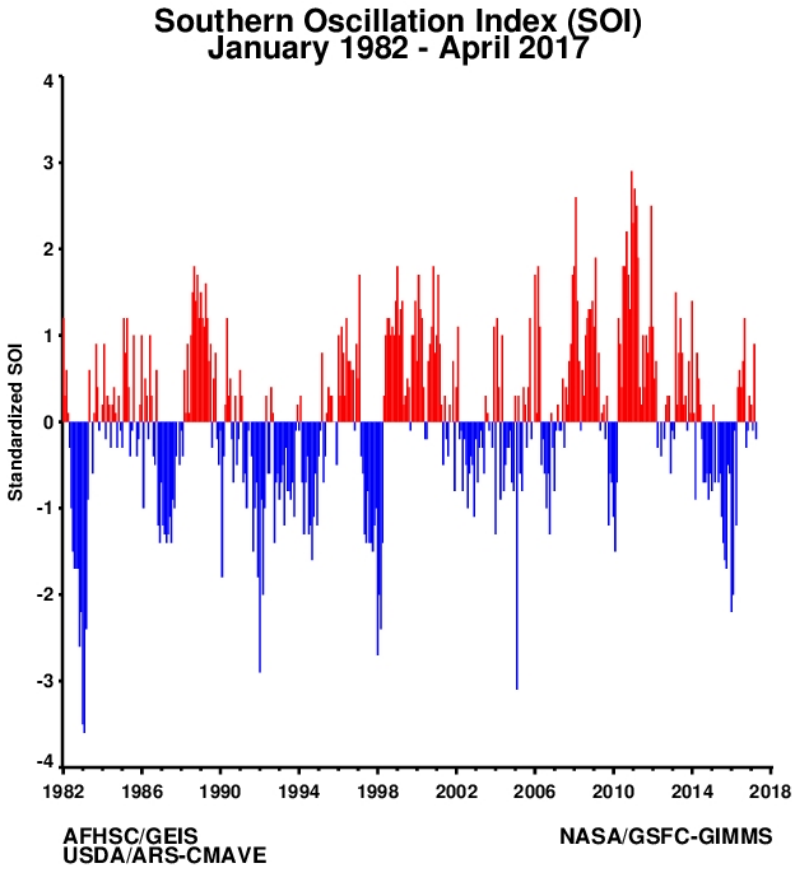
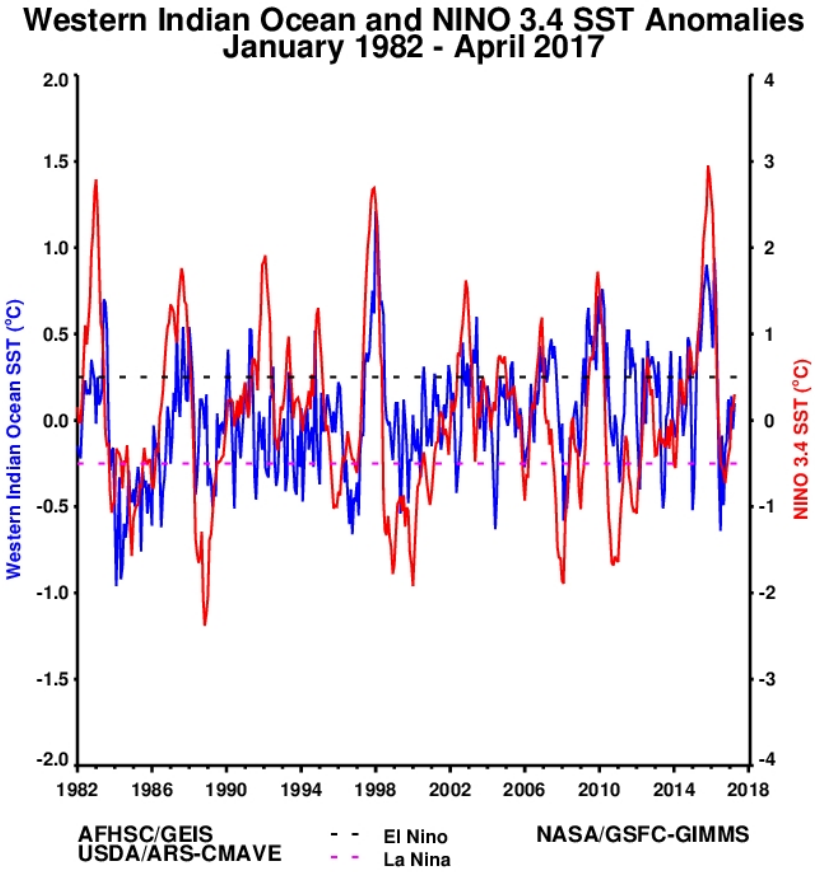
This section of the report will provide a rolling three month update on a monthly basis of the state of the climatic and ecological indicators used in monitoring areas at risk to RVF activity. These indicators include, global SST anomalies patterns, Equatorial Western Indian Ocean (WIO) and Eastern Pacific 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.

