

Long Lead Forecasts to Protect African Food Sources

An Application of the World Climate Service

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<https://www.worldclimateservice.com>

The Customer

“Temperature is not that important. It’s already too hot in Sub-Saharan Africa. Precipitation is much more important because of its impact on soil moisture. That’s why your forecasts are so important”, explained Keith Cressman, leader of the UN Food and Agriculture Organization’s (FAO) Desert Locust Information Service (DLIS) while reviewing the salient features of the World Climate Service. The FAO DLIS is responsible for monitoring and forecasting Desert Locust outbreaks and plagues in Sub-Saharan Africa, the Near East and southwest Asia and provides early warning to affected countries and the global community. FAO also coordinates the response during locust plagues.

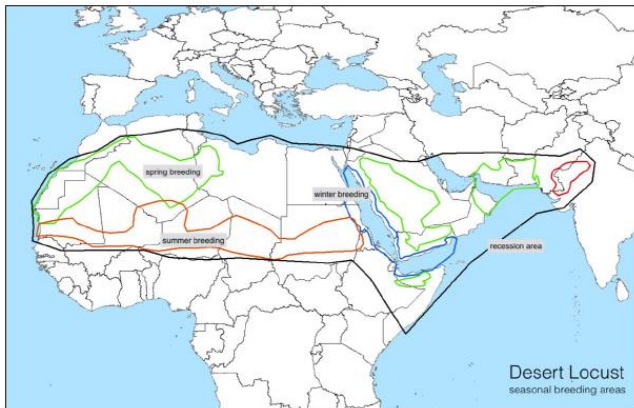


Figure 1. Regions susceptible to Desert Locust development and outbreaks.

According to “Weather and Desert Locusts”¹, a joint publication by the UN’s FAO and World Meteorological Organization (WMO), “the Desert Locust has the potential to damage the livelihoods of one tenth of the world’s population. A swarm the size of Bamako (Mali) or Niamey (Niger) can consume what half the population of either country would eat in a single day”. The risk of Desert Locust outbreaks is very real and can have significant and long-lasting impacts.

“When plentiful rainfall and annual green vegetation develop, Desert Locusts can increase rapidly in number and, within a month or two, start to concentrate and become gregarious. Unless checked, this can lead to bands of wingless nymphs and swarms of winged adults.”² All locust development phases benefit from the moist conditions rainfall provides.

The Product

The UN FAO DLIS mission is to monitor, forecast and warn of the development of Desert Locust populations across a significant portion of the face of the Earth. While many factors contribute to a Desert Locust outbreak, precipitation is a critical ingredient. Mr. Cressman surveys a number of sources of weather information to see what has happened and is happening on a day-to-day basis. The World Climate Service (WCS), however, provides him with an important tool set for long lead forecasting of precipitation events weeks and months in advance. The WCS Subseasonal product, which provides forecasts 2 to 6 weeks in advance, and the companion Seasonal product, which provides forecasts for 1 to 6 months in advance, help Mr. Cressman better understand the risks of the greater than normal precipitation that could potentially lead to the development of Desert Locust outbreaks.

¹ Weather and Desert Locusts, World Meteorological Organization and the UN Food and Agriculture Organization, WMO No. 1175, 2016

² Ibid

Despite having access to seasonal forecasts provided by well-funded, academic institutions, Mr Cressman continues to rely on the World Climate Service for his subseasonal/seasonal forecasting needs. “It just fits our needs better.”

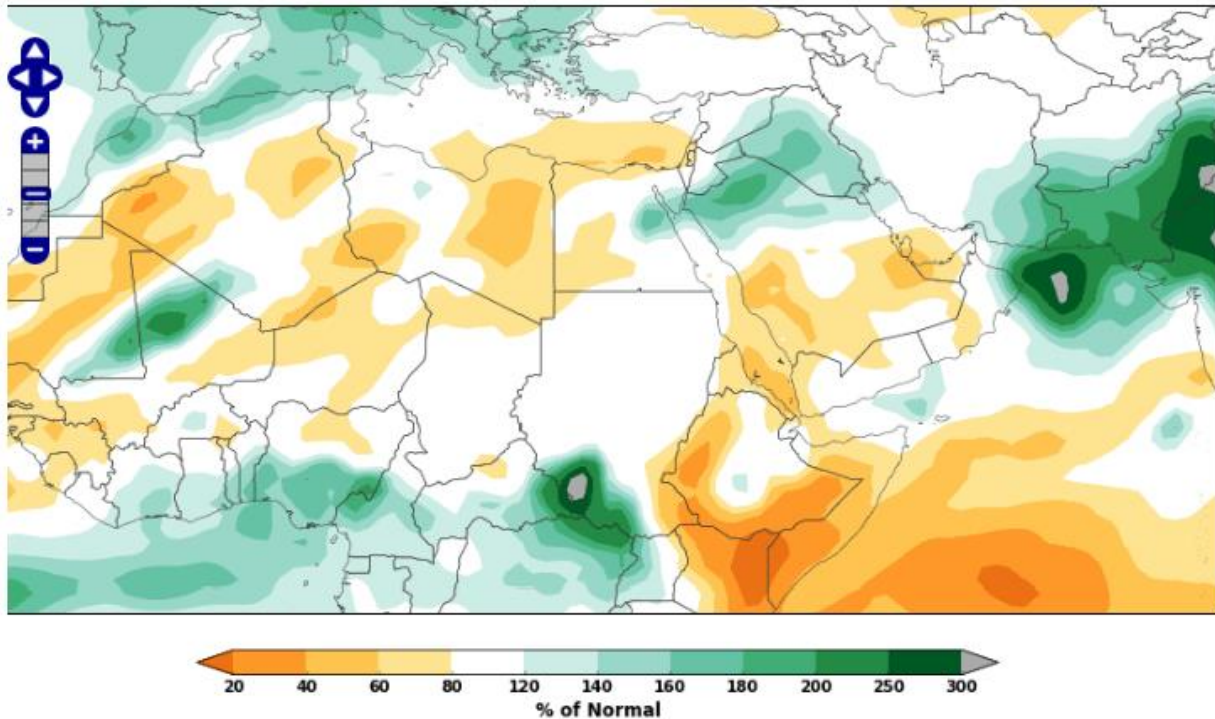
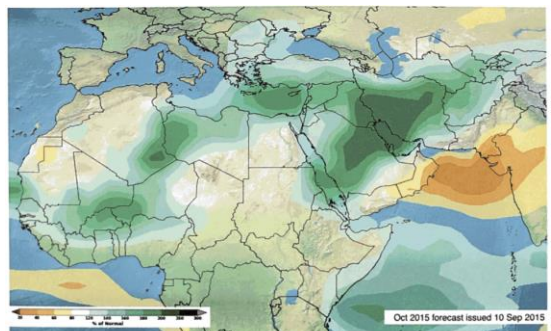


