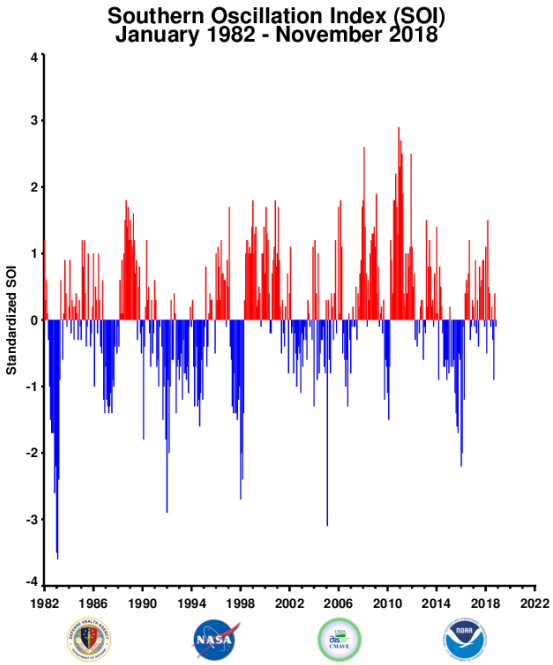
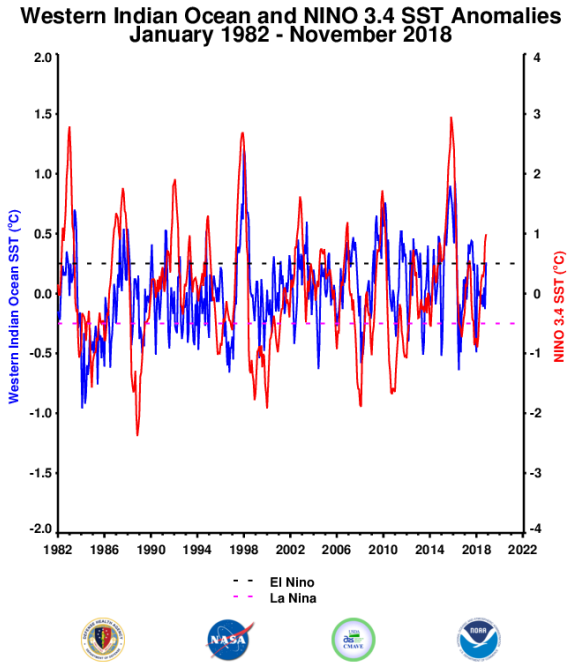
Rift Valley fever Monitor

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.