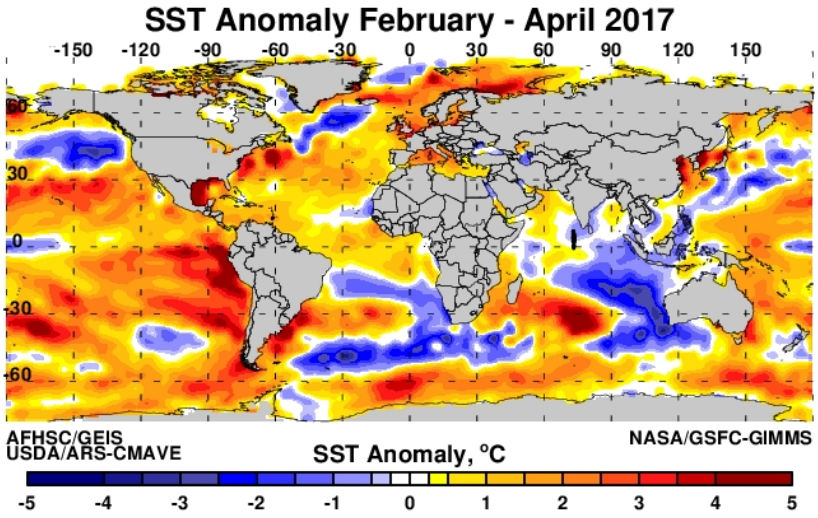
April 2017

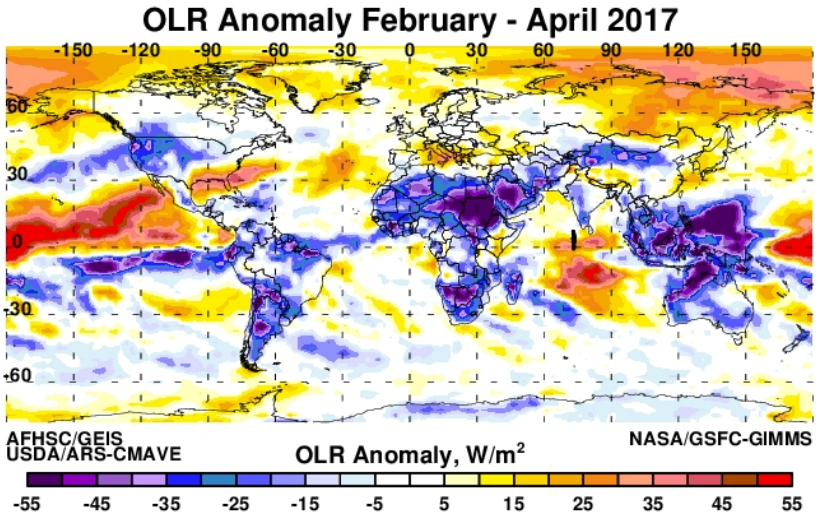
1. SOI and SST Indices





The SOI value remains near normal values with a slight negative value of -0.2 in April from 0.9 in March continuing the month to month variability that has been observed in the recent months. The ocean temperature conditions show continue to indicate ENSO-neutral conditions are persisting with sea surface temperature (SST) anomalies in most NINO regions showing near-normal to slight positive values: NINO 3.4 (+0.3°C), NINO 4 (+0.11°C), NINO3(+0.62°C) and NINO1&2 SST (+1.00°C). The SST anomalies in western Indian Ocean are near normal with slightly positive values at +0.1°C in concert with the NINO indices. Overall, the coupled ocean-atmosphere system reflects ENSO neutral conditions that are projected to last through the spring season: May-June 2017 and summer with 3-month average Niño-3.4 index between -0.5°C and +0.5°C. Most forecasts currently reflect slightly lower chances of El Niño (~45%) because of a lack of a clear shift toward El Niño conditions in the observational data. The chances for ENSO-neutral and El Niño are nearly equally favored during the Northern Hemisphere summer and fall 2017.

