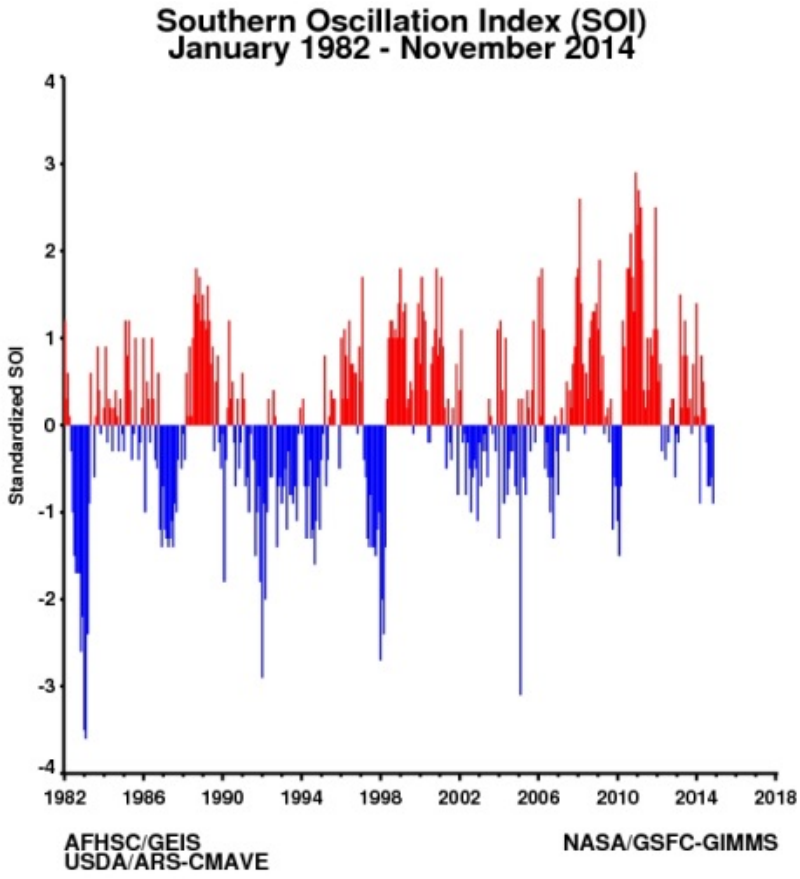
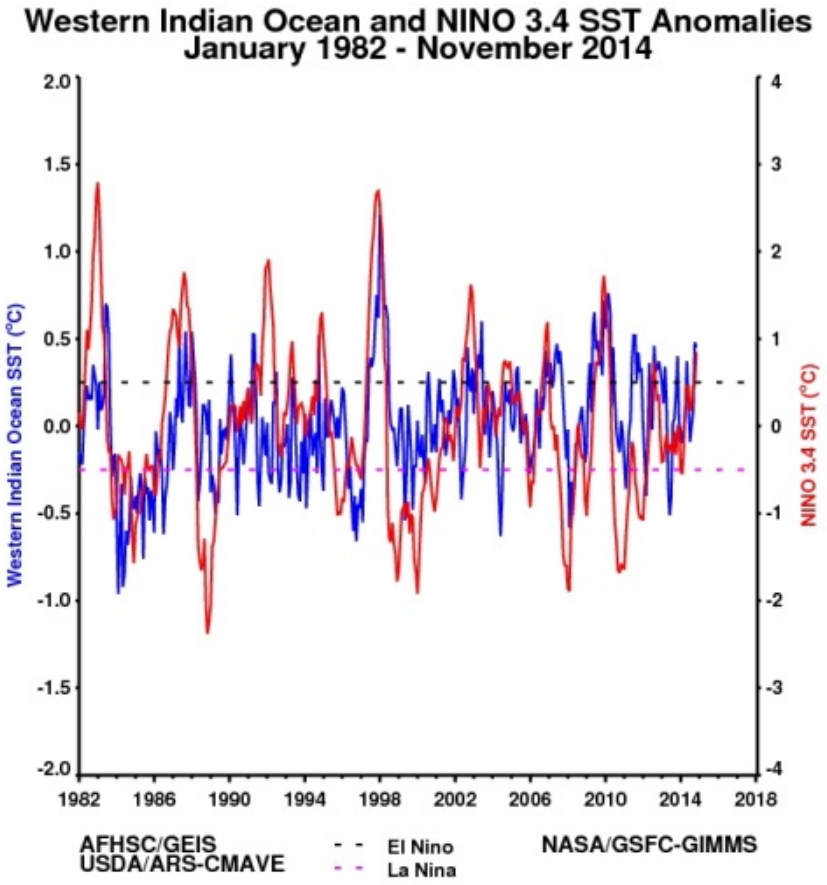
This section of the report will provide a rolling three month update on a monthly basis of the state of the climatic and ecological indicators used in monitoring areas at risk to RVF activity. These indicators include, global SST anomalies patterns, Equatorial Western Indian Ocean (WIO) and Eastern Pacific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

