on Tuesday the 10th October 2017 with severe urban flooding and high winds resulting in loss of life. In 24 hours, Durban recorded 108 mm of rain, where 65mm happened in hour between 9 and 10am. Similarly Virginia in KZN received 142 mm of rain, where 89 mm occurred in 1 hour between 11am-12pm. A Maximum sustained wind speed of 75 and 78 kilometres per hour were reported in Durban and King Shaka airport respectively.

The following issues were addressed:

1. SAWS' READINESS AND RESPONSE

1.1 The role of observation infrastructure and the recent weather events

SAWS infrastructure plays critical role in providing the weather and climate information and observation of the state of atmosphere, this information is used to input to forecasting and this is used by forecasters to issue weather forecast and warnings well in advanced to all relevant and affected stakeholders (disaster management, media, insurance and emergency services).

SAWS has evaluated and checked the impact as well as the status of our infrastructure during the recent weather events which took place between Gauteng, North West, Mpumalanga, Free State, KZN and Eastern Cape and Gauteng, Bloemfontein and Mpumalanga was well covered by our network as mostly all our observation infrastructure around these provinces was operational (AWS, ARS, Upper air and LDN and Irene radar were all functional), however some of the most important storm monitoring tools (Durban Radar was not operational at the time of need due to system break down).

1.2 Forecasting and Issuing of Warnings

On the 9th October 2017, a line of thunderstorms developed east of a cut-off low pressure system which was situated over the western parts of the country. These storms developed through the central parts of the North West and northern Free State, and then started moving eastwards. Due to prevailing favourable conditions (including abundant low-level moisture and strongly *sheared airflow in the lower portion of the storms), some of these storms developed into supercell thunderstorms. Supercell

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storms are the most intense class of thunderstorm and are characterised by a deep rotating updraft, are generally very long-lived (a lifespan of a few hours) and are associated with different kinds of severe weather (one or more of large hail, tornadoes, strong winds and urban flooding) in at least 90% of cases. (*wind shear occurs when there is a marked change in wind speed and/or wind direction, across a short vertical distance)

3.3 Guidance issued by SAWS

The South African Weather Service issued a **weather watch** on Sunday afternoon (for Monday) for severe thunderstorms in places over the eastern parts of North West, eastern parts of the Free State, northern and central parts of KwaZulu-Natal and in places in Gauteng, Limpopo and Mpumalanga. This was upgraded to a **severe thunderstorm warning** on Monday afternoon as thunderstorms moved into the Gauteng province from the west.

A severe thunderstorm warning is issued by the South African Weather Service when a thunderstorm is expected to be associated with one or more of the following severe weather criteria*;

- Hail of greater than 19 mm diameter. Alternatively, large amounts of small hail
- A tornado
- Wind gusts of 50 knots (93 km/h) or more
- Heavy downpours leading to localised urban or flash flooding

*This is closely aligned with international practice, particularly with respect to USA as well as Australia

1.3 Extending reach to SAWS partners

These warnings were carried on social media channels of Twitter and Facebook, on our website and distributed through our traditional media partners.

The national disaster management system, through our crucial partner in Disaster Risk management, the National Disaster Risk Management Centre was notified of the Watch and the severe weather warning.

Our reach was also extended through corporate partners to their consumers requiring risk mitigation information, we provided the following communications:

- Automated notifications issued via commercial partners to the Insurance industry relevant to *severe thunderstorm activity approaching with potential for hail* in excess of 230 000 stakeholders

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- Automated notifications issued via commercial partners to Mines, quarries, transport, schools and sports facilities directly to 38 000 individuals, with 60% of this constituting *severe thunderstorm* approaching and the remaining 40% constituting *lightning proximity* notifications
- Forecaster enabled hazardous weather notifications via XML to key insurers (Telesure Group, ABSA and MiWay) with outbound cell phone notifications to insurance clients in relevant areas

In addition, SAWS distributed warnings via SMS and XML to emergency services, partners and media forecast in Gauteng and KZN. Statistics on the number of warning issued in this regard is summarised in the table below:

Date	Distribution	Area	Number
8 October	Emergency Services	Gauteng	1050 SMS's
	Hazardous Weather	Gauteng	XML to Telesure & ABSA
9 October	Emergency Services	KZN	1565 SMS's
	Hazardous Weather	KZN	XML to Telesure & ABSA
	Media Forecast	KZN	115 e-mails sent

It is important to note that additional notifications occur as individuals pass on messages to family and friends, extending our reach to key individuals. This applies to all telecommunication and social media platforms.

