

# WEEKLY MENINGITIS VIGILANCE FOR AFRICA

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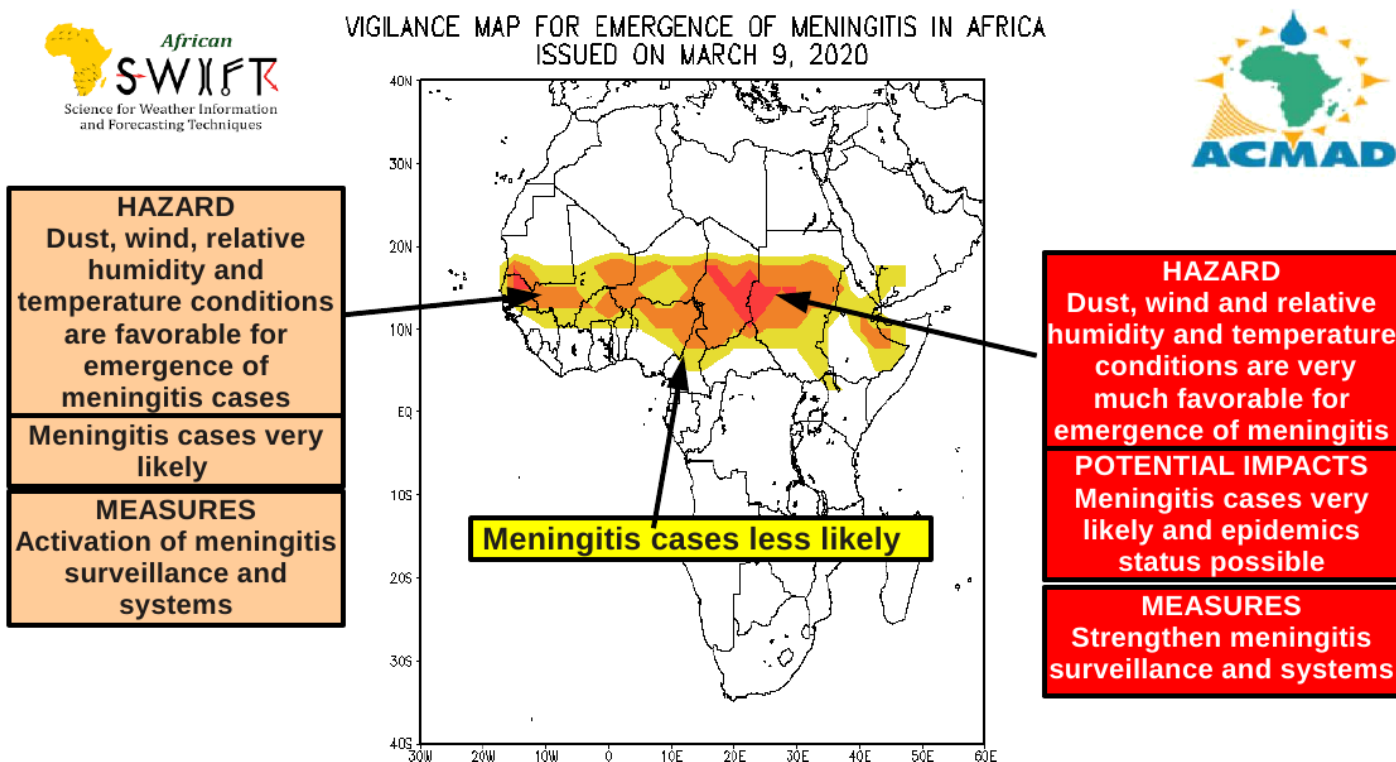
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# 1 Vigilance

- High vigilance is needed for meningitis cases over Northeastern Senegal, Southern Mauritania, central Chad, and western Sudan.
- Meningitis cases are very likely over eastern Senegal, southern Mauritania, southern and eastern Mali, much parts of Burkina Faso, northern Nigeria, Cameroon, CAR, and Benin, much parts of Chad, central and southern Sudan, and eastern Ethiopia.
- Low to no vigilance is needed over the remaining parts of the meningitis belt.



