

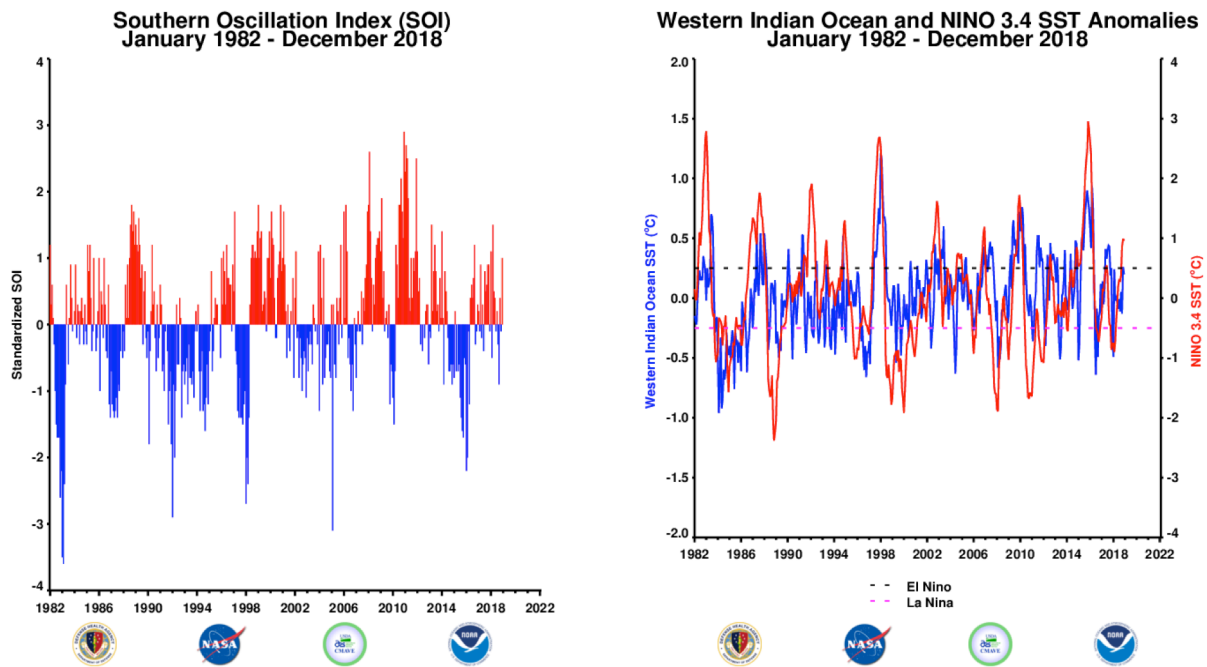
Rift Valley fever Monitor



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.

