

WEEKLY MENINGITIS VIGILANCE FOR AFRICA

Bulletin No. 001

Issued on January 7, 2020

Valid until January 14, 2020

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UK Research
and Innovation

This bulletin was supported by UK Research and Innovation as part of the Global Challenges Research Fund, grant number NE/P021077/1.

1 Vigilance

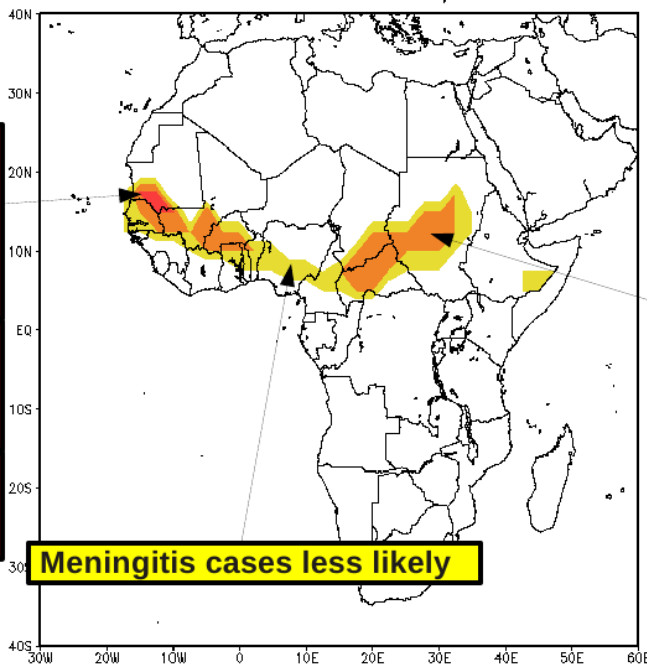
- High vigilance is needed for meningitis cases over southwestern Mauritania.
- Moderate vigilance is required for meningitis cases over northeastern Senegal, southern Mali, western Burkina Faso, northern Ghana, Togo and Benin, southern Chad, Central African Republic, and southern Sudan.
- Low to no vigilance is needed over the remaining parts of the meningitis belt.



VIGILANCE MAP FOR EMERGENCE OF MENINGITIS IN AFRICA
ISSUED ON JANUARY 7, 2020



HAZARD Dust, wind and relative humidity conditions are very much favorable for emergence of meningitis cases
POTENTIAL IMPACTS Meningitis cases very likely and epidemics status possible
MEASURES Strengthen meningitis surveillance and systems



HAZARD Dust, wind and relative humidity conditions are favorable for emergence of meningitis cases
POTENTIAL IMPACTS Meningitis cases very likely
MEASURES Activation of meningitis surveillance and systems

2 Atmospheric conditions

2.1 Relative humidity

Figure 1 shows the mean relative humidity at 1000 hPa estimated from NCEP reanalysis during 27 December to 3 January 2020 period. It indicates that the very dry atmospheric conditions (relative humidity below 20 %) was located over eastern and southern Mauritania, and central Mali. Atmospheric conditions becoming dry (relative humidity between 20 and 40 %) was observed over Senegal, southern and northern Mali, northern Mauritania, Niger, Burkina Faso, Benin, Togo, Southern Algeria, northern Ivory Coast, Guinea, Cameroon, Ghana, and CAR, Chad, Sudan and northern South Sudan. Wet atmospheric conditions (relative humidity above 60 %) prevailed over southern Ivory Coast, Liberia, Sierra Leona, southwestern Ghana, part of Somalia, south equatorial countries, part of South Africa, Madagascar, Mozambique, and Botswana.