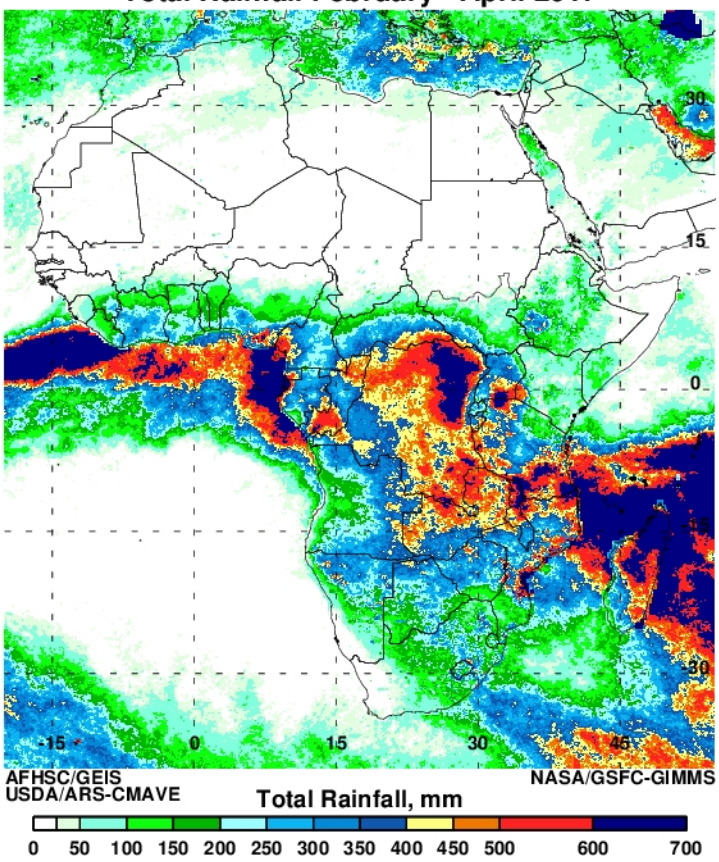




The equatorial Pacific Ocean seasonal (FMA 2017) SST anomalies show that the cold pattern that has dominated this region in the last several months is now dissipating except a small patch in the central sector of equatorial Pacific where anomalies remain at <-1.0°C) over during the February - April period. Positive anomalies are continuing to persist in the extreme eastern equatorial Pacific region, centered just south of the equator along the South America coast. The western Pacific Ocean around the Indonesian basin shows weakened above normal SSTs and development of a cold anomaly pool west and southwest of this region. This cold pool covers most of the central Indian Ocean basin extending towards southwestern Australia. Other regions of significant anomalies include the north Pacific Ocean, north Atlantic, equatorial Atlantic off the West African coast, the Pacific Ocean off the California coast, southwest Atlantic Ocean off Argentina and Brazil which show significant positive and negative anomalies on the order of -/+1.0°C to -/+2.0°C. In general there lingering effects of the La Niña SST anomalies are evident globally. 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. Some impacts from the