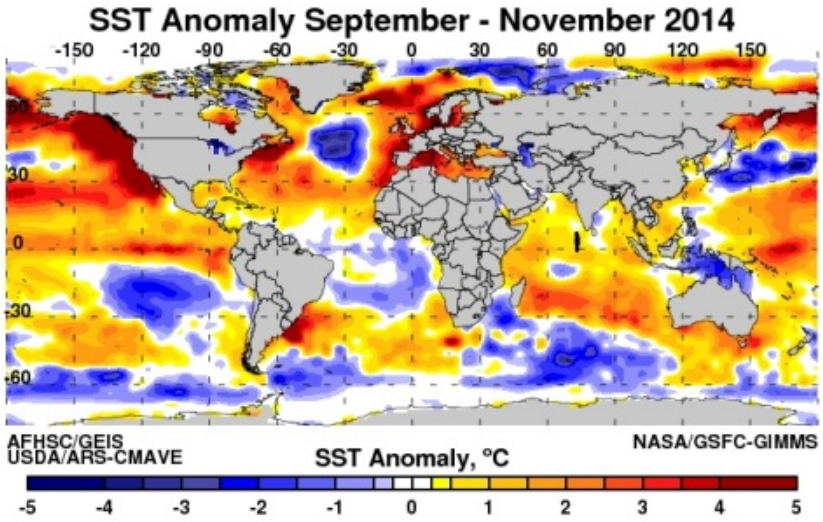
November 2014

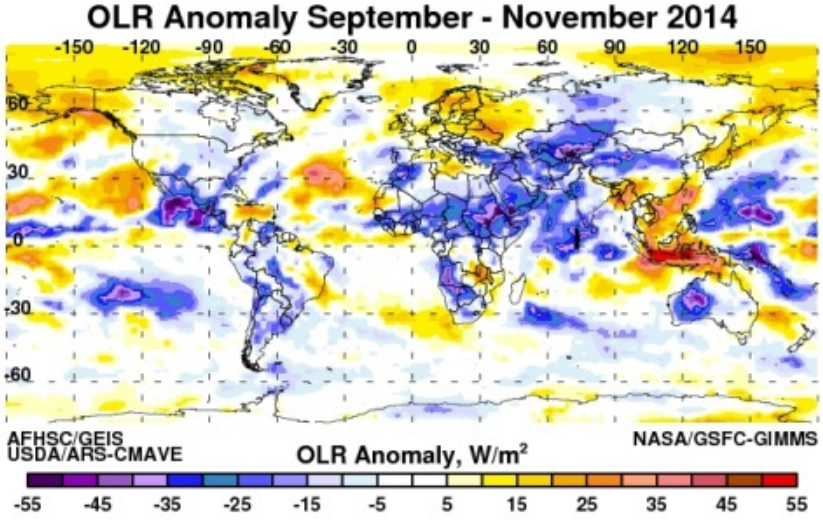
1. SOI and SST Indices





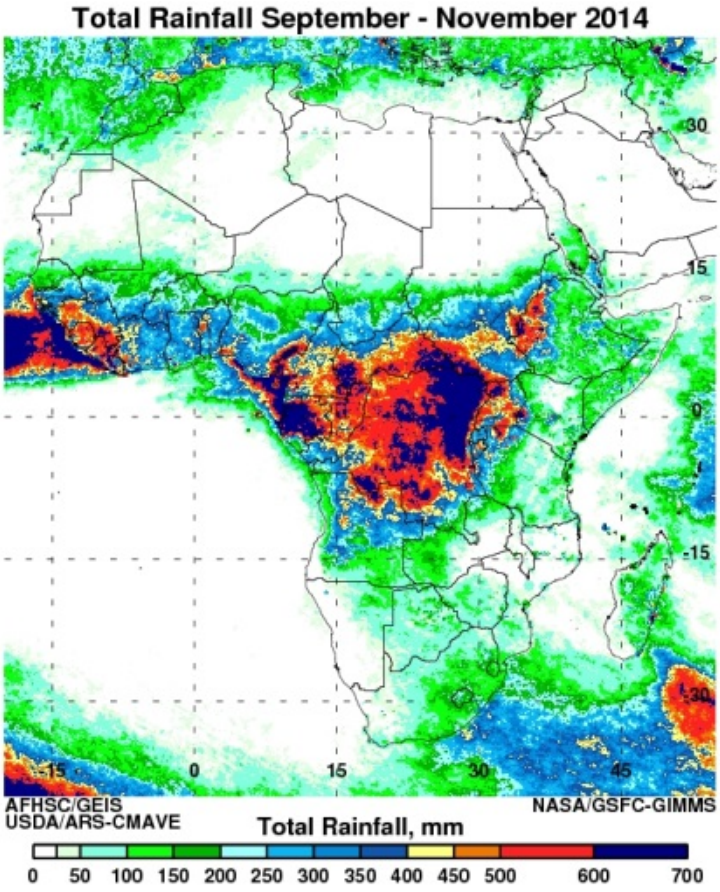
The SOI index remained negative with a value of -1.0 in November indicating persistence of below normal conditions as has been the case since July 2014. Monthly SST anomalies in all NINO monitoring regions have increased, with NINO3.4 SST anomalies at ~ +0.85°C in November. The western Indian Ocean also continued recent warming pattern, with the WIO SST index at +0.45°C indicating the prevalence of warmer than normal conditions over these ocean basins. Even though above-average sea surface temperatures (SST) (below) and in all the NINO regions of the equatorial eastern equatorial Pacific continued during November and 2014 exhibited are features characteristic of El Niño conditions, the overall atmospheric circulation has yet to show a clear coupling to the anomalously warm waters as such the combined atmospheric and oceanic state remains in ENSO-neutral state. As in the last three months, nearly all model forecasts predict El Niño conditions during the November-January 2014-15 period. If El Niño fully emerges, the prediction consensus favors a weak event, with an 65% chance of El Niño conditions during the Northern Hemisphere winter, which are expected to last into the Northern Hemisphere spring 2015.

