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Low minimum temperatures over western Free State: 16 and 17 April 2019

The central and eastern parts of South Africa will experience cooler maximum temperatures today (16 April 2019) due to a cold front that will move south of the country during the course of the day (refer Figure 1). Following the passage of the cold front, the south Atlantic high pressure system will start to ridge in south of the country by this evening, therefore overnight minimum temperatures over the central parts of South Africa are likely to be similar to the early morning conditions experienced today or possibly slightly lower on Wednesday morning (17 April 2019).

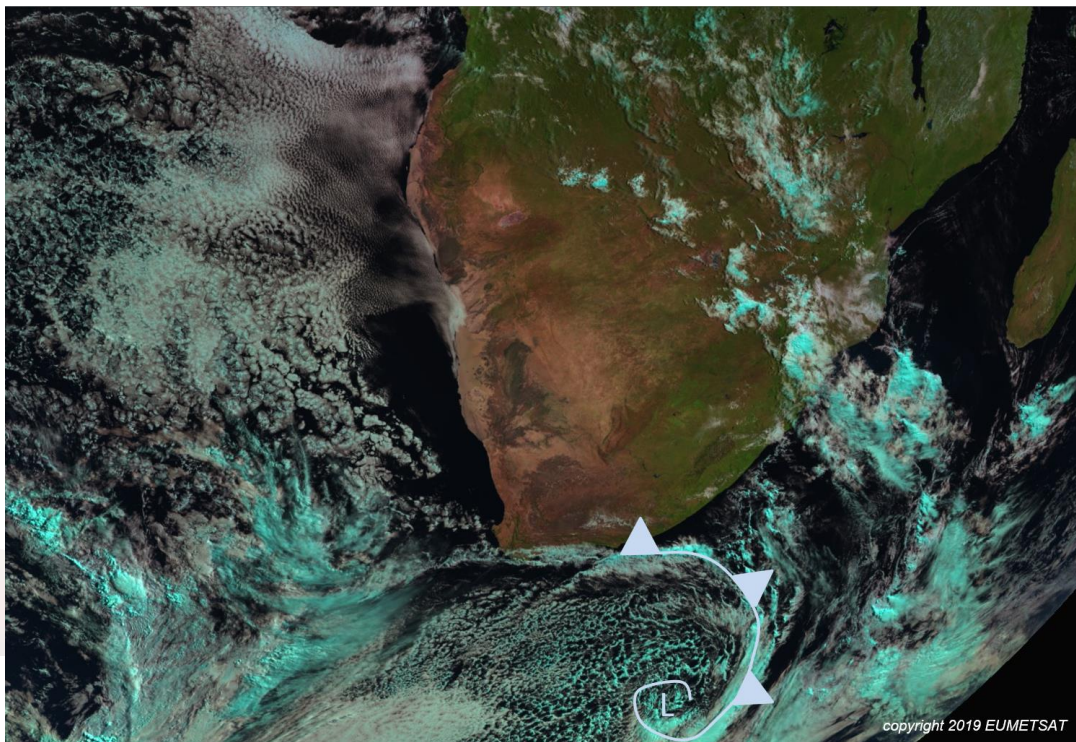


Figure 1: Day Natural Colours RGB false-colour satellite image (16 April 2019 10:00 SAST). The current position of the cold front, near Port Elizabeth, is indicated as a white curved line, with triangular “teeth”. © Eumetsat 2019.

Due to the fact that the first proper summer rainfall occurred later than usual, maize farmers were forced to plant later in the season, especially over the western parts of the Free State. This situation is a concern, as the maize harvesting period has consequently been delayed by at least a month. The maize

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crop is therefore at risk of being susceptible to early frosts, which may compromise overall quality and quantity of the overall harvest. This morning the South African Weather Service received a number of reports of early morning dew over the western Free State, whilst light frost was reported over the south-western parts. The observed minimum temperatures this morning (Tuesday) compared to the expected minimum temperatures tomorrow (Wednesday) are presented in Table 1, below. Similar conditions are possible on both mornings although there is a chance that high level clouds may begin moving in from the west during the late evening, which could promote more mild early morning conditions in the extreme western Free State. However, much depends on the timing of the high level cloud cover beginning to invade across the region. Overall, a similar pattern can be anticipated tomorrow morning over much of the region, whilst lower early morning minimums can be expected over the north-western parts of the Free State. Dew can therefore be expected to recur tomorrow morning over the western Free State, whilst light frost is expected in places over the southern Free State.

Table 1: Observed and expected minimum temperatures over the western Free State (16 and 17 April 2019).

City or Town	Observed minimum temperatures (°C): 16 April 2019	Expected minimum temperatures (°C): 17 April 2019
Bloemfontein	6	5
Fauresmith	1	1
Aliwal-North	3	3
Bothaville	13	7
Bloemhof	10	5
Knellpoort Dam	4	3

The numerically modelled minimum temperatures, valid for Wednesday morning, 17 April 2019, based on the Unified Model (UM) for South Africa can be seen in Figure 2, below.

