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Monday, 7 November 2022

Disruptive rainfall over central provinces; further localised flooding expected

A cut-off low, located in the mid to upper reaches of the atmosphere, currently lies over the western parts of southern Africa. This system is likely to significantly influence the circulation over the southern African subcontinent, especially during the next 48 hours. Widespread rain as well as embedded thunderstorms are occurring in a broad band of tropically sourced air, migrating southwards through Zambia and Botswana. Consequently, the prospects for rainfall over much of South Africa remain very favourable in the days ahead, especially over the eastern half of the country. In particular, there is a moderate to high risk of localised flooding of a disruptive nature, especially over North-West, Gauteng, the Free State, as well as adjacent parts of Limpopo, Mpumalanga and the north-eastern sector of the Northern Cape.

A cut-off upper air low pressure system continues to dominate the circulation pattern over southern Africa, resulting in a broad band of rain, thunderstorms and associated cloud cover across most of the central and eastern parts of southern Africa, as can clearly be seen in the satellite image in Figure 1 (below).

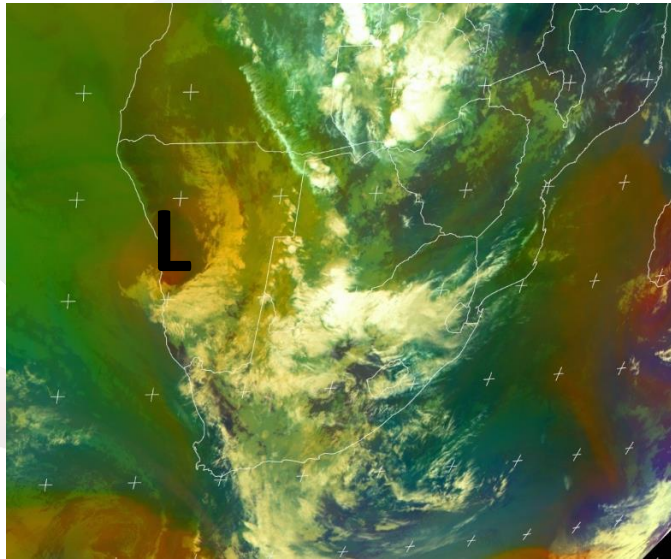


Figure 1: A geostationary composite satellite image “Airmass RGB” corresponding to 09h00SAST this morning, Monday 7 November 2022. The upper-air cut-off low is currently positioned over western and central Namibia. © Eumetsat 2022.

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Much of the rainfall expected over North-West, Free State and Gauteng during today and extending into tomorrow is expected to be fairly significant, with at least 30-60 mm per day indicated for the aforementioned provinces. As can be seen in Figure 2, the rainfall output from the Unified Model (UM) numeric weather prediction (NWP) scheme suggests quite widespread, significant rainfall persisting over numerous South African provinces today and tomorrow.

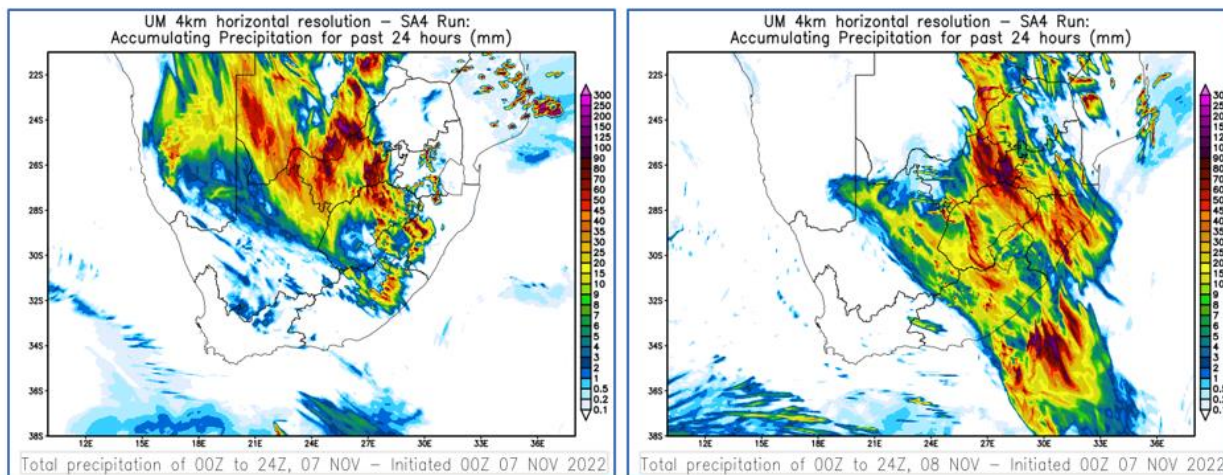


Figure 2: Predicted 24-hour rainfall (mm) for today, Monday 7 November 2022 (at left). Similarly, NWP-predicted rainfall for tomorrow, Tuesday 8 November 2022 (at right), also in mm. Source: SAWS Unified Model.