In spite of the above it is abundantly clear that we hardly scratched the surface of those that needed to receive the information before the events for rapid decision-making in the face of the hazard.

We as the South African Weather Service cannot achieve the reach to 57 million South African (the so-called last mile) alone, this needs all hands on deck including the public and private sector.

LESSONS LEARNT

It is clear to the SAWS' leadership that

- We issued the warnings in time and our forecasting system did well**
- Our critical infrastructure for Disaster Risk Reduction and improved analysis of storms, failed us (of the 5 radar we needed only two were available)**
- Whilst we did send out our weather watch and severe weather warnings, these were directed at our primary first level users such as the National Disaster Management Centre, some media partners and private sector clients and partners e.g. the insurance sector**

4. **The vast majority of ordinary citizens did not receive this critical life and livelihood-saving information**

2. OPPORTUNITIES FOR AN IMPROVED SERVICE

A number of opportunities that can be realised in the short term to improve SAWS 'processes and tools used to detect, communicate and disseminate warnings associated with severe weather events were identified.

2.1 Amongst others, investments in infrastructure enhancement are urgently required; we require increased investments in the capability to forecast severe thunderstorms including Tornadoes; and further investments are required in Impact Based Warnings to scale-up the pilot project started in the Western and Eastern Cape to all parts of South Africa.

2.2 Communicating severe weather events

SAWS already has the technology to generate the messages but the delivery platform/s need to be beefed up dramatically. The recent severe weather this week is an opportunity to raise/elevate these aspects and to explore solutions, together with NDMC;

2.3 Scale-up of reach using a wide range of dissemination channels

- Development of a web portal that offers a full bundle of live information, coupled with “nowcasting”, general forecast information and severe weather warnings. The portal will be free registration and access, with an option of upgrading to an advanced version for paid subscription;
- Delivery of products and services to communities through their local TV stations. The services to be localised according to the needs and geographical location of the target market for the station.
- Delivery of products and services to communities through their local radio stations. SAWS currently offering a service to some of the stations. Current service offering to be expanded to all the community stations.
- Creation of a SAWS YouTube channel which can be used for issuing warnings, educating the public and disseminating general weather and climate information. It is estimated that an estimated 8.7 million YouTube users could be reached. SAWS is currently using Facebook and



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Twitter. With a dedicated Facebook and Twitter service desk coupled with improved service offering on these channels, it estimated that a reach of 14 million and 7.7 million users could be reached on Facebook and Twitter respectively. The current reach is 10 000 users for Facebook and 50 000 users for Twitter. Other media platforms that could be used to enhance reach includes LinkedIn (estimated 5.5 million users), Instagram with an estimated 3.5 million users.

- A number of corporate and government clients have the capabilities in-house to disseminate weather and climate information to their staff and clients.

All above activities are in addition to the efforts of our existing media partners

What has been done so far:

- Initiation of a process to develop an Integrated Service Strategy (ISS). The main objective of the ISS is for SAWS to scale-up reach in terms of communicating its weather and climate related products to the 55 million+ South Africans;
- Initiation of a project to develop a revamped SAWS APP;
- Initiation of a task team to develop an API to enhance SAWS API data feed capability. This work is anticipated to start in the 2017/18 financial year
- Project team has been tasked with enhancing reach of services via community radio stations. This work is anticipated to start in the 2017/18 financial year.

3. QUANTIFYING THE INVESTMENTS NEEDED TO REALISE OPPORTUNITIES

In the order of R30 million is needed urgently if we are to achieve these plans before the end of the summer season noting that up to 80% of disaster risk management financing and expenditure is often focussed on response and recovery and not on early warning systems of which the Weather Service is a key and strategic part.