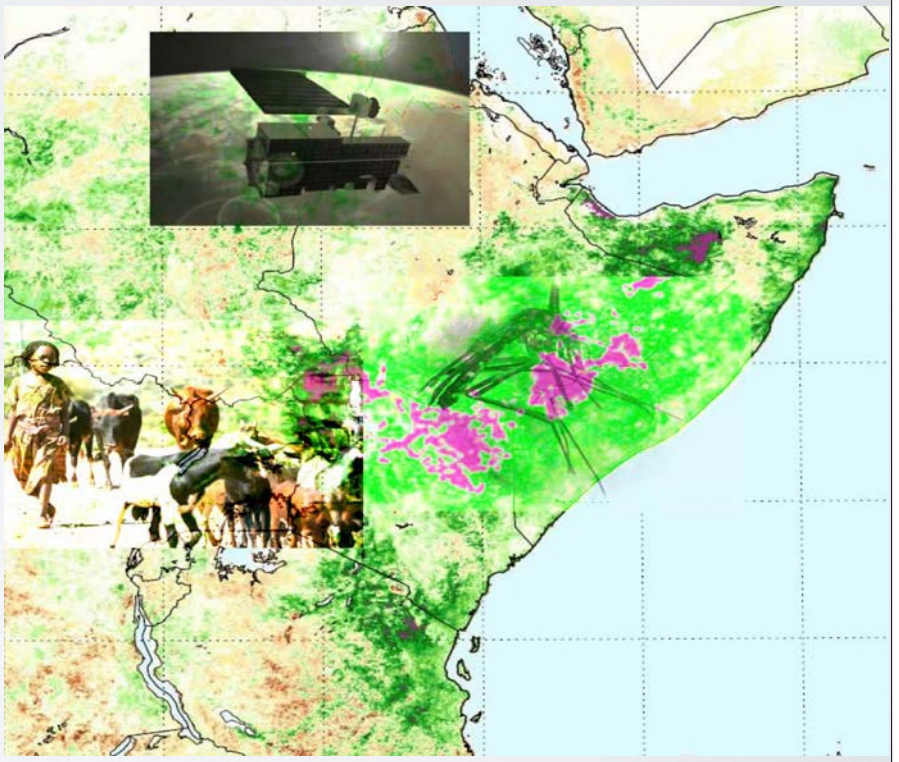
RIFT VALLEY FEVER PREDICTION AND RISK MAPPING: 2014-2015 SEASON

Inter-Regional Conference
Rift Valley fever: new options for trade, prevention and control
Djibouti City, Djibouti, 21 – 23 April 2015



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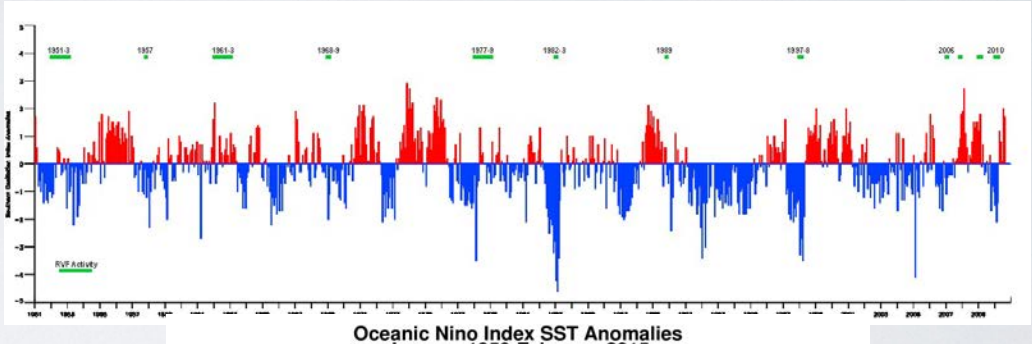
NASA Goddard Space Flight Center
Biospheric Sciences Brach & USRA

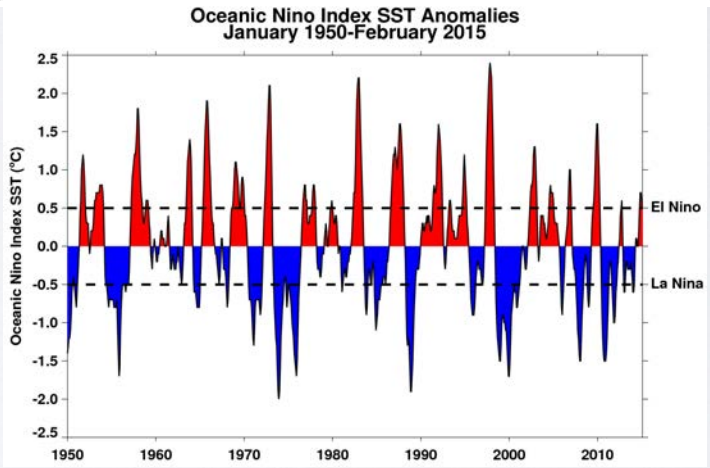
GIMMS
Global Inventory Monitoring and Mapping Studies

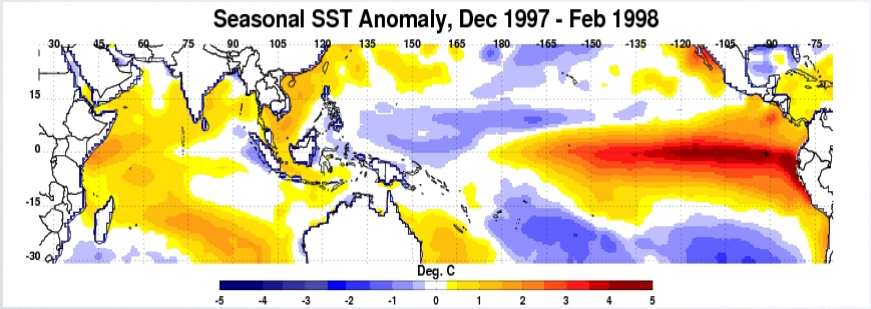
USDA United States Department Of Agriculture
Agricultural Research Service

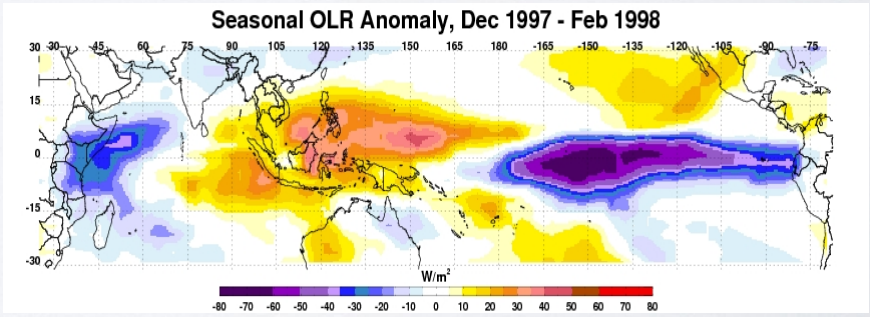
El Niño SOUTHERN OSCILLATION AND RIFT VALLEY FEVER ACTIVITY

- Influences the patterns of floods and drought on an interannual time scale.
- extremes have an impact on the emergence, propagation and survival of disease vectors/pathogens
- Results in episodic patterns of disease outbreaks as they dance in tune with climate variability

