

# WEEKLY MENINGITIS VIGILANCE FOR AFRICA

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Valid until March 13, 2022

Produced by Dr Cheikh DIONE ([cheikh.dione@acmad.org](mailto:cheikh.dione@acmad.org))



**GCRF**



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# 1 Vigilance

Week 1 : from 7<sup>th</sup> to 13<sup>th</sup> March 2022

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

Week 2 : from 14<sup>th</sup> to 20<sup>th</sup> March 2022

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

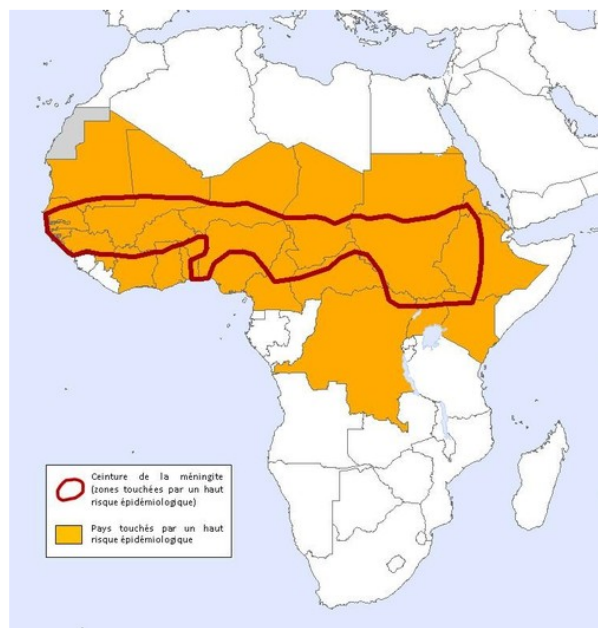


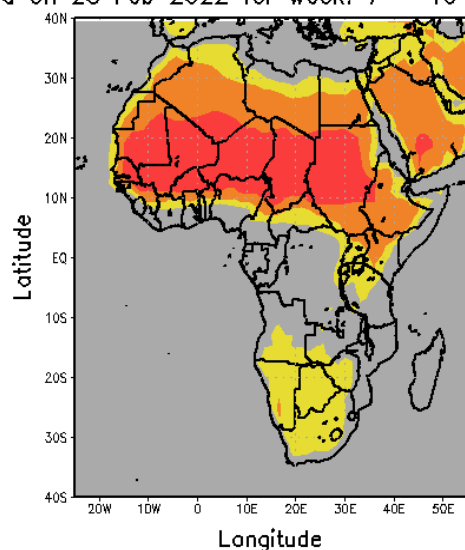
FIGURE 1 – African Meningitis Belt.

## 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 7<sup>th</sup> to 13<sup>th</sup> March 2022 and from 14<sup>th</sup> to 20<sup>th</sup> March 2022 issued on 28<sup>th</sup> February 2022. It indicates that during the next two weeks, very dry atmospheric conditions with RH below 20 % will remain over the meningitis belt (Chad, southern Sudan, northern South Sudan, Mali, Mauritania, Niger, extreme northern Cameroon, northern Nigeria, extreme northern Benin and Burkina Faso). These atmospheric conditions associated with forecasted wind 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, extreme northern Gulf of Guinea countries, 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 14<sup>th</sup> to 20<sup>th</sup> March 2022.

ECMWF mean relative humidity (%) at 1000 hPa  
issued on 28 Feb 2022 for week: 7 – 13 Mar 2022



ECMWF mean relative humidity (%) at 1000 hPa  
issued on 28 Feb 2022 for week: 14 – 20 Mar 2022

