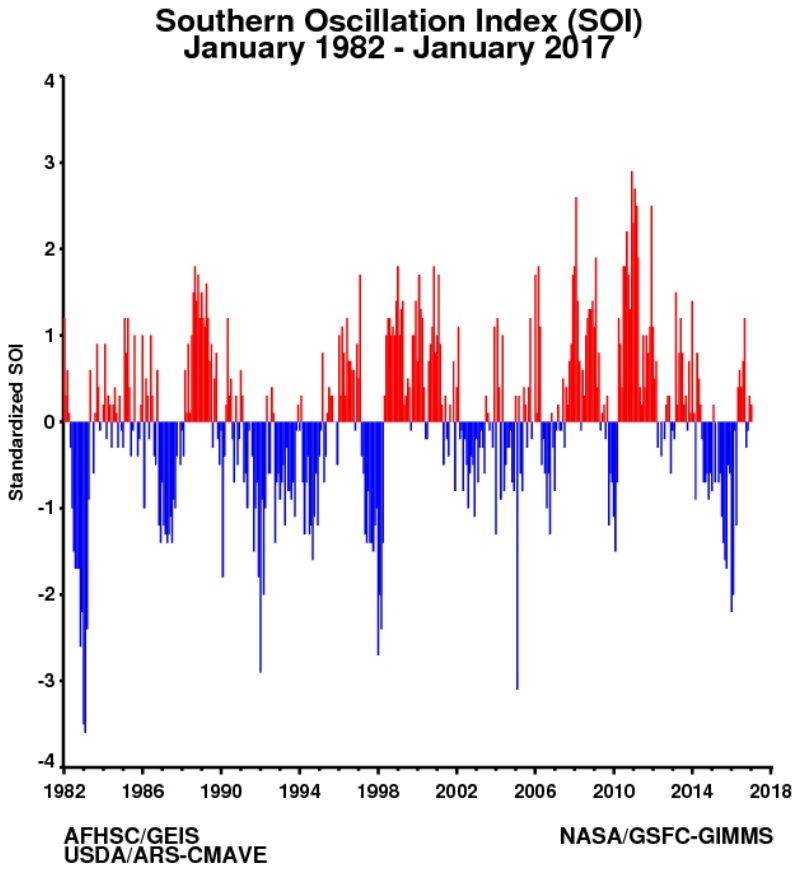
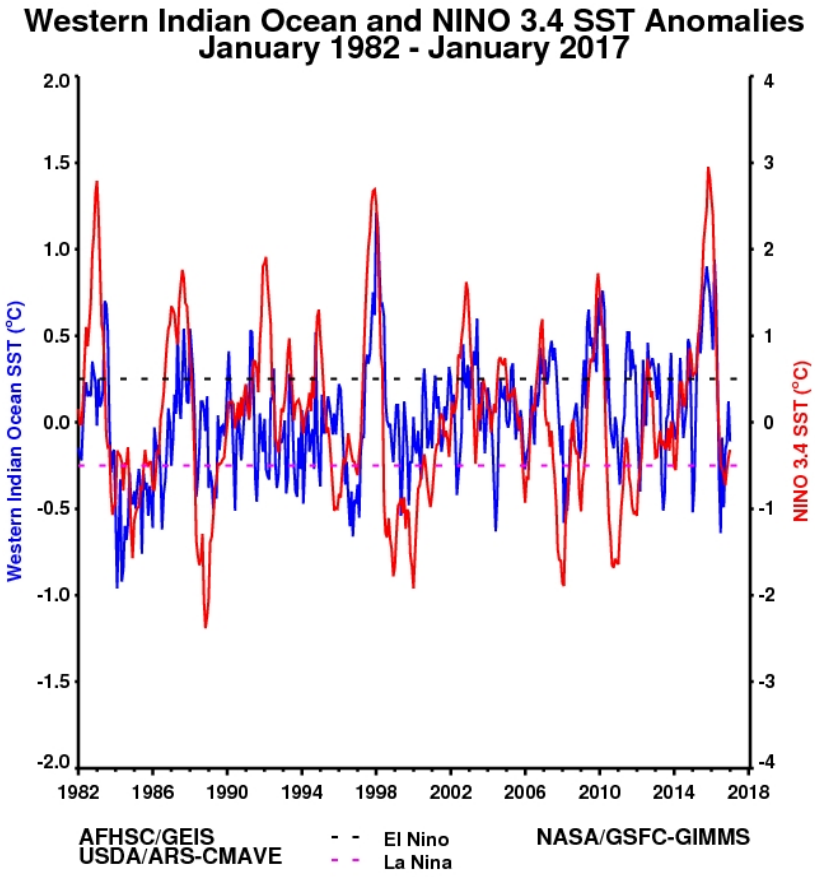
This section of the report will provide a rolling three month update on a monthly basis of the state of the climatic and ecological indicators used in monitoring areas at risk to RVF activity. These indicators include, global SST anomalies patterns, Equatorial Western Indian Ocean (WIO) and Eastern Pacific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