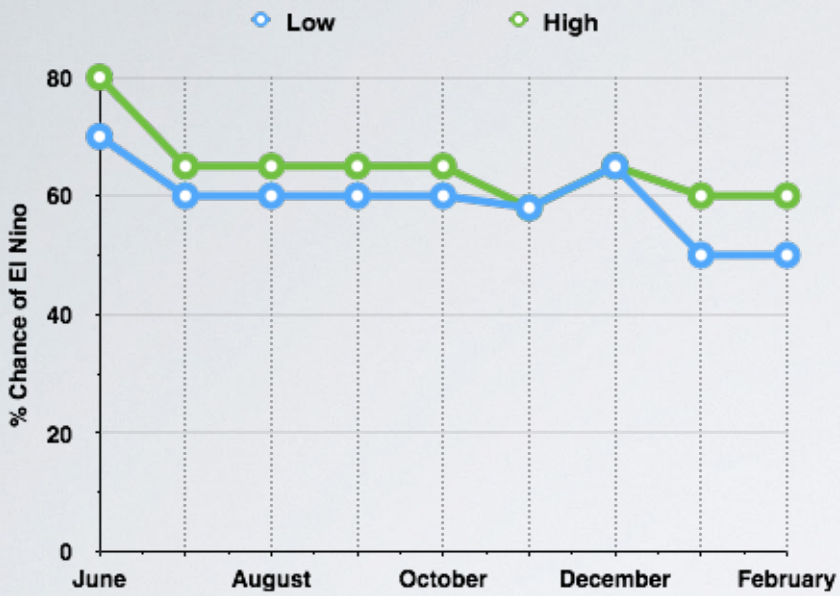


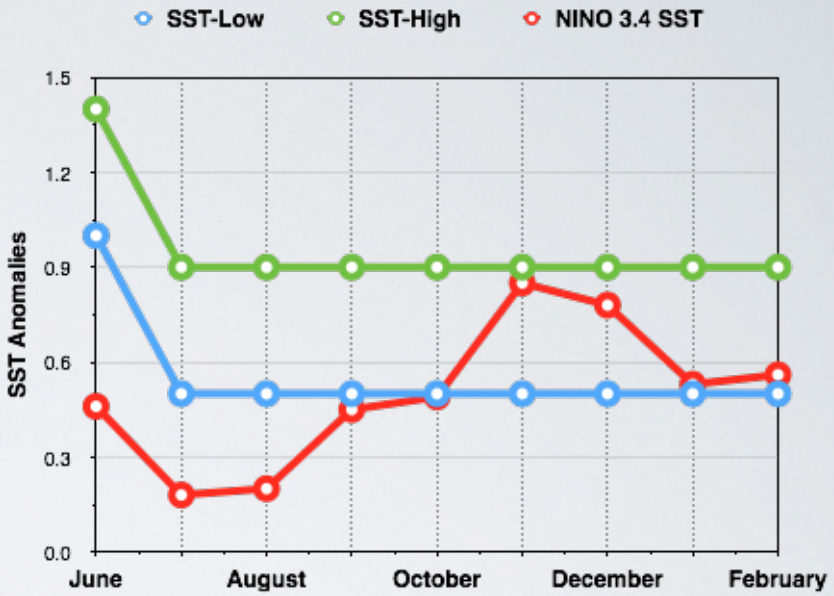




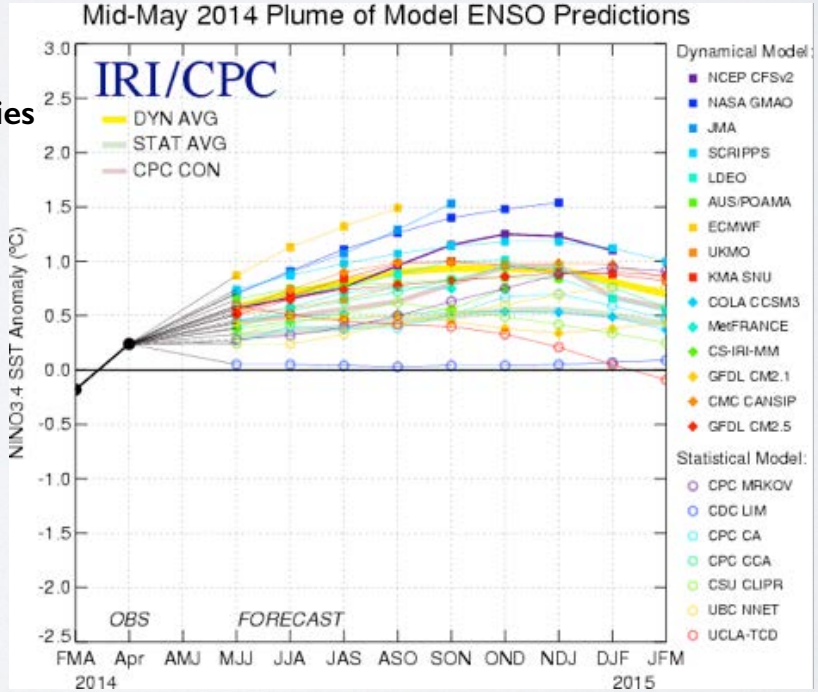


ENSO PREDICTIONS: 2014-2015



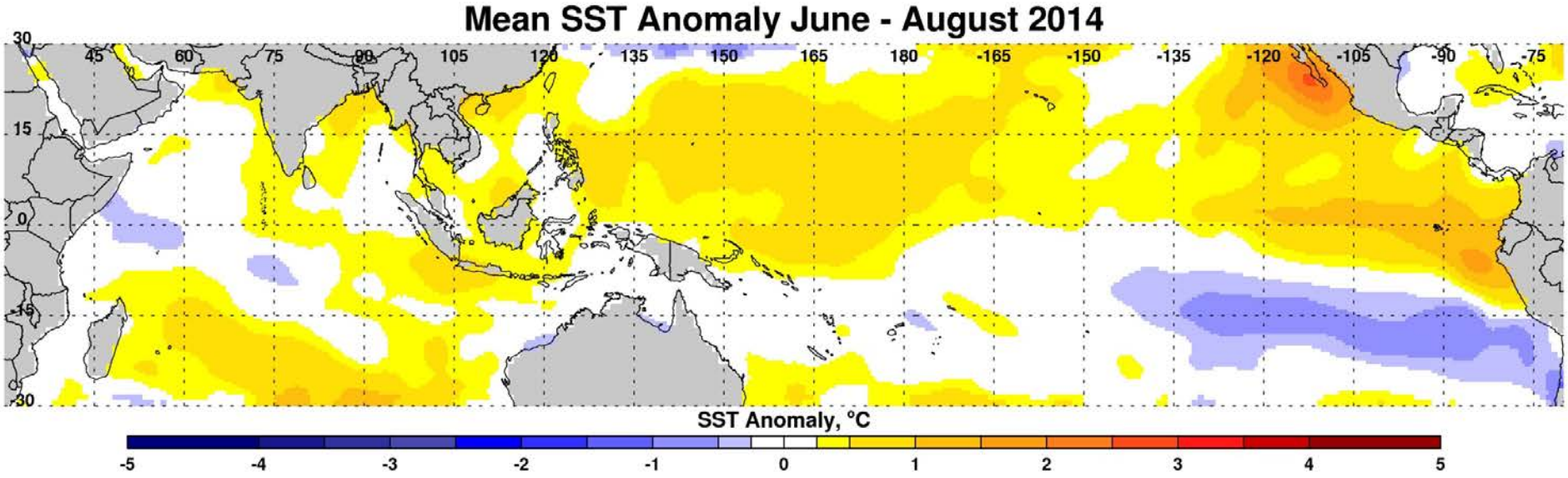


Forecasts of sea surface temperature (SST) anomalies for the Niño 3.4 region (5°N-5°S, 120°W-170°W).

