

WEEKLY MENINGITIS VIGILANCE FOR AFRICA

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Valid until February 20, 2022

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1 Vigilance

Week 1 : from 14th to 20th February 2022

- Meningitis outbreaks are likely over central Niger, northeastern Mali, and central Chad.
- Meningitis cases are very likely over Chad, northern and western Sudan, extreme southern Algeria, much parts in Mali, Niger, northern Nigeria, northern Burkina Faso, extreme northern Cameroon, extreme northeastern Central African Republic (CAR), southern Mauritania, and Senegal.
- Meningitis cases are less likely over the rest of the African meningitis belt.

Week 2 : from 21st to 27th February 2022

- Meningitis outbreaks are likely over central Chad and northern Mali.
- Meningitis cases are very likely over Chad, central Sudan, extreme southern Algeria, much parts in Mali, extreme eastern Niger, northeastern Nigeria, northern Burkina Faso, southern Mauritania, eastern Gambia, and Senegal.
- Meningitis cases are less likely over the rest of the African meningitis belt.



FIGURE 1 – African Meningitis Belt.

2 Atmospheric conditions

2.1 Relative humidity

Figure 2 shows the weekly mean relative humidity (RH) at 1000 hPa predicted by ECMWF Model for the periods from 14th to 20th February 2022 and from 21st to 27th February 2022 issued on 7th February 2022. It indicates that during the next two weeks, very dry atmospheric conditions with RH below 20 % will remain over the Sahel (Chad, CAR, southern Sudan, South Sudan, Mali, Mauritania, Niger, northern Cameroon, central and northern Nigeria, northern Benin, northern Togo, northern Ghana, northern Ivory Coast, northern Guinea, Burkina Faso, Mauritania, and Senegal). These conditions predict favorable conditions for dust lifting over the Bodele depression and the Sahara. Moistening atmospheric conditions (RH between 20 and 40 %) are prospected over much parts of the northern Sahelian zone, Ethiopia, northern Gulf of Guinea countries, southern Libya, southern Egypt, and central Algeria. Very wet atmospheric conditions (relative humidity more than 60 %) will prevail over much parts in central and southern Gulf of Guinea countries under the monsoon flow, Central Africa, Madagascar, much parts across eastern Southern Africa, and eastern East Africa. Atmospheric conditions are expected to become stable over the meningitis belt during the week from 21 to 27 February 2022.