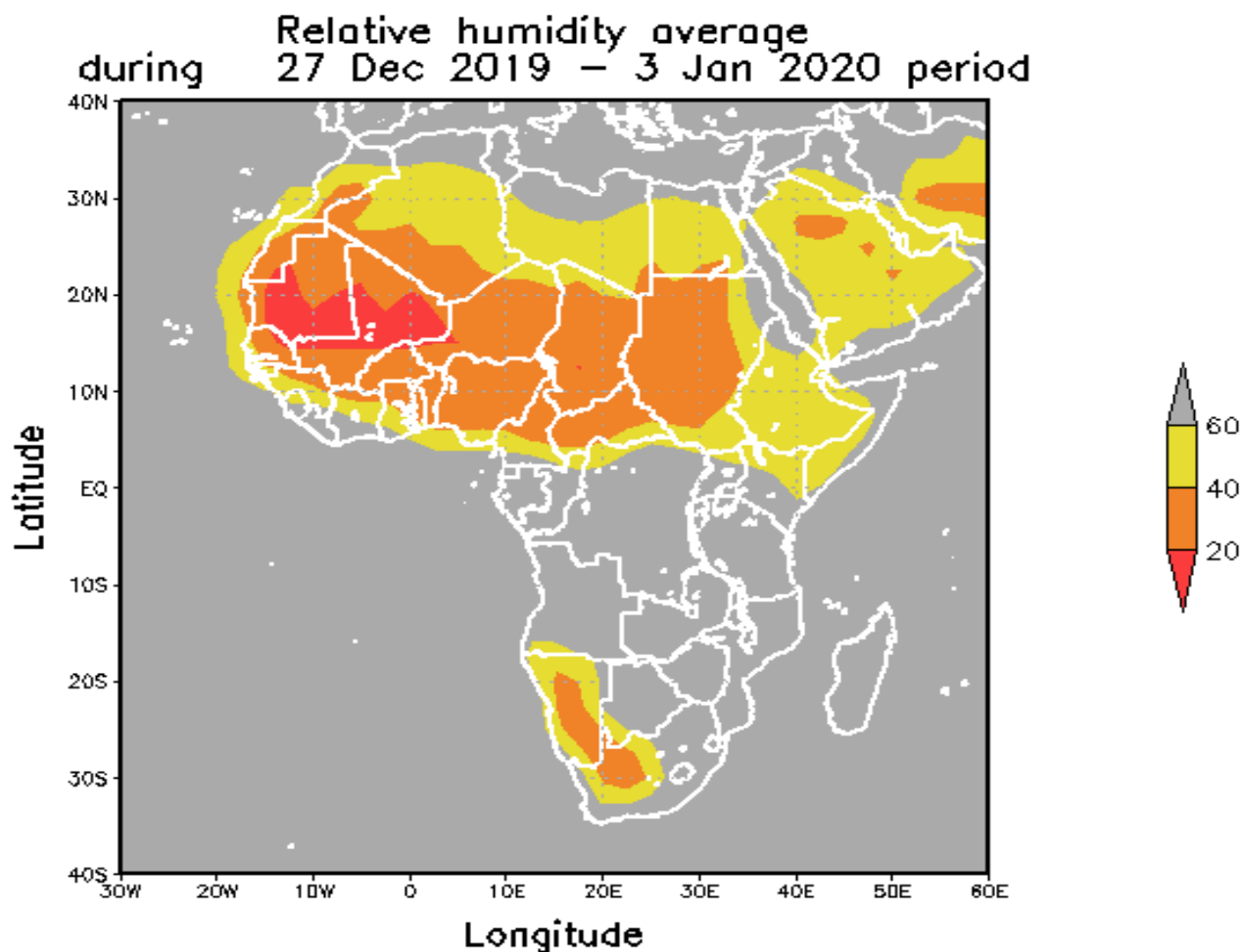


FIGURE 1 – Mean relative humidity (%) for the period 27 December to 3 January 2020 estimated from NCEP reanalysis at 1000 hPa.

2.2 Surface dust concentration

Figure 2 shows the mean surface dust concentrations prospected using ECMWF forecast during the period from 27 December to 3 January 2020. Highest values of surface dust concentrations observed over the meningitis belt prevailed over the Sahel with spatial heterogeneity during this period. Very dusty atmospheric conditions prevailed over northeastern Senegal, Mauritania due to the high northwesterly wind from Azores High pressure. High values of dust concentrations were also observed over northern Mali, parts of Algeria, northern Niger, Chad, northern Nigeria and Burkina Faso, and central Sudan. Moderate or low surface dust concentrations remained over the rest of the remaining part of the meningitis belt.