December 2018

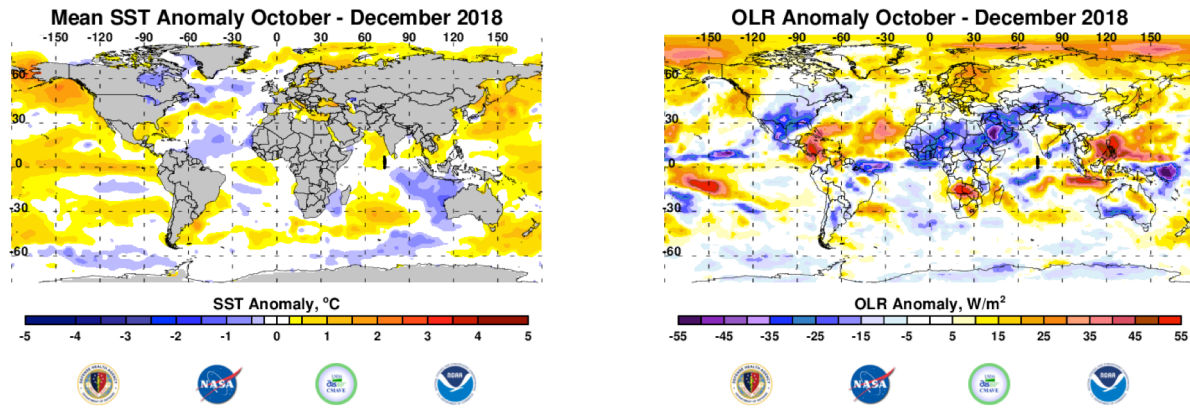
1. SOI and SST Indices



The SOI has now increased to a value of 1.0 in December from -0.1 in November continuing the month-to-month variability observed in the last several months. This reflects the persistence of ENSO neutral conditions with regard to the atmospheric component. The oceanic indices in eastern equatorial Pacific have all weakened slightly although still positive in December: NINO1&2 at 0.78, NINO3 at 0.98, NINO 3.4 at 0.96 and NINO4 at 0.13. SSTs further in the central Pacific (NINO3, and NINO4 regions) continue to indicate a most positive pattern in the last three months. The western Indian Ocean still shows slight positive values in December at 0.2 weakening a little from 0.26 in November, an indication that far the western equatorial Indian Ocean is sympathetic to trends in the eastern Pacific Ocean. Overall, despite the above-average ocean temperatures across the equatorial Pacific Ocean, the overall coupled ocean-atmosphere system continues to reflect ENSO-neutral. The current climate model predictions

still favor the development of the development weak El Niño conditions through the Northern Hemisphere spring 2019(65% chance).

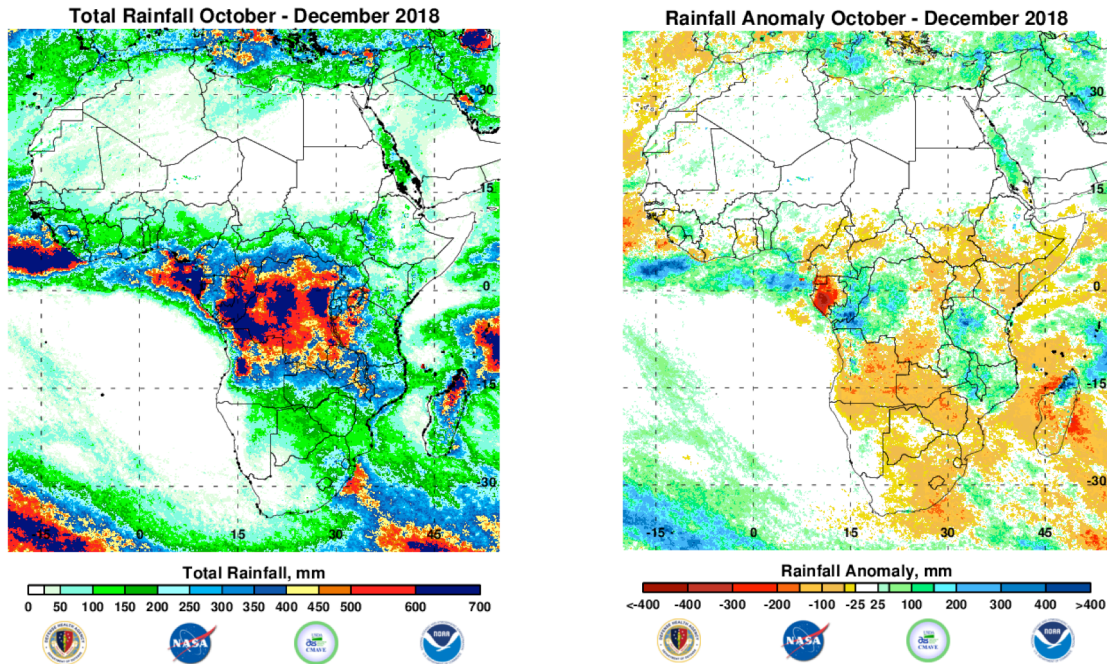
Global SST and OLR Anomalies



The October - December 2018 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 has a limited area of negative SSTs. Western Indian Ocean temperatures are now neutral with the warm anomaly shifting eastwards towards India. The southeastern Indian Ocean cold anomaly has expanded in area between 0-30S covering the western Indonesian Basin. Positive SST anomalies are now enhanced southeast of Madagascar. 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 October - December 2018 OLR anomalies continue to show drier than average conditions throughout the eastern equatorial Pacific showing that the atmosphere has yet to respond of the warmer ocean below. The western equatorial Pacific Ocean particularly the Indonesian Basin extending westwards into across the Indian Ocean has reduced convection with negative OLR anomalies (+50W/M*2) and areas surrounding this region are now drier than normal. In the higher latitudes drier than normal conditions are present in western and central Europe and a large area of eastern and northeastern Russia. Globally most of the intense convective activity has been centered across the southern US and Mexico, central South America and now southern Australia.