current SST anomaly patterns can be observed in the pattern of global convective activity illustrated by the OLR departure patterns here. During the February - April 2017 period, drier-than-average conditions (>+55W/M2) are prevailing over the central northeastwards towards Mexico while the eastern Pacific shows negative OLR anomalies (>-40W/M2) coinciding the region positive SSTs. The entire western Pacific including Australia and the Indonesian basin show large negative OLR anomalies indicative of continued deep convective activity, while the eastern Indian Ocean shows positive OLR anomalies in the region of colder than normal SSTs. Drier the normal conditions continue to persist over extreme northern hemisphere including coastal Alaska, Italy and northern Russia. Western and southwestern US show persistent negative OLR anomalies indicative continued convection and precipitation conditions in this region, while the eastern and southern/southeastern US show positive OLR anomalies indicative of diminished precipitation and dry conditions especially over Florida. Negative OLR anomalies continue to dominate North Africa and Middle East and extending into central Asia. The western equatorial Indian Ocean basin extending into eastern Africa shows positive OLR anomalies indicating reduced convective activity and dry conditions. Accordingly, southern Africa and the southern and northern halves of South America show negative OLR anomalies suggesting enhanced convective activity. These patterns of depressed and enhanced convective activity coincide well with the patterns of SST departures and reveal certain impacts often associated with the cold ENSO events. Monthly and weekly anomalies can be found here. Rainfall and associated anomalies (below) for Africa from February - April 2017 show rainfall concentrated over equatorial, south-central and southeastern Africa with maximum values of 700mm over the eastern Congo basin. Areas of above normal rainfall (+50 to 400 mm) are limited to the northern Congo basin, southern Africa region with values at ~ +300mm over the three month period especially in Botswana, northwest South Africa, southern Mozambique, Zimbabwe, Zambia and Malawi.