January 2017

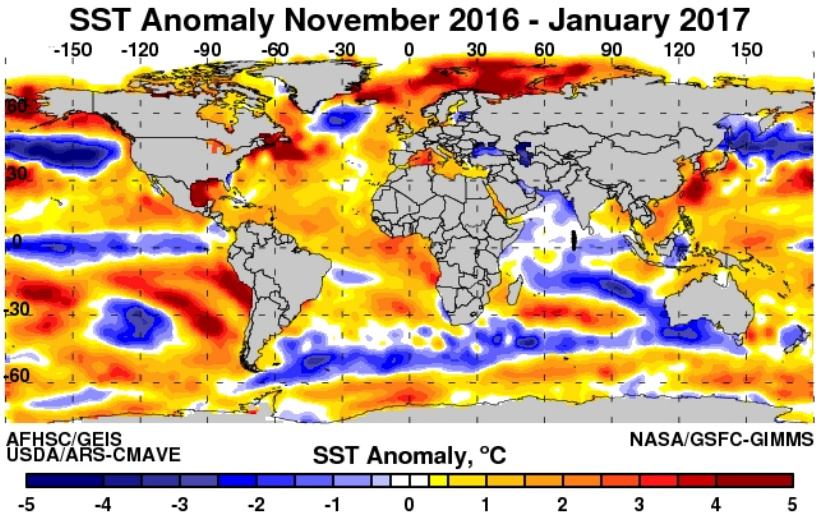
1. SOI and SST Indices

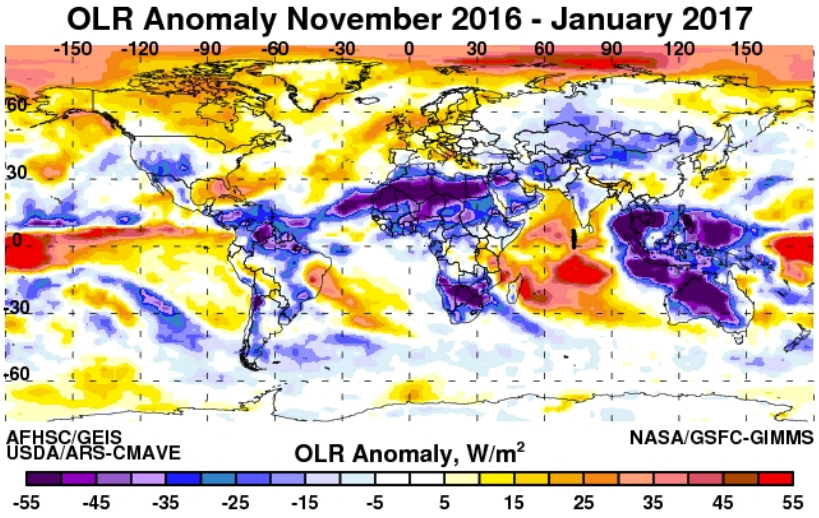




The SOI value remains near normal values at +0.2 in January from +0.3 in November continuing the slight month to month variability that has been observed in the recent months. The ocean temperature conditions show ENSO-neutral conditions are now present with sea surface temperature (SST) anomalies in most NINO regions being near normal except the eastern most NINO1&2 region where positive SST anomalies are emergent: NINO 3.4 (-0.32°C), NINO 4 (-0.12°C), NINO3(-0.02°C) and NINO1&2 SST (+1.23°C). The magnitude of the anomalies has decreased across the board and tending towards normal conditions and ENSO-neutral conditions are now prevailing. The SST anomalies in western Indian Ocean are now predominantly near normal in concert with the NINO indices at +0.2°C. Overall, the coupled ocean-atmosphere system reflects with ENSO neutral conditions that are projected through the entire spring season March - May with 3-month average Niño-3.4 index between -0.5°C and +0.5°C through the Northern Hemisphere summer. Current consensus forecasts indicate a 60% chance for ENSO neutral conditions to persist through the summer and a 50% chance for El Niño conditions to

emergence during the September - November 2017 fall season.

