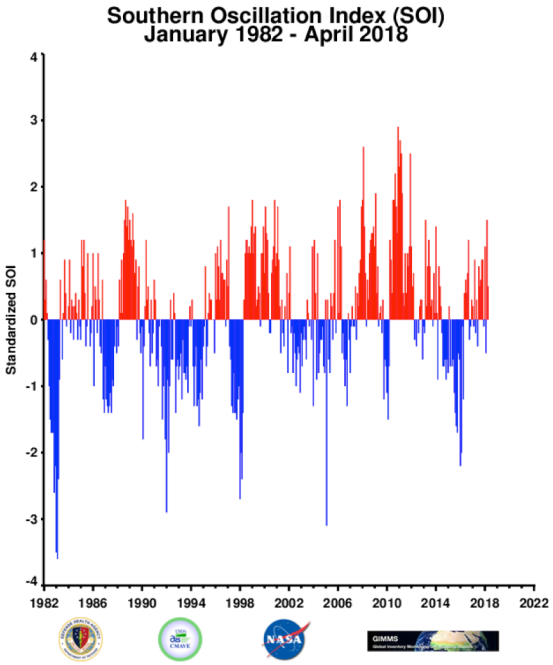
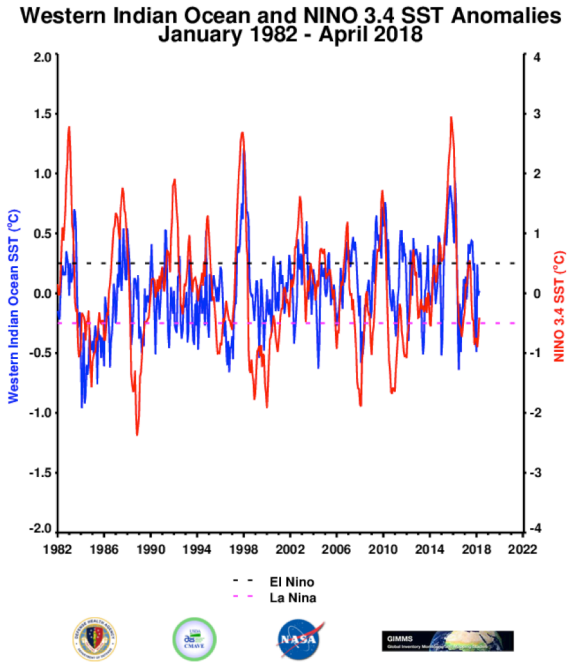
Rift Valley fever Monitor

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.