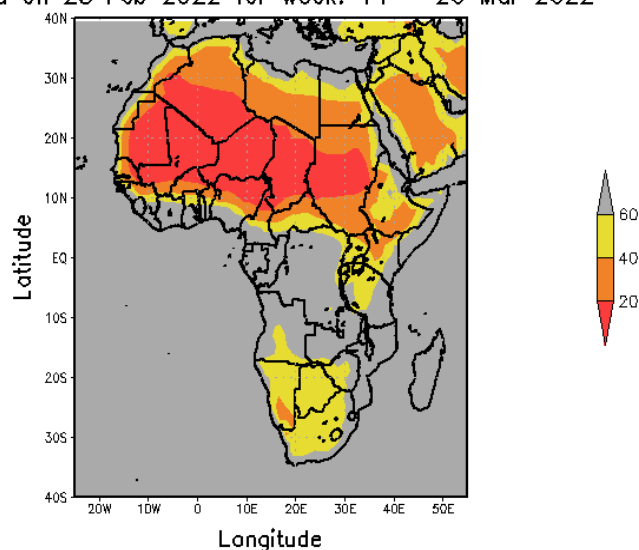


FIGURE 2 – ECMWF forecast of weekly mean relative humidity (%) at 1000 hPa for the week 7 – 13 March 2022 (left) and week 14 – 20 March 2022 (right). The forecast data are issued on 28<sup>th</sup> 2022 and the mean is computed using the 51 ensemble members.

## 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 7<sup>th</sup> to 13<sup>th</sup> March 2022, episodic dust outbreaks are expected over the northern and eastern the meningitis belt. A Low pressure system moving eastward during two days from Monday to Tuesday will be preceded by a large high pressure system over northern Africa. Synoptic atmospheric circulations across eastern Sahel will be associated with the persistence of high pressure system over this region and will allow dust lifting over the Bodele depression, consequently episodic poor air quality. Episodic unhealthy air quality will prevail over central and northern Niger, northern Mali, Algeria, southern Libya, southern Egypt, Chad, northeastern Nigeria, northern Cameroon, Sudan, northern South Sudan, and western Ethiopia. The dry atmospheric conditions forecasted over central Sahel will be associated with biomass burning over this area and westward transport of dust will make the air quality episodically unhealthy for sensitive groups (Asthma, chronic respiratory disease).

In term of surface dust concentrations, the episodic dust outbreaks prospected over the eastern and northern Sahel and northern Gulf of Guinea countries predicted an impact on the occurrence of meningitis cases and respiratory diseases over Niger, Chad, Senegal, Guinea, Mali, Mauritania, Nigeria, Ghana, Cameroon, CAR, Benin, northern Togo, Burkina Faso, Sudan, and South Sudan.

