



PEACE, PROSPERITY AND
REGIONAL INTEGRATION

EL NINO/ LA NINA & IOD AS GLOBAL AND REGIONAL SCALE INDICATORS FOR

PROVISION OF ROBUST EARLY WARNING CLIMATE ADVISORIES FOR
TRIGGERING OF CRITICAL DECISIONS FOR PREPARADNESS &
MITIGATION OF EXTREME IMPACTS IN E. AFRICA

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ECA



WISER Pan Africa

WISER KM Partnerships Workshop

16-17 October 2016, UNCC, Addis Ababa

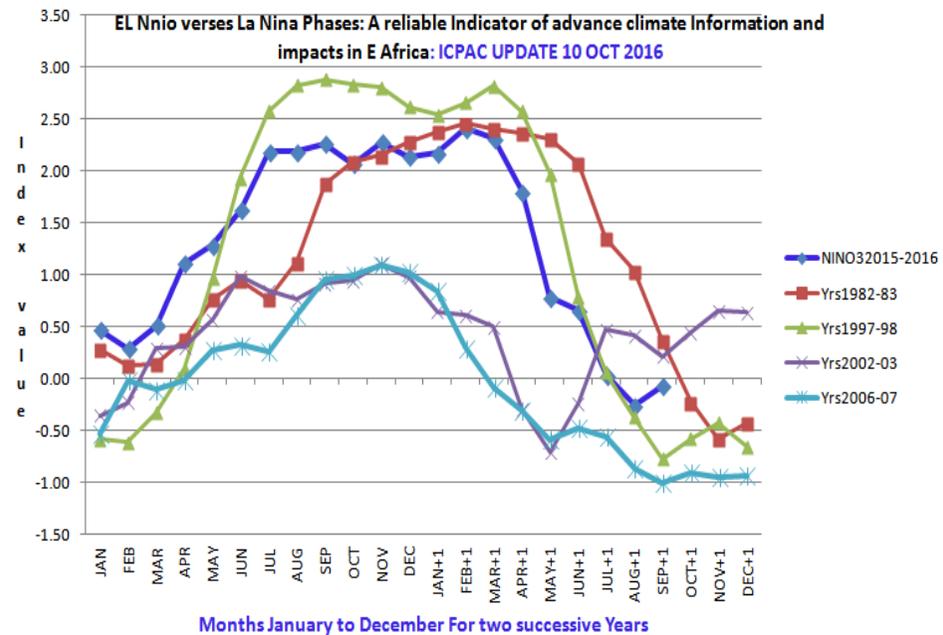
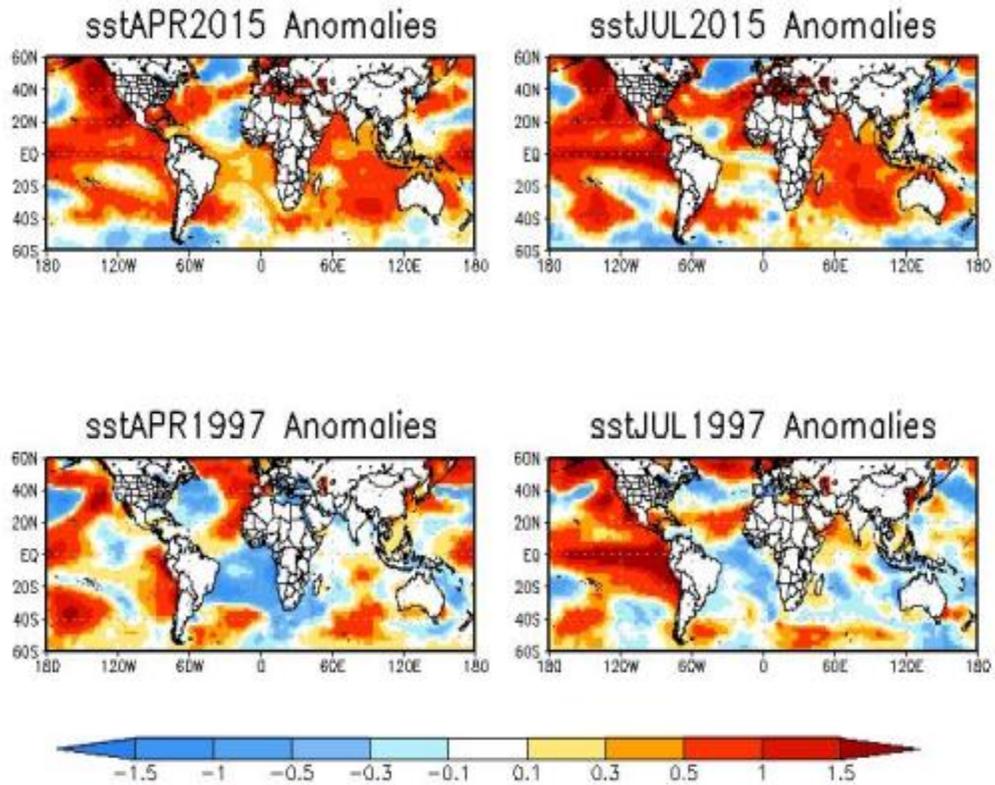