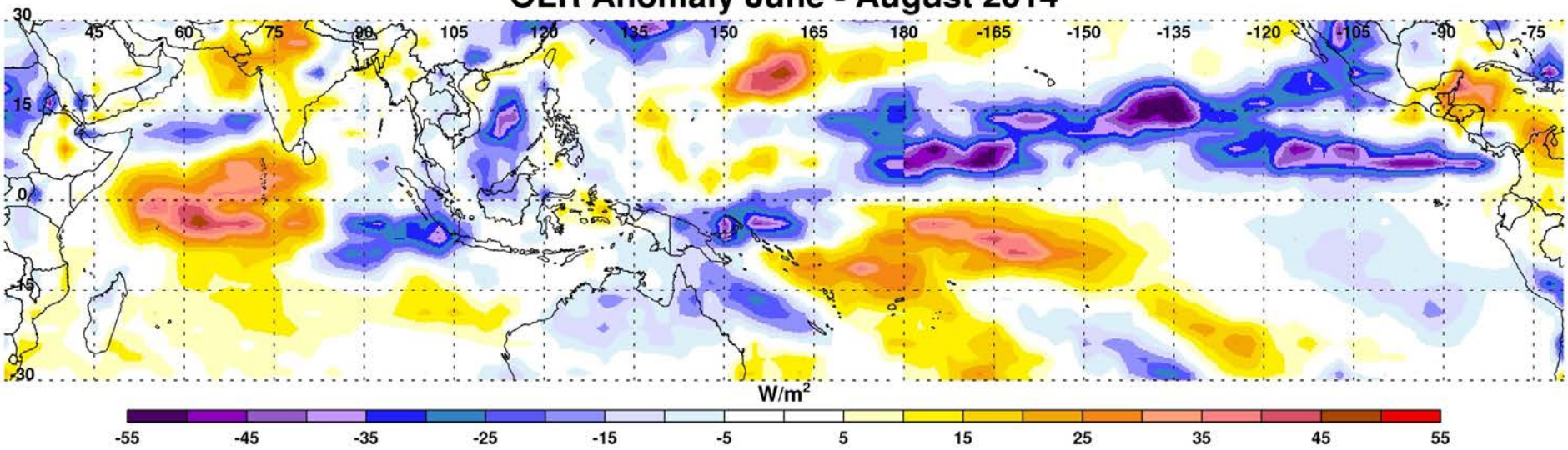


JJA 2014

SSTa JJA

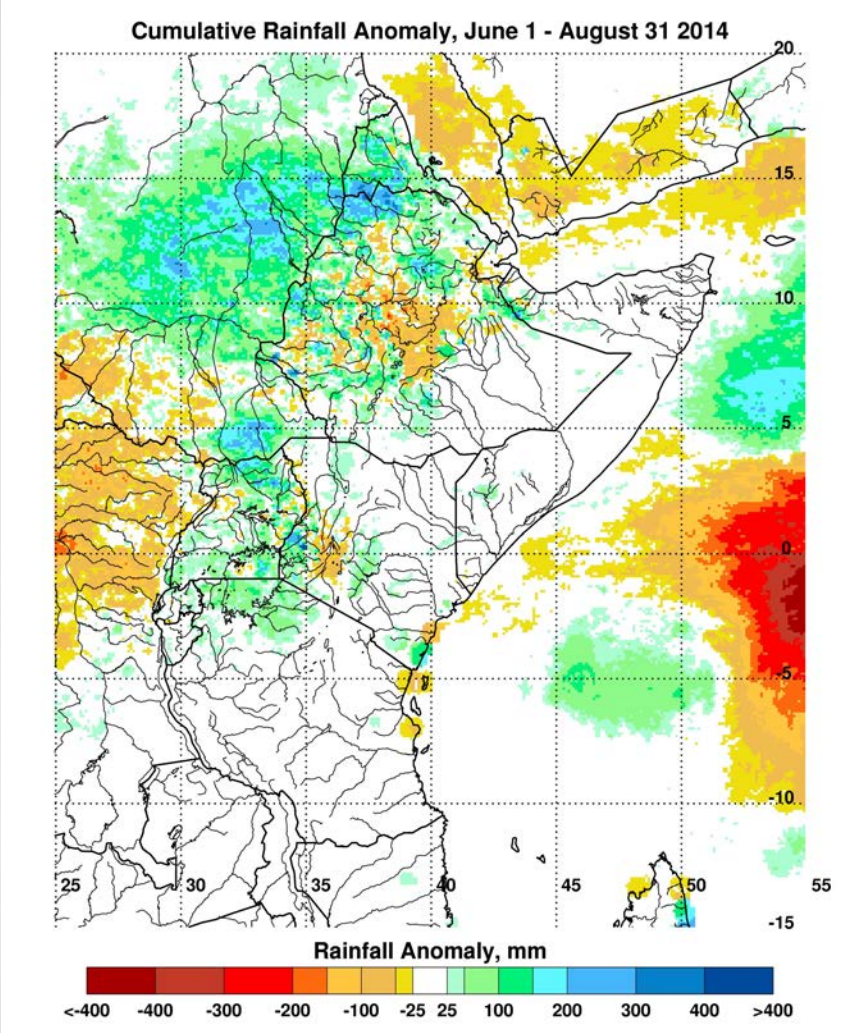


OLRa JJA

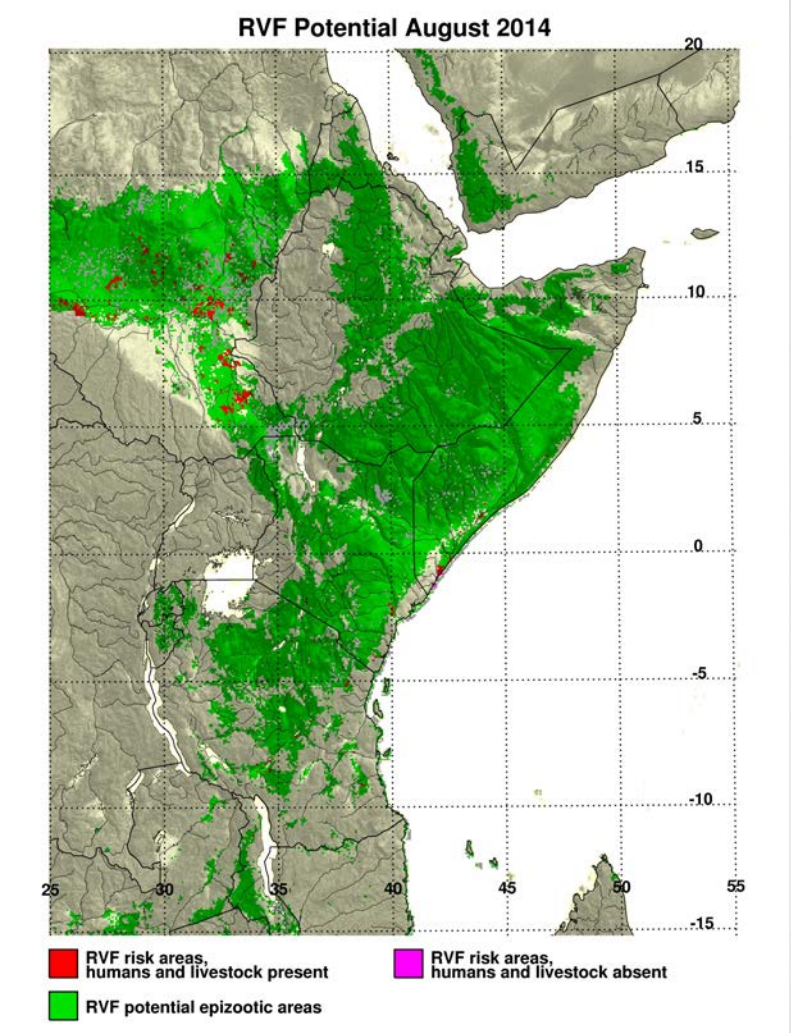


JJA AUG

PRECIPa JJA

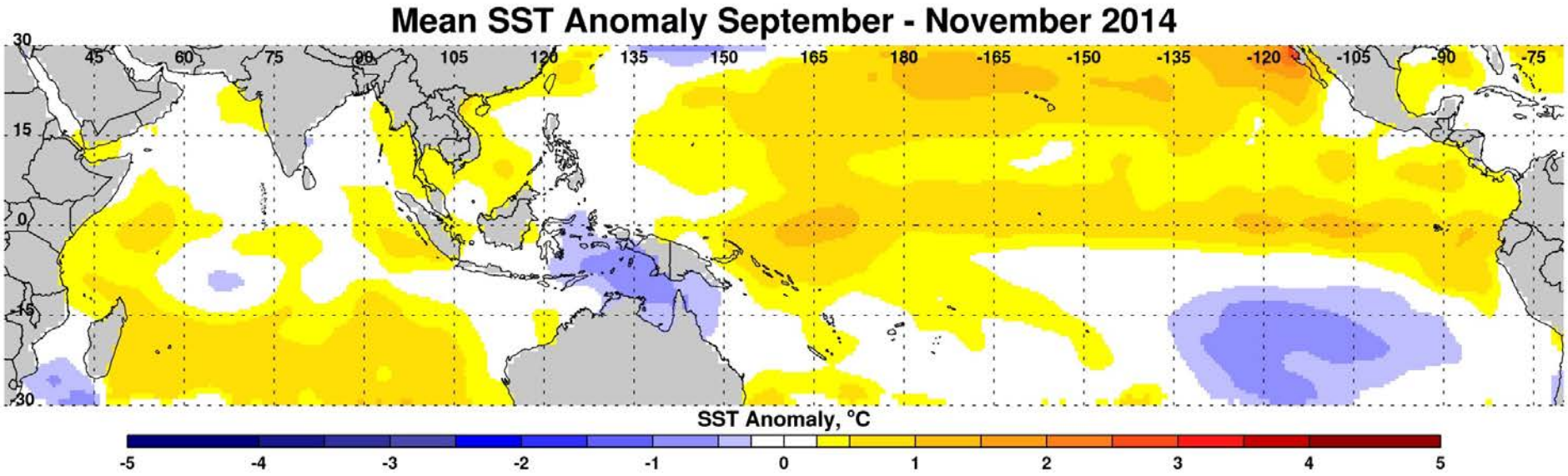


RVF RISK MAP JJA 2014



SON 2014

SSTa SON