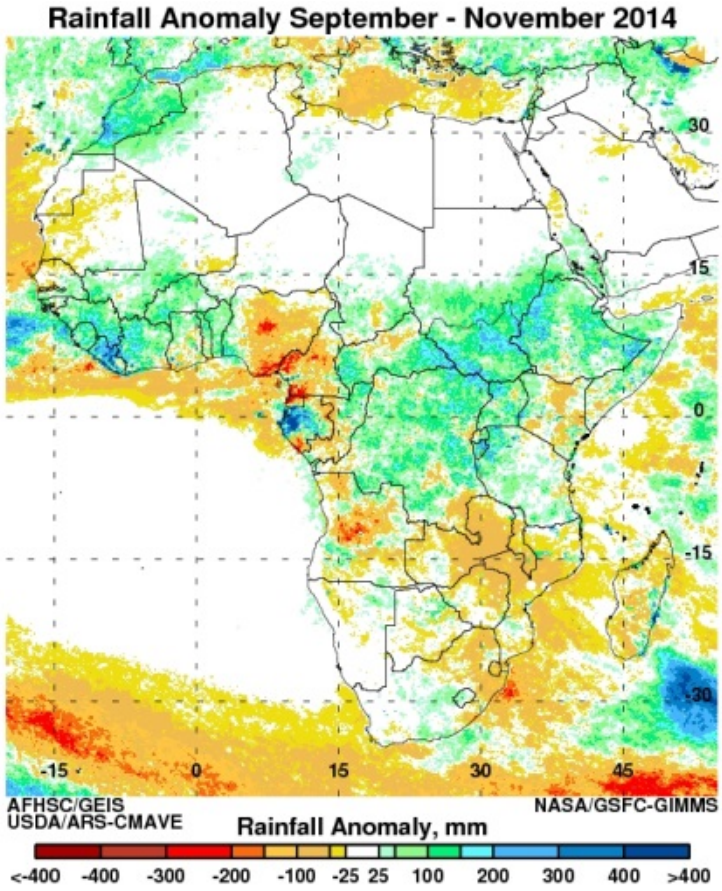




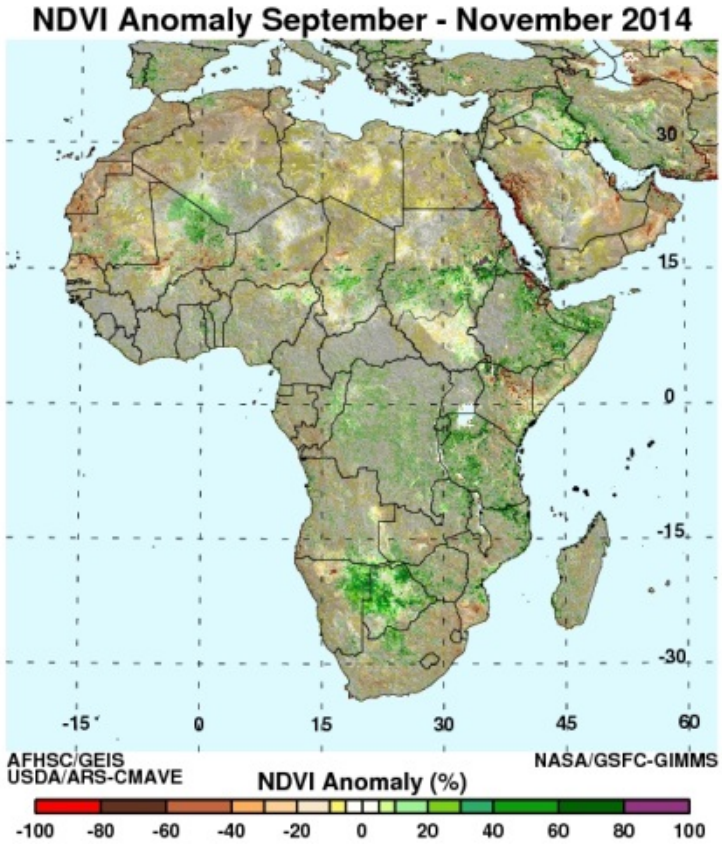
The entire equatorial Pacific Ocean shows a pattern of above normal seasonal SSTs (+0.5°C to +2.0°C) except for the region from 30°S to 1°S (off the South American coast) with below-normal SSTs during the September 2014 to November 2014. Accordingly, the entire equatorial Indian Ocean between 30° N-S is now dominated by positive SST anomalies. 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, and south Indian Ocean off the southern Africa landmass which show significant positive and negative anomalies on the order of -/+1.0°C to -/+2.0°C. 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 September to November 2014 period, drier-than-average conditions (>+35W/M2) continue to persist over the western Pacific Ocean and Indonesian Basins between 90°E and 120°E and eastern Brazil. Enhanced cooler than

