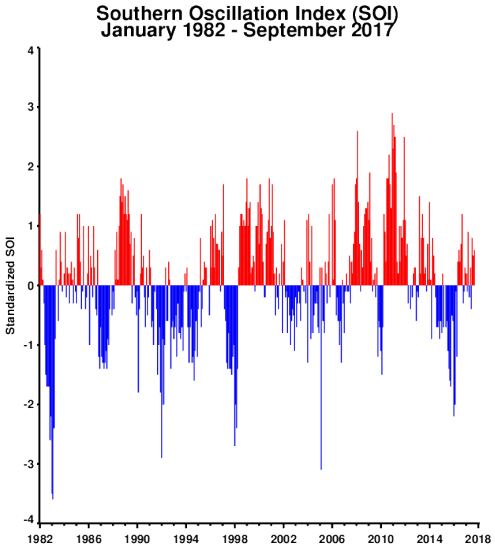
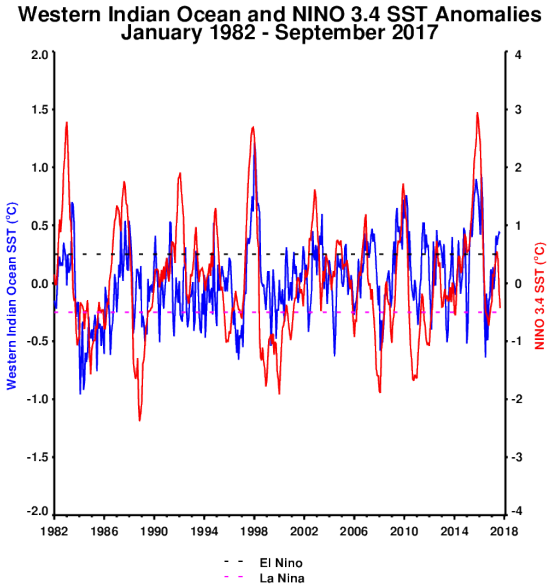
Rift Valley fever Monitor

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.

September 2017

1. SOI and SST Indices

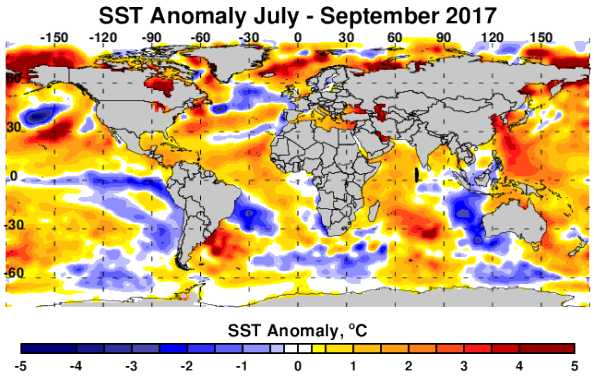


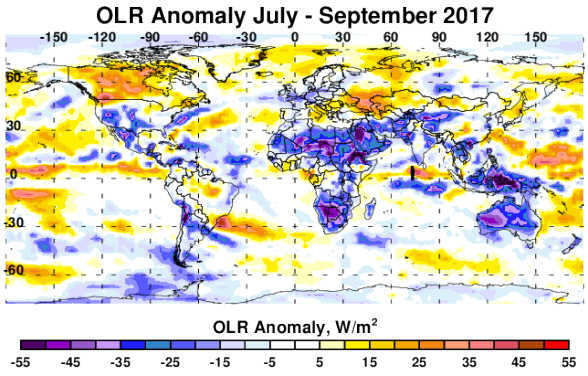


The SOI value remains near normal with a positive value of 0.6 in September, up slightly from 0.5 in August. This continues the small month to month variability associated with neutral conditions we have observed over the last several months. Ocean temperatures have cooled slightly in all NINO regions from August to September, with September values NINO 3.4 (-0.43°C), NINO 4 (0.00°C), NINO3 (-0.68°C), NINO1&2 (-0.67°C) and August values NINO 3.4 (-0.15°C), NINO 4 (+0.19°C), NINO3 (-0.16°C), NINO1&2 (-0.45°C). At present these values remain too close to neutral conditions to indicate the beginning of a La Niña phase. In the western Indian Ocean, slightly warmer than normal temperatures persist, with an average of +0.43°C in September after +0.44°C in August. Overall, the ocean-atmosphere system remains ENSO-neutral but with a slight shift toward La Niña conditions. Model predictions reflect this

shift as they now favor La Niña to develop (~55-65%) during the Northern Hemisphere fall and winter 2017-18