## Forecast valid from 7 to 13 March 2022

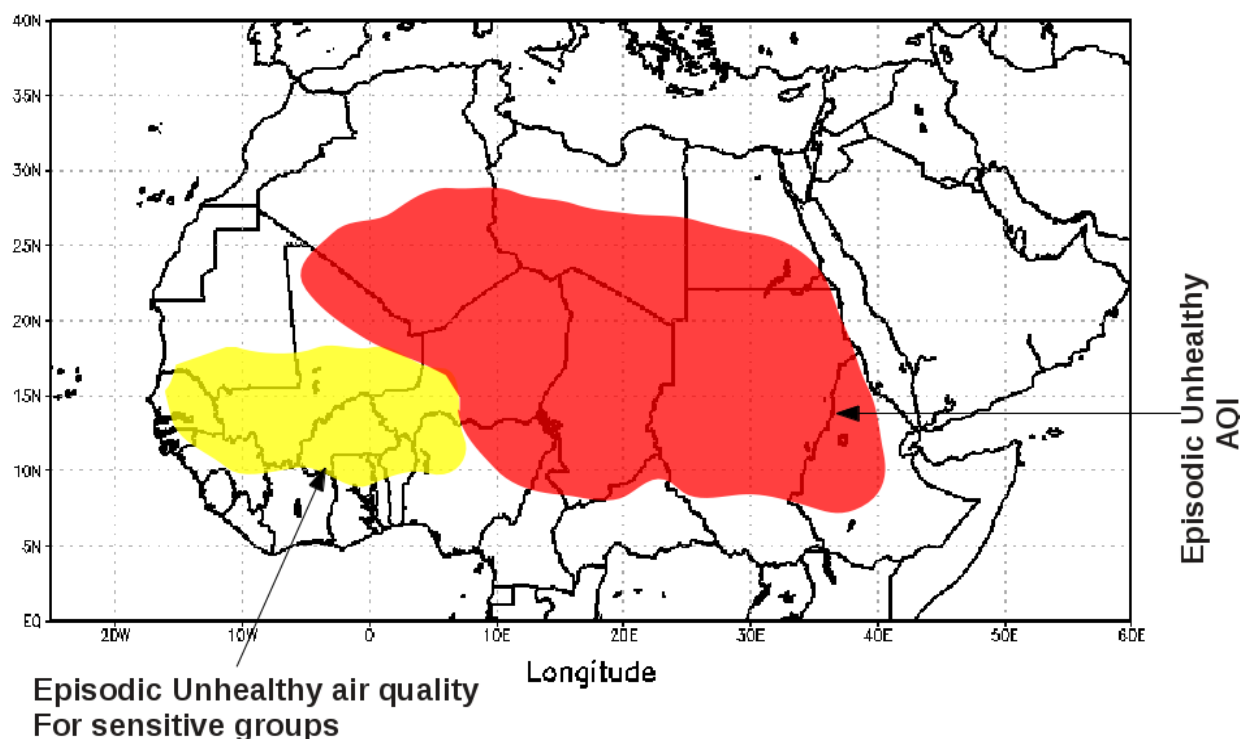
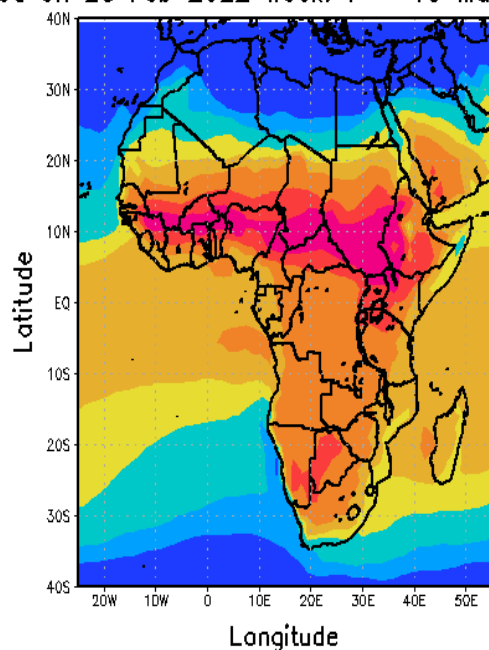


FIGURE 3 – Vigilance map of expected air quality over the African meningitis belt during the week from 7<sup>th</sup> to 13<sup>th</sup> March 2022. This map is a synthesis of several model dust forecasts during that period.

## 2.3 Temperature

Figure 4 shows the weekly mean temperature at 1000 hPa during the weeks from 7<sup>th</sup> to 13<sup>th</sup> March 2022 and 14<sup>th</sup> to 20<sup>th</sup> March 2022 forecasted by ECMWF model issued on 28<sup>th</sup> February 2022 using the 51 ensemble members. During the first week of the forecasts, warmest temperatures associated with the Saharan Heat Low (SHL) are predicted over southern Sahel with temperature greater than 33 °C. Heat waves are expected over extreme northern Ivory Coast, southern Mali, Burkina Faso, northern Guinea, northern Ghana, northern Togo, northern Benin, extreme northern Cameroon, central Nigeria, northern CAR, western Ethiopia, northwestern Kenya, northern Uganda, and South Sudan. Moderate temperatures are expected over southern Central and East Africa, much parts in southern Africa and northern the meningitis belt. The high pressure forecasted over Mediterranean Sea will allow advection of cold air with temperatures below 18 °C and dust outbreaks across this region and northeastern Sahel (Algeria, Tunisia, Libya, Egypt). Temperatures are expected to decrease over the African meningitis belt during the following week from 14<sup>th</sup> to 20<sup>th</sup> March 2022.