April 2018

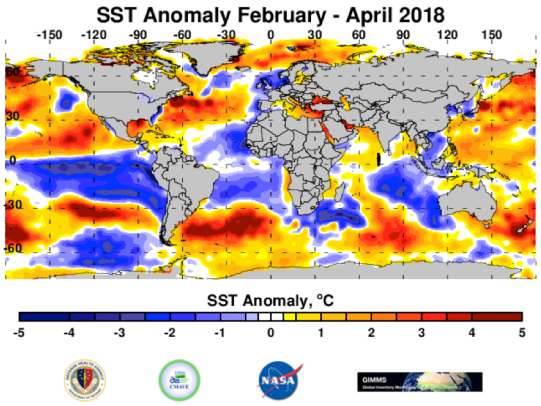
1. SOI and SST Indices

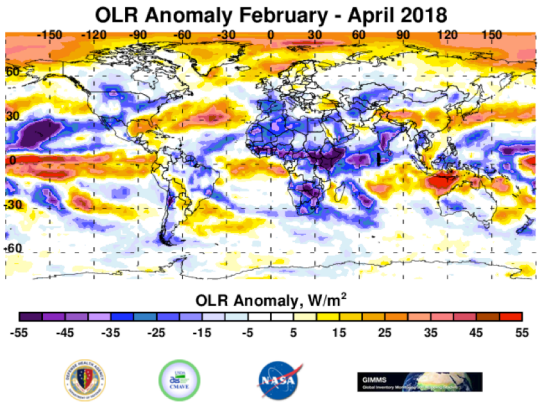




The SOI has decreased from a value of t +1.5 in March to -0.5 in April. This suggests that weak La Niña may have started to dissipate. The eastern equatorial Pacific indices all remain negative but are getting closer to neutral which is also indicative of a weakening La Niña event. The NINO1&2 region was the only indicator that decreased, with a value of -0.88 in March and -0.99 in April. The NINO3, NINO3.4, and NINO4 regions remained negative but increasing. These regions had April values of -0.37, -0.06, and -0.41, and March values of -0.76, -0.05, and -0.73, respectively. The western Indian Ocean remained neutral with anomaly values ranging from -0.02 in March to +0.02 anomaly in April. Overall, the indicators show that the ocean-atmosphere system is near neutral conditions with La Niña conditions fading. The current climate model predictions indicate that ENSO-neutral (50% chance) will persist through the summer and fall with a 50% for El Niño to develop during the northern hemisphere winter 2018-2019.

2. Global SST and OLR Anomalies

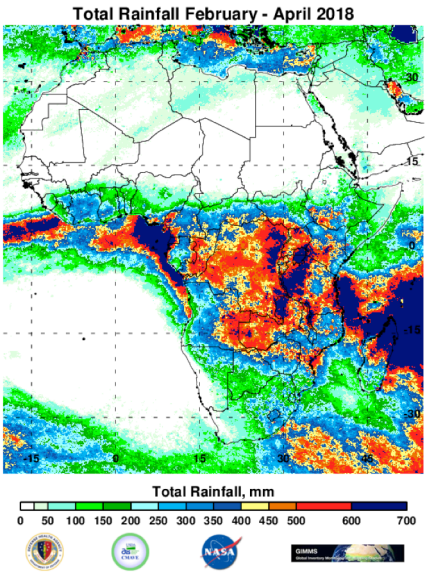


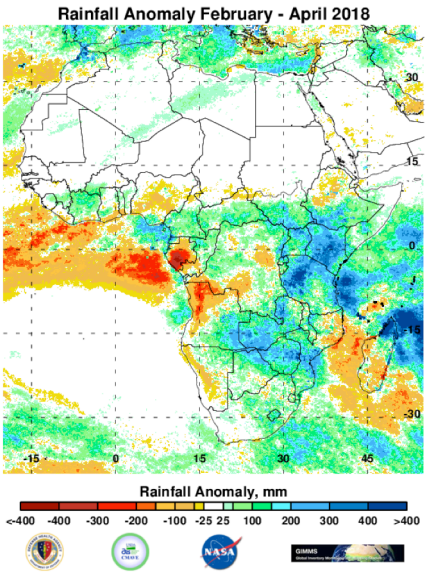


The February - April 2018 SST anomalies show cooler than normal conditions persisting in the equatorial Pacific Ocean with seasonal temperatures approximately 3.5°C below normal along the equator off the South American coast. Western Indian Ocean temperatures were also colder than normal but continuing to approach normal levels. The southeastern Indian Ocean cold anomaly remains with a maximum value of 3.5°C below normal, however the region of temperatures 3 or more degrees below normal has diminished. The Atlantic and Indian Ocean basins surrounding southern Africa are dominated by negative SST anomalies that tend to suppress convection over the sub-continent. 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 February - April 2018 OLR anomalies show drier than average conditions throughout the eastern equatorial Pacific coincident with the cold ocean temperatures, with a maximum anomaly of +55 watts per square meter in the central equatorial Pacific east of the dateline. The western equatorial Pacific Ocean particularly the Indonesian Basin and western Australia is dominated by negative OLR anomalies (-55 W/M*2) indicating intense convective activity in this region; however the areas with the highest anomalies have shrunk over the last month. In the higher latitudes drier than normal conditions have dissipated except for northwestern Alaska and northeastern Russia. OLR anomalies also indicate wetter than average conditions in the northern central US plains northwards into Canada, Central America, and the northern and southern portion of South America.

