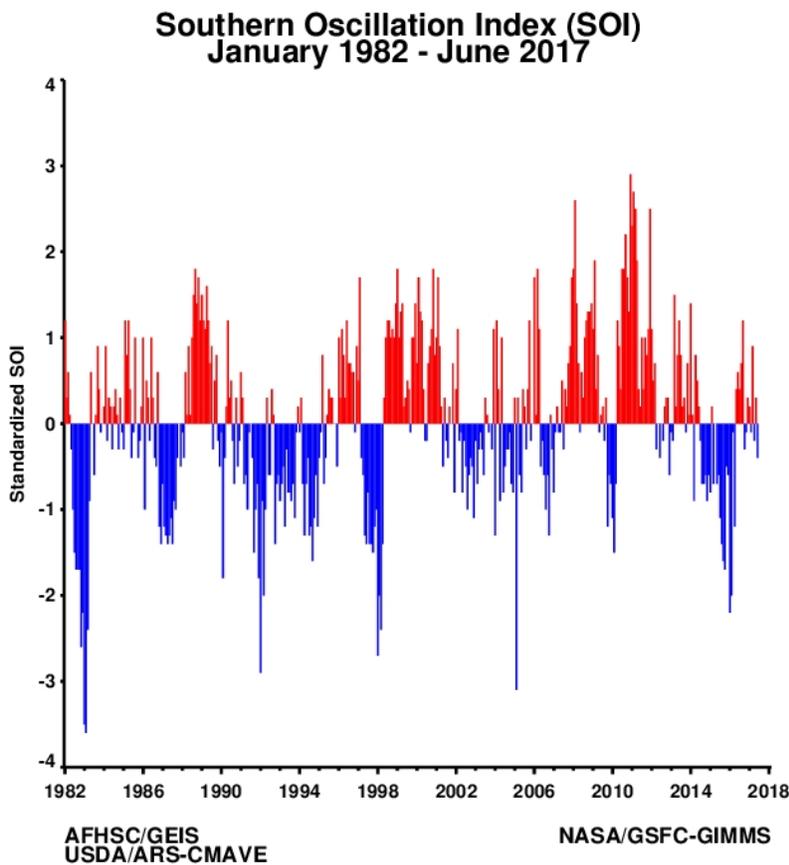


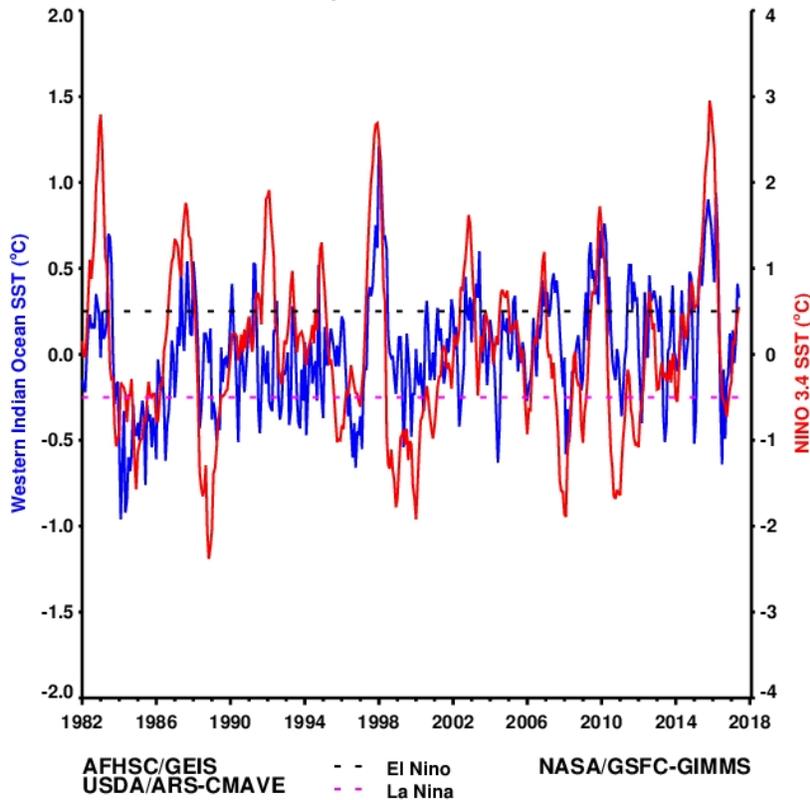
This section of the report will provide a rolling three month update on a monthly basis of the state of the climatic and ecological indicators used in monitoring areas at risk to RVF activity. These indicators include, global SST anomalies patterns, Equatorial Western Indian Ocean (WIO) and Eastern Pacific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