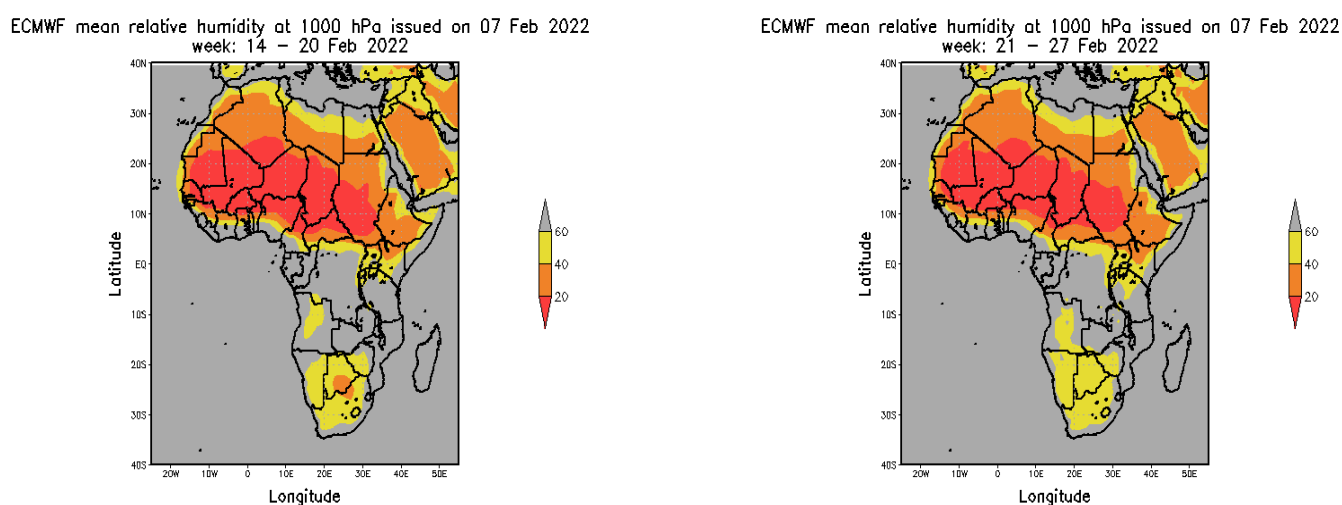


FIGURE 2 – ECMWF forecast of weekly mean relative humidity (%) at 1000 hPa for the week 14 – 20 February 2022 (left) and week 21 – 27 February 2022 (right). The forecast data are issued on 7th February 2022 and the mean is computed using the 51 ensemble members.

2.2 Air quality forecast

Figure 3 indicates the impact on health of weekly surface dust concentrations and local air pollution prospected using forecasts from the Barcelona Dust Forecast Center and Caribbean Institute for Meteorology and Hydrology. During the week from 14th to 20th February 2022, episodic dust outbreaks are expected over the western and eastern Sahel, and northern Africa. Azores High system is expected to strengthen and move eastward from the Ocean to Northern Africa and Mediterranean Sea. This synoptic atmospheric circulation will be associated with dust lifting over the western meningitis belt (Senegal, Gambia, Guinea, Bissau Guinea, Mali, and Mauritania). The Libya high is expected to occur during the end of the week. Therefore, dust outbreaks are expected over eastern West Africa. Episodic dusty atmospheric conditions will prevail over Niger, northern Nigeria, northern Cameroon, Chad, Sudan, northern CAR, and northern Benin. The dry atmospheric conditions forecasted over northern Central Africa will favor biomass burning over this area and westward transport of gases flaring over the coasts. This pollution will have an impact on sensitive groups (Asthma, chronic respiratory disease).

In term of surface dust concentrations, the large values prospected over the Sahel and northern Gulf of Guinea countries predicted an impact on the occurrence of meningitis cases and respiratory diseases over Niger, Chad, Senegal, Gambia, Guinea, Mali, Mauritania, Nigeria, Ghana, Cameroon, CAR, Benin, northern Togo, Burkina Faso, Sudan, South Sudan, Ethiopia, Uganda, and Republic Democratic of Congo (DRC).