Outline

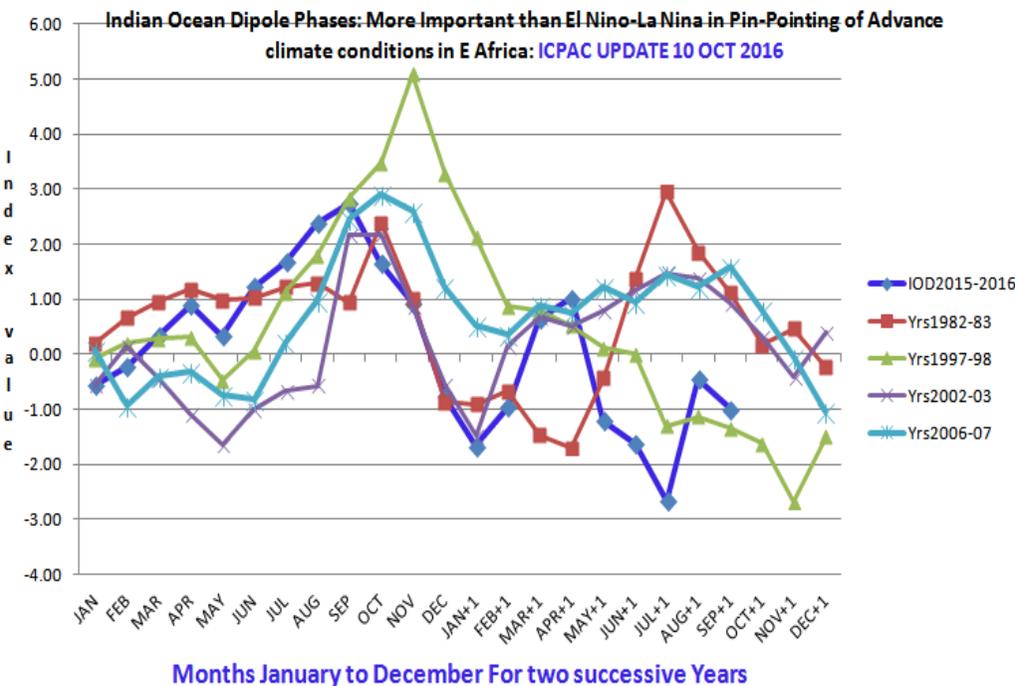
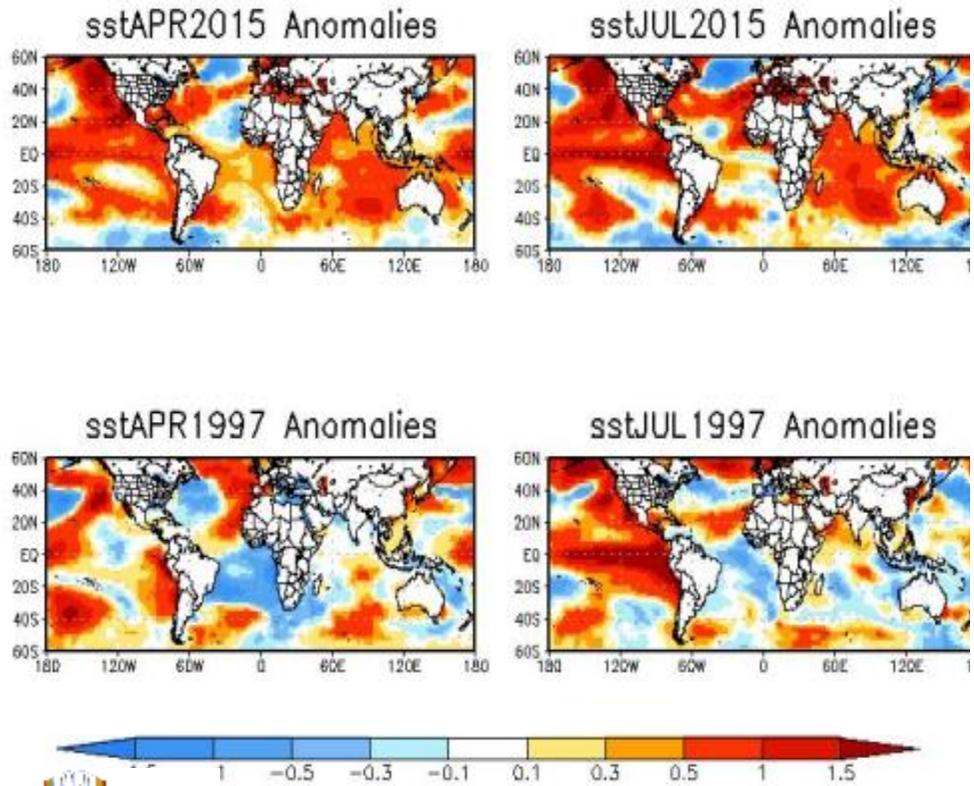
- Basics of El Nino & La Nina...
- Importance of the IOD..
- Overall Indicators & Implications
- Examples of Products which feed into WISER across the whole of Eastern Africa...
- Conclusion



