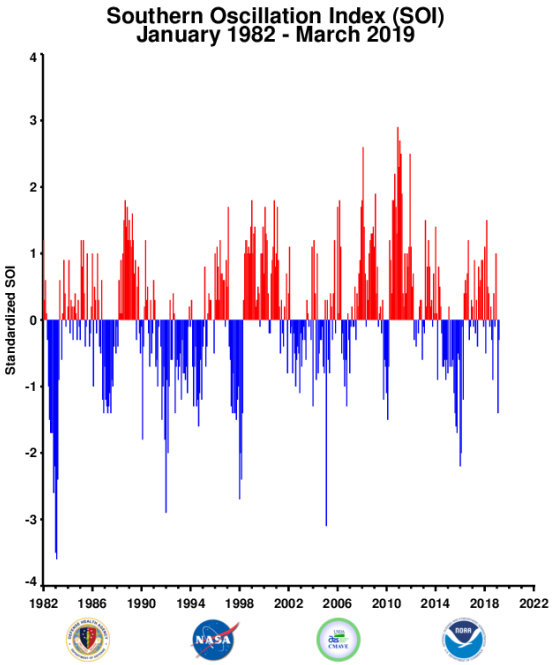
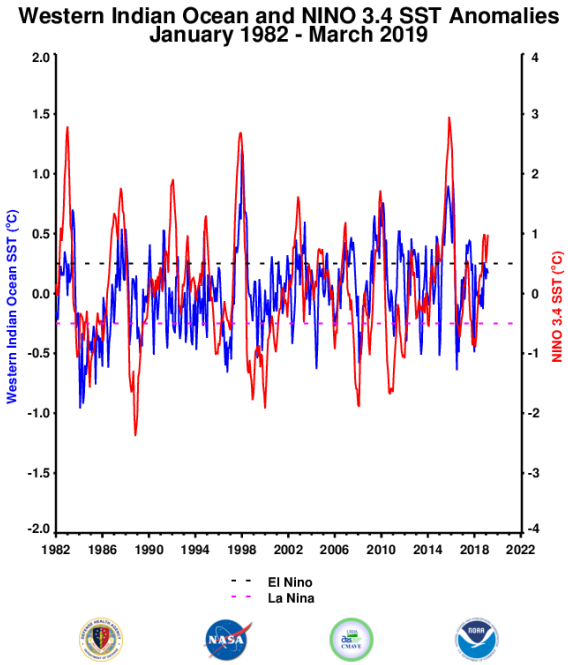
Rift Valley fever Monitor

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.