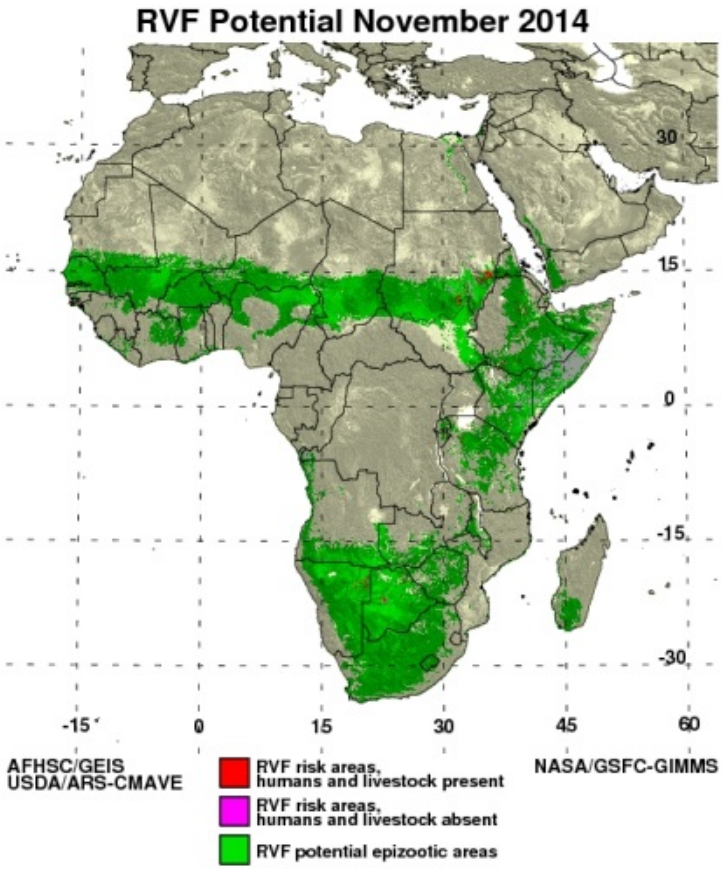
average conditions (-50W/M2) are observed over the areas to the immediate east of the Indonesian Basin and Philippines between 125°E and 155°E, the equatorial central to eastern Pacific Ocean north of the equator between 180°W and 90°W marked by a band extending and centered over central America and SW US. Convective activity continues to be prevalent over parts equatorial Africa particularly Chad and Sudan, and parts of eastern Africa (-55W/M2) and Southern Africa (Namibia, Botswana, Angola), the entire Middle East extending into central Asia. These patterns of depressed and enhanced convective activity coincide well with the patterns of SST departures. Monthly and weekly anomalies can be found here. Rainfall and associated anomalies (below) for Africa from September to November 2014 show rainfall over the entire sub-Saharan region south of 15°N with a maxima along the equator. Areas of above normal rainfall (+50 to 250mm) include parts of equatorial West Africa, Congo-Kinshasa to eastern Sudan into northern Ethiopia.





Cumulative NDVI anomalies for Africa for September to November 2014 2014 show positive anomalies concentrated over parts of central to eastern Sudan, Eritrea, eastern Ethiopia, northern Somalia, northern Kenya, Botswana and Namibia following the above normal rainfall in these areas in the last several months. 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 September to November 2014, the RVF persistence model identifies isolated areas in Sudan and where ecological conditions would support the emergence of RVF vectors. Enhanced surveillance is advised in these areas. These locations have reported Cholera cases over the last few months due to flooding and poor sanitary conditions and recently reported cases of undiagnosed hemorrhagic fever.


NDVI Anomaly September - November 2014
30
15
0
-15
-30
-15
0
15
30
45
60
AFHSC/GEIS
USDA/ARS-CMAVE
NASA/GSFC-GIMMS
NDVI Anomaly (%)
-100
-80
-60
-40
-20
0
20
40
60
80
100


RVF Potential November 2014
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