ECMWF mean temperature (degree C) at 1000 hPa  
issued on 28 Feb 2022 week: 7 – 13 March 2022



ECMWF mean temperature (degree C) at 1000 hPa  
issued on 28 Feb 2022 week: 14 – 20 March 2022

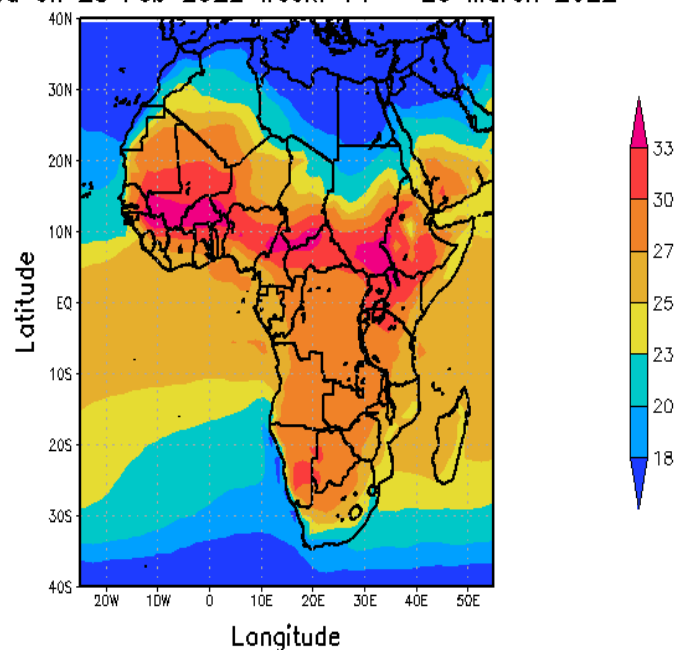
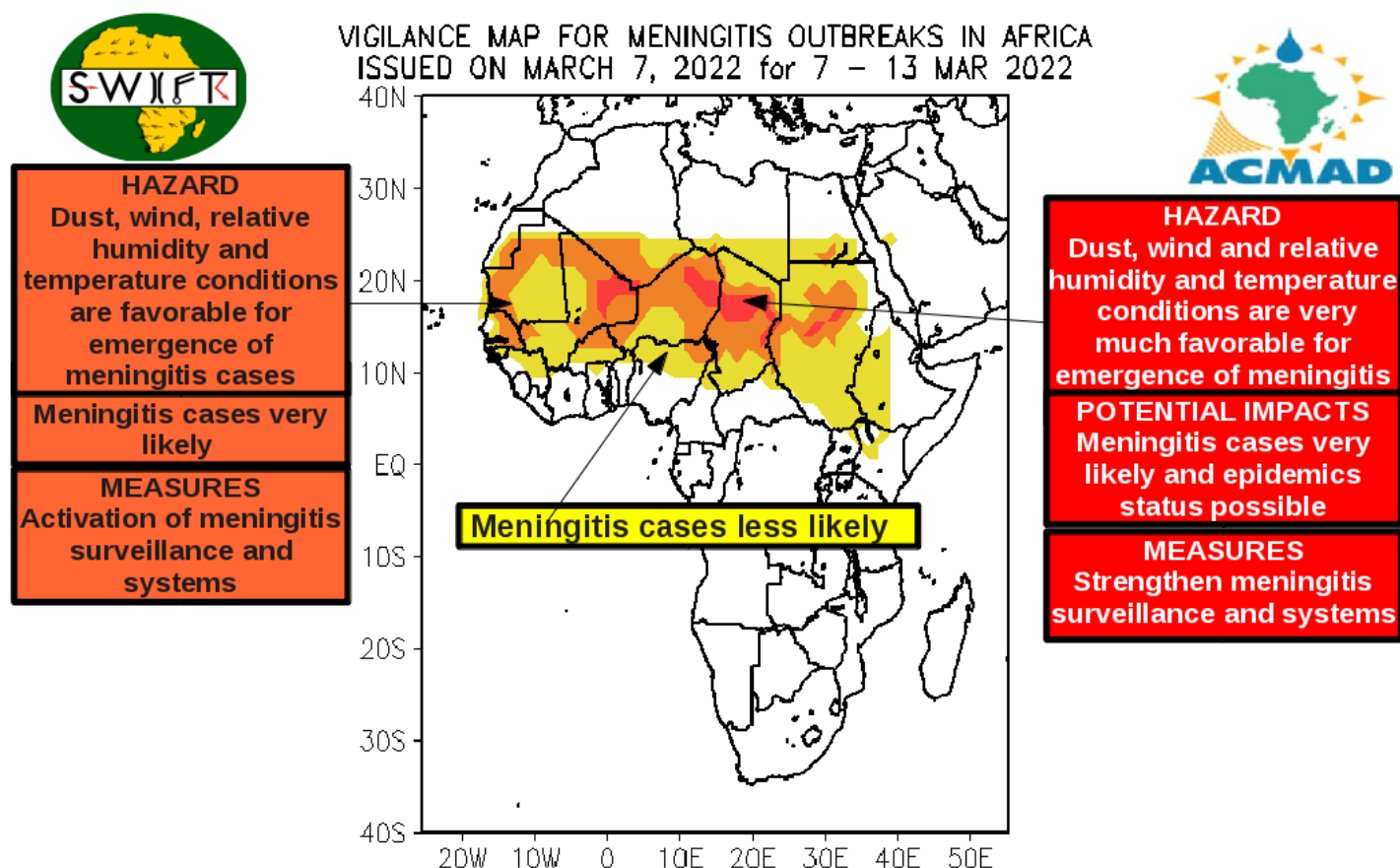