March 2019

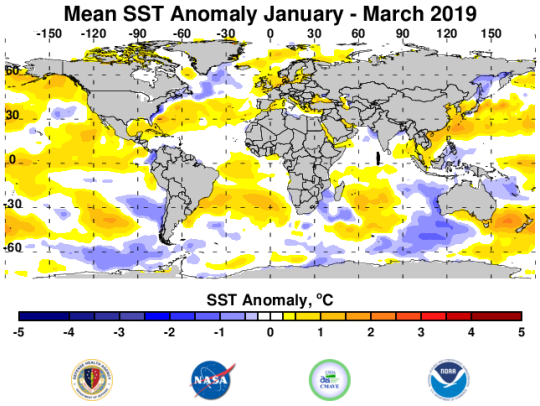
1. SOI and SST Indices

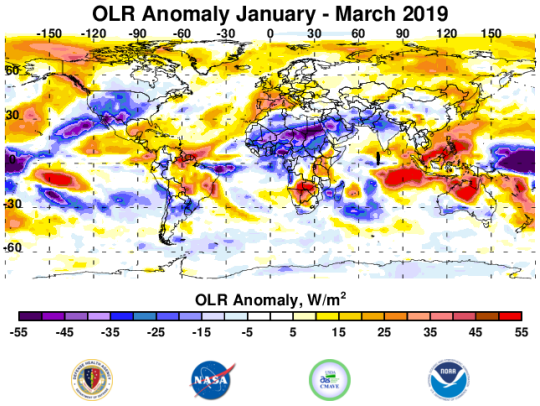




The SOI weakened in March to -0.3 from -1.4 in February continuing the month-to-month variability observed in the last several months. The oceanic indices eastern equatorial Pacific have also weakened a little bit but still positive: NINO1&2 at 0.25, NINO3 at 0.74, NINO 3.4 at 0.9 and NINO4 at 0.98. The western Indian Ocean SSTs continues to weaken, currently at 0.17 in March from 0.29 in February. Overall, all the monitoring indices reflect weak warm ENSO conditions prevailing at the moment. Current NOAA CPC forecasts indicate that weak El Niño conditions are likely to continue through the Northern Hemisphere summer (65% chance) and fall (50-55% chance).

Global SST and OLR Anomalies

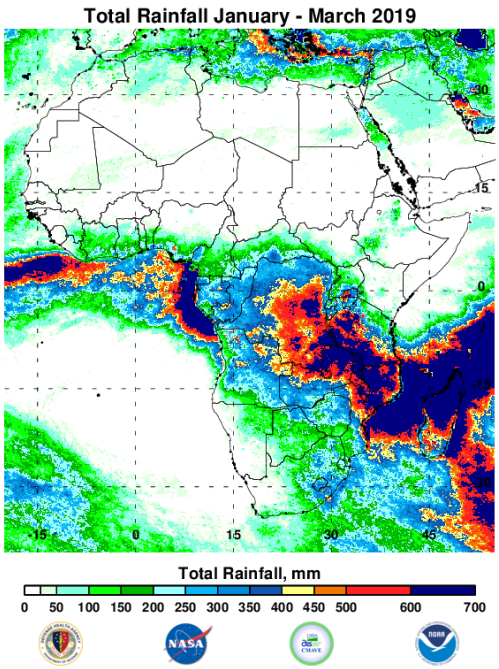


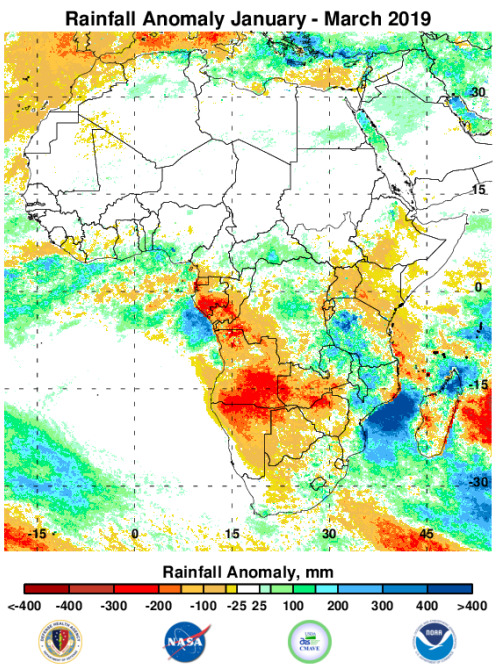


The January – March 2019 SST anomalies show a similar pattern to the previous season with warmer than normal conditions the equatorial Pacific Ocean with seasonal temperatures approximately 1.5°C above normal along the equator off the northern South American coast. However, the region to the immediate south - off coastal Chile has a limited area of negative SSTs. Western equatorial Indian Ocean temperatures are near normal with only the southern Indian Ocean east of Madagascar being warmer than normal at 2.0°C. Monthly and weekly SST anomalies can be found here.

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. The January – March 2019 OLR anomalies shows some characteristic evidence of warm ENSO teleconnections with drier than average conditions throughout the western equatorial Pacific and evidence of convection activity in the central equatorial Pacific just east of the dateline. The western equatorial Pacific Ocean particularly the Indonesian Basin extending westwards into across the Indian Ocean has reduced convection with positive OLR anomalies (+55W/M*2) and areas surrounding this region are drier than normal including northern Australia. In the higher latitudes drier than normal conditions continue to persist across Western Europe into central Russia. A large area of central-eastern-northern Brazil, Central America, Southern Africa region and East Africa also show pronounced dry conditions. Globally, most of the intense convective activity has been centered across the southeastern South America and continental US over the last three months (-55W/M*2).

