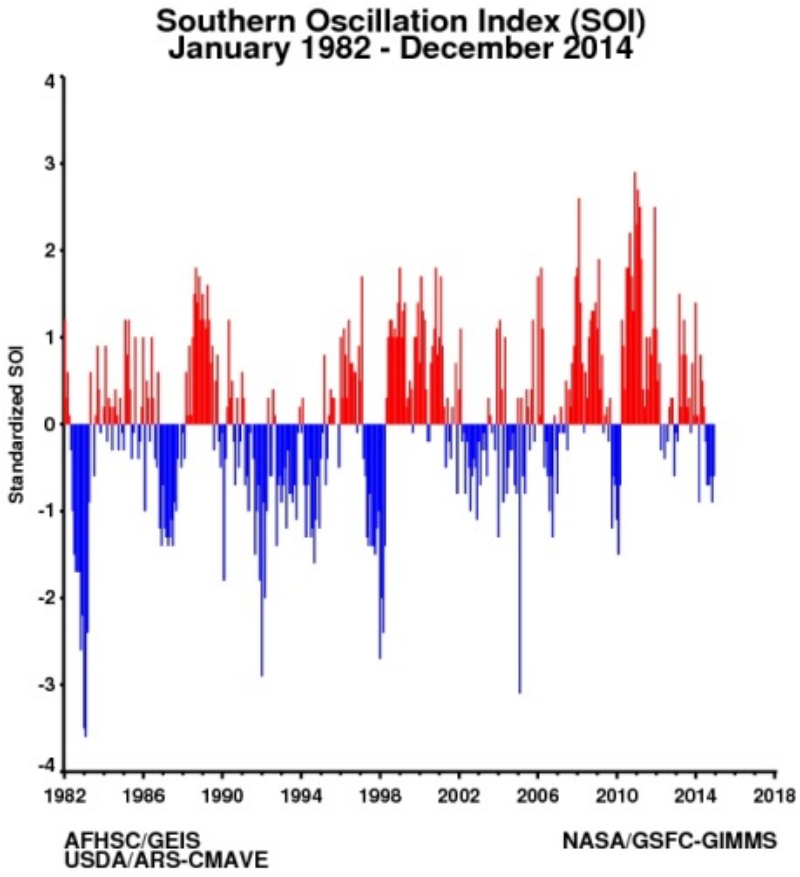
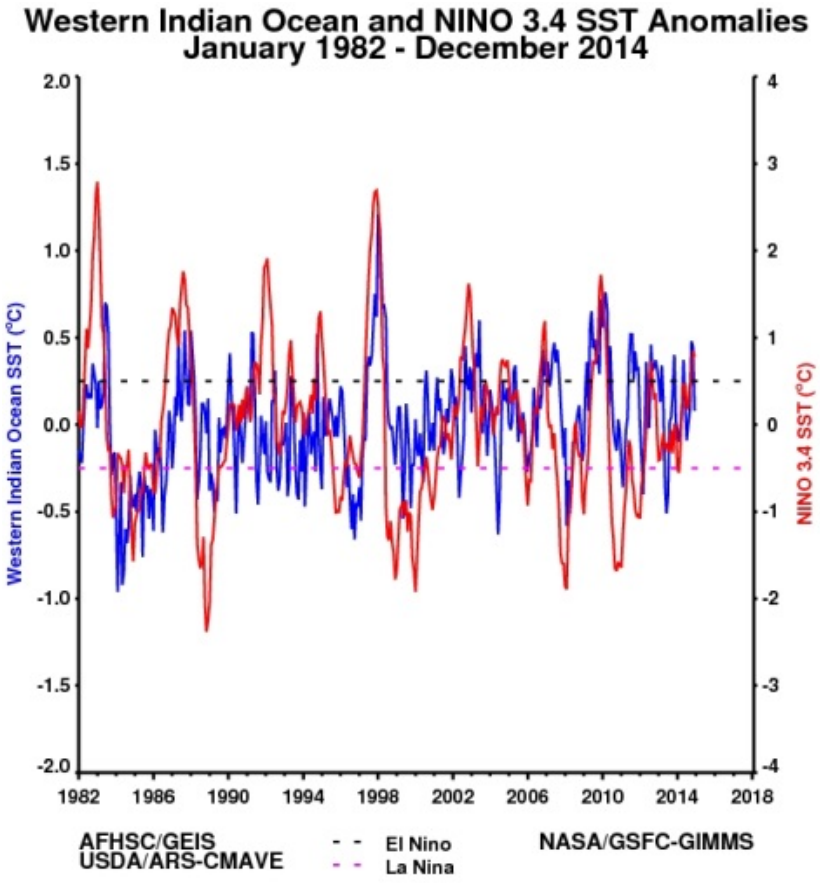
This section of the report will provide a rolling three month update on a monthly basis of the state of the climatic and ecological indicators used in monitoring areas at risk to RVF activity. These indicators include, global SST anomalies patterns, Equatorial Western Indian Ocean (WIO) and Eastern Pacific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