2. Seasonal Rainfall and Cumulative Rainfall Anomalies

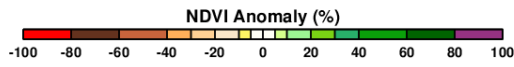
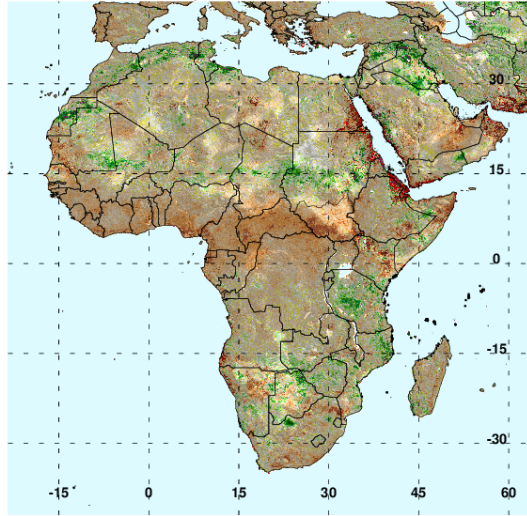


The majority of rainfall over Africa from October - December 2018 is now centered south of the equator between 30S and 10N, with maximum totals of 700mm from the along the equator from West Africa through the Congo basin to Uganda. Seasonal totals were near normal over most of the continent. Maximum above normal rainfall is observed over western Congo DR western 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 southern Africa region south of 15S.

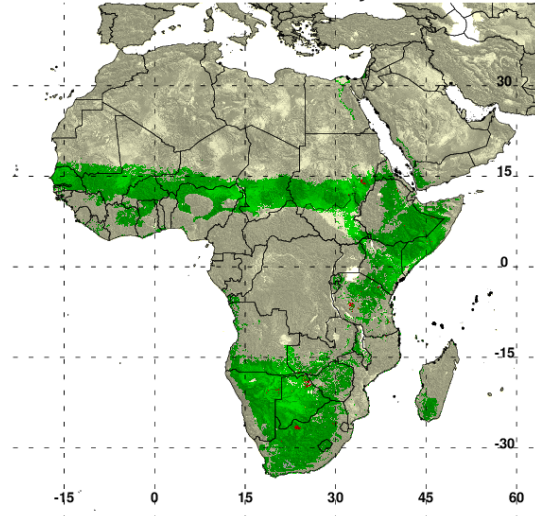
3. NDVI anomalies and RVF Risk Map

October - December 2018 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 $\sim+40\%$, including a limited area of 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 October - December 2018, the RVF persistence model identifies areas of risk projected for January 2019 to the residual risk area over eastern Sudan, southern Kenya western Tanzania, northwest South Africa 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.

NDVI Anomaly October - December 2018



RVF Potential January 2019

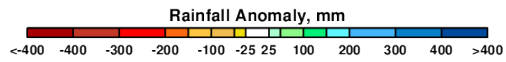
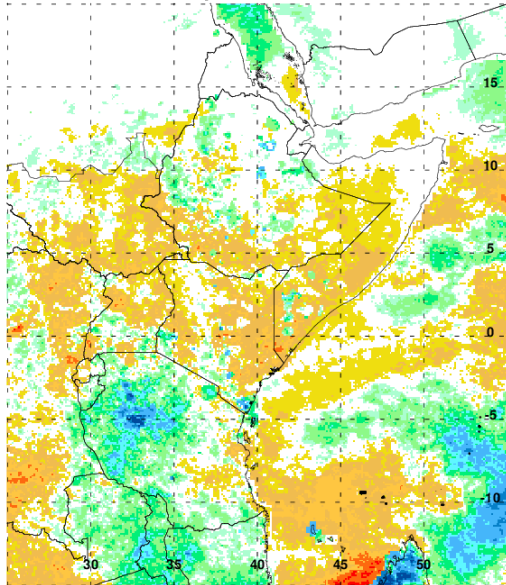