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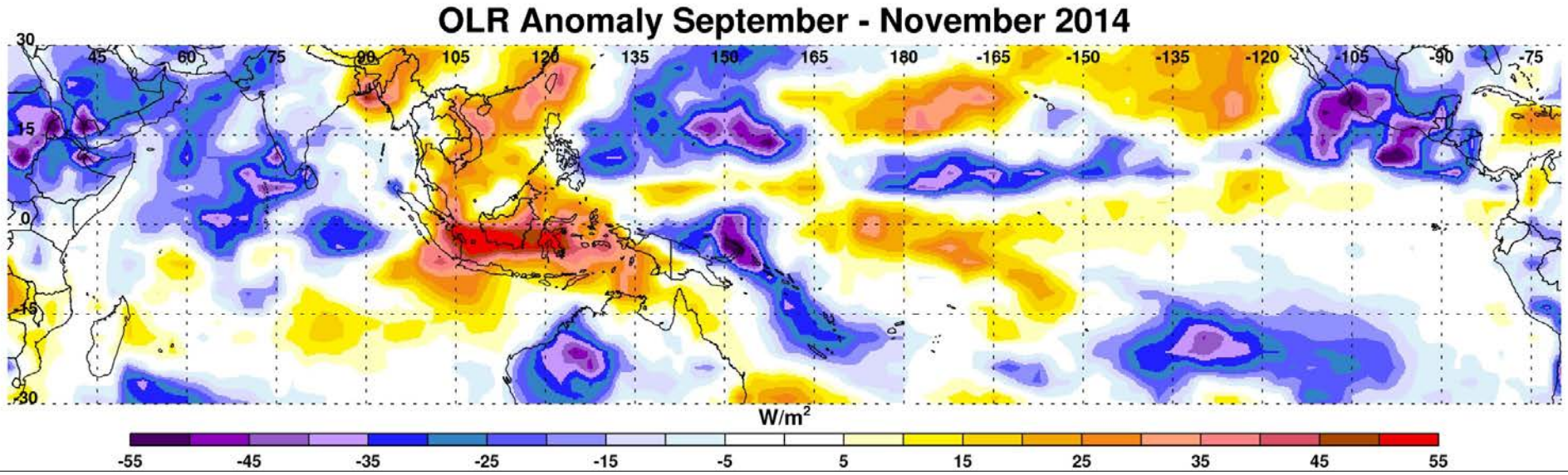

SON 2014

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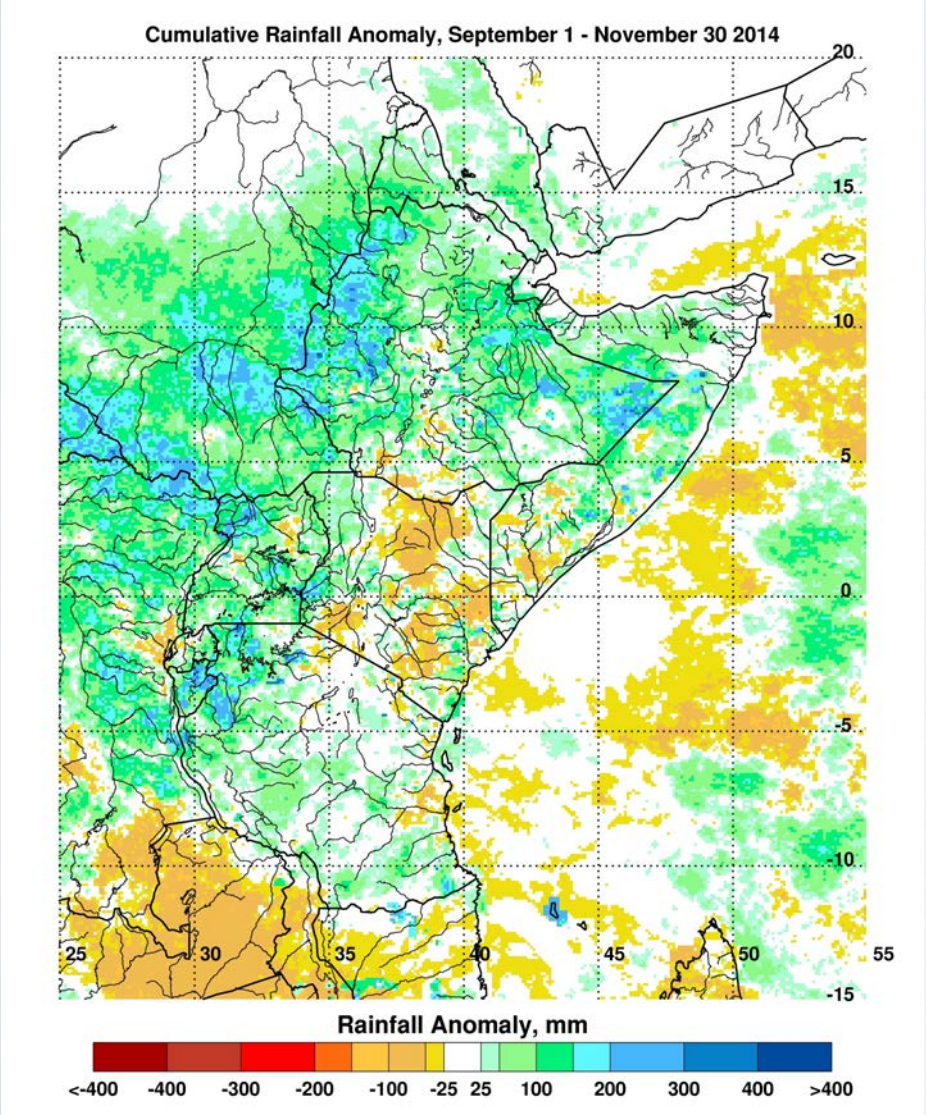
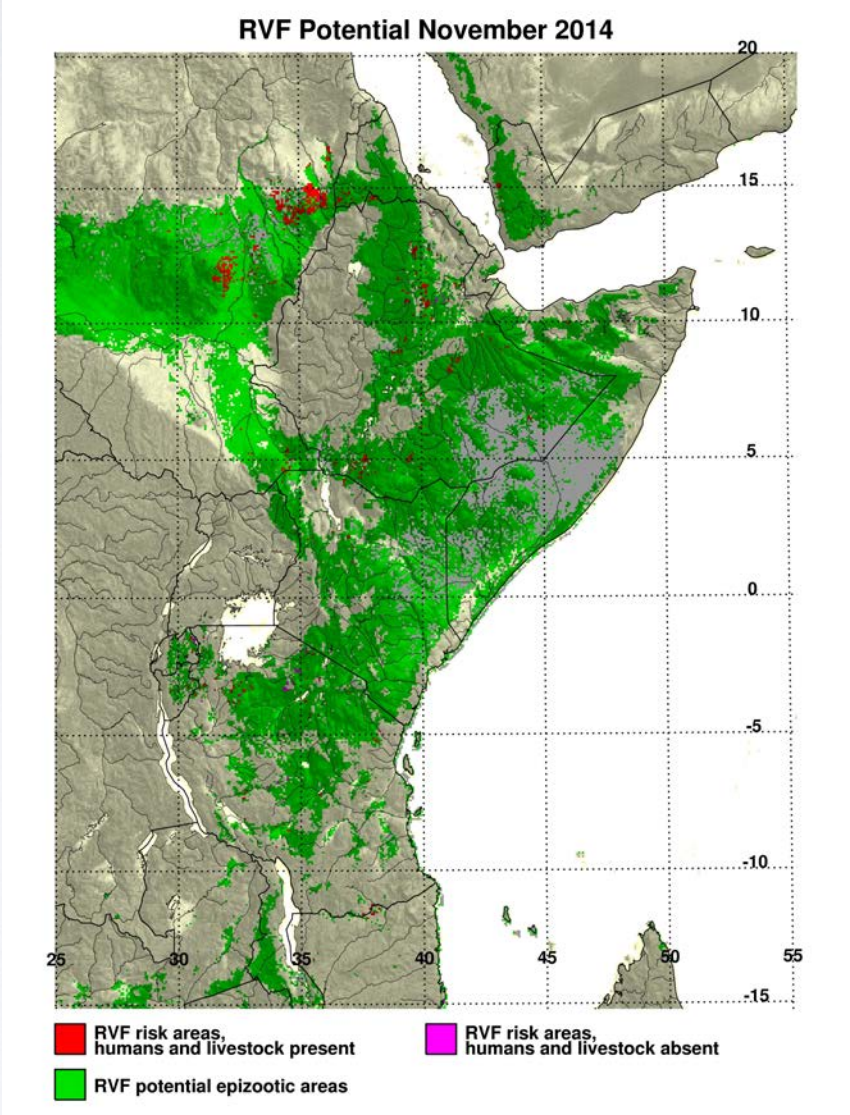
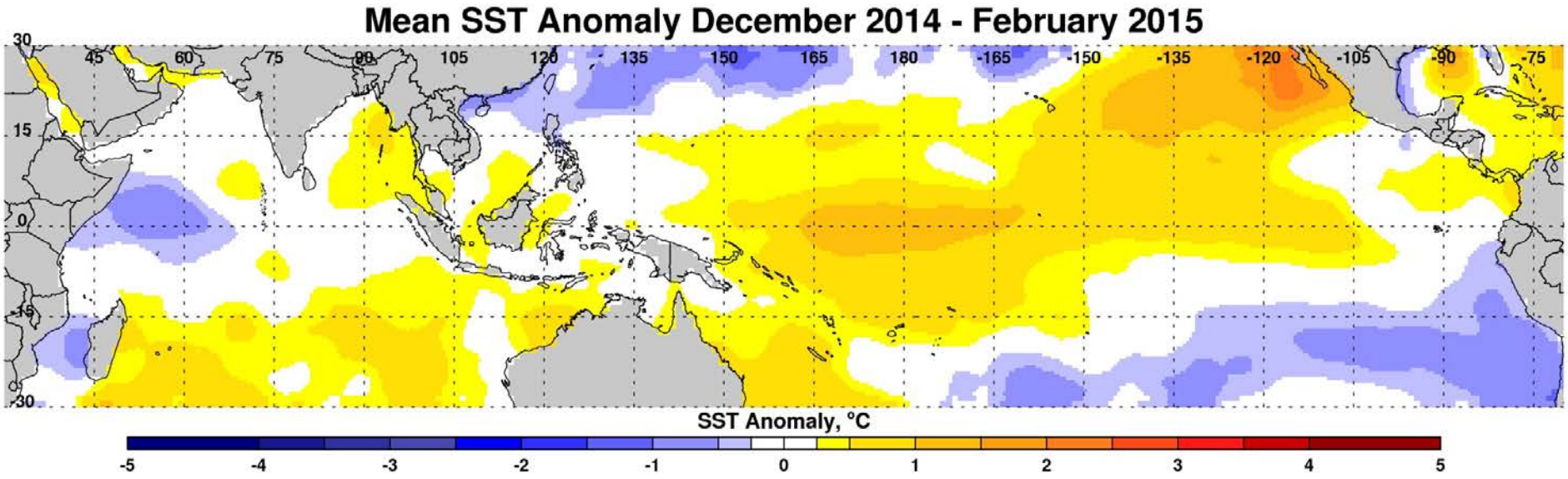