## 2 Atmospheric conditions

### 2.1 Relative humidity

Figure 1 shows the mean relative humidity (RH) at 1000 hPa estimated from NCEP reanalysis during 27 February – 4 March 2020 period. It indicates that very dry atmospheric conditions with RH below 20 % remained over the Sahel, northern Nigeria, northern CAR, Cameroon, Benin, Togo, Ghana, Guinea, Ivory Coast, Chad, central Sudan, northern South Sudan, and much parts of Algeria. Moistening atmospheric conditions (RH between 20 and 40 %) were observed over central Nigeria, central Benin, Togo, Ivory Coast, Ghana, Guinea, central and western Senegal, central Cameroon and CAR, much parts of Algeria, much parts of Sudan, northern Chad and Niger, and much parts of Mauritania. Very wet atmospheric conditions (relative humidity at least 60 %) was observed over central Ivory Coast, Liberia, Sierra Leona, southern Ghana, south equatorial countries, Somalia, part of South Africa, Madagascar, Mozambique, Botswana, northern Morocco, Algeria, Tunisia, and Egypt.

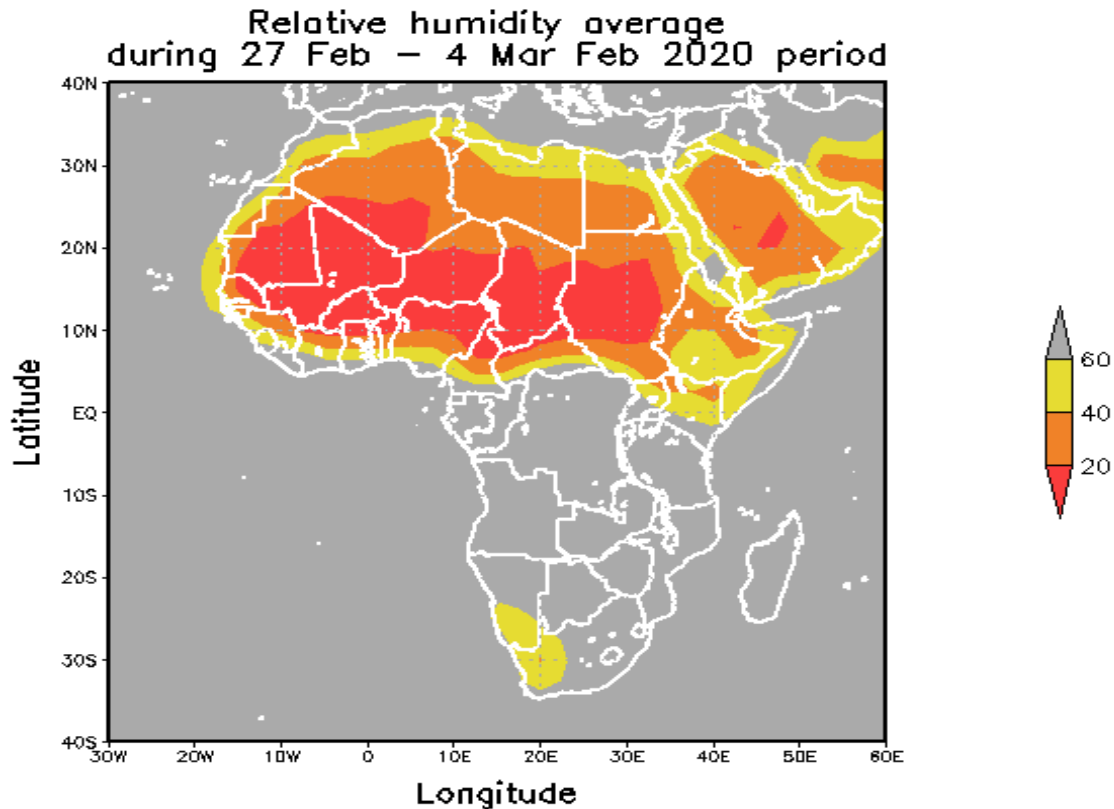


FIGURE 1 – Mean relative humidity (%) for the period 27 February – 4 March 2020 estimated from NCEP reanalysis at 1000 hPa.