Total Rainfall February - April 2017

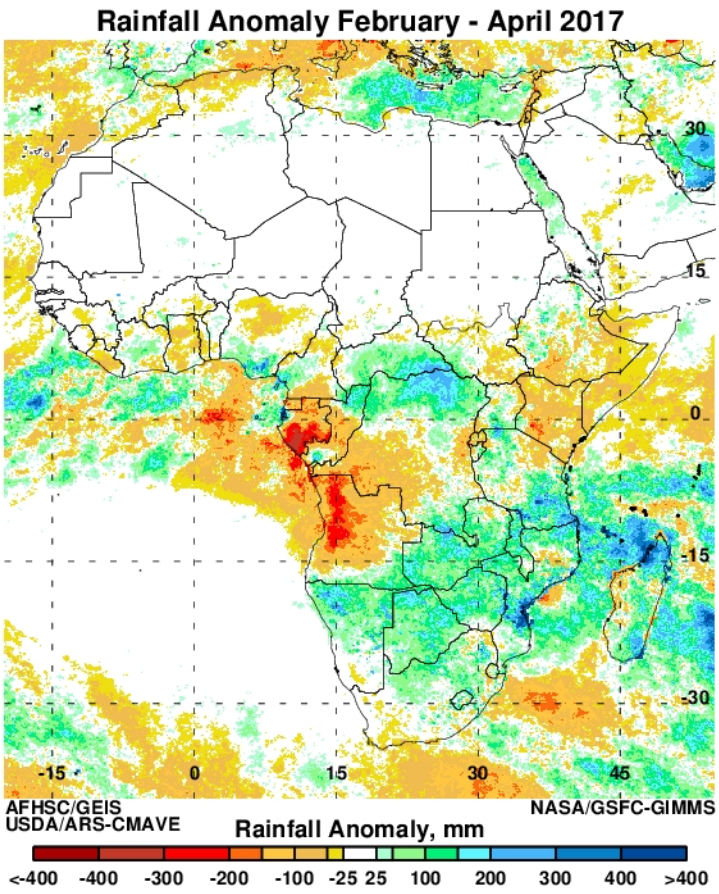


AFHSC/GEIS
USDA/ARS-CMAVE

NASA/GSFC-GIMMS

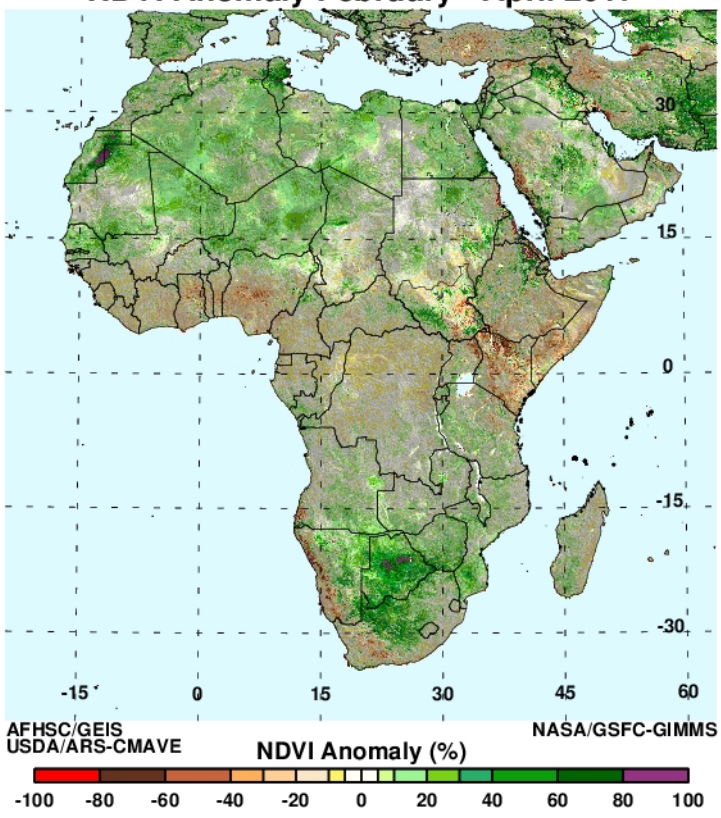
Total Rainfall, mm

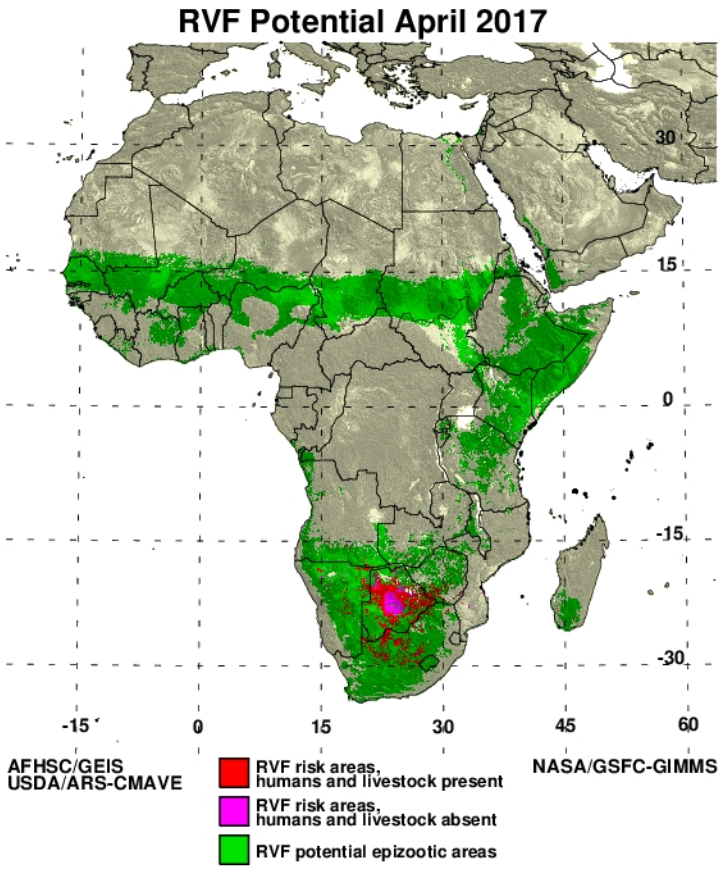
0 50 100 150 200 250 300 350 400 450 500 600 700



Cumulative NDVI anomalies for Africa for February - April 2017 show positive anomalies concentrated centered over Western Sahara and a large area covering Botswana, eastern Namibia, South Africa and southern Zimbabwe. 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 RVF vectors. For the period February - April 2017, the RVF persistence model identifies areas at risk areas South Africa, Botswana, Namibia and southern Zimbabwe which have received above normal rainfall over the last several months. Given the elevated rainfall conditions that have prevailed in these countries, continued surveillance is advised in these areas.

NDVI Anomaly February - April 2017




RVF Potential April 2017
30
15
0
-15
-30
-15
0
15
30
45
60
AFHSC/GEIS
USDA/ARS-CMAVE
NASA/GSFC-GIMMS
RVF risk areas, humans and livestock present
RVF risk areas, humans and livestock absent
RVF potential epizootic areas