WEEKLY MENINGITIS VIGILANCE FOR AFRICA

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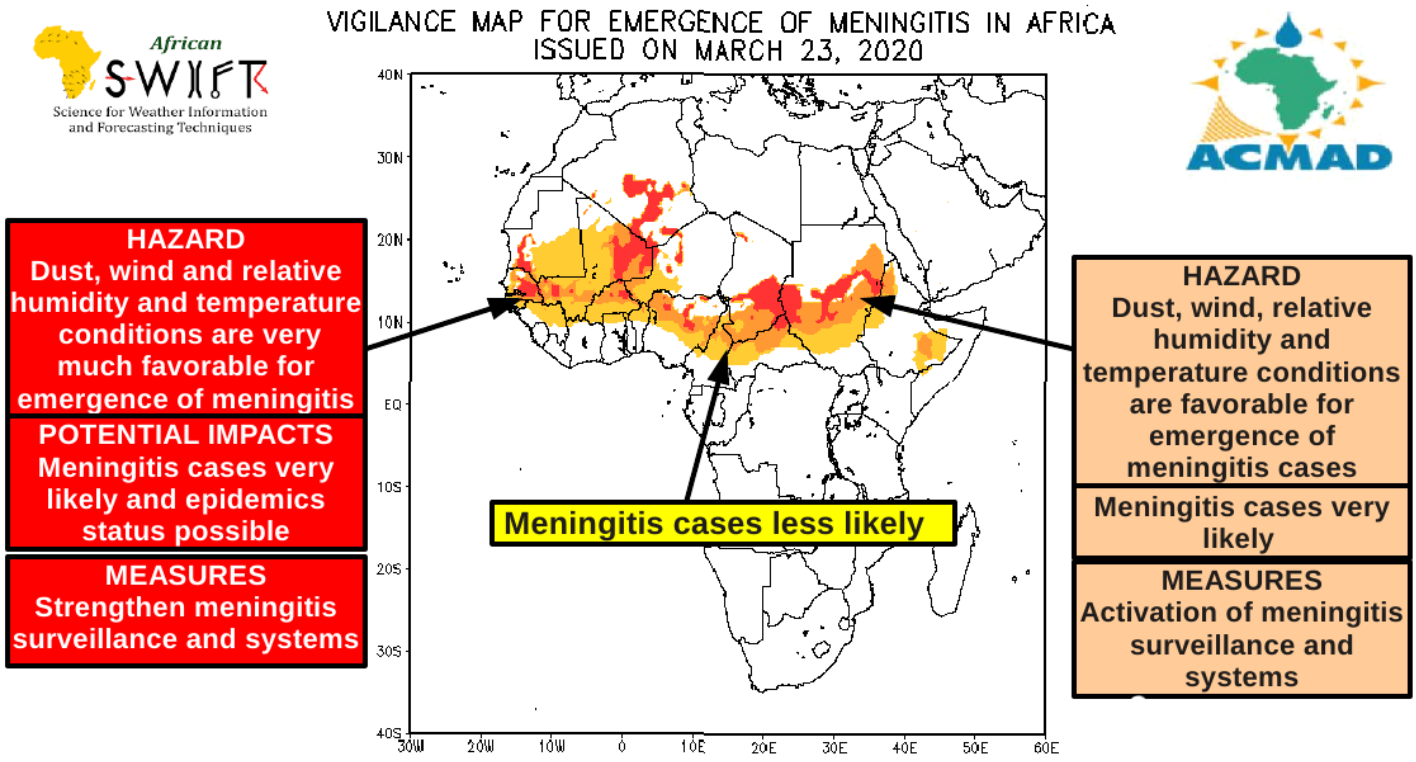
1 Vigilance

- High vigilance is needed for meningitis cases over central Senegal, parts of western Mauritania, eastern and central Mali, parts of central Niger, northern Burkina Faso, central Chad, parts of northern Nigeria, central Sudan, northern CAR, and southern Algeria.