RVF RISK MAP SON 2014

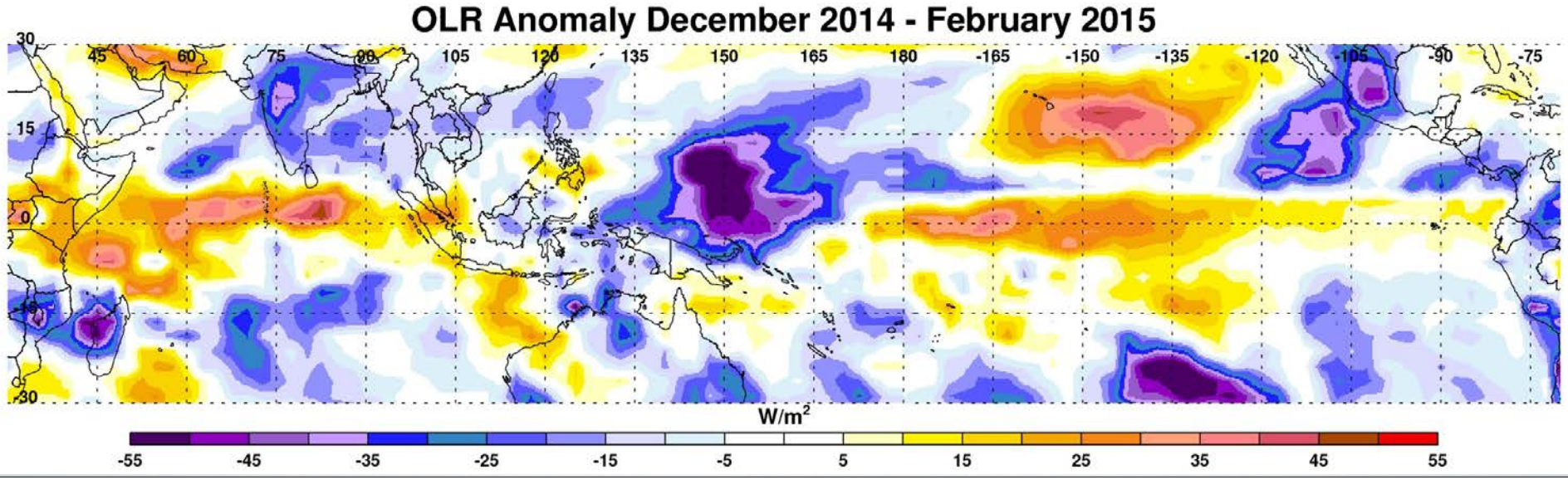


DJF 2014-2015

SSTa DJF

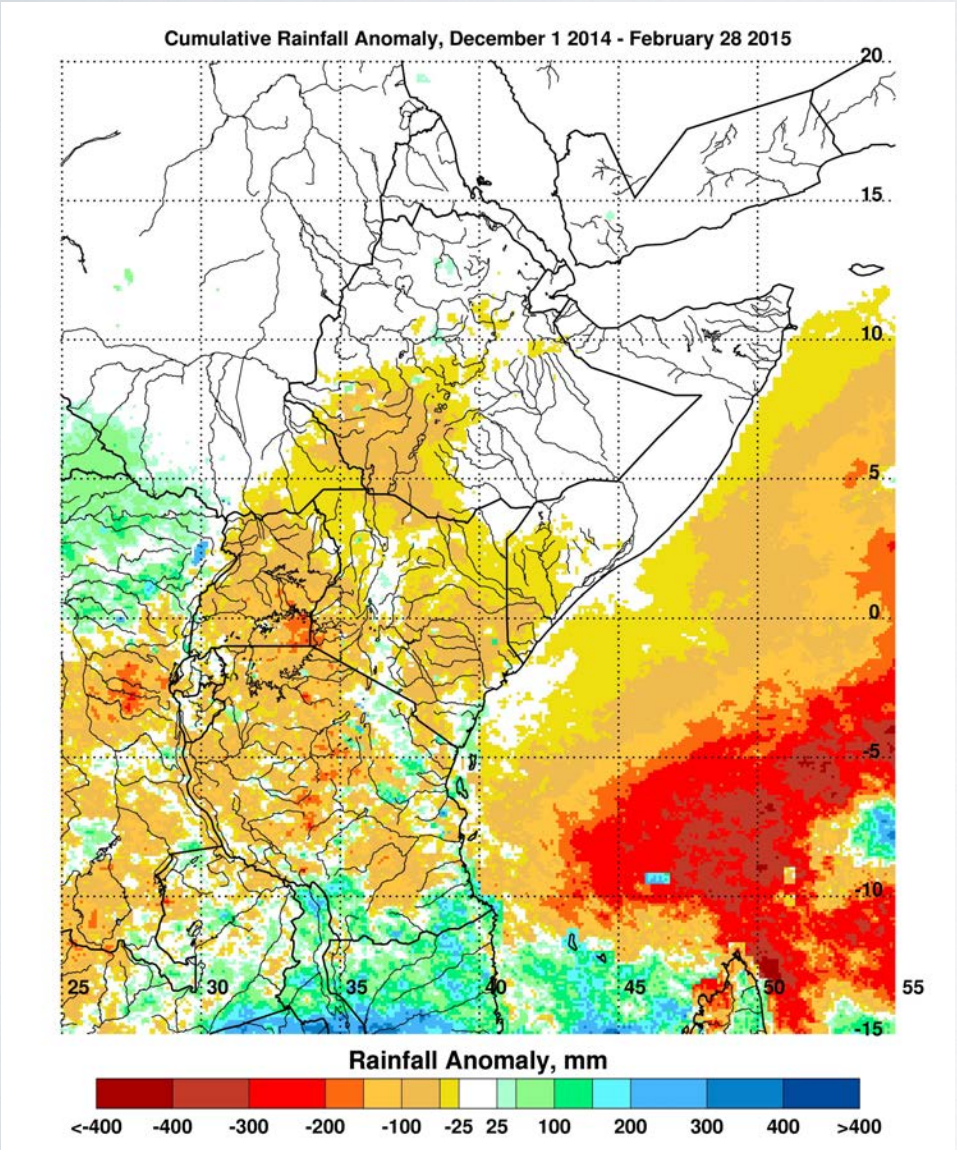


OLRa DJF

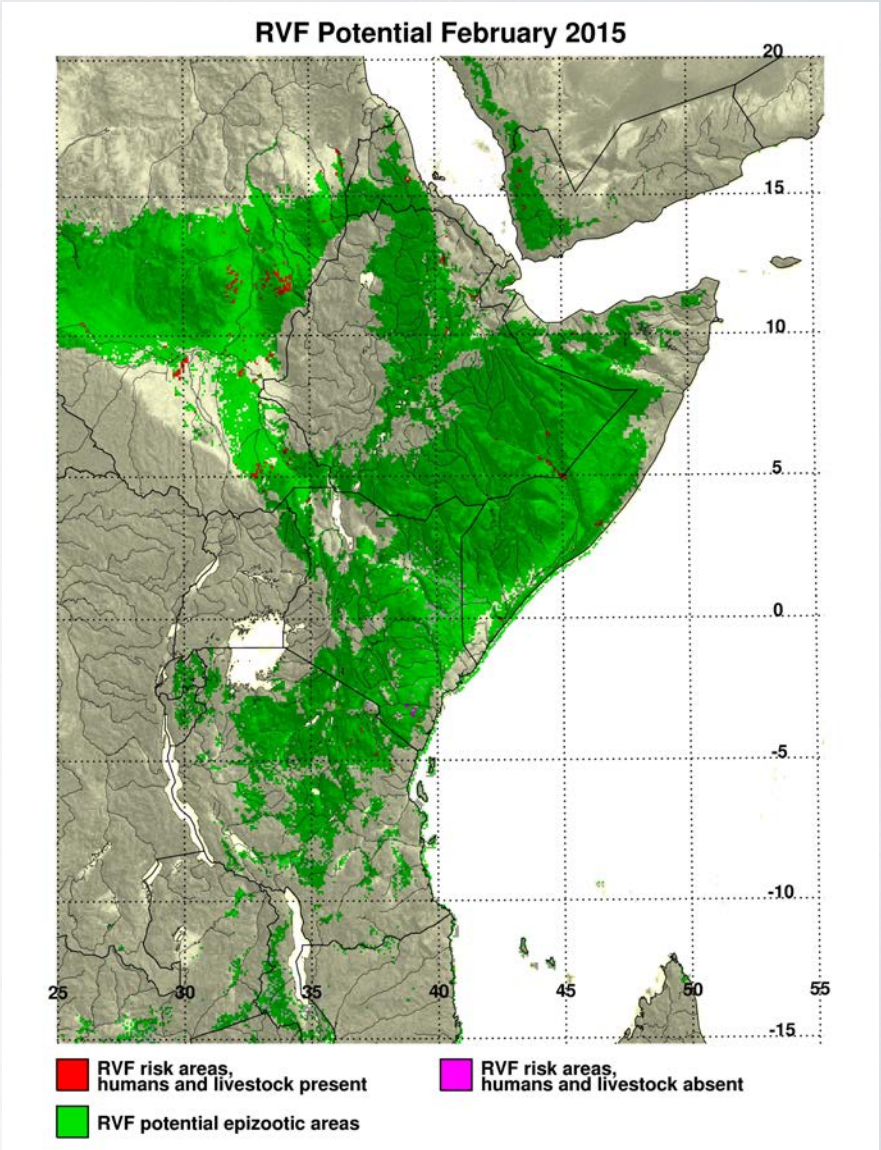


DJF 2015/15

PRECIPa DJF

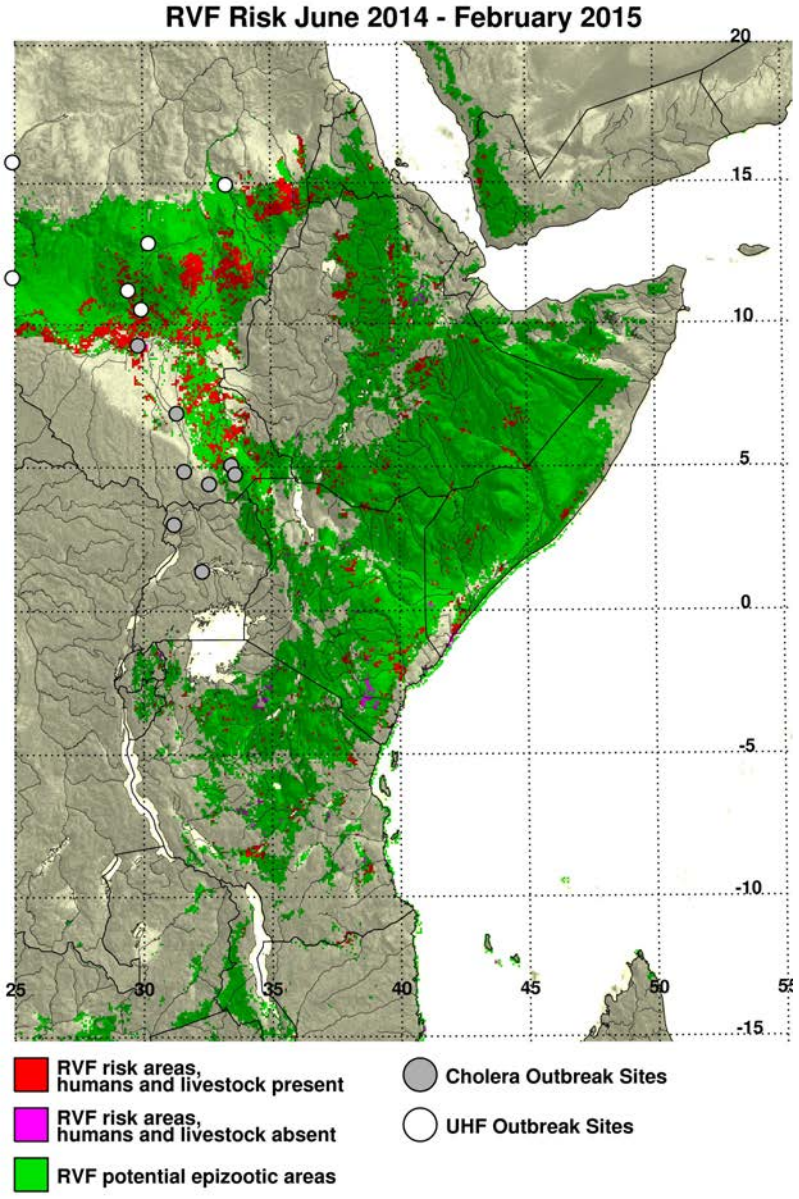


RVF RISK MAP DJF

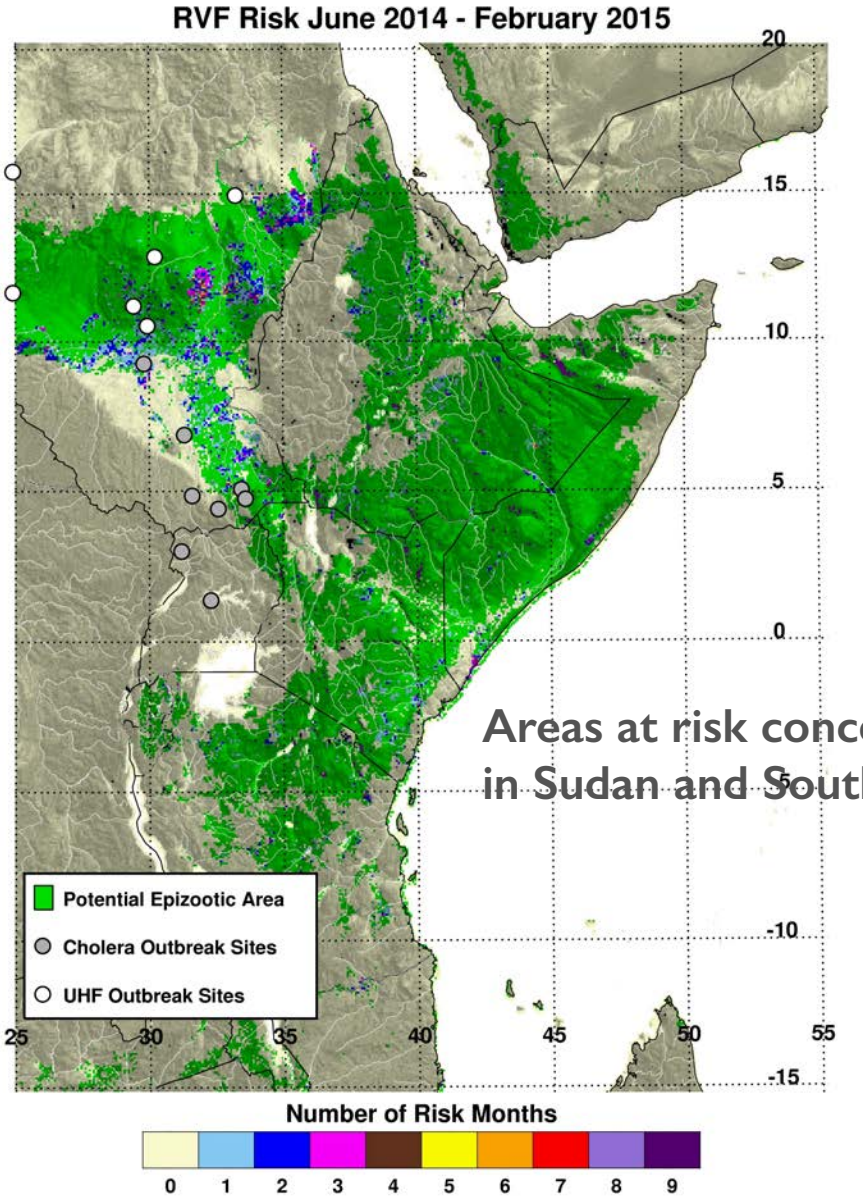


COMPOSITE and FREQUENCY RISK MAPS

JUNE 2014 - FEB 2015

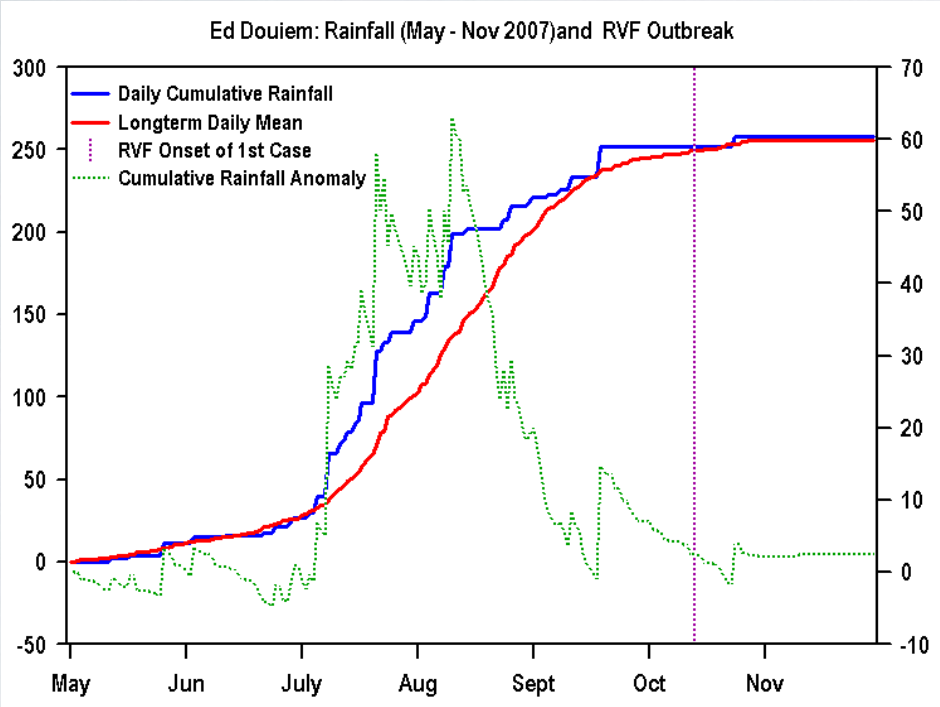


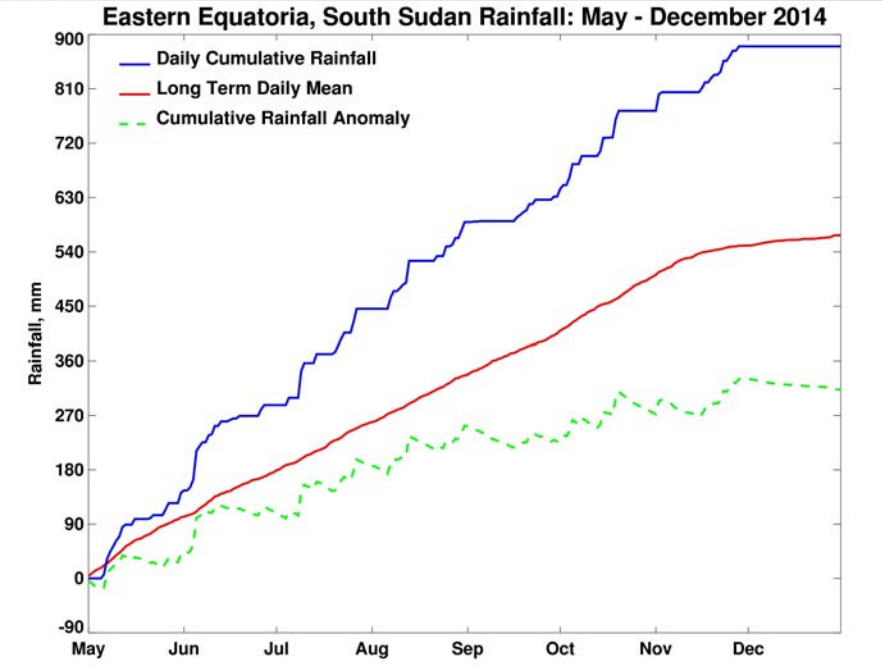
JUNE 2014 - FEB 2015



Areas at risk concentrated in Sudan and South Sudan

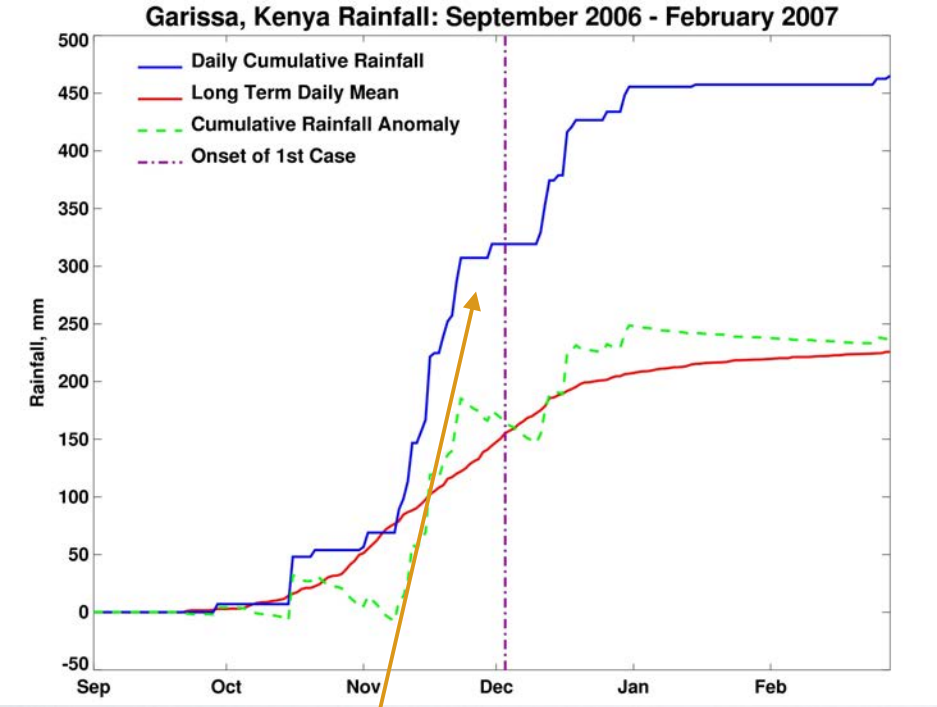
OUTBREAK TIMING