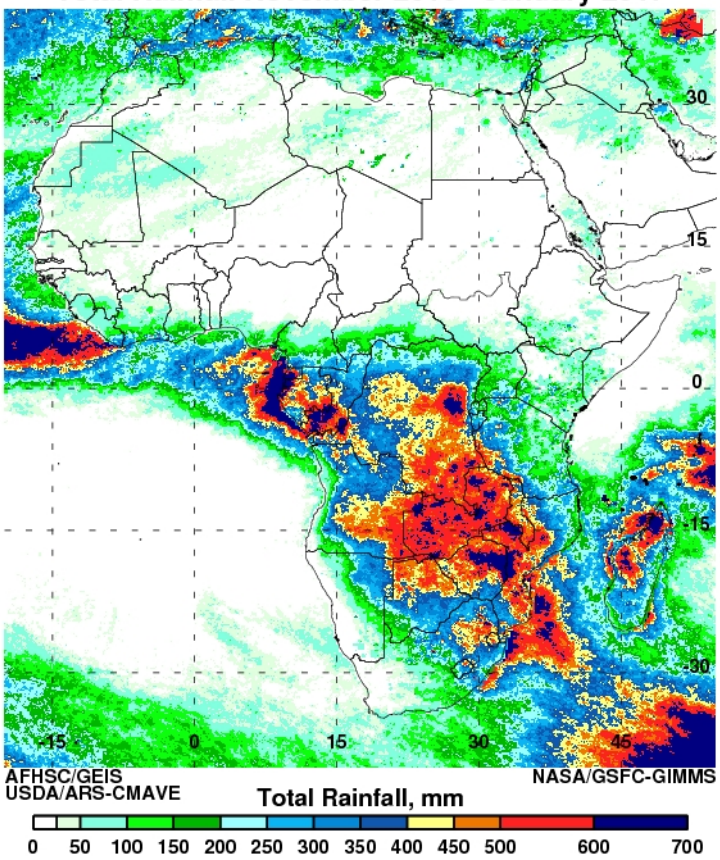


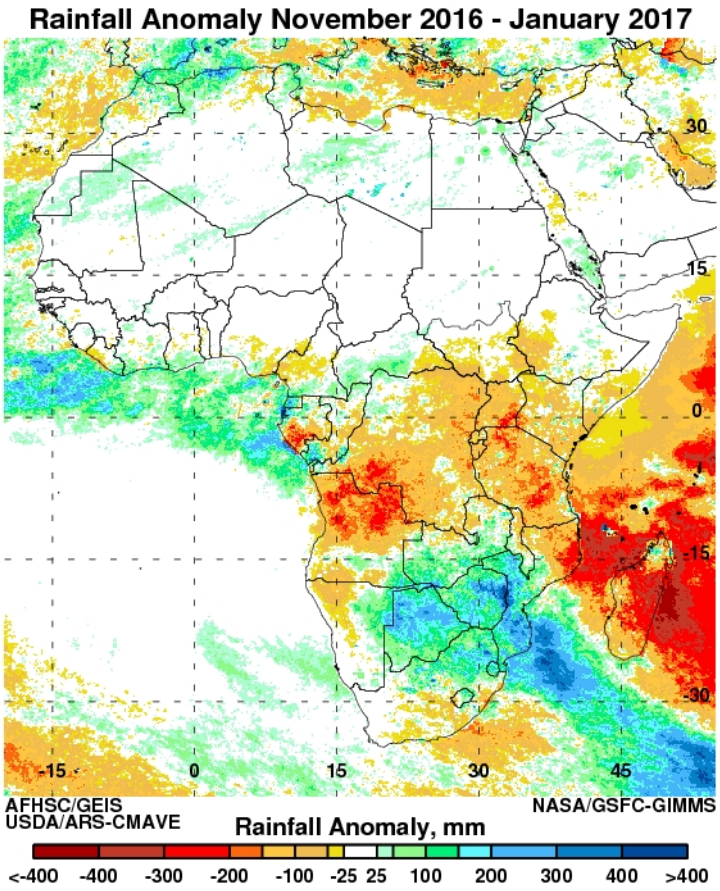


The equatorial Pacific Ocean seasonal SST anomalies show a cold pattern with three month values: <-1.0°C) from the central to eastern equatorial Pacific, with positive anomalies to the north and south of this belt. However, the NINO1&2 region off the Peruvian coast has emergent positive SST anomalies. The region from 30°S to 10°S in the southwestern Pacific Ocean still has below-normal SSTs persisting during November 2016 to January 2016 period. The western Pacific Ocean around the Indonesian basin shows continued widespread above normal SSTs indicating the entrenched reversal of ocean and atmospheric circulation. The area of anomalous cold SSTs off the East African coast including in northwestern Indian Ocean extending into southwestern Australia is continues to relax and diminish, with the center of the region now showing normal/neutral conditions. 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 November 2016 to January 2016 period, drier-than-average conditions (>+55W/M2) are prevailing over the central to eastern equatorial Pacific Ocean basin. The entire western Pacific including Australia and the Indonesian basin show large negative OLR anomalies indicative of continued deep convective activity. Drier the normal conditions are prevailing over extreme northern hemisphere including Alaska, Canada, and northern Europe. Mexico, western and southwestern US show persistent negative OLR anomalies indicative continued convection and precipitation conditions in this region, while the eastern US shows positive OLR anomalies indicative of diminished precipitation and dry conditions. 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 half 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 early phase of cold ENSO events. Monthly and weekly anomalies can be found here. Rainfall and associated anomalies (below) for Africa from November 2016 to January 2016 show rainfall concentrated over the greater Congo basin region belt to the immediate south with maximum values of 650mm. Areas of above normal rainfall (+50 to 300 mm) are limited to southern Africa region with values at ~ +400mm over the three month period especially in Botswana, northeast South Africa, Mozambique and eastern Zimbabwe.

