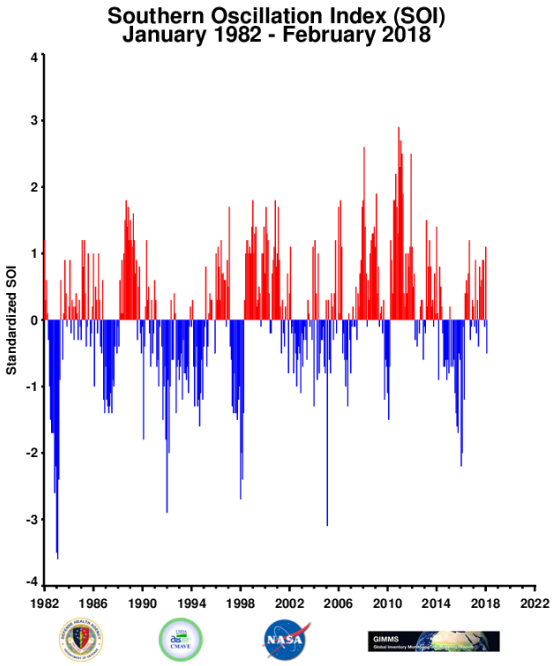
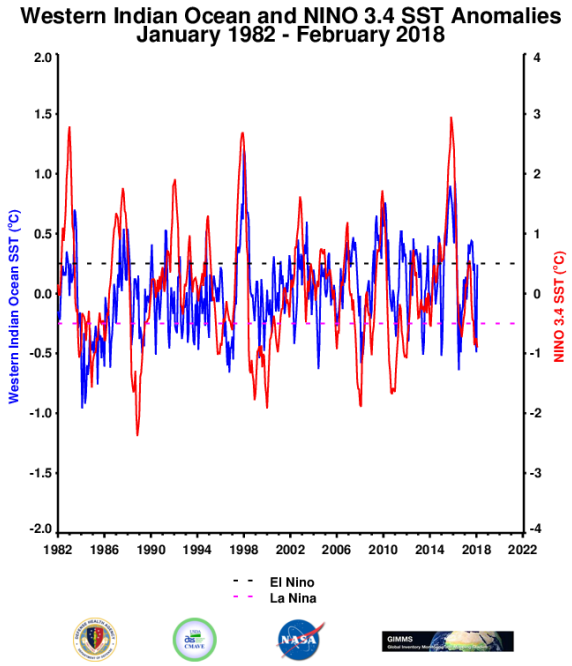
Rift Valley fever Monitor

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.