- Meningitis cases are very likely over parts of Senegal, southern Mali, much parts of Burkina Faso, central Nigeria, northern Cameroon, northern CAR, and Benin, southern Chad, southern Sudan, and eastern and western 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 ERA5 reanalysis from ECMWF during 12 – 18 March 2020 period. It indicates that very dry atmospheric conditions with RH below 20 % remained over the Sahelian countries, northern Nigeria, northern CAR, Cameroon, Guinea, and Benin, southern Sudan, northern South Sudan, southern Algeria, and western Ethiopia. Moistening atmospheric conditions (RH between 20 and 40 %) were observed over western Senegal, Bissau Guinea, central Guinea, Western and northern Mauritania, western Burkina Faso, central Nigeria, northern Benin, Togo, Ivory Coast, Ghana, central Cameroon and CAR, much parts of Algeria, central South Sudan, parts of Ethiopia. Very wet atmospheric conditions (relative humidity at least 60 %) was observed over central and southern Ivory Coast, Liberia, Sierra Leona, southern and central Ghana, southern Nigeria, southern equatorial countries, eastern Somalia, part of South Africa, Madagascar, Mozambique, northern Botswana, northern Morocco, Algeria, Tunisia, Libya, and Egypt.

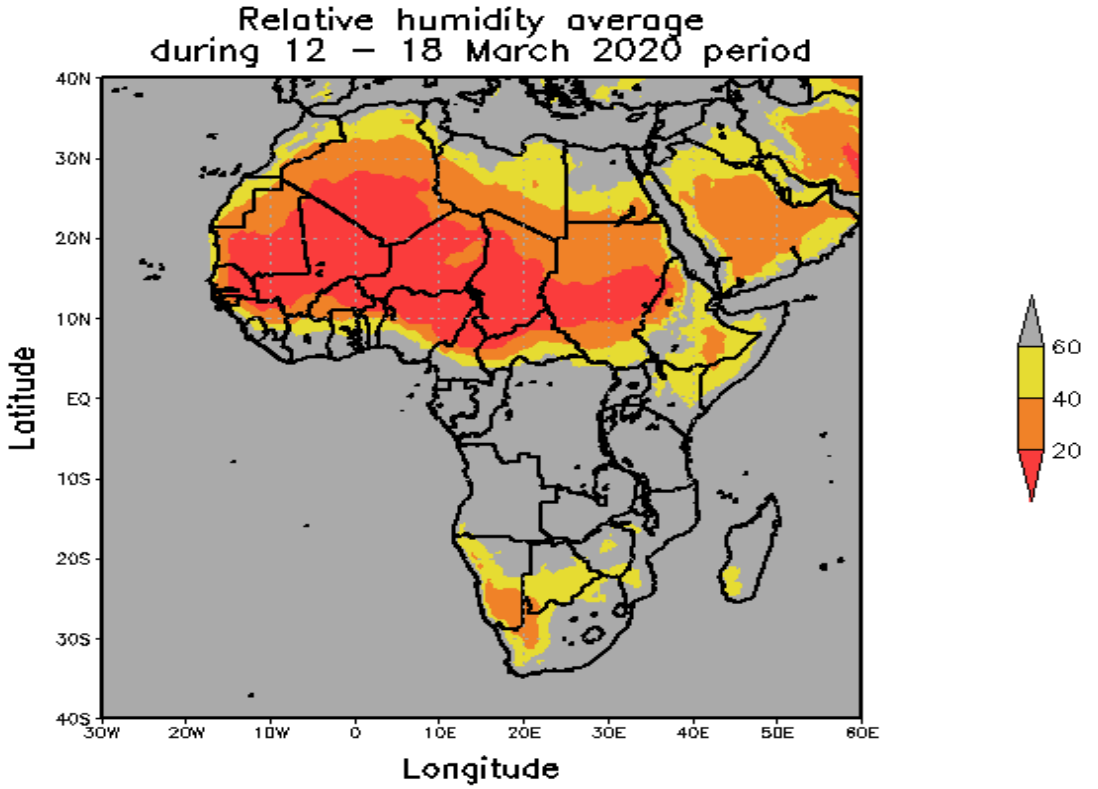


FIGURE 1 – Mean relative humidity (%) at 1000 hPa for the period 12 –18 March 2020 estimated from ERA5 reanalysis from ECMWF.