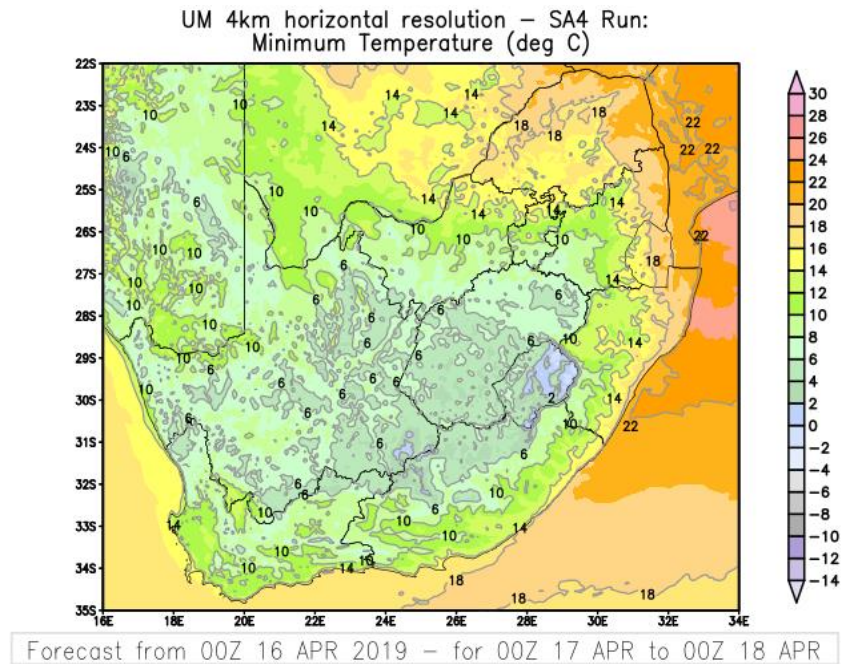


Figure 2: Unified Model (UM) expected minimum temperatures valid for 17 April 2019. Source: SA Weather Service.

Even though sub-zero early morning minimums are not forecast for the Free State tomorrow, it is generally known and accepted that local temperature conditions on the ground are typically 2 to 3 °C lower than the (Stevenson Screen) temperature at 1.5 metre above the surface. Moreover, localised pooling of pockets of cold air in river valleys and depressions tends to favour localised incidents of frost, given locally colder conditions. Moreover, areas where the soil moisture is deficient tend to have a higher probability of frost, as drier ground tends to lose energy overnight at a faster rate than over moist ground. As can be seen in Figure 3, the soil moisture levels over the Free State are generally fairly high (green values) at the current time, although the drier (brown and tan) regions may have a higher predisposition towards overnight frost in the short term.

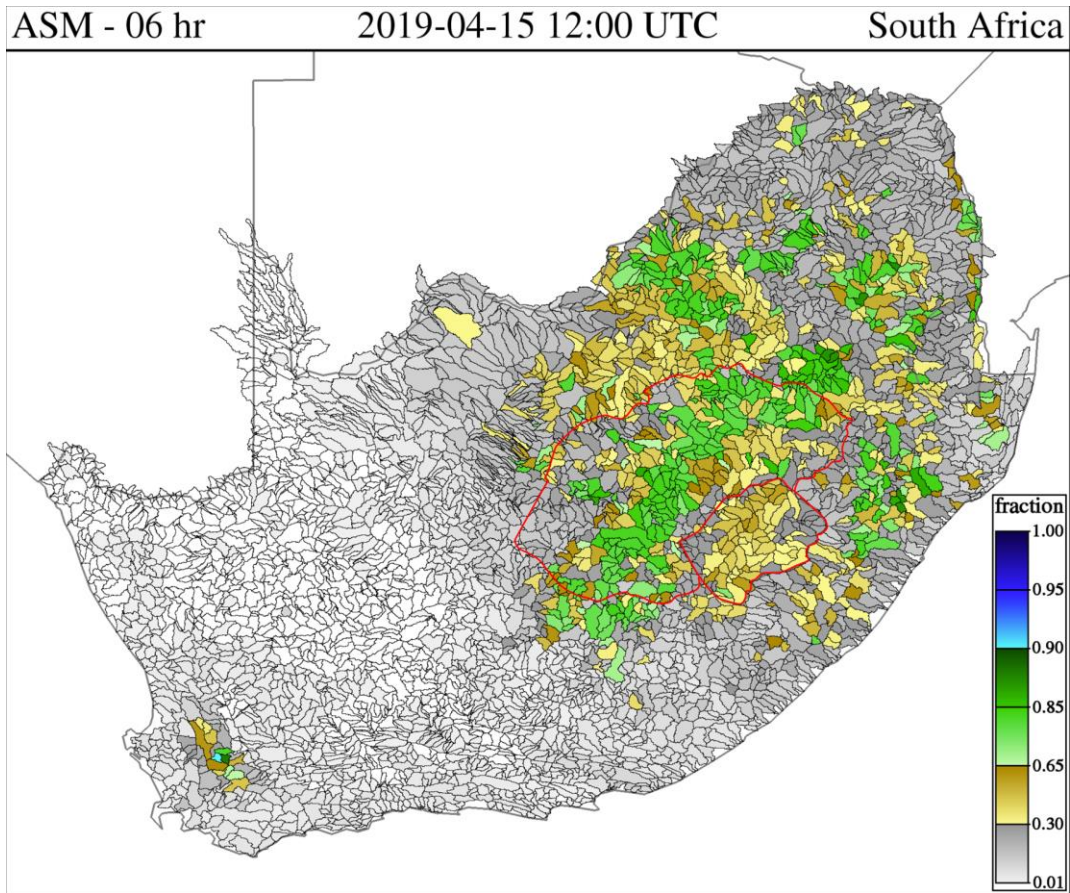


Figure 3: Soil moisture content valid at 14:00 SAST on 15 April 2019, with the provincial boundary of Free State as well as the national boundary of Lesotho indicated in red.

The South African Weather Service will continue to monitor any further developments relating to this weather system and will issue subsequent updates as required. Furthermore, the public are urged and encouraged to regularly follow weather forecasts on television and radio.

Updated information in this regard will regularly be available at www.weathersa.co.za as well as via the SA Weather Service Twitter account @SAWeatherServic

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