2. Seasonal Rainfall and Cumulative Rainfall Anomalies

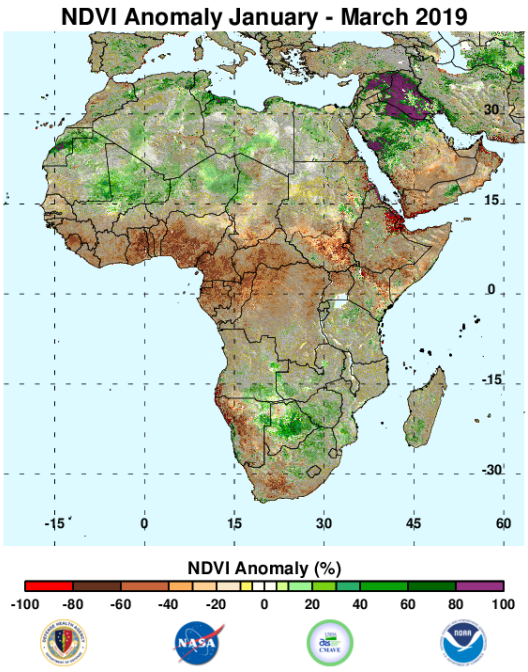


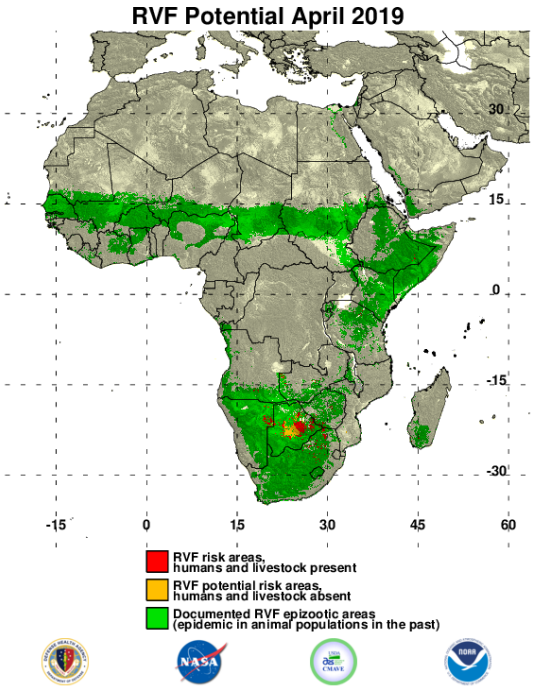


The majority of rainfall over Africa from January – March 2019 is still centered south of the equator between 30S and 0, with maximum totals of 700mm from the along the equator from the Congo basin towards southeastern Africa. Seasonal totals were near normal over most of the continent. Maximum above normal rainfall is observed over the eastern Congo basin, Tanzania, northern Zambia, Malawi and northern Mozambique with totals as high as 400mm above normal over the three-month period. Areas of rainfall deficits persist in Gabon, SE Cameroon, eastern Africa and over the western southern Africa region south of 15S.