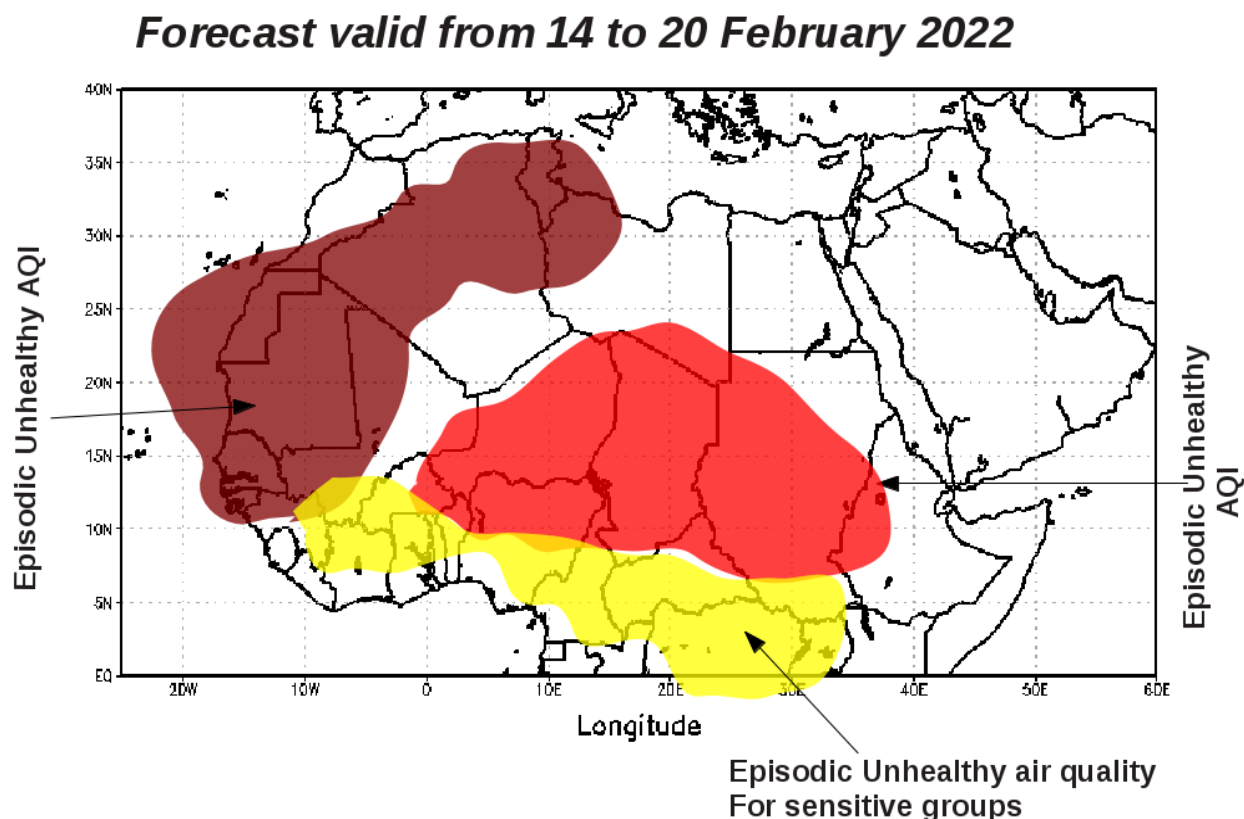
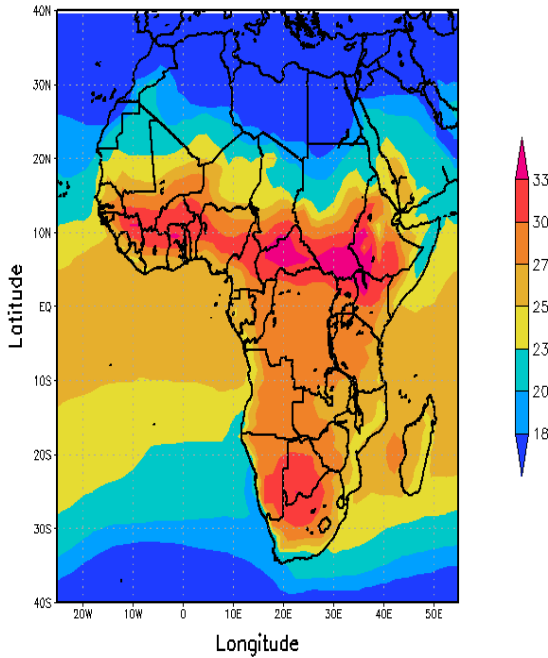


FIGURE 3 – Vigilance map of expected air quality over the African meningitis belt during the week from 14th to 20th February 2022. This map is a synthesis of several model dust forecasts during that period.

2.3 Temperature

Figure 4 shows the weekly mean temperature at 1000 hPa during the weeks from 14th to 20th February 2022 and 21st to 27th February 2022 forecasted by ECMWF model issued on 7th February 2022 using the 51 ensemble members. During the first week of the forecasts, warmest temperatures are predicted over eastern Sahel, central Southern Africa, and northern Gulf of Guinea countries (Ghana, Ivory Coast, and Guinea) with temperature greater than 33 °C. Moderate temperature are expected over southern Central and East Africa. The high pressure forecasted over northern Africa will allow advection of cold air with temperatures below 18 °C and dust across this region and northeastern Sahel (northern Morocco, Algeria, Tunisia, Libya, Egypt, extreme northern Niger, northeastern Chad, and northern Sudan). Temperatures are expected to increase over the African meningitis belt during the following week from 21 to 27 February 2022.