Global SSTs early to mid 2015 and current EL Nino + La Nina & Status to Sept 201

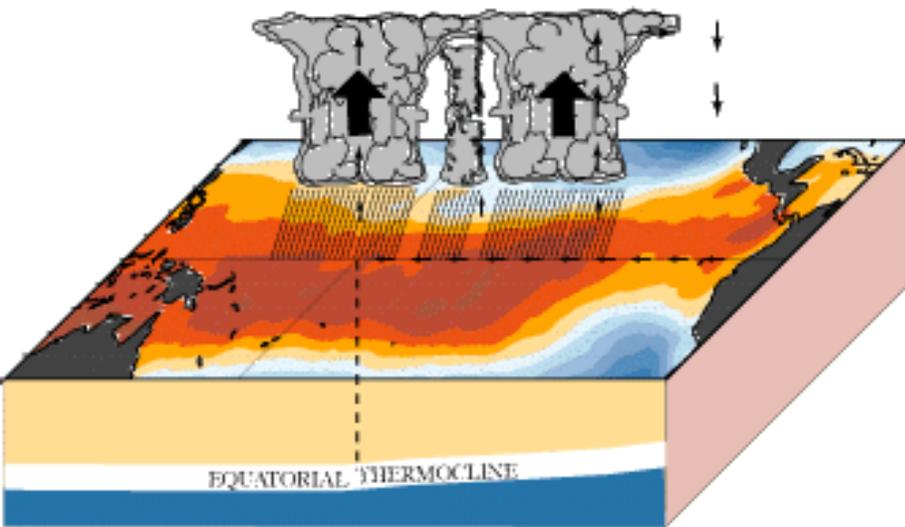


Indian Ocean Conditions...same period and current status to end of Sep. 2016

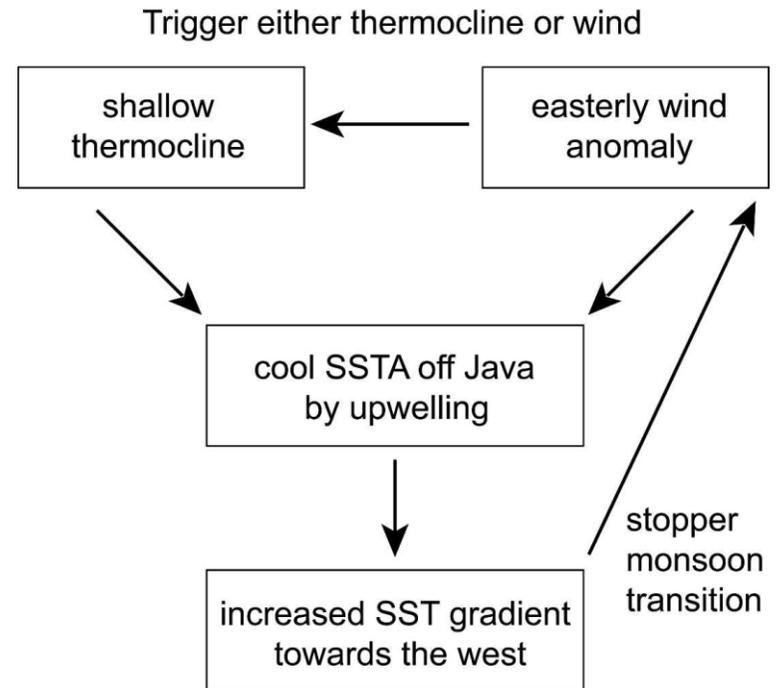


Why the climatic Impacts with respect to E. Africa....