December 2014

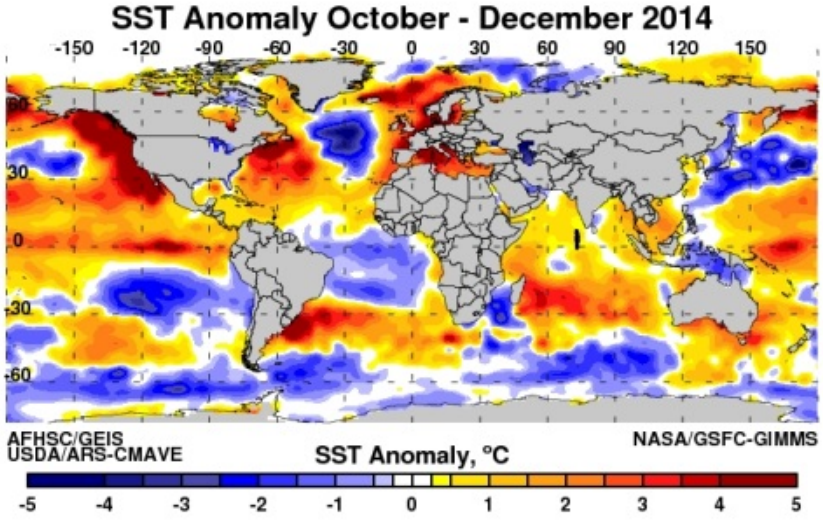
1. SOI and SST Indices

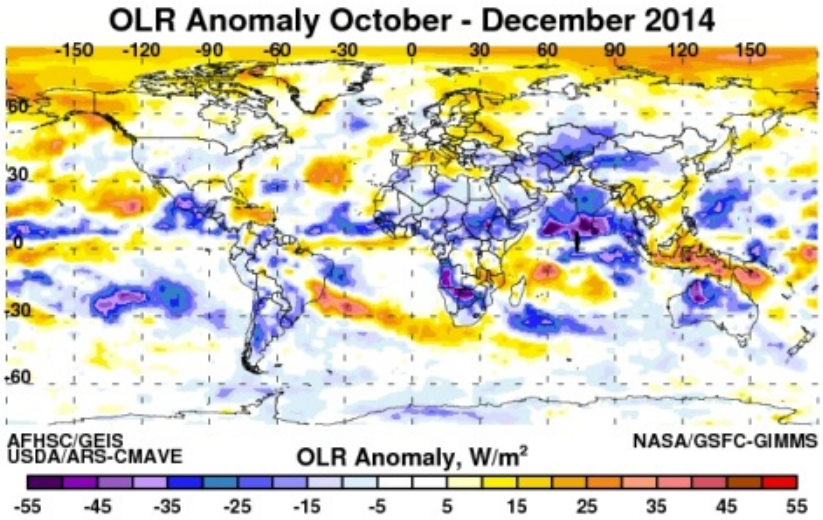




The SOI index tended toward normal but remained negative with a value of -0.6 in December indicating persistence of below normal conditions as has been the case since early fall 2014. Monthly SST anomalies in all NINO monitoring regions have decreased but still warmer than normal, with NINO3.4 SST anomalies at ~ +0.78°C in December. In western Indian Ocean recent warming pattern has dramatically decreased with the WIO SST index at +0.08°C indicating the prevalence of normal conditions over this ocean basin. Even though above-average sea surface temperatures (SST) (below) and in all the NINO regions of the equatorial eastern equatorial Pacific were consistent with of El Niño conditions, the overall atmospheric circulation continued to show show very limited coupling with the anomalously warm water. Therefore the combined atmospheric and oceanic state remains in ENSO-neutral state. As in the last four months, nearly all model forecasts predict El Niño conditions during the December-February 2014-15 period. If El Niño emerges, the prediction consensus favors a weak event (3-month values of the Niño-3.4 index between 0.5°C and 0.9°C), approximately 50-60% chance of El Niño conditions during the next two months, with ENSO-neutral favored thereafter during