February 2018

1. SOI and SST Indices

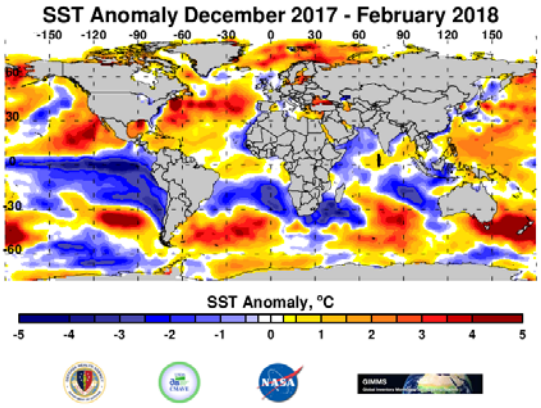


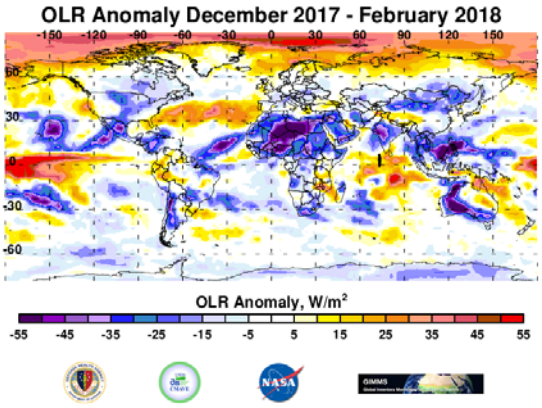


The SOI has weakened and decreased to a value of -0.5 in February from 1.1 in January. This suggests that La Niña conditions are beginning to dissipate. This is confirmed by the decrease in magnitudes of ocean temperatures across the eastern equatorial Pacific in February with NINO1&2 region just west of Ecuador and Peru (0°-10°S, 80°-90°W) where the anomaly has weakened -0.57°C from to -0.81°C in January. The NINO3.4 and NINO4 regions remained negative to various degrees, with NINO3.4 now at -0.9°C and NINO4 decreasing from -0.27°C to -0.25°C. Only the NINO3 region is still much colder than normal at -1.01°C from -1.14°C in January. The cooling in the western Indian Ocean has weakened considerably, the WIO anomaly is now at +0.24°C in February from -0.49°C in January, which is an indicator of the decrease in the magnitude of cooler than normal conditions basin wide. Overall, the trend in the indicators from December to February show that the ocean-atmosphere system is experiencing a weakening of La Niña conditions. The current climate model predictions

indicate that La Niña will decay and transition to ENSO-neutral (55% chance) most likely during the mid-to-late spring (March – May season) with neutral conditions likely to continue into the second half of the year.

2. Global SST and OLR Anomalies

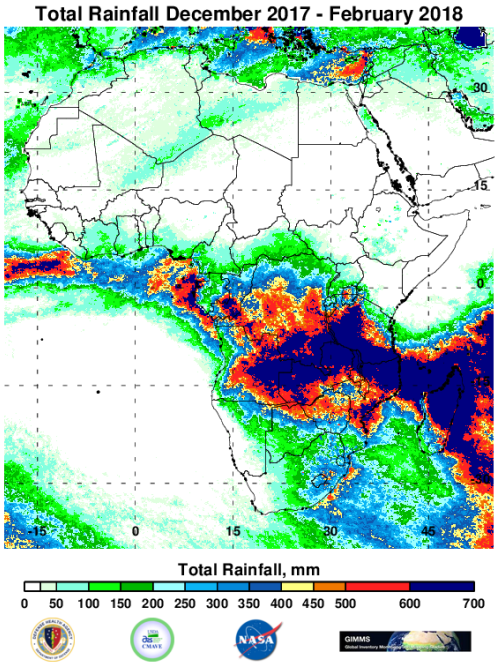


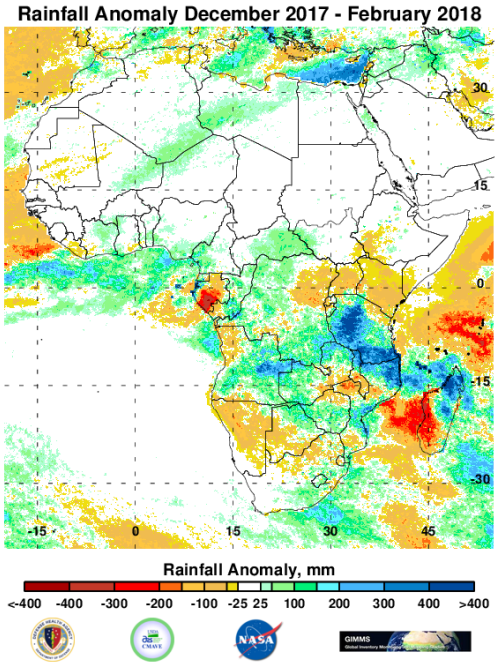


The December 2017 - February 2018 SST anomalies continue to show cooler than normal conditions the equatorial Pacific Ocean with seasonal temperatures approximately -3.5°C along the equator off the South American coast. Western Indian Ocean temperatures continued to be colder than normal, however the contiguous pattern is dissipating basin wide. The southeastern Indian Ocean cold anomaly continues to persist with a maximum value of 3.5°C below normal. The Atlantic and Indian Ocean basins surrounding southern Africa are dominated by negative SST anomalies leading to suppressed 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 November 2017 - January 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. In the higher latitudes drier than normal conditions persist, particularly in Alaska, northern Canada and eastern Russia. OLR anomalies also indicate wetter than average conditions in the northern central US plains northwards into Canada, Central America, and the southern portion of South America.