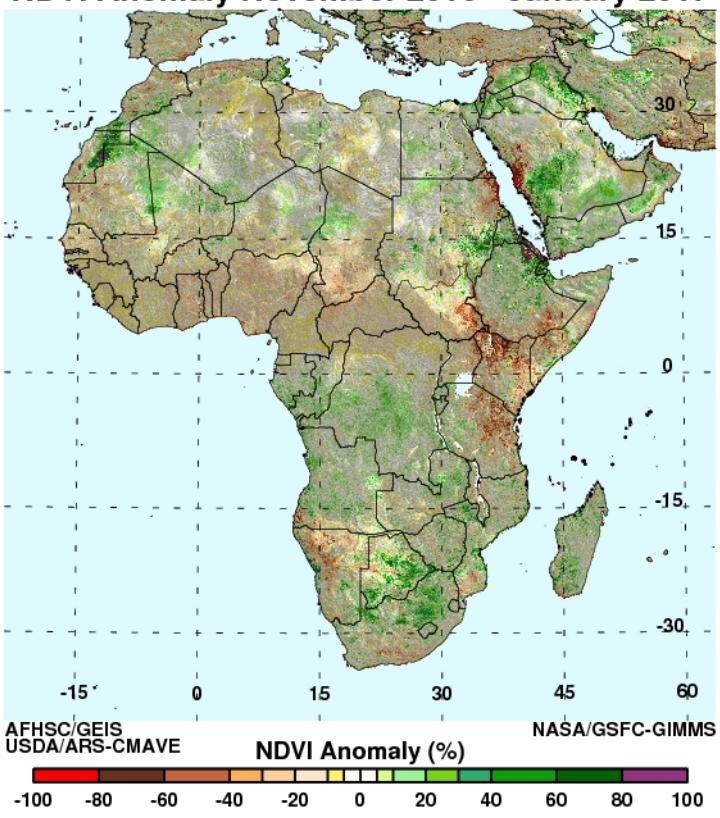
Total Rainfall November 2016 - January 2017

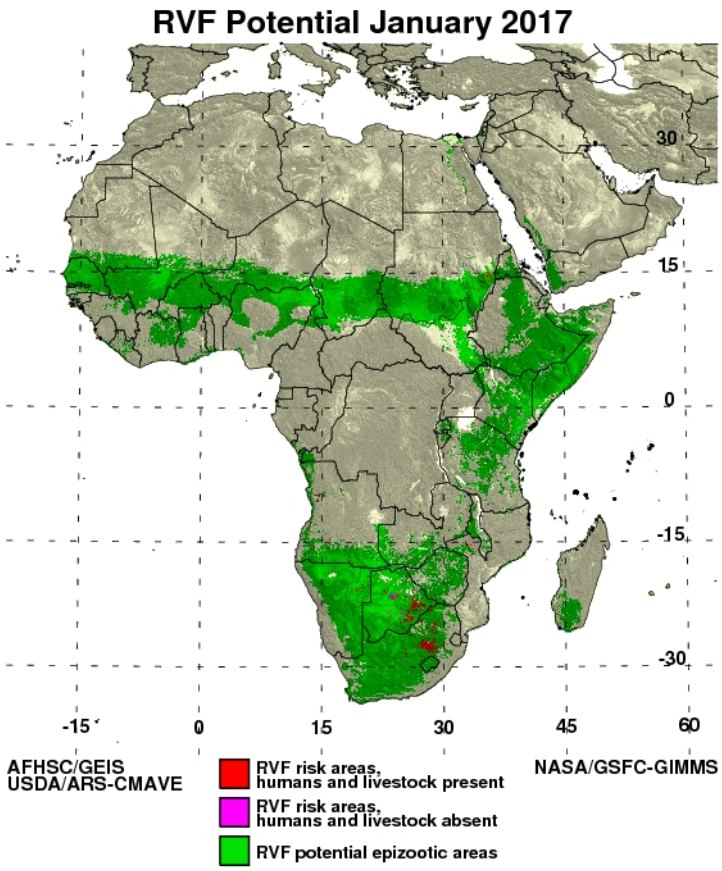




Cumulative NDVI anomalies for Africa for November 2016 to January 2016 show a patchwork of positive anomalies concentrated centered over Western Sahara, eastern Sudan and Botswana/South Africa. The RVF risk map below was derived from thresholding NDVI anomaly data to detect areas persistent of above 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 November 2016 to January 2016, the RVF persistence model identifies areas at risk in some areas South Africa and Botswana which have received above normal rainfall over the last three months. Given the elevated rainfall conditions that have prevailed in these countries, continued surveillance is advised in these areas.

NDVI Anomaly November 2016 - January 2017




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