## 2.2 Surface dust concentrations

Figure 2 presents the mean surface dust concentrations prospected using ECMWF forecast during the period 3 – 9 March 2020. It indicates that heterogeneous dusty atmospheric conditions were prospected over much parts of the Sahel and Sahara with more than  $300 \mu\text{g m}^{-3}$  on average during that period. Azores High pressure position (Figure not shown) allowed the triggering of dust and advection of moistened air (see Figure rh) over western part of West Africa (Senegal, Mauritania, parts of Algeria, and Western Morocco). Libya High pressure weakened (Figure not shown) but allowed favorable conditions for a very large uplift of surface dust over eastern Sahel. The northward migration of the ITD created good conditions over Guinea Gulf countries. Moderate dust concentrations were prospected over Somalia and Ethiopia.

In term of surface dust concentration, the large values prospected over the Sahel predicted an impact of the occurrence meningitis cases and respiratory diseases over Senegal, Mali, Mauritania, Burkina Faso, Niger, Chad, northern Cameroon, Nigeria, Morocco, Algeria, southern Libya, Egypt, northern CAR, Sudan, northern South Sudan, Somalia, and Ethiopia.

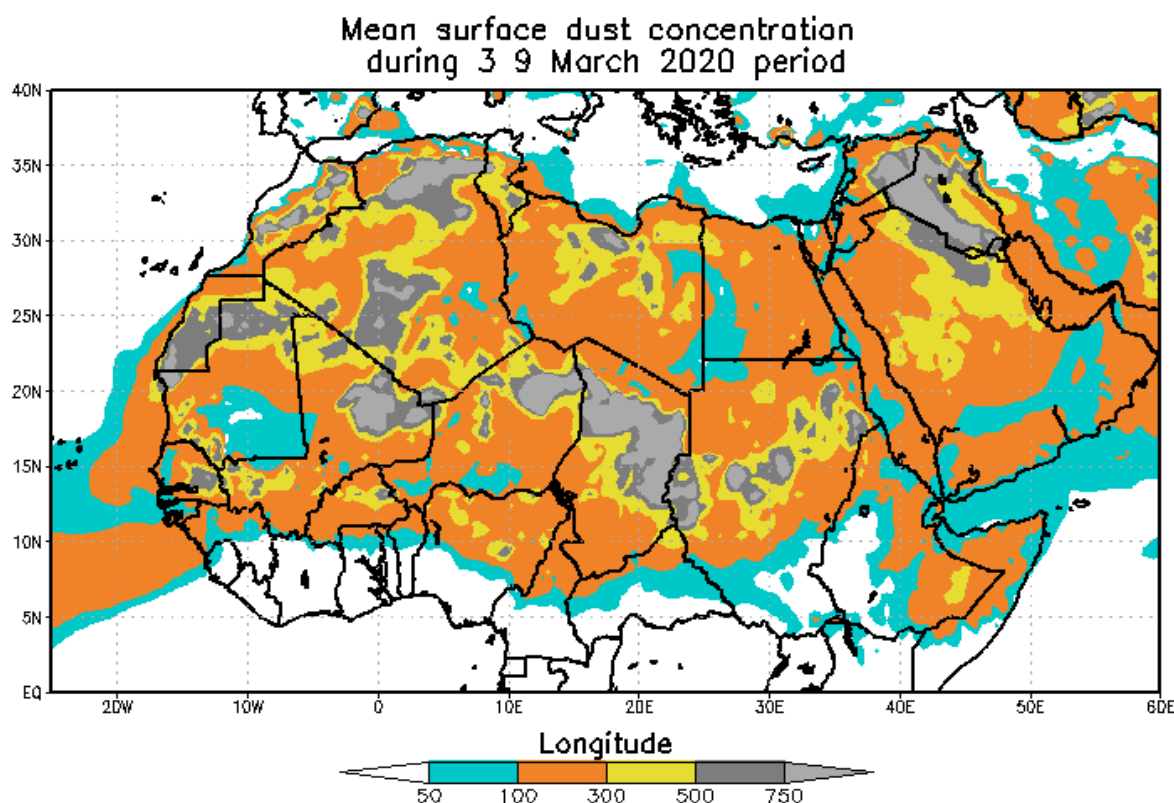


FIGURE 2 – Mean surface dust concentration ( $\mu\text{g m}^{-3}$ ) forecasted from ECMWF during 3 - 9 March 2020 period .