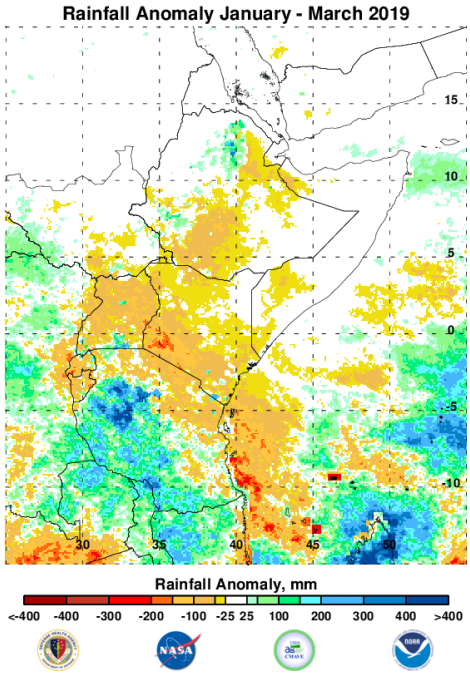
3. NDVI anomalies and RVF Risk Map

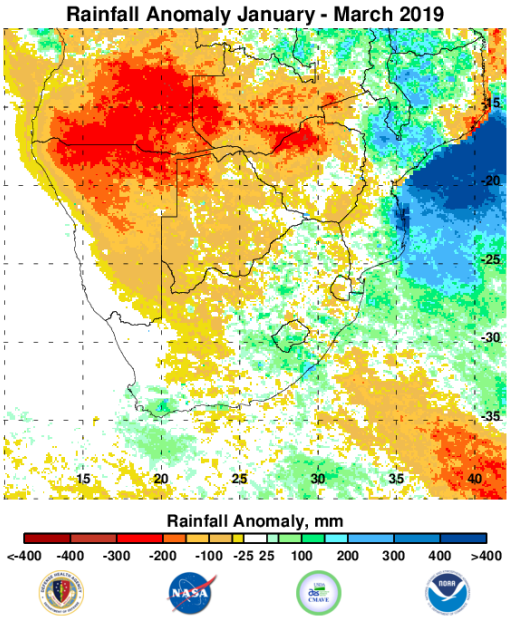
January – March 2019 NDVI anomalies for Africa show that most of continent has diminished vegetation conditions except for a few isolated areas in northwestern Africa, parts of the Sahel, western Tanzania and northern Mozambique with positive anomalies on the order of ~+40%, including central and northern Botswana. The RVF risk map in this report 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 of RVF vectors. During January – March 2019, the RVF persistence model identifies areas of risk projected for April 2019 with the residual risk area over central Tanzania, northwest South Africa and central and northern Botswana. Given the higher than normal rainfall conditions in some of these regions, enhanced vector surveillance is advised all the areas mapped to be at risk.

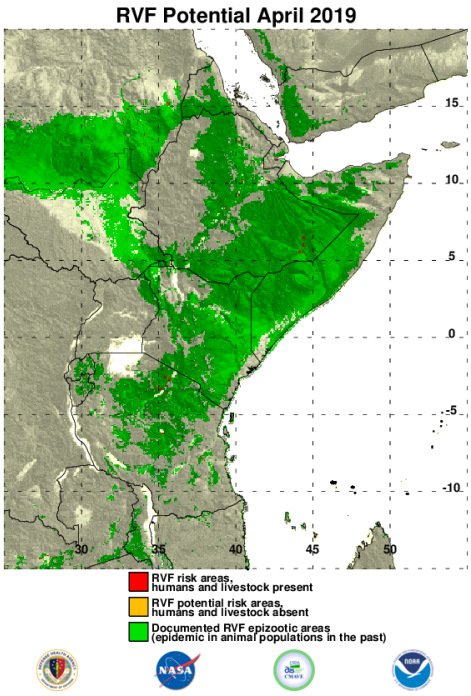


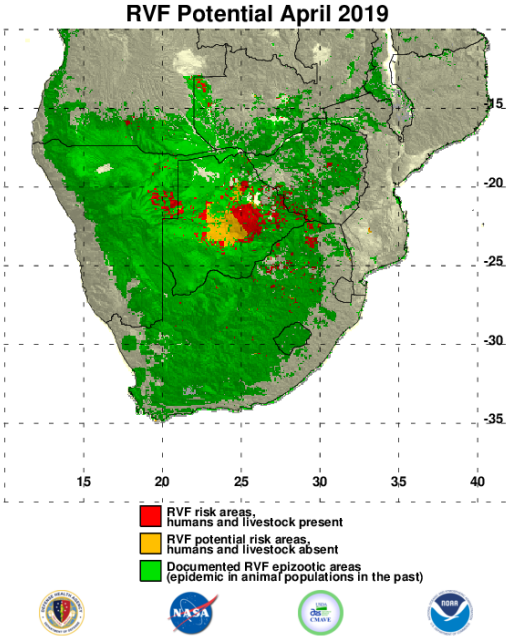


4. Region of Focus: East Africa / Southern Africa









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