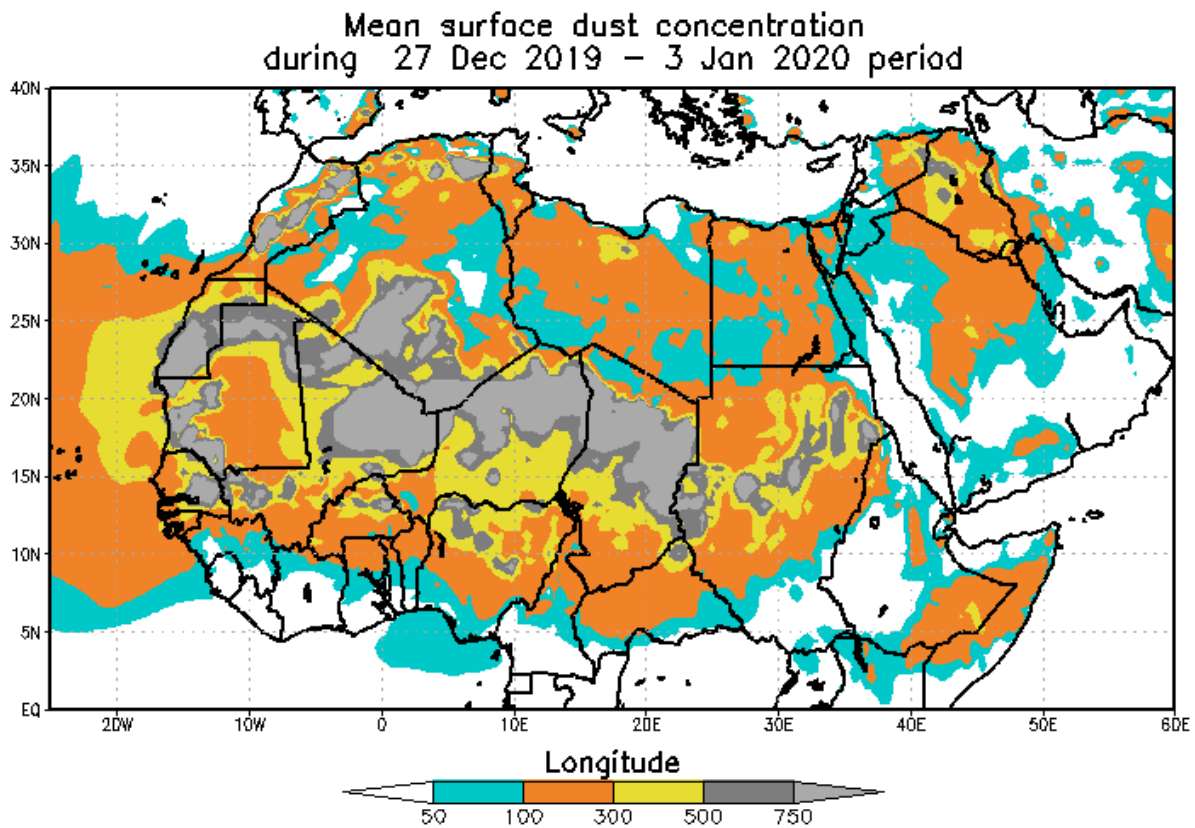


FIGURE 2 – Mean surface dust concentration ($\mu\text{g m}^3$) forecasted during the week from 27 December to 3 January 2020 from ECMWF.

2.3 Temperature

Figure 3 shows the mean temperature at 1000 hPa during the period from 27 December to 3 January 2020. It reveals relatively cold temperature the Sahara and northern Sahel with temperature lower than 27 °C. The coldest temperatures over Africa during this period were observed over Algeria, Egypt, Libya and Tunisia. A corridor of cold air mass extended from North Africa to the coast of Nigeria was observed. This situations was created by the advection in the low troposphere (Figure not shown) of cold air from the mid-latitudes and an anti-cyclonic circulations over Libya. The warmest temperatures between 27 and 30 C over West Africa were observed over southern Senegal, Guinea, Gambia, Bissau Guinea, Sierra Leona, Liberia, Ivory Coast, Ghana and southern Togo and Benin. The heating was observed over central East Africa and Southern Africa.