Figure 2. An example 3-week precipitation forecast for Sub-Saharan Africa.

The Technology

In the 31 years Mr. Cressman has been forecasting Desert Locust outbreaks and plagues, technology has revolutionized the quality and speed of information available. DLIS intelligence used to consist of notes scribbled on paper and mailed to Rome, taking weeks to arrive. Now data flows instantly using satellite communications to deliver real-time observations on an electronic tablet in the field. This advancement provides the right information at the right time to improve FAO DLIS warning capabilities and critical national decision making.

The increase in data availability is managed within a Geographic Information System (GIS) to improve analysis of the information in the spatial context required. Mr. Cressman indicated that “the GIS allows us to integrate the World Climate Service forecasts directly into our decision-making and early warning process. I’ve learned how best to use and interpret the forecasts since starting to use WCS in 2006.”



Oct 2015 forecast issued 10 Sep 2015

Source: World Climate Service, Prescient Weather

Figure 3. Integration of the World Climate Service seasonal forecast information directly into the DLIS GIS system.

Desert Locust Information and Communication

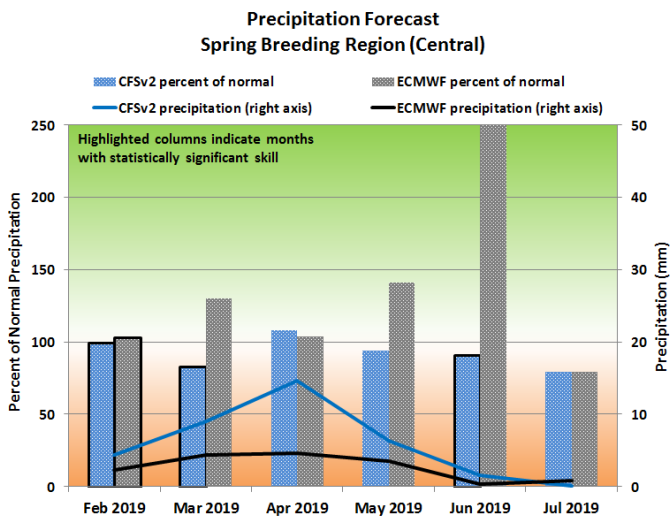
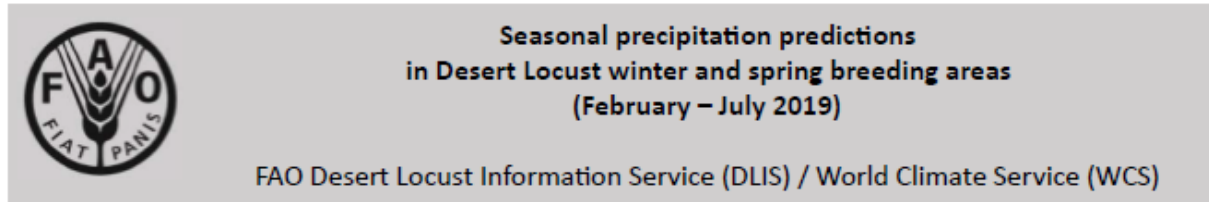


Figure 4. Monthly precipitation forecast for regions important for Desert Locust Development.

Communication of information to countries susceptible to Desert Locust outbreaks and plagues is a critical aspect of Mr. Cressman's mission. After receiving the monthly seasonal forecast update, Mr. Cressman prepares a short information piece to update locust-affected countries on the likelihood of precipitation. That communication provides a specialized seasonal forecast analysis for specific regions at risk of locust development. An example is shown in Figure 4.

This type of information supports national monitoring and response efforts by providing specific information that indicates the potential for increased risks of Desert Locust outbreaks in the near future.

The Conclusion

Prescient Weather is proud to provide the World Climate Service for such an important application. We look forward to many more years of supporting the UN FAO DLIS in its critical mission.

For more information about the World Climate Service, please email:

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