2.2 Surface dust concentrations

Figure 2 presents the mean surface dust concentrations prospected using ECMWF forecast during the period 12 – 18 March 2020. It indicates that heterogeneous very dusty atmospheric conditions were prospected over the African dust belt : much parts of the Sahel and Sahara with more than 300 μg m^{-3} on average during that period. Azores High pressure position slightly moved eastward (Figure not shown) allowed the dusty atmospheric conditions over western part of West Africa (western Senegal, Mauritania, and Morocco). Large uplift of surface dust was prospected over Chad, parts of Niger, Sudan, Libya, and Algeria. The northward migration of the ITD created good air quality over Guinea Golf countries. Moderate dust concentrations were prospected over Somalia and Ethiopia.

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

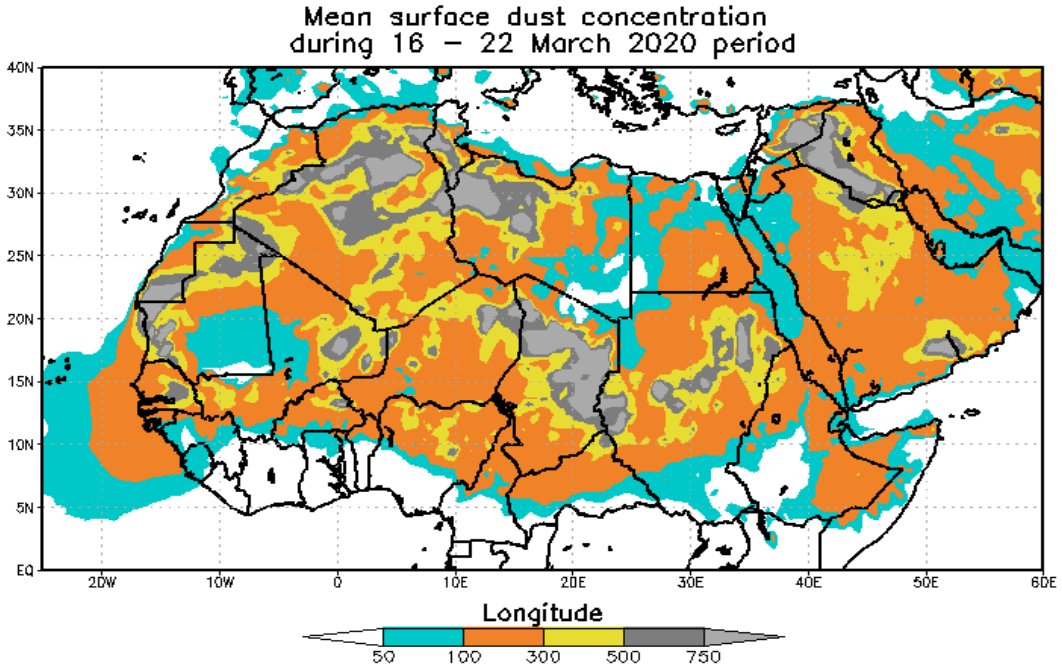


FIGURE 2 – Mean surface dust concentration (μg m^{-3}) forecasted from ECMWF during 16 – 22 March 2020 period .

2.3 Temperature

Figure 3 shows the mean temperature at 1000 hPa during 12 –18 March 2020 period. It indicates that coldest atmosphere with temperature lower than 18 ^{o}C remained over northern Morocco, Algeria, Tunisia, northern Libya, and Egypt. During this period, warm temperatures at least 33 ^{o}C were observed over southeastern Senegal, southern and central Mali, Burkina Faso, northern Benin, Togo, Ghana, Ivory Coast, and Guinea, central Nigeria, northern Cameroon, southern Chad, western Niger, northern CAR, South Sudan, parts of Ethiopia, southern Sudan, and northern Kenya. Moderate to warm temperature (between 25 and 33 ^{o}C) prevailed over western Senegal, northern Mali, Guinea, Sierra Leona, Liberia, Ivory Coast, Ghana, and Togo, Benin, and southern 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, Central, and West Africa remained and indicated the position of the Heat Low (HL).