FIGURE 4 – ECMWF forecast of weekly mean air temperature ( $^{\circ}\text{C}$ ) at 1000 hPa for the week 7 – 13 March 2022 (left) and week 14 – 20 March 2022 (right). The forecast data are issued on 28<sup>th</sup> February 2022 and the mean is computed using the 51 ensemble members.

### 3 Vigilance Map for meningitis outbreaks

Valid from 7<sup>th</sup> to 13<sup>th</sup> March 2022.



Valid from 14<sup>th</sup> to 20<sup>th</sup> March 2022



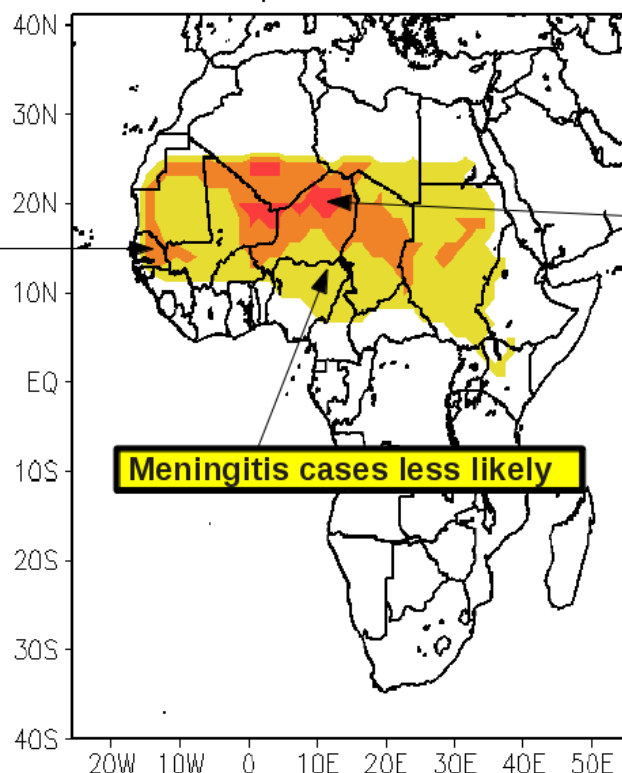
VIGILANCE MAP FOR EMERGENCE OF MENINGITIS IN AFRICA  
ISSUED ON MARCH 7, 2022 for 14 - 20 MARCH 2022



**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