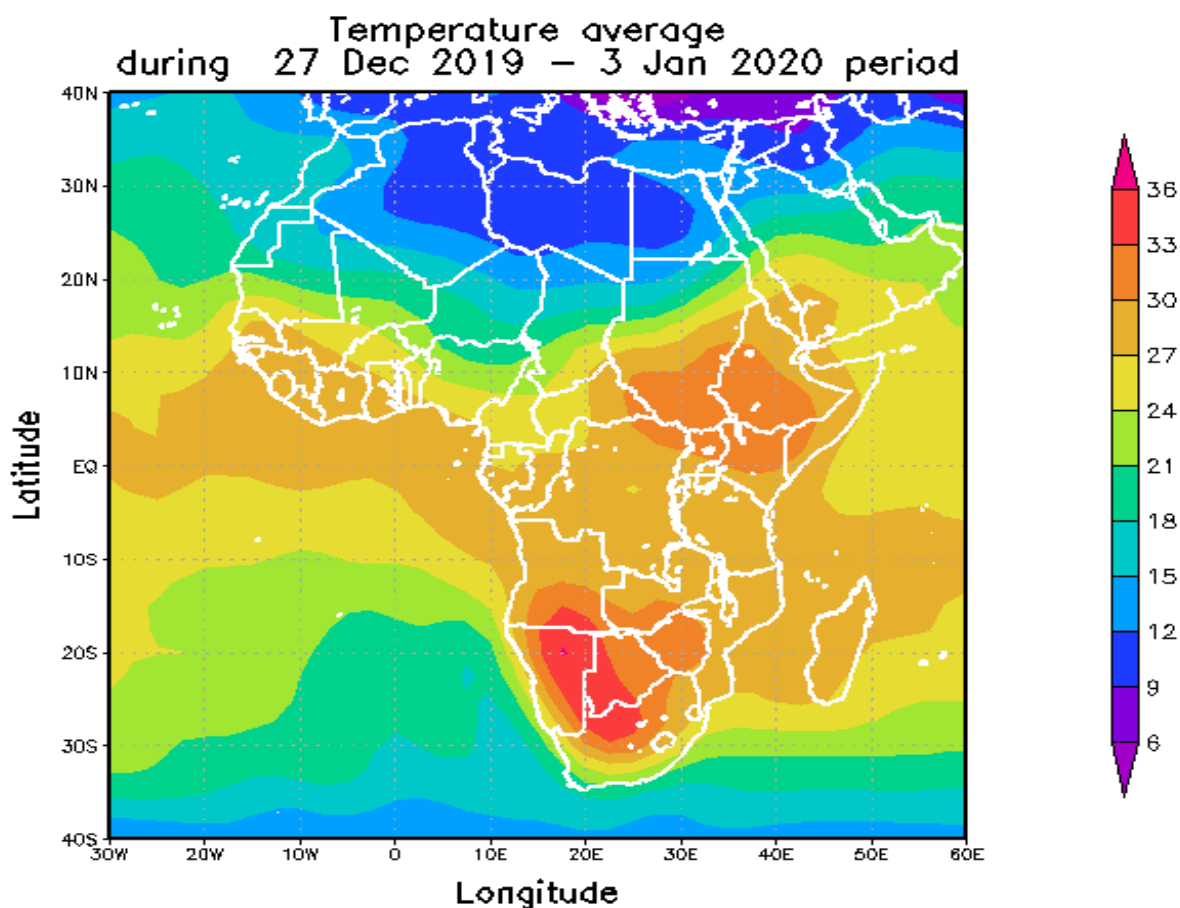


FIGURE 3 – Mean temperature (C) for the period from 27 December to 3 January 2020 estimated from NCEP reanalysis at 1000 hPa.