ECMWF mean temperature at 1000 hPa issued on 07 Feb 2022
week: 14 – 20 Feb 2022



ECMWF mean temperature at 1000 hPa issued on 07 Feb 2022
week: 21 – 27 Feb 2022

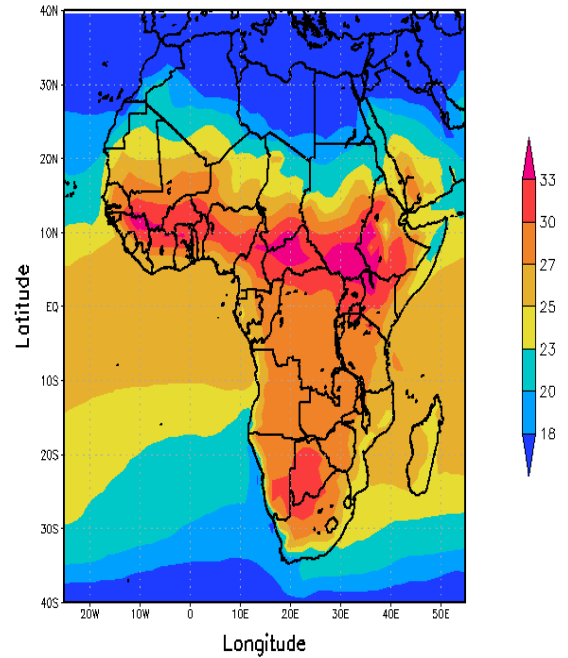
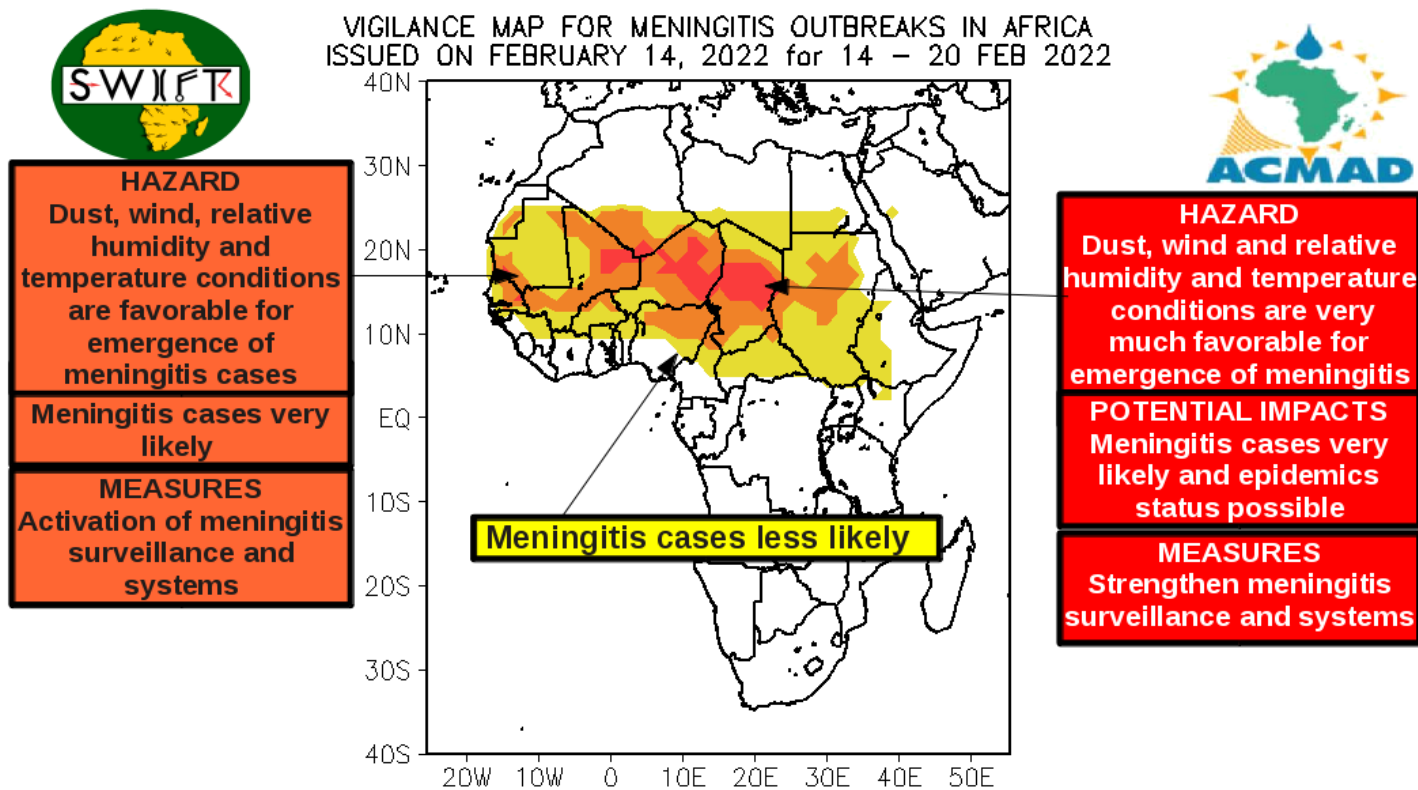


