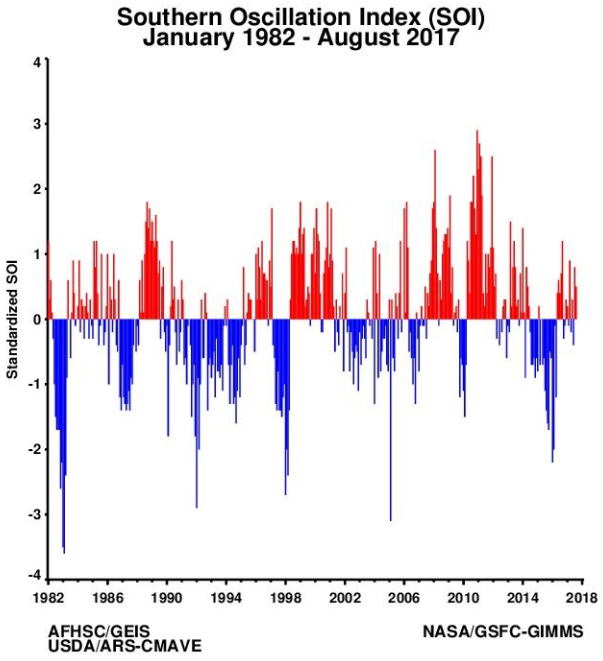
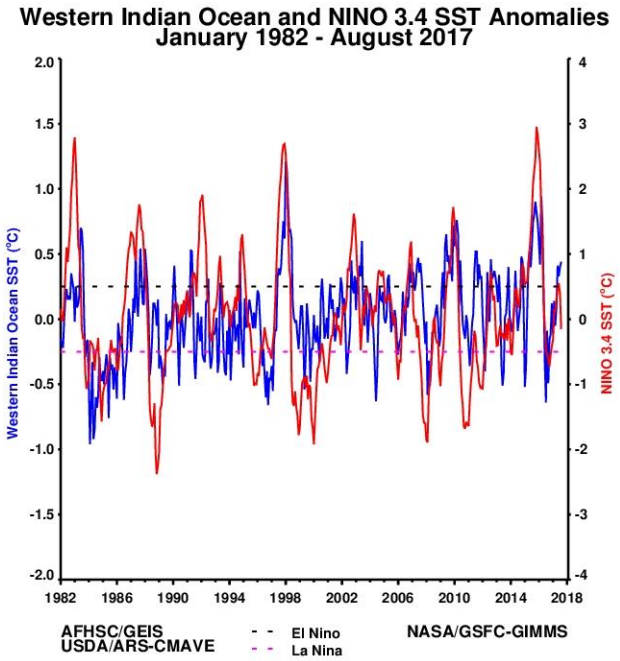
Rift Valley fever Monitor

This section of the report will provide a rolling three month update on a monthly basis of the state of the climatic and ecological indicators used in monitoring areas at risk to RVF activity. These indicators include, global SST anomalies patterns, Equatorial Western Indian Ocean (WIO) and Eastern Pacific Ocean (EPO: NINO 3.4) SST anomalies, Southern Oscillation Index (SOI) and Outgoing Longwave Radiation (OLR) anomalies, Rainfall and anomalies, Normalized Difference Vegetation index anomalies and RVF risk map for Africa and the Arabian Peninsula.