### 2.3 Temperature

Figure 3 shows the mean temperature at 1000 hPa during 27 February – 4 March 2020 period. It indicates that coldest atmosphere with temperature lower than  $18\text{ }^{\circ}\text{C}$  remained over northern Morocco and Algeria, Tunisia, northern Libya, and Egypt. During this period, an increase of the heating were observed over southern Mali and Burkina Faso, northern Benin, Togo, Ghana, Ivory Coast, and Guinea. Moderate to warm temperature (between  $27$  and  $33\text{ }^{\circ}\text{C}$ ) prevailed over southeastern Senegal, southern Mali, Guinea, Sierra Leona, Liberia, central Ivory Coast, Ghana, and Togo, Benin, and central Nigeria. The peak of heating over northern South Africa, eastern Namibia, southern Angola, and western Botswana remained during the last 7 days. The heating over Parts of East and central Africa remained and indicated the position of the Heat Low (HL).

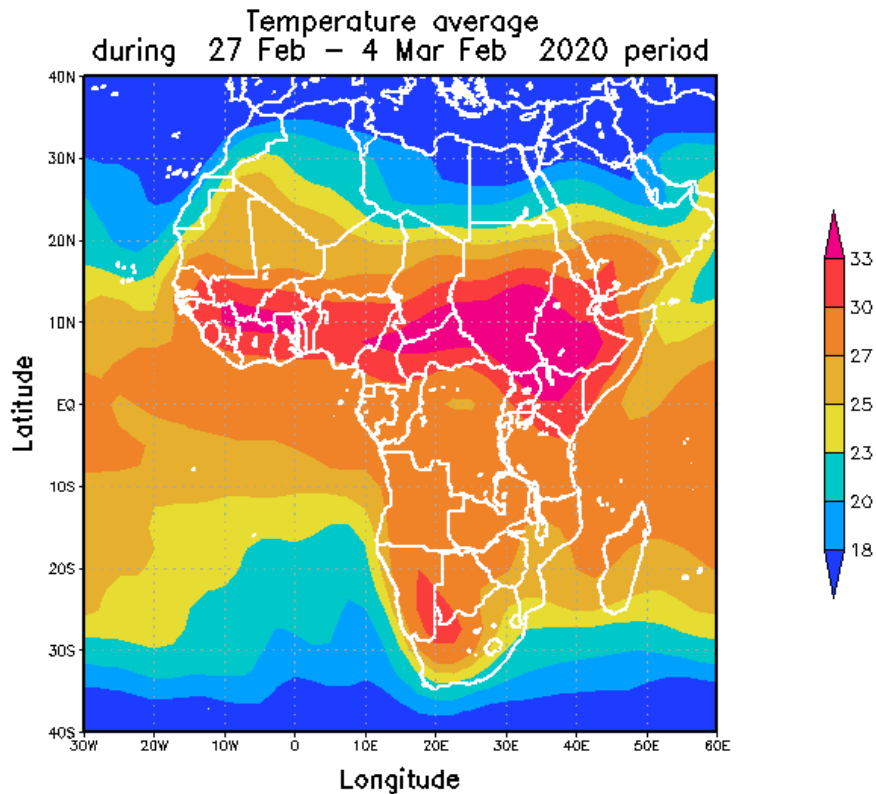


FIGURE 3 – Mean temperature ( °C) for the period from 27 February – 4 March 2020 estimated from NCEP reanalysis at 1000 hPa.

## 2.4 Meridional wind speed

Figure 4 shows the mean meridional wind speed at 1000 hPa during 27 February – 4 March 2020 period. It indicates a northward migration of the ITD compare to his position during the previous week. During our analysis period, it was located on average over Guinea, central Ivory Coast, central Ghana, Togo, Benin, and Nigeria. Southerly wind prevailed over central and Eastern Africa and much part of southern Africa. Harmattan wind associated with dusty atmospheric conditions, and relativity warm air prevailed over Mauritania, Senegal, Mali, Bissau Guinea, northern Guinea, Burkina Faso, northern Ivory Coast, Ghana, Togo, and Benin, Chad, Niger, central and northern Nigeria, northern Cameroon and CAR, and northern Sudan. The situation allows favorable conditions for meningitis cases over this area during the week from 9th to 16th March 2020.