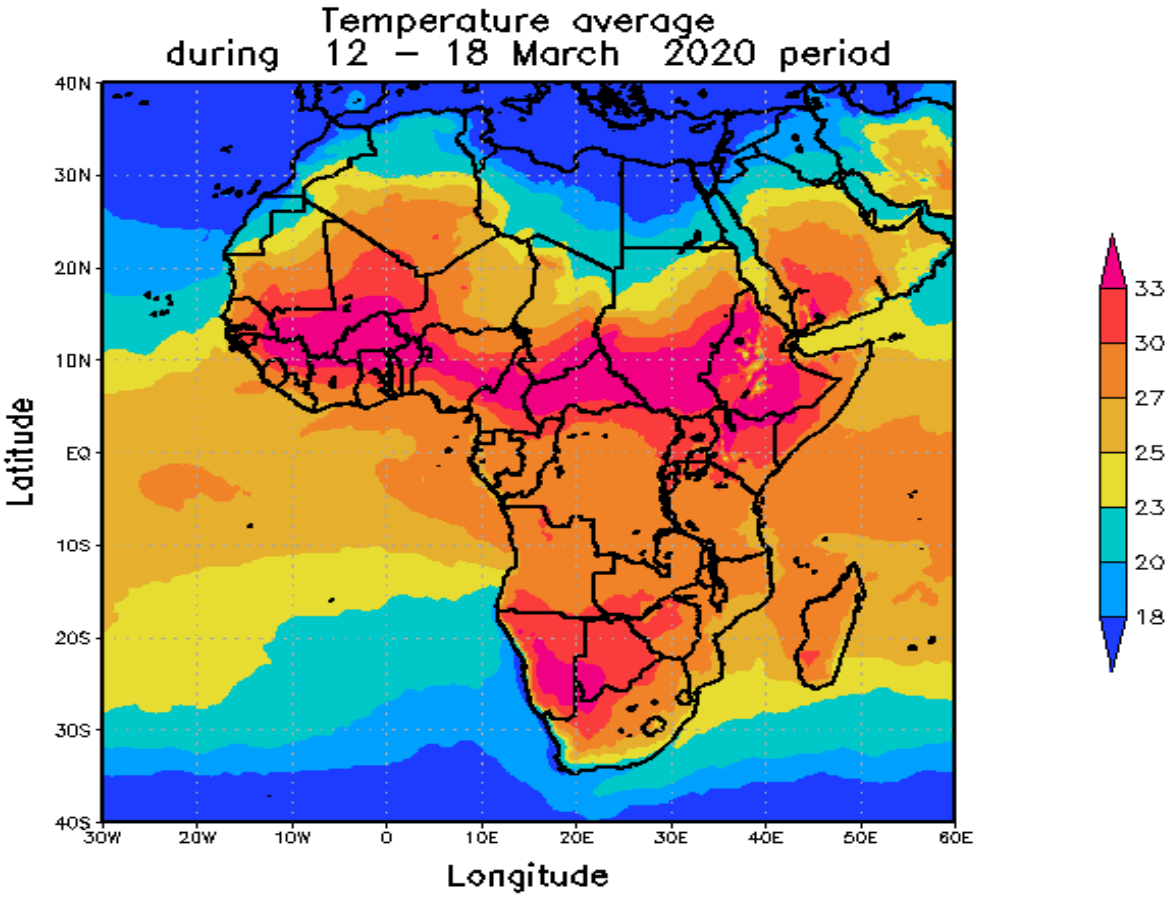


FIGURE 3 – Mean temperature (^{o}C) at 1000 hPa for the period from 12 –18 March 2020 estimated from ERA5 reanalysis produced by ECMWF.

2.4 Meridional wind speed

Figure 4 shows the mean meridional wind speed at 1000 hPa during 12 – 18 March 2020 period. It indicates that the ITD remained relatively at his position compare to previous week. During these 7 days, it was located on average over southern Guinea, northern Ivory Coast, Ghana, Togo, Benin, and central Nigeria. The conditions are favorable to good air quality over Gulf of Guinea countries. Southerly wind prevailed over central and Eastern Africa and much part of southern Africa. A corridor of southerly wind prevailed between the Gulf of Guinea and northern Africa : western Niger, Burkina Faso, eastern Mali, western Libya, and Algeria. These conditions was created by the presence of a low pressure over Algeria. Harmattan wind associated with very dusty atmospheric conditions, and relativity warm air prevailed over Mauritania, Senegal, Mali, Bissau Guinea, northern Guinea, Burkina Faso, Chad, eastern Niger, northern Nigeria, northern Cameroon and CAR, and Sudan. The situation allows favorable conditions for meningitis cases over this area during the week from 23th to 30th March 2020.