November 2018

1. SOI and SST Indices

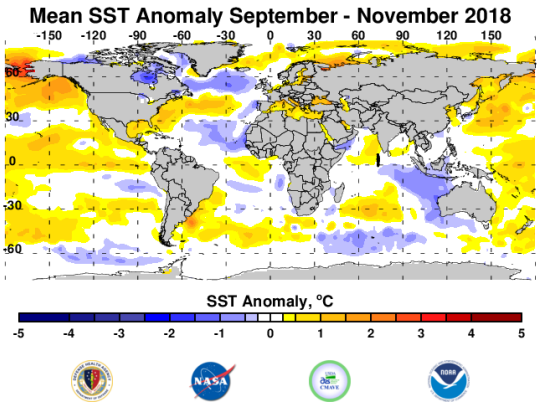


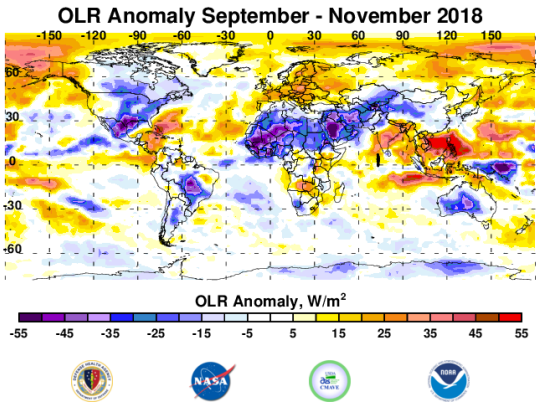


The SOI has now decreased to a value of -0.1 in November from 0.4 in October continuing the month to month variability observed in the last several months. This reflects the persistence of ENSO neutral conditions with regard to the atmospheric component. The oceanic indices in eastern equatorial Pacific continue the positive trend in November: NINO1&2 at 0.65, NINO3 at 1.03, NINO3.4 at 0.99 and NINO4 at 0.95. 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 now shows slight positive values at 0.26 in November, an indication that far the western equatorial Indian Ocean is now responding sympathetically to 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 favor the development of the development weak

El Niño conditions through the Northern Hemisphere winter 2018-19 (~90% chance) and into spring (60% chance).

Global SST and OLR Anomalies

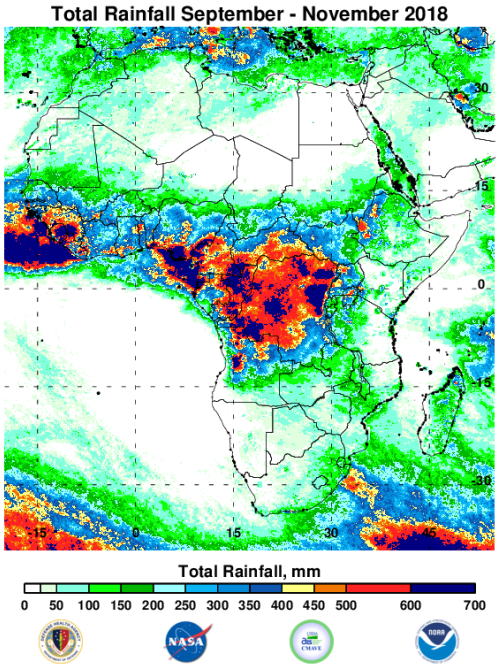


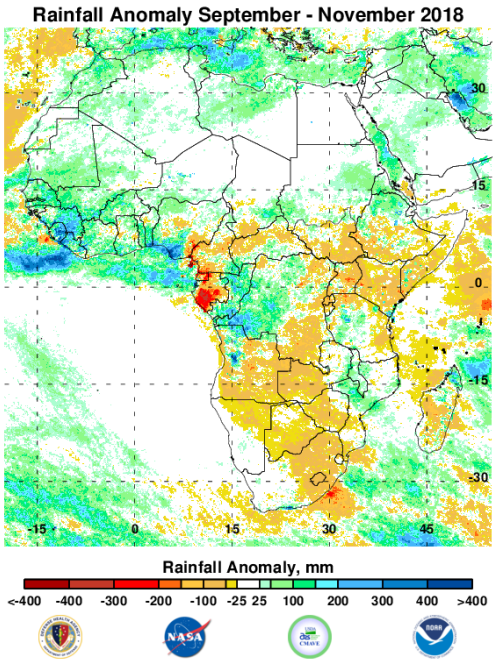


The September - November 2018 SST anomalies now show the expansion of warmer than normal conditions the equatorial Pacific Ocean with seasonal temperatures approximately 1.5°C above normal along the equator off the northern South American coast. However, the region to the immediate south has a limited area of negative SSTs. Western Indian Ocean temperatures are now slightly warmer than normal southwest of India extending towards East Africa along the equator. The southeastern Indian Ocean cold anomaly has reduced in area extent with the area between 0-30S to the area between the Indonesian Basin and Australia. 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 September - November 2018 OLR anomalies 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 Sahel zone, southern US and Mexico, central South America and now Australia.