3. Seasonal Rainfall and Cumulative Rainfall Anomalies

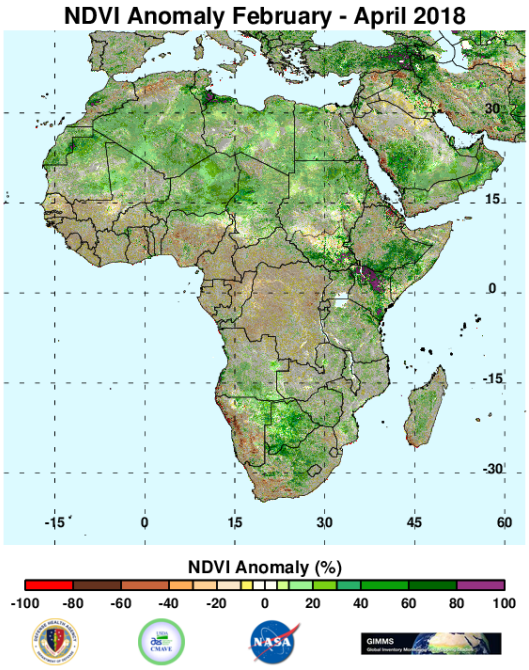


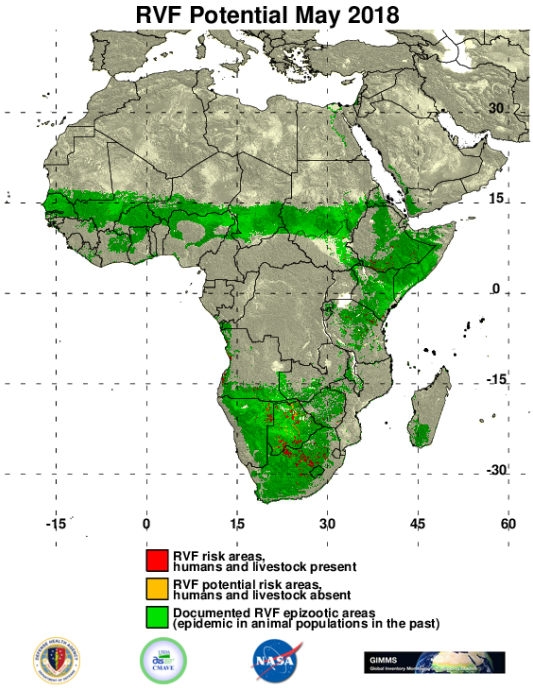


The majority of rainfall over Africa from February - April 2018 is now still centered in the equatorial belt, with maximum totals of 700mm from the southern Congo Basin through Tanzania northeastwards into Uganda, Kenya and eastwards into the Indian Ocean. Seasonal totals were near normal over most of the continent. East Africa is the region of maximum above normal rainfall that extends southwards into Zambia, Zimbabwe and central Mozambique with totals as high as 400mm above normal over the three-month period. Small areas of rainfall deficits persist in northeastern Congo and Gabon. The negative rainfall anomalies found in Uganda and Kenya last month have now shifted to slightly above normal, while slightly drier than normal conditions persist in Namibia. Extreme flood conditions have been reported in many parts of Eastern Africa.