June 2017

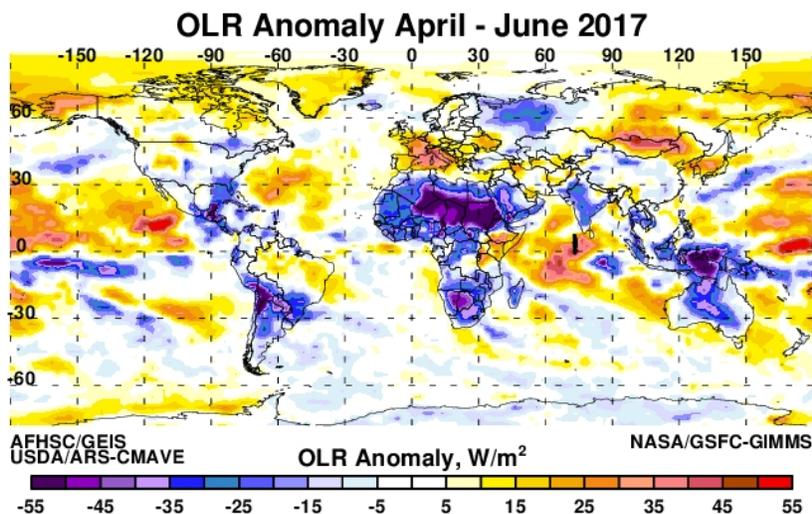
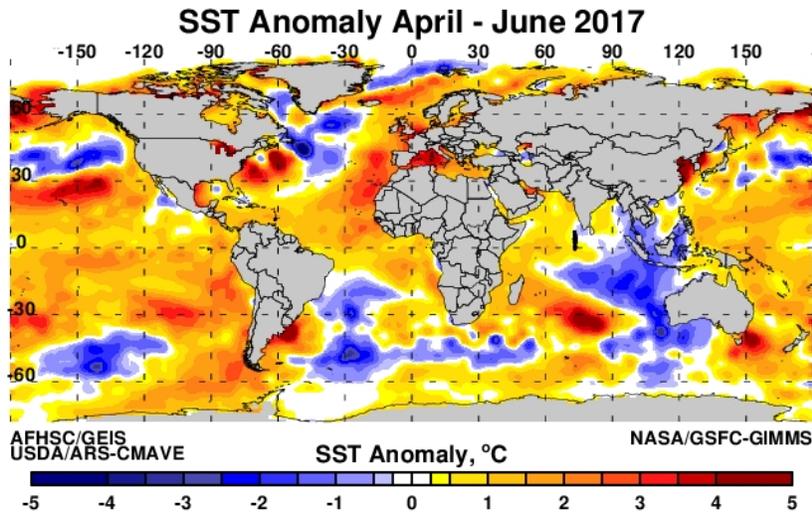
1. SOI and SST Indices



Western Indian Ocean and NINO 3.4 SST Anomalies January 1982 - June 2017



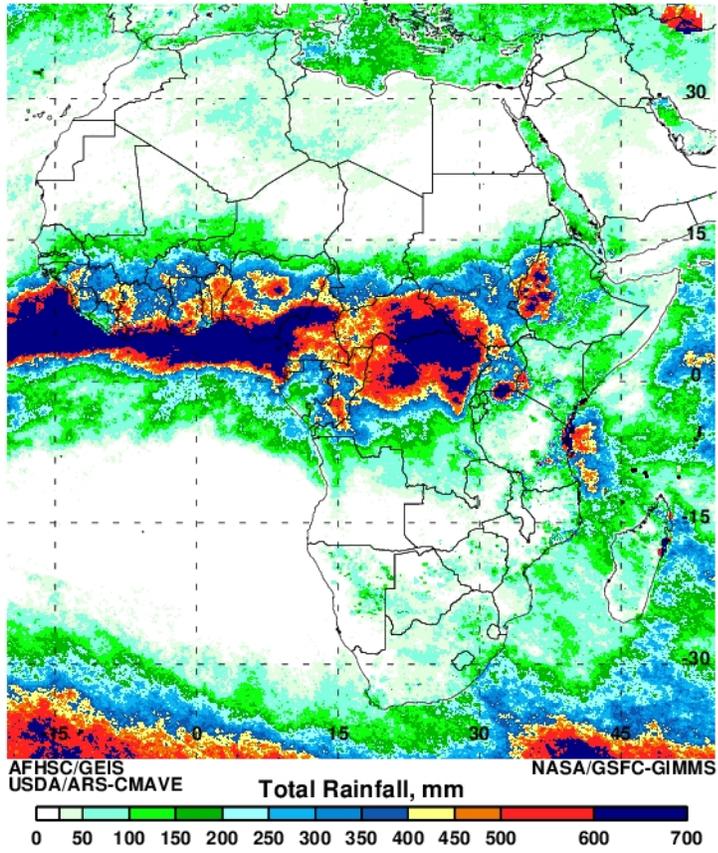
The SOI value remains near normal values with a slight positive value of 0.4 in June from 0.3 in April continuing the month to month variability that has been observed in the recent months associated with neutral conditions. The ocean temperature conditions continue to indicate that ENSO-neutral conditions are persisting with sea surface temperature (SST) anomalies in most NINO regions showing near-normal to positive values: NINO 3.4 (+0.55°C), NINO 4 (+0.55°C), NINO3 (+0.32°C) and NINO1&2 SST (+0.14°C). The positive SST anomalies in western Indian Ocean show a slight decrease from +0.41°C in April to +0.33°C in May in concert SST patterns in the NINO regions. Overall, the coupled ocean-atmosphere system reflects ENSO neutral conditions that are projected to last through 2017/18 winter season 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 (~30-35%) because of a lack of a clear shift toward El Niño conditions in the observational data. The probability for ENSO-neutral conditions to persist is favored with a 50-55% chance.