2. Seasonal Rainfall and Cumulative Rainfall Anomalies



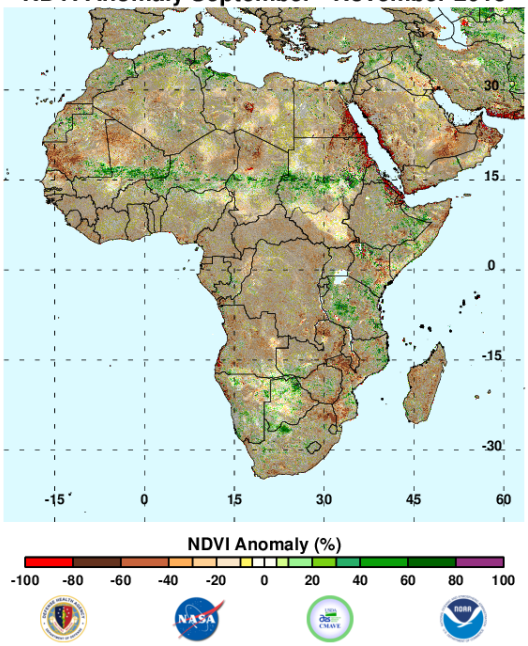


The majority of rainfall over Africa from September - November 2018 is still centered just along the equator between 10S and 15N, with maximum totals of 700mm from the along the equator from West Africa through the Congo basin to Uganda and the Ethiopian Highlands. Seasonal totals were near normal over most of the continent. Maximum above normal rainfall is observed over Guinea, Sierra Leon, southern Nigeria and western Congo DR 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.

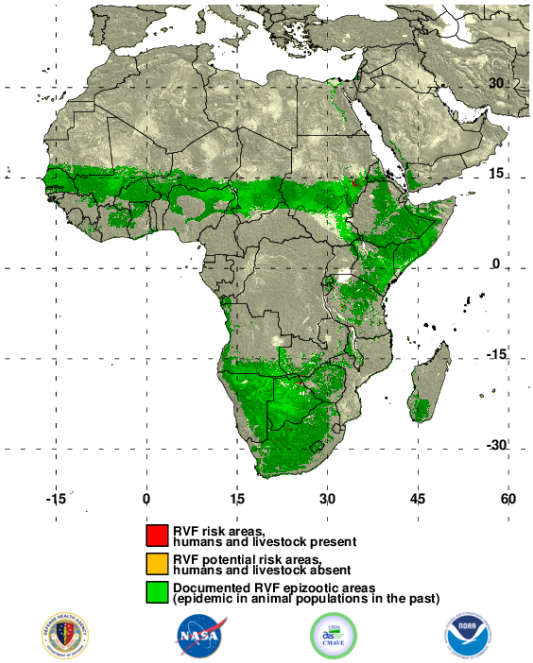
3. NDVI anomalies and RVF Risk Map

September - November 2018 NDVI anomalies for Africa above to near normal over most of the continent except along the southern edge of Congo basin region, East Africa and southeastern Africa. The areas of positive anomalies still across the Sahel region (~+40%), central Tanzania and 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 September - November 2018, the RVF persistence model identifies areas of risk projected for December 2018 to be over eastern Sudan, and southern Kenya and parts of central Tanzania. 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 September - November 2018