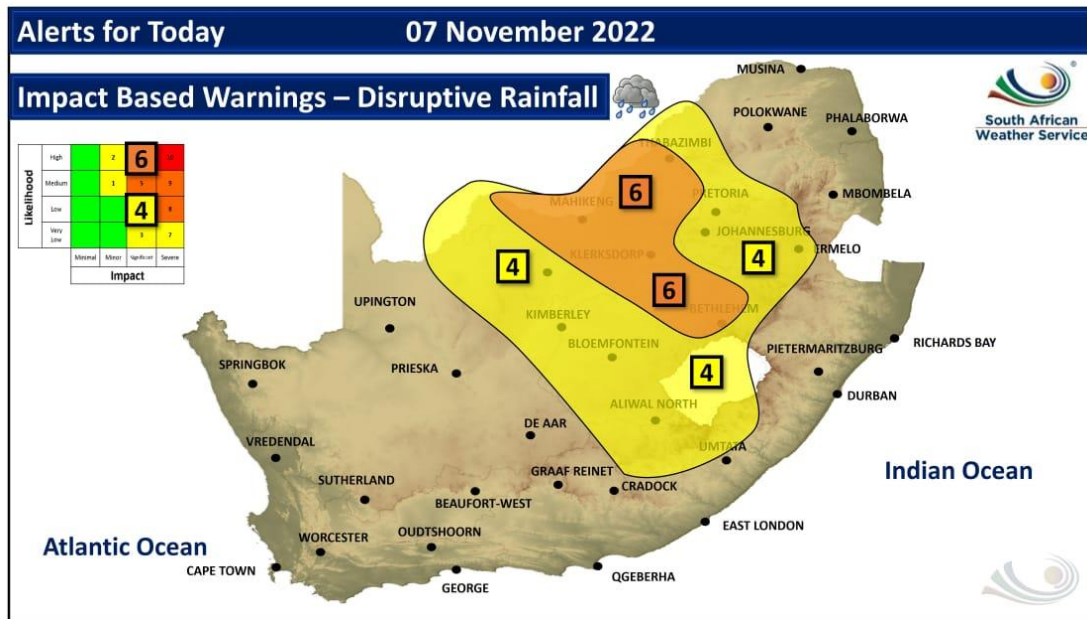


Figure 3: Level 4 Yellow as well as Level 6 Orange Impact-based Warnings, issued by the South African Weather Service (SAWS) valid for today, Monday 7 November 2022. Source: SAWS Disaster Risk Reduction (DRR) unit.

With reference to Figure 3, the South African Weather Service (SAWS) has issued impact-based warnings for today (extending into tonight and overnight) relating to a risk for “*significant impacts*” arising from ongoing heavy rain and localised flooding. In particular, there is a large part of the central interior where there is a Yellow Level 4 warning in place for “a low likelihood of significant impacts”. However, especially for North-West, Gauteng and northern Free State, there is a greatly elevated risk (high confidence) of significant impacts in relation to localised flooding. The warning level for the last-mentioned area is therefore classified as Level 6 Orange.

Moreover, it is important to bear in mind that the provinces of North-West as well as Free State have experienced a lot of rainfall during the past two to three weeks. This has resulted in the ground being quite saturated, lessening the infiltration capacity of the soil. Further rainfall will therefore very quickly lead to overland runoff and localised flooding. Stream and river systems can also be expected to begin flowing strongly. The public are strongly encouraged to exercise extreme caution (whether in a vehicle or on foot) when crossing low-water bridges, to avoid being swept away by strong water flow.

The South African Weather Service will continue to monitor these weather systems and updates to forecasts and severe warnings will be made regularly through the regular channels. Weather warnings are available at <https://www.weathersa.co.za/home/warnings>.

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