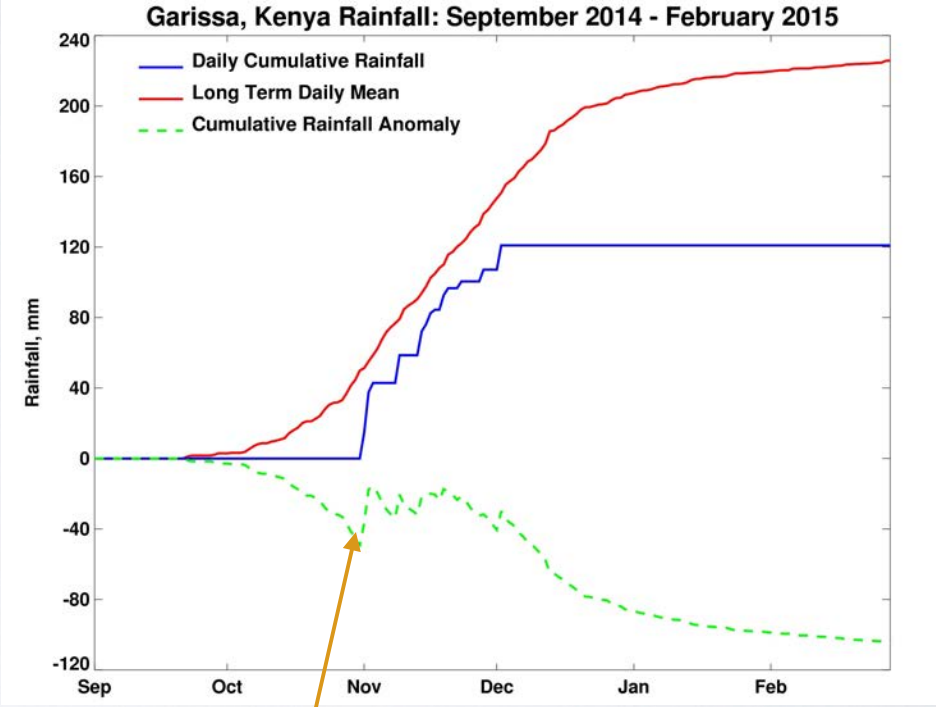




- No record of start date/index case of UHF in 2014 (right) unlike during 2007 RVF outbreak situation

OUTBREAK TIMING





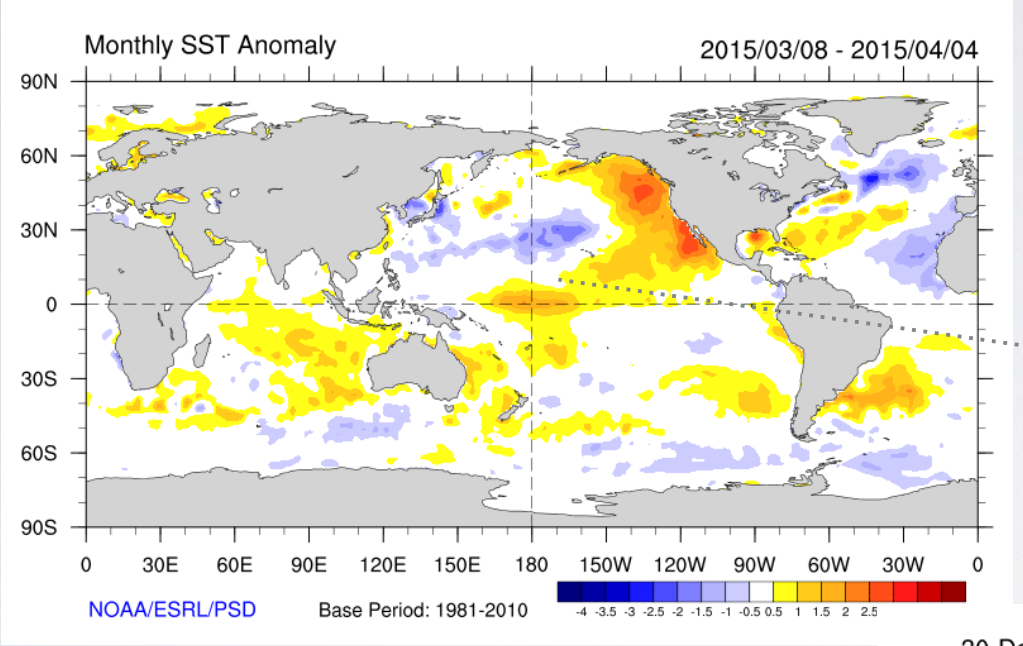
Above Normal

Below Normal

- 2014 - Failure to launch - collapse of the Short-rains season unlike in 2006

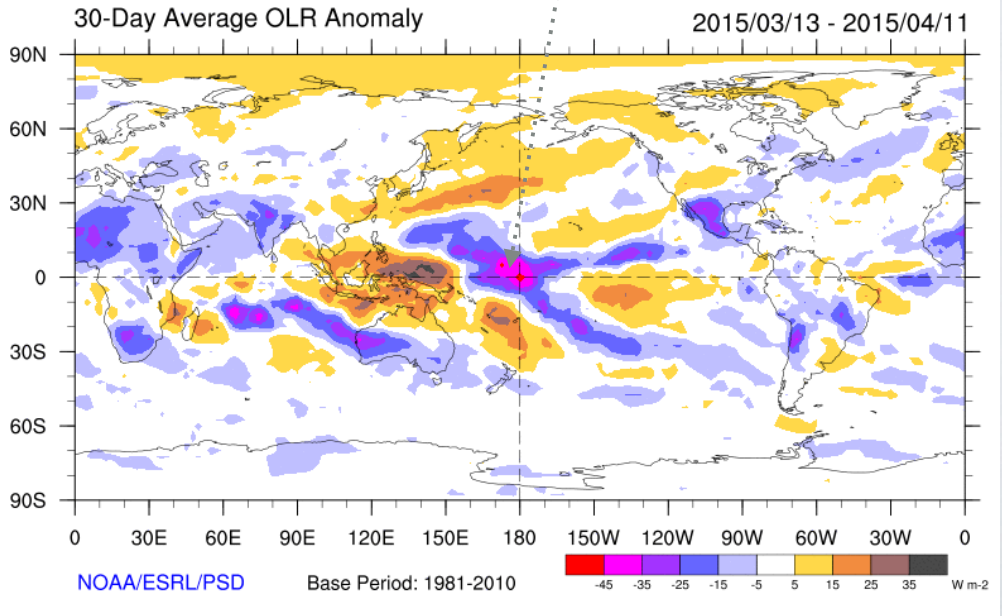
MARCH 2015

SSTa 2015



Late developing
Weak El Niño

OLRa 2015



- model forecasts predict weak El Niño conditions (70% chance) will continue through the Northern Hemisphere summer 2015.
- greater than 60% chance that it will last through autumn.
- In some locations, certain impacts often associated with El Niño may appear during the Northern Hemisphere spring and early summer 2015 season.

SUMMARY

- Extremes in either direction (+/-) of precipitation/ temperature have significant implications for disease vectors and pathogen emergence and spread
- Magnitude of ENSO influence on precipitation/temperature cannot be currently predicted — rely on average history and patterns.
- Timing of event and emergence disease can be exploited (GAP) in to undertake vector control and preparedness measures.
- Currently - no risk for ecologically-coupled RVFV activity however we need to be vigilant during the coming fall season due the ongoing buildup of energy in the central Pacific Ocean.
- Potential for the dual-use of the RVF Monitor system for other VBDs
- Need to invest in early ground surveillance and the use of rapid field diagnostic capabilities for vector identification and virus isolation

CONTACTS AND CREDITS

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Field Intelligence

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- KEMRI
- CDC-Kenya
- OIE
- FAO
- WHO