December - February El Niño Conditions

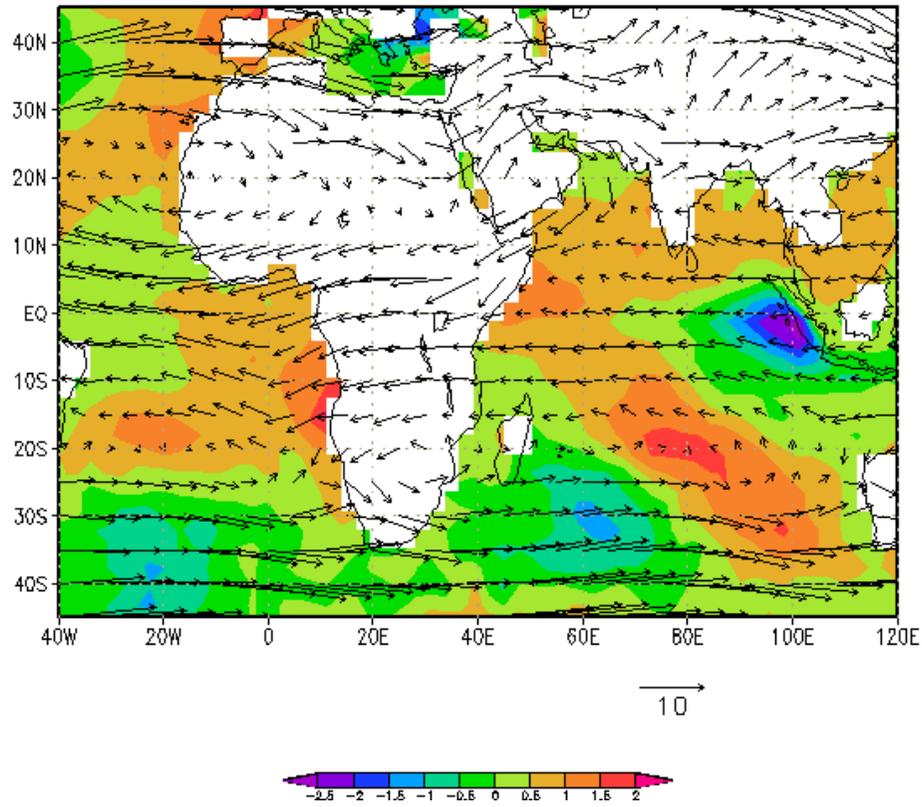


Bjerknes feedback in the eastern Indian Ocean