FIGURE 4 – ECMWF forecast of weekly mean air temperature ($^{\circ}\text{C}$) at 1000 hPa for the week 14 – 20 February 2022 (left) and week 21 – 27 February 2022 (right). The forecast data are issued on 7th February 2022 and the mean is computed using the 51 ensemble members.

3 Vigilance Map for meningitis outbreaks

Valid from 14th to 20th February 2022.



Valid from 21st to 27th February 2022



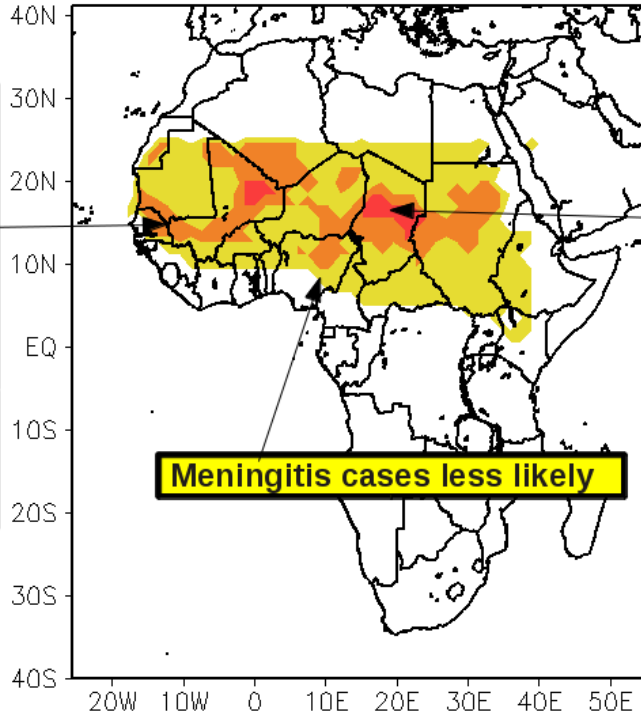
VIGILANCE MAP FOR EMERGENCE OF MENINGITIS IN AFRICA
ISSUED ON FEBRUARY 14, 2022 for 21-27 FEBRUARY 2022



HAZARD
Dust, wind, relative humidity and temperature conditions are favorable for emergence of meningitis cases

Meningitis cases very likely

MEASURES
Activation of meningitis surveillance and systems



HAZARD
Dust, wind and relative humidity and temperature conditions are very much favorable for emergence of meningitis

POTENTIAL IMPACTS
Meningitis cases very likely and epidemics status possible

MEASURES
Strengthen meningitis surveillance and systems