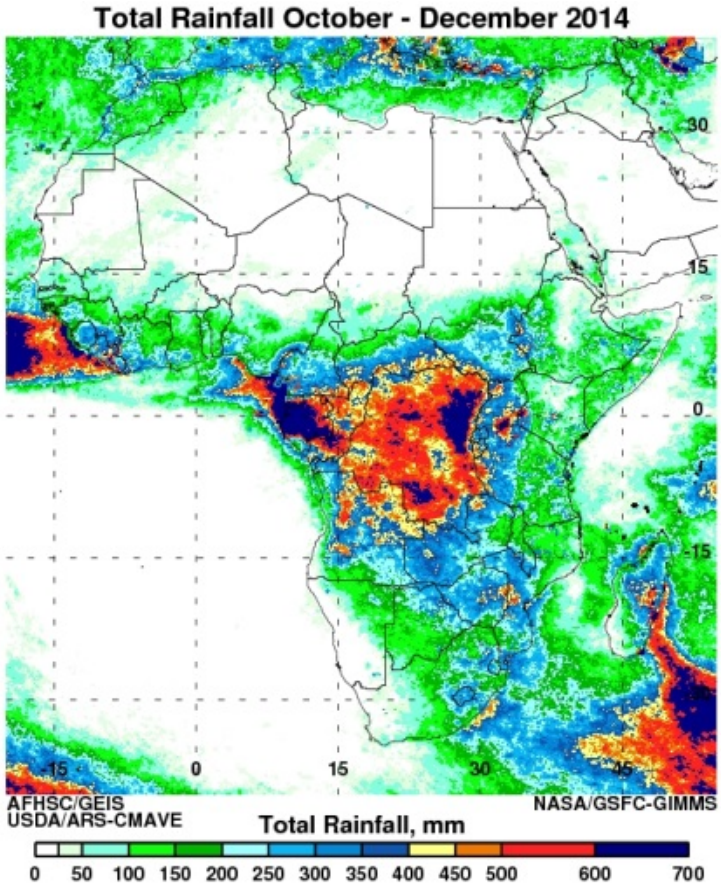
Northern Hemisphere spring 2015.