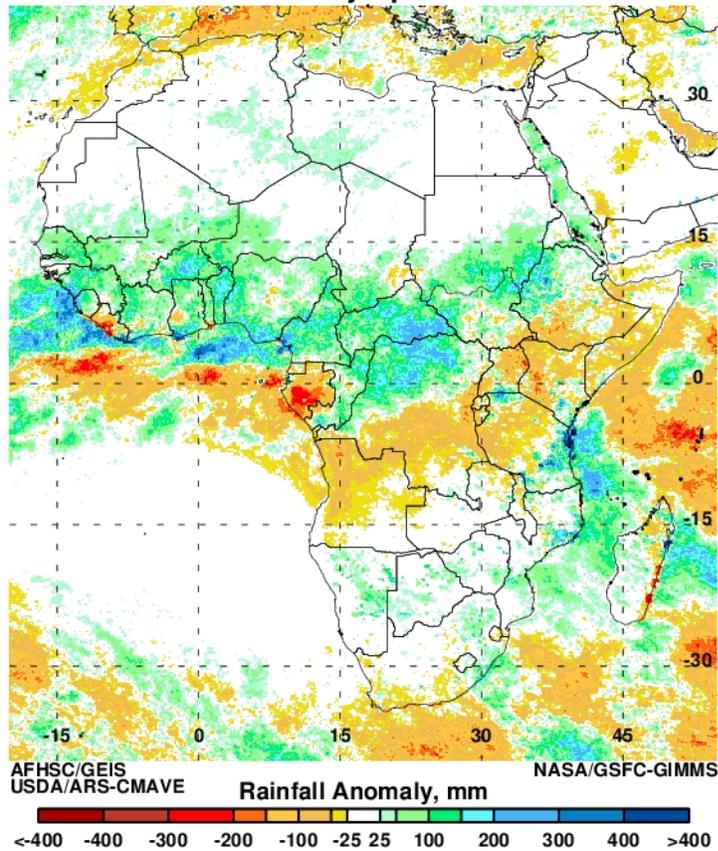
The equatorial Pacific Ocean seasonal (AMJ 2017) SST anomalies show elevated positive SST anomalies from the central equatorial Pacific to the extreme eastern equatorial Pacific region, centered just south of the equator along the South America coast. The western Pacific Ocean around the Indonesian basin 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 southeastern 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 $-/+1.0^{\circ}\text{C}$ to $-/+2.0^{\circ}\text{C}$. In general lingering effects of 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 April - June 2017 period, drier-than-average conditions

(>+55W/M²) are prevailing over the central equatorial Pacific - just north of the equator northeastwards towards coastal 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 Indian Ocean shows positive OLR anomalies in the region of colder than normal SSTs extending into East Africa particularly Kenya and Somalia. Drier than normal conditions continue to persist over extreme northern hemisphere including coastal Alaska, Western Europe and eastern Russia. Western and southwestern US now show positive OLR anomalies indicative developing dry conditions, while the eastern and southern/southeastern US show negative OLR anomalies indicative of increasing precipitation which could help alleviate dry conditions that have persisted over this region in the last several months. Negative OLR anomalies continue to dominate North Africa and Middle East and extending into India and central Asia. Accordingly, southern Africa and the southern half of South America show negative OLR anomalies suggesting continued 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 April - June 2017 show rainfall concentrated over equatorial belt - just north of the equator, maximum values of 700mm over the northern Congo basin and Gulf of Guinea coast. Areas of above normal rainfall (+50 to 400 mm) are limited to the northern Congo basin, Central Africa Republic, and Gulf of Guinea countries with values at ~ +300mm over the last three month period.