- RVF risk areas, humans and livestock present
- RVF potential risk areas, humans and livestock absent
- Documented RVF epizootic areas (epidemic in animal populations in the past)

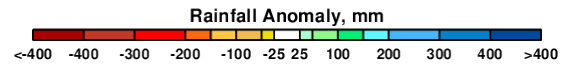
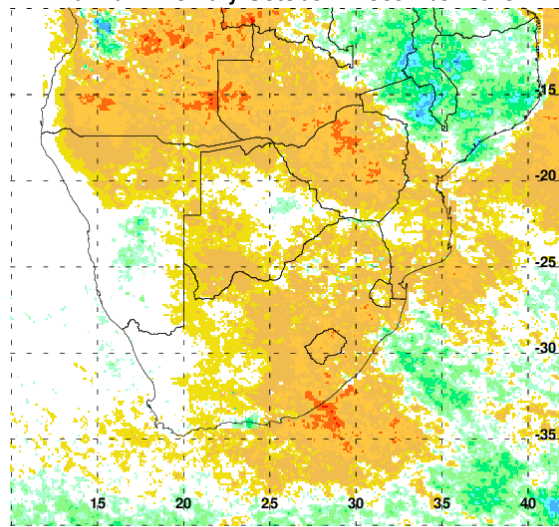


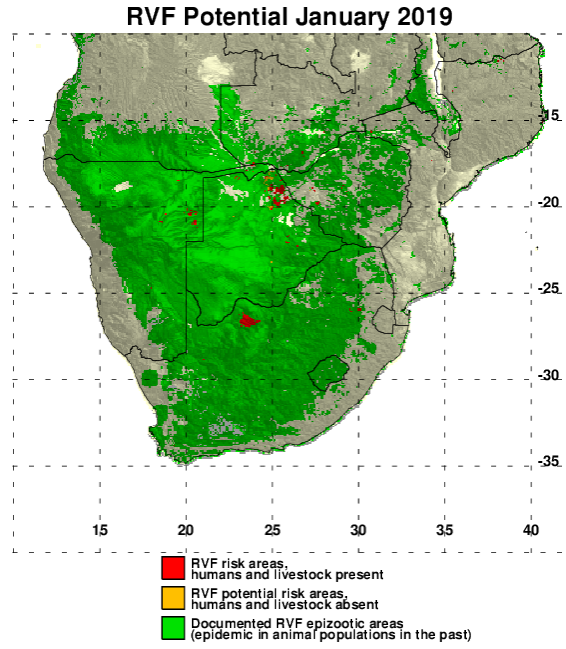
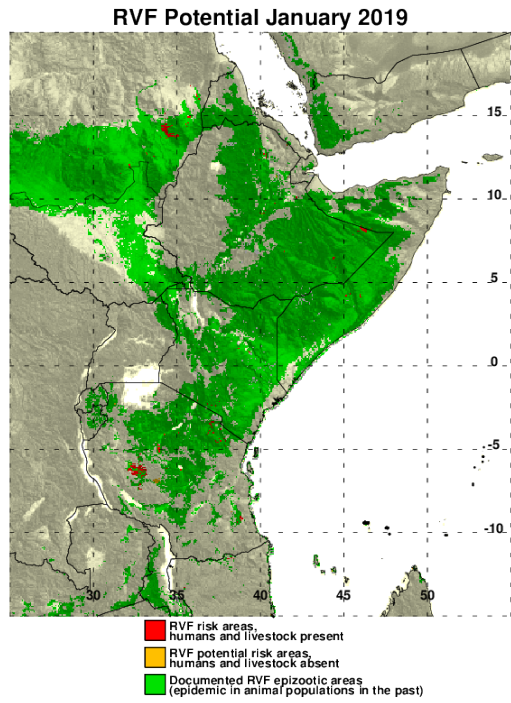
4. Region of Focus: East Africa / Southern Africa

Rainfall Anomaly October - December 2018



Rainfall Anomaly October - December 2018





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