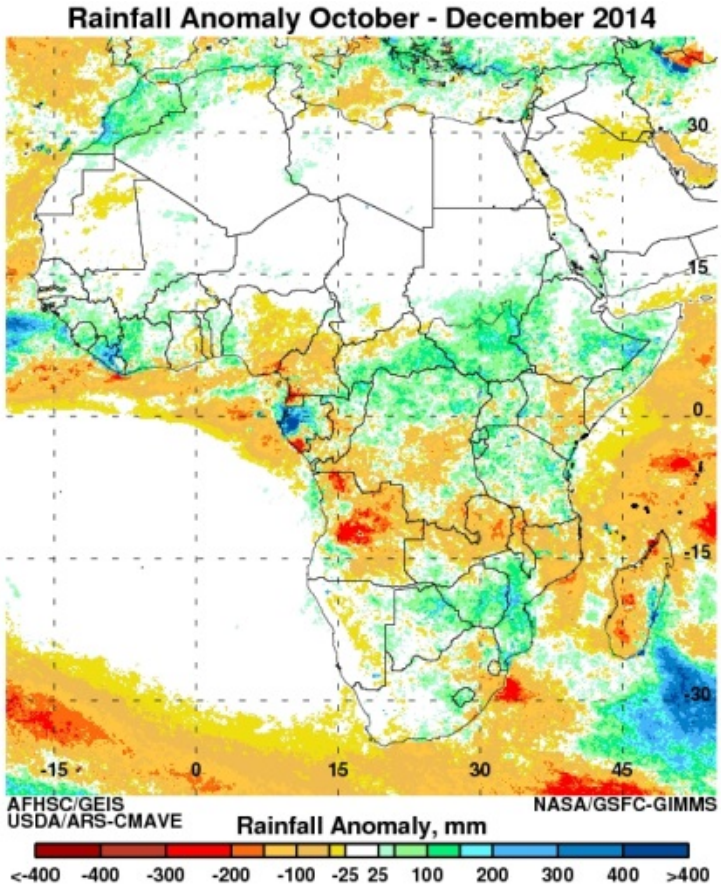




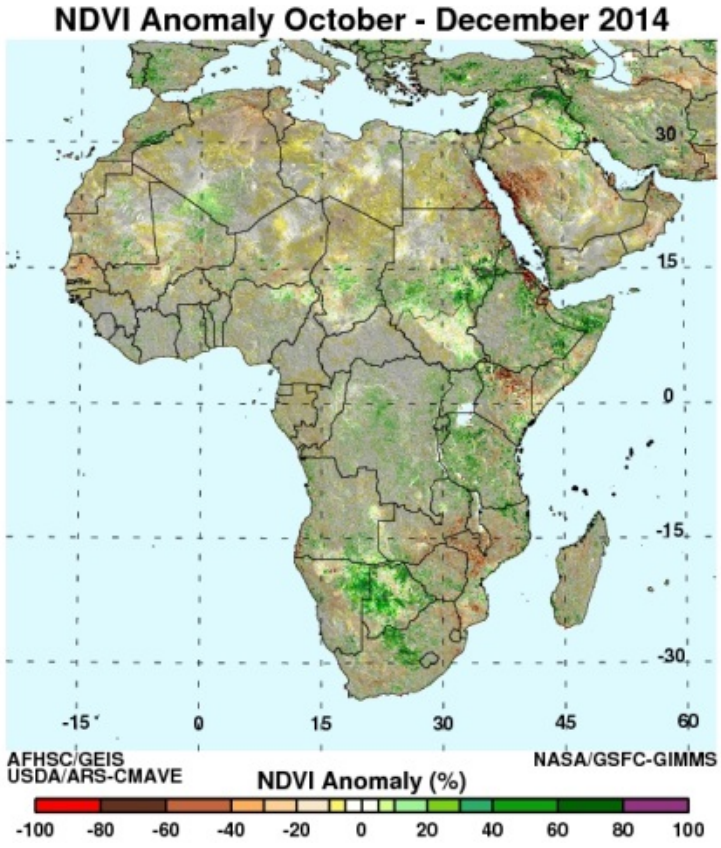
The entire equatorial Pacific Ocean shows a pattern of above normal seasonal SSTs (three month values: +0.5°C to +2.0°C) except for the region from 30°S to 1°S (off the South American coast) with below-normal SSTs during the October to December 2014. Accordingly, the entire equatorial Indian Ocean between 30° N-S is now dominated by positive SST anomalies especially in the southern sector. 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 October to December 2014 period, drier-than-average conditions (>+35W/M2) continue to persist over the parts of western Pacific Ocean and

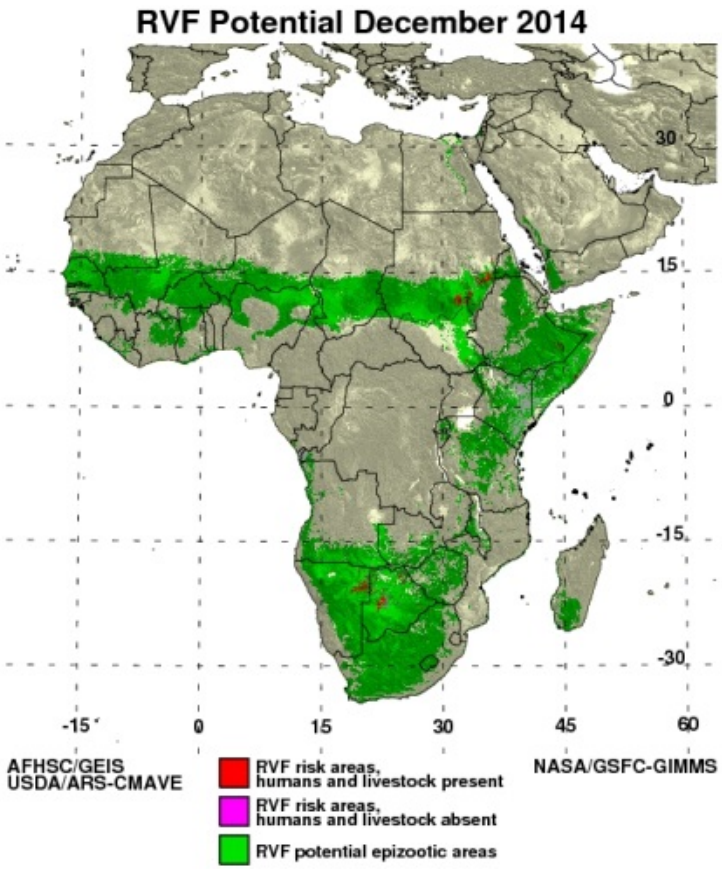
Indonesian Basins between 100°E and 150°E and eastern Brazil. Enhanced cooler than average conditions (-50W/M2) are observed over the areas to the immediate west of the Indonesian Basin especiaaly over India between 60°E and 95°E, extending in band over Africa into central America and southwest US. Convective activity continues to be prevalent over parts equatorial Africa particularly Senegal, Chad and Sudan, and parts of Horn of Africa (-55W/M2) and Southern Africa (Namibia, Botswana, Angola). 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 October to December 2014 show rainfall over the entire sub-Saharan region south of 13°N with a maxima along the equator. Areas of above normal rainfall (+50 to 200mm) include parts of equatorial West Africa, northern Congo, Sudan, South Sudan, Ethiopia and Zimbabwe and Mozambique in the south.





Cumulative NDVI anomalies for Africa for October to December 2014 show positive anomalies concentrated over parts of central to eastern Sudan, Eritrea, eastern Ethiopia, northern Somalia, northwestern Kenya, Tanzania, 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 October to December 2014, the RVF persistence model identifies isolated areas in Sudan, Namibia and Botswana where ecological conditions would support the emergence of RVF vectors. Enhanced surveillance is advised in these areas.


NDVI Anomaly October - December 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 December 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