August 2017

1. SOI and SST Indices

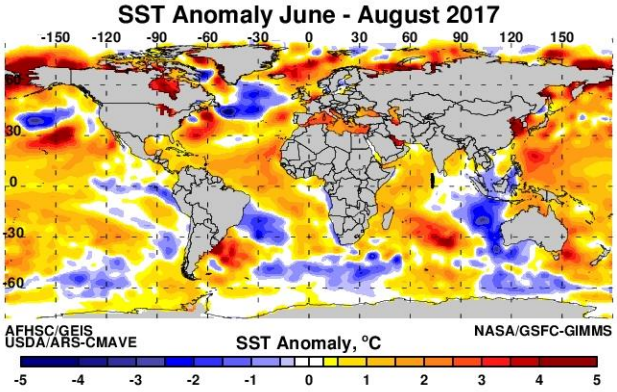


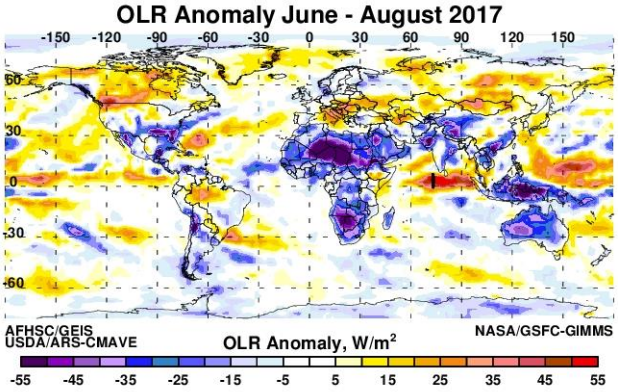


The SOI value remains near normal values with a positive value of 0.5 in August from 0.8 in July continuing the month to month variability that has been observed in the recent months associated with neutral conditions. The ocean temperature conditions are all trending into negative territory but continue to indicate that ENSO-neutral conditions are present and persisting with sea surface temperature (SST) anomalies in most NINO regions showing near-normal to slight negative values: NINO 3.4 (-0.15°C), NINO 4 (+0.19°C), NINO3 (-0.16°C) and NINO1&2 SST (-0.45°C). The positive SST anomalies in western Indian Ocean show a continued increase from +0.40°C in July to +0.44°C in August as opposed to the situation in NINO regions.. Overall, the dissipation of the recent warming in the NINO regions and the current state of the coupled ocean-atmosphere system which reflects ENSO neutral conditions are projected to last through 2017/18 winter season. Models favor ENSO-neutral conditions to persist (~85% chance during August -October, decreasing to ~55% during December - February) through the Northern Hemisphere winter 2017-

2018. However, there is a small chance for El Niño (15-20%) or La Niña (25-30%) conditions to emerge during the winter season.

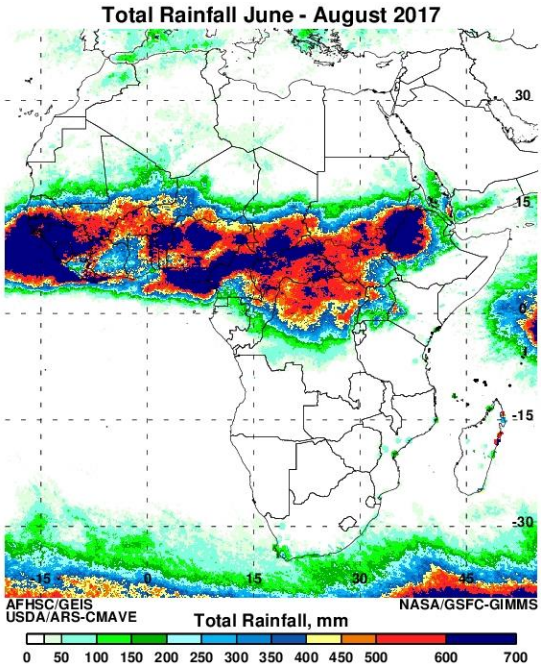
2. Global SST and OLR Anomalies

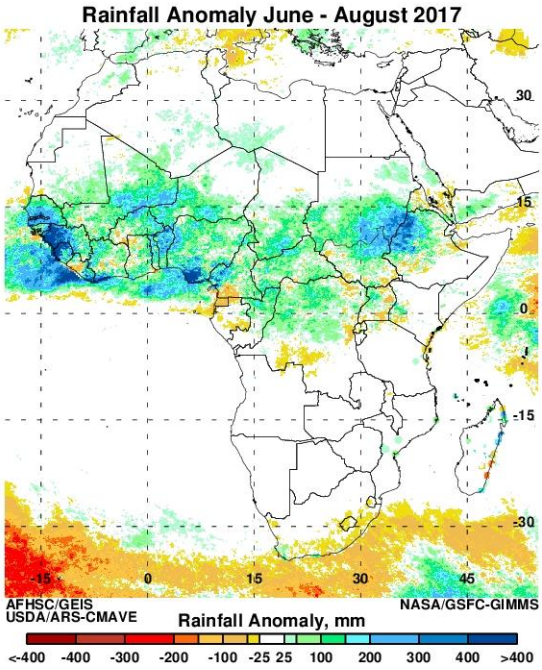




The equatorial Pacific Ocean seasonal (JJA 2017) SST anomalies now shows the development of negative SST anomalies from the central equatorial Pacific to the extreme eastern equatorial Pacific region, centered along the equator to the South America coast. The western Pacific Ocean to the immediate east of the Indonesian basin above normal SSTs however to the west and southwest a very cold anomaly pool has developed in oppositions to the anomalous pool in the southern and western Indian Ocean. Other regions of significant anomalies include the north Pacific Ocean, north Atlantic, equatorial Atlantic off the West African coast, the Pacific Ocean off the California coast, southwest Atlantic Ocean off Argentina and Brazil which show significant positive and negative anomalies on the order of -/+1.0°C to -/+2.0°C. In general lingering effects of La Niña SST anomalies are evident globally. Outgoing Longwave Radiation (OLR) anomalies are used here as a proxy for tropical deep convection (rainfall). Reduced convection is shown in yellow to light brown and brown shades and increased/intense convection is shown by shades of blue. Some impacts from the current SST anomaly patterns can be observed in the pattern of global convective activity illustrated by the OLR departure patterns here. During the July - August 2017 period, drier-than-average conditions (>+55W/M2) are prevailing over the central equatorial Pacific - just north of the equator while the western Pacific just east of Indonesia shows negative OLR anomalies (>-40W/M2) coinciding the region positive SSTs. The negative OLR anomalies extend southwards into Australia indicative of continued deep convective activity, while the eastern Indian Ocean west of Indonesia shows positive OLR anomalies in the region of colder than normal SSTs. Drier the normal conditions continue to persist over extreme northern hemisphere including coastal Alaska, northwestern US into Canada, Western Europe, eastern Russia. Some parts of southwestern and southern US show negative OLR anomalies due to increasing precipitation from recent hurricane activity. Negative OLR anomalies continue to dominate North Africa and Middle East and extending into India and central Asia. Accordingly, southern Africa and the southern half of South America show negative OLR anomalies suggesting continued convective activity. These patterns of depressed and enhanced convective activity coincide well with the observed patterns of SST departures. Monthly and weekly anomalies can be found here. Rainfall and associated anomalies (below) for Africa from June - August 2017 show rainfall now concentrated just north of the equator, maximum values of 700mm over the northern most of West Africa extending east to Sudan/northwestern Ethiopia. Areas of above normal rainfall (+50 to 400 mm) are limited to the Gulf of Guinea countries, Mali/Niger and the Sudan/Ethiopia trans-boundary region with values at ~ +300mm over the last three month period.