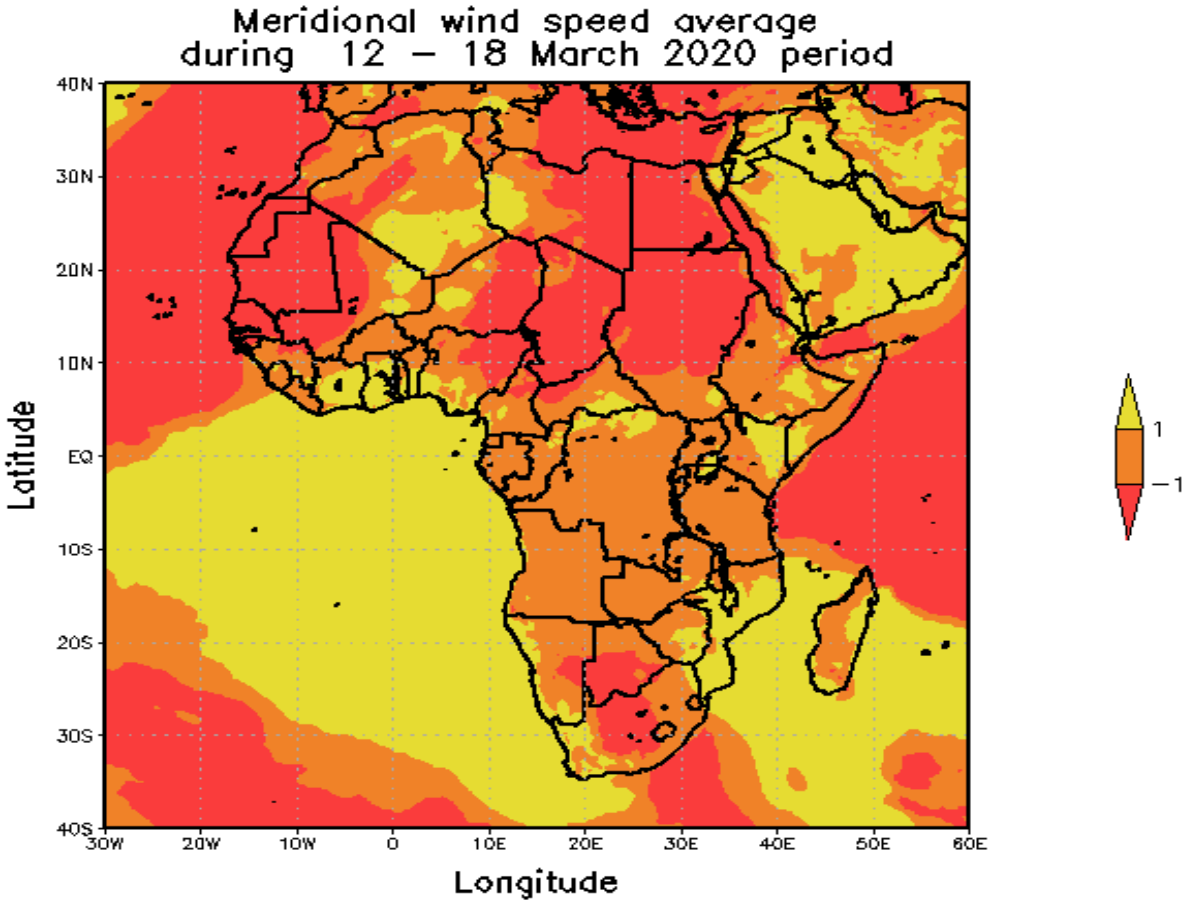


FIGURE 4 – Mean meridional wind speed (m s^{-1}) at 1000 hPa during 12 –18 March 2020 period, estimated from ERA5 reanalysis produced by ECMWF.