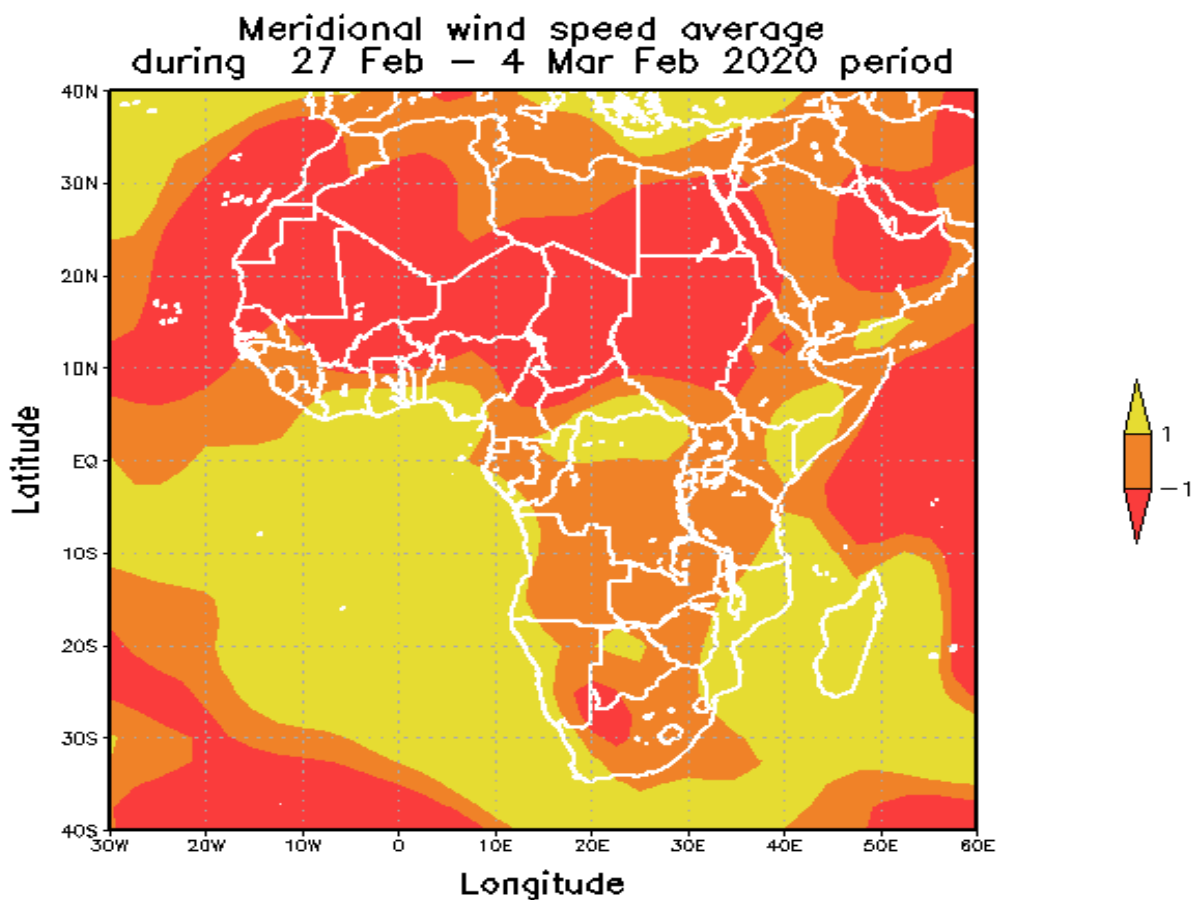


FIGURE 4 – Mean meridional wind speed (  $\text{m s}^{-1}$  ) during 27 February – 4 March 2020 period, estimated from NCEP reanalysis at 1000 hPa.