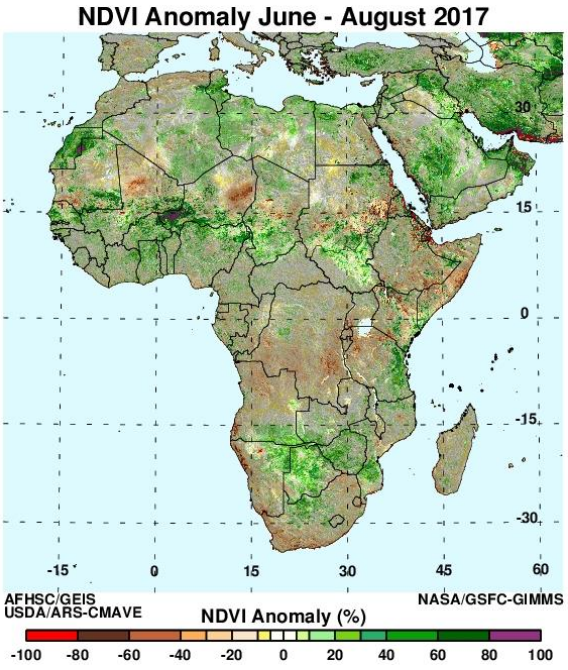
3. Seasonal Rainfall and Cumulative Rainfall Anomalies.

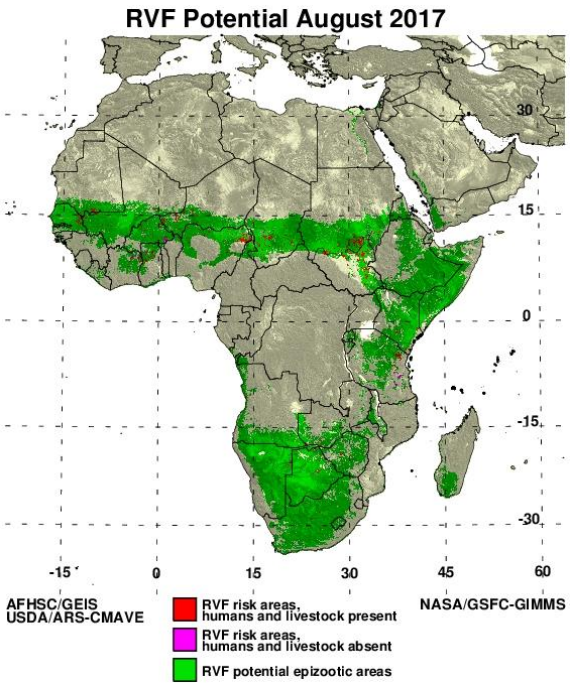




4. NDVI anomalies And RVF Risk Map.

Cumulative NDVI anomalies for Africa for June - August 2017 show positive anomalies concentrated over Western Sahara, the Sahel belt from Niger to Sudan and residual positive anomalies covering Botswana, eastern Namibia, NW South Africa, southern Zimbabwe and Mozambique. The RVF risk map below was derived from thresholding NDVI anomaly data to detect areas persistent of above normal NDVI. Periods of widespread and prolonged heavy rainfall lead to flooding of dambos and anomalous green up in vegetation, creating ideal ecological conditions for the emergence RVF vectors. For the period June - August 2017, the RVF persistence model identifies areas at risk areas trans-boundary regions of Mauritania/Senegal, Mali/Niger, Nigeria/Chad and Sudan/Southern Sudan which have received above normal rainfall over the last several months. Given the elevated rainfall conditions that have prevailed in these countries, enhanced surveillance is advised in these areas.





https://www.ars.usda.gov/southeast-area/gainesville-fl/center-for-medical-agricultural-and-veterinary-entomology/docs/rvf_monthlyupdates/