Total Rainfall April - June 2017



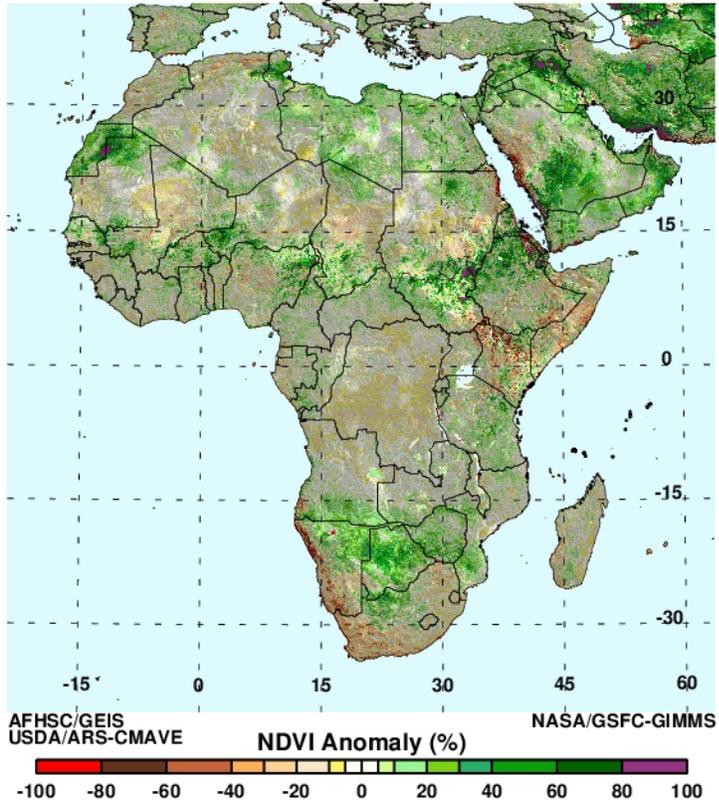
Rainfall Anomaly April - June 2017



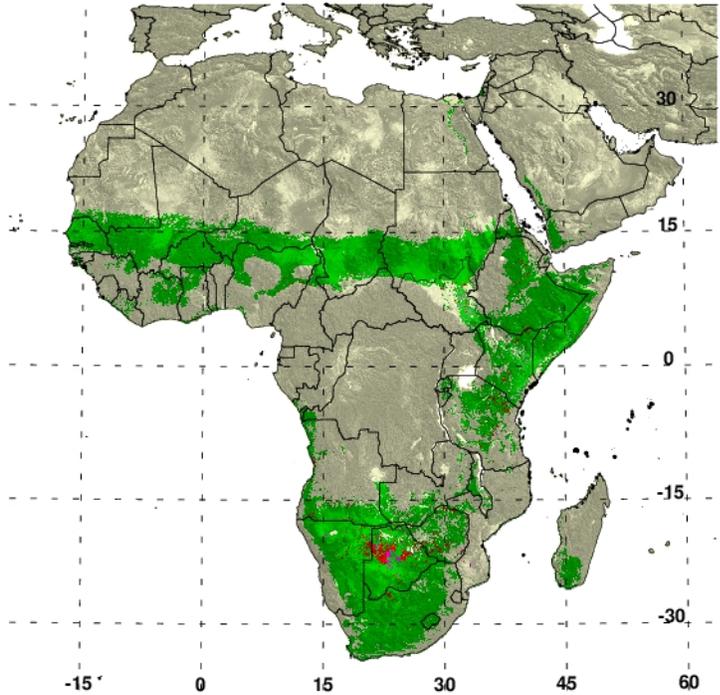
Cumulative NDVI anomalies for Africa for April - June 2017 show positive anomalies concentrated centered over Western Sahara and area covering Botswana, eastern Namibia, NW South Africa, southern Zimbabwe, Sudan, Southern Sudan and northern Ethiopia. The RVF risk map below was derived from thresholding 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 April - June 2017, the RVF persistence model identifies areas at risk areas primarily in Botswana, eastern Namibia and southern Zimbabwe and additional parts Sudan, and Southern Sudan 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 April - June 2017



RVF Potential June 2017



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