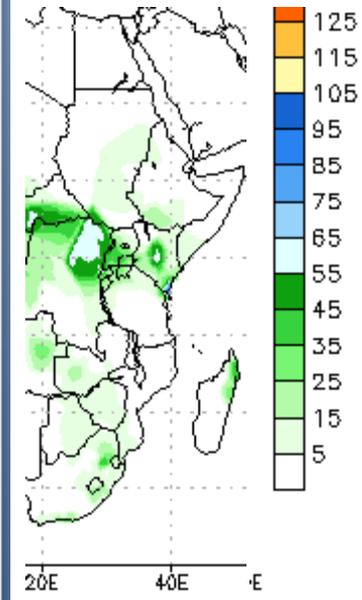
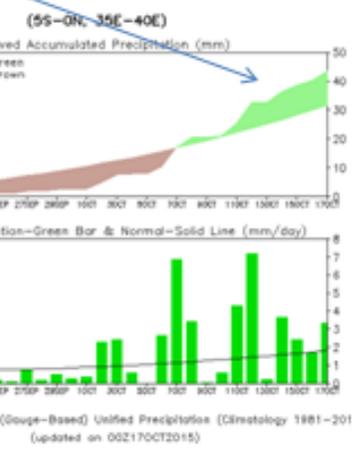
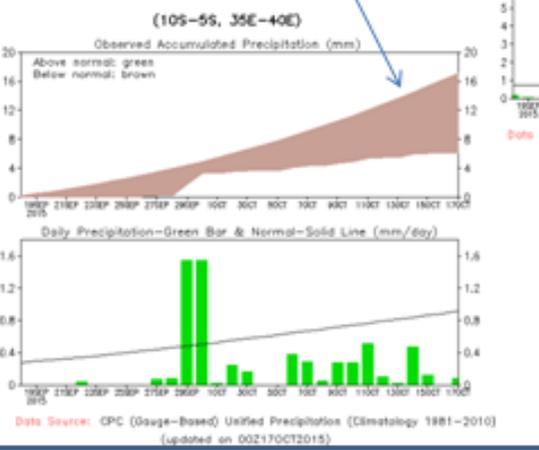
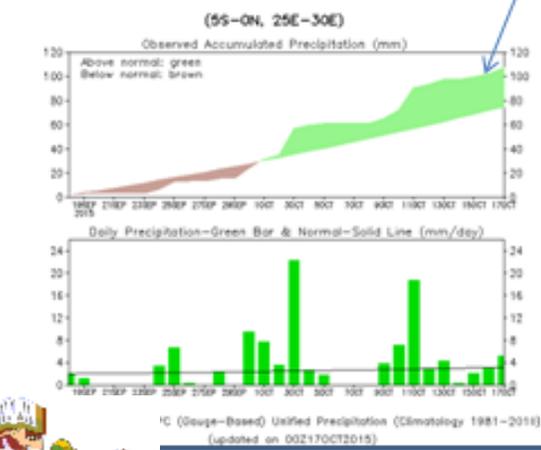