3. Seasonal Rainfall and Cumulative Rainfall Anomalies

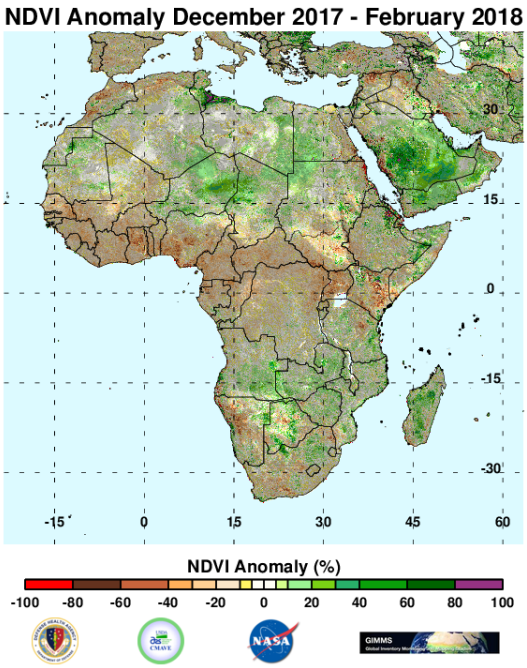


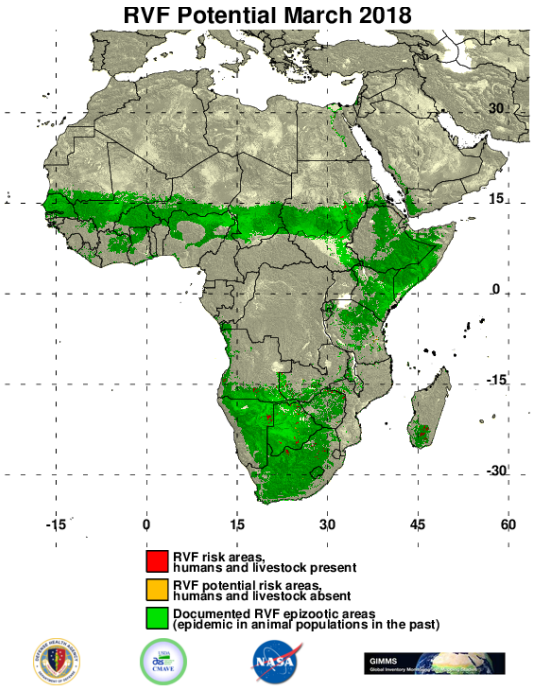


Total rainfall over Africa from December 2017 - February 2018 is now centered south of equator, with maximum totals of 700mm from the southern Congo Basin through Tanzania southeastwards into the Indian Ocean. Seasonal totals were near normal over most of the continent however pockets of above normal rainfall located in the Congo Basin but particularly in Tanzania and northern Mozambique with departures as high as +400mm over the three-month period. Areas of rainfall deficits continue cover Uganda, northeastern Congo and Kenya and Namibia.

4. NDVI anomalies and RVF Risk Map

December 2017 - February 2018 NDVI anomalies for Africa were closer to normal over most of the continent, except for the equatorial belt which now shows below normal vegetation conditions with negative departures of 40% below normal in Kenya and Uganda. Areas of above normal NDVI are scattered over parts of Botswana, northern South Africa and Zimbabwe. 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 December 2017 - February 2018, the RVF persistence model identifies scattered areas of risk projected for March 2018 in NE Namibia and Botswana. We evaluate that given the rather poor rainfall conditions this season there is very little risk if any for RVF activity in the southern Africa region.





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