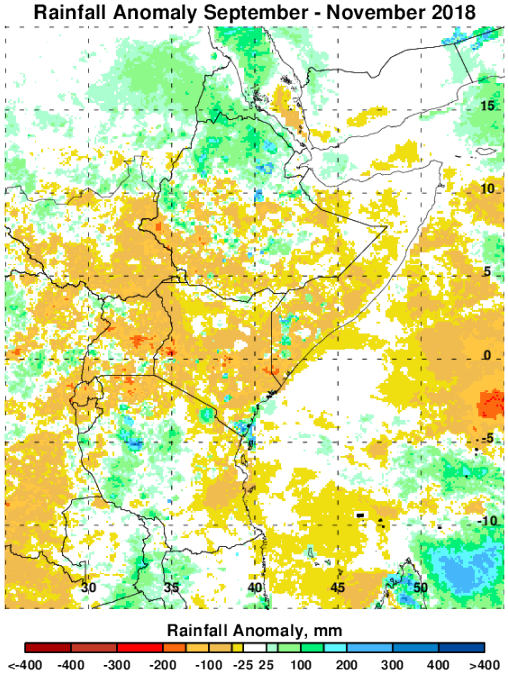


RVF Potential December 2018

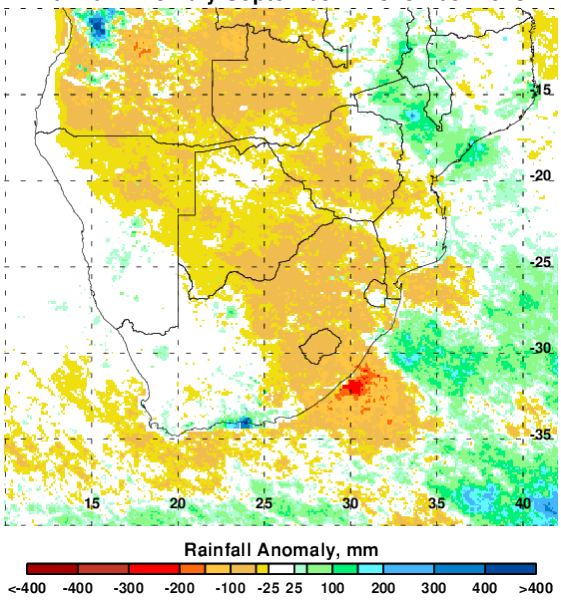


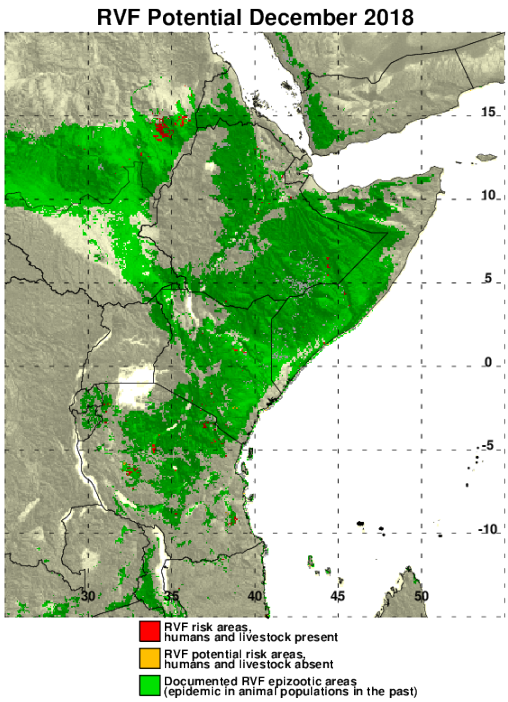
4. Region of Focus: East Africa / Southern Africa

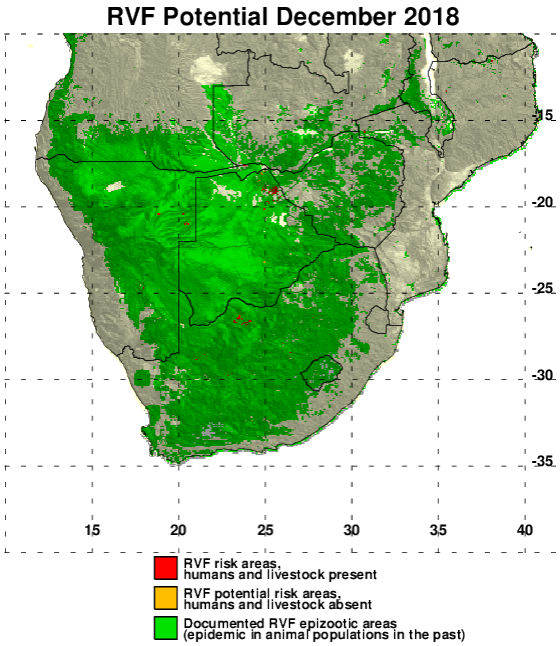
Rainfall Anomaly September - November 2018



Rainfall Anomaly September - November 2018







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