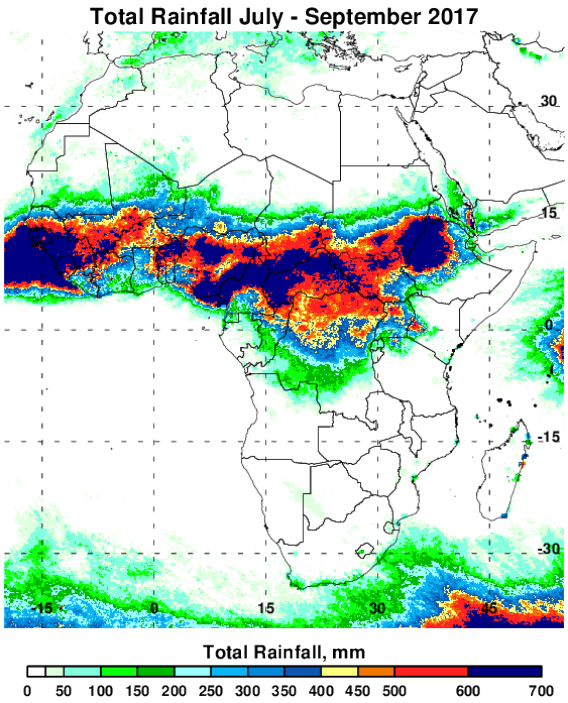
2. Global SST and OLR Anomalies

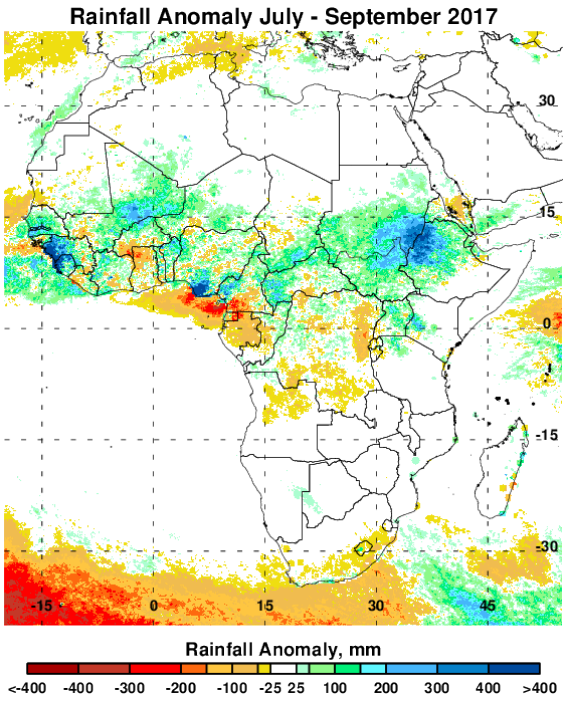




In the equatorial Pacific Ocean, the July-September SST anomalies show an expansion of the negative (cooler than normal) anomalies from the South American coast to the west and north to south along the equator. The positive anomalies observed in August in the extreme western Pacific east of Indonesia and in the southern Indian Ocean persist into September, as does the negative (cold) anomaly in the southeastern Indian Ocean. Monthly and weekly SST anomalies can be found in https://www.esrl.noaa.gov/psd/map/clim/sst.shtml.
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 OLR anomalies during July-September 2017 show drier than average conditions over most of the central equatorial Pacific coincident with the cooling ocean temperatures. Conversely, OLR anomalies in Indonesia and Australia show wetter than average conditions in this region of warmer ocean temperatures. Drier than normal conditions persist in most of the higher latitudes, including most of Canada, eastern Russia, and western Russia/southeastern Europe. OLR anomalies indicate a wetter than normal three-month period in the western US, Mexico, Central America, nearly all of Africa and the middle east into southwestern Asia, and in central South America. Rainfall in Africa from July-September 2017 was concentrated just north of the equator, with maximum totals of 700mm persisting from west Africa east to Sudan and northwestern Ethiopia. Seasonal totals remain near normal in most of the region with some areas of above normal rainfall persisting in the Gulf of Guinea countries, Mali/Niger and along the Sudan/Ethiopia border region.

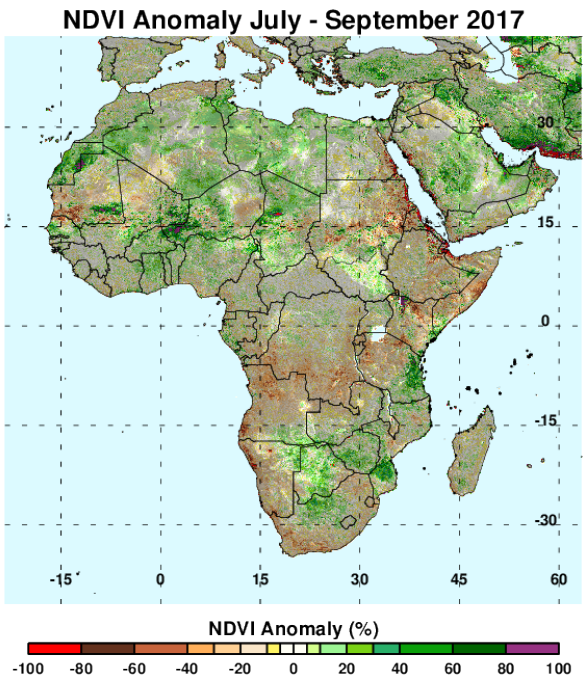
3. Seasonal Rainfall and Cumulative Rainfall Anomalies

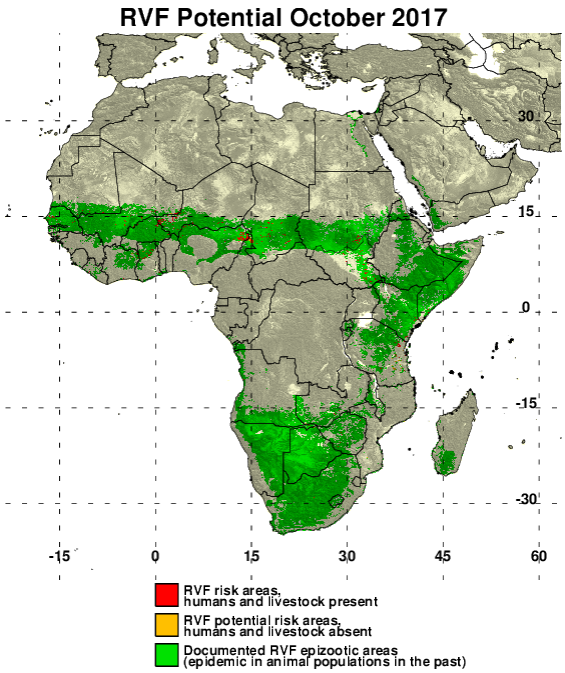




4. NDVI Anomalies and RVF Risk Map

Cumulative NDVI anomalies for Africa for July-September 2017 show continued positive values concentrated over Western Sahara, the Sahel belt from Niger to Sudan, 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 of RVF vectors. For the period July-September 2017, the RVF persistence model identifies small areas at risk in northwestern Senegal, western Niger, the Chad/Cameroon/Nigeria border region, southern Sudan and eastern South Sudan, and northeastern Tanzania. Given the persistent elevated rainfall conditions in these areas enhanced surveillance is advised.





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