2.4 Meridional wind speed

Figure 4 presents the mean meridional wind speed at 1000 hPa during the period from 27 December to 3 January 2020. It shows that the ITD position was located on average over northern Liberia, central Ivory Coast, central Ghana, and northern Congo. Southerly wind named monsoon flow prevailed over this area. Northerly wind was observed over Mauritania, Senegal, Mali, Burkina Faso, Guinea, Bissau Guinea, Sierra Leona, Niger, Chad, Nigeria, Benin, Togo central and northern Cameroon, Sudan, South Sudan, northern Ivory Coast, and Ghana.

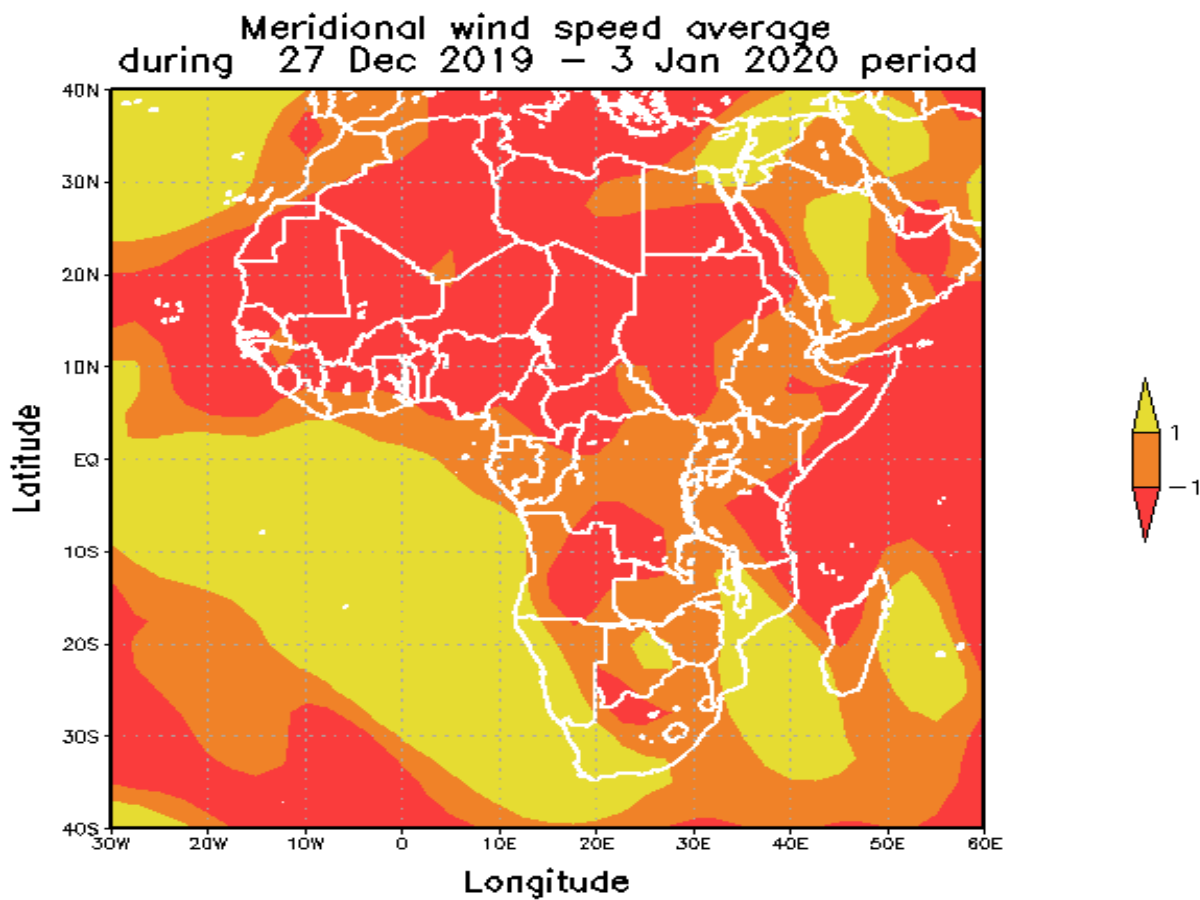


FIGURE 4 – Mean meridional wind speed (m s^{-1}) for the period from 27 December to 3 January 2020 estimated from NCEP reanalysis at 1000 hPa.