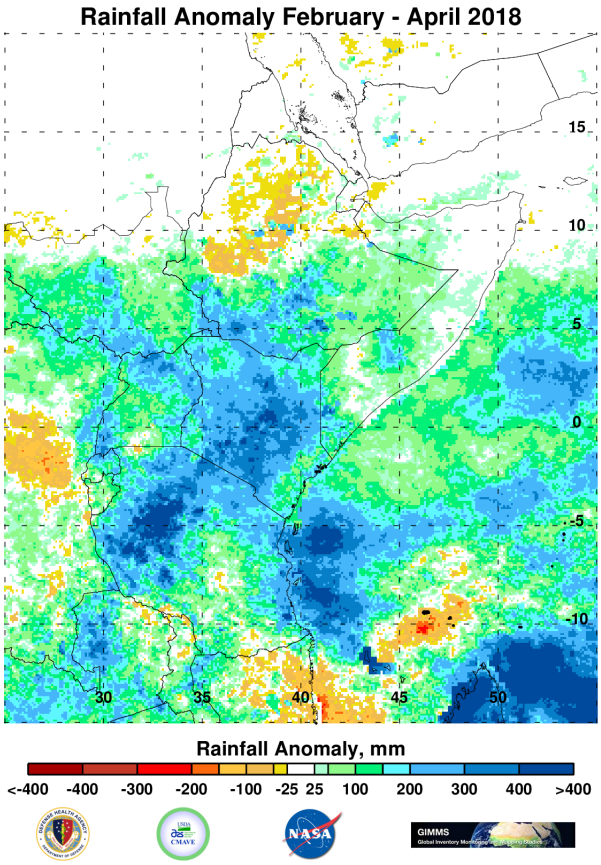
4. NDVI anomalies and RVF Risk Map

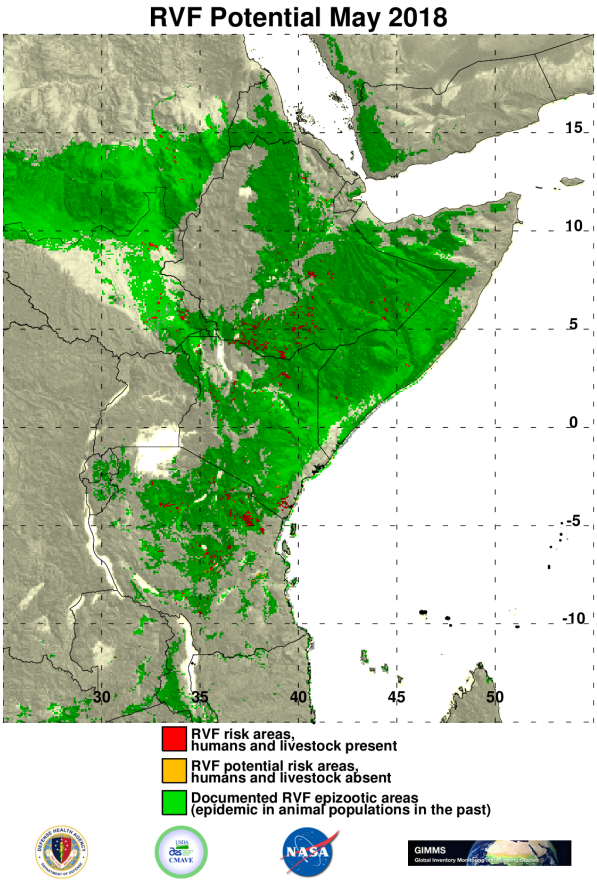
February - April 2018 NDVI anomalies for Africa were near normal over most of the continent. The below normal vegetation conditions seen last month in the equatorial belt have dissipated, with parts of northern Kenya and southern Ethiopia now showing above normal vegetation (+70% to 100%). The areas of above normal NDVI in Botswana, northern South Africa and Zimbabwe have increased in size and intensity over the last month. 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 February - April 2018, the RVF persistence model identifies areas of risk projected for May 2018 in southeastern Sudan, southern Ethiopia, northern Kenya, Tanzania, southern Madagascar, and scattered throughout the south in Angola, Namibia, Botswana, and central and northwestern South Africa. Given the higher than normal rainfall conditions in East Africa, enhanced vector surveillance is advised all the areas mapped to be at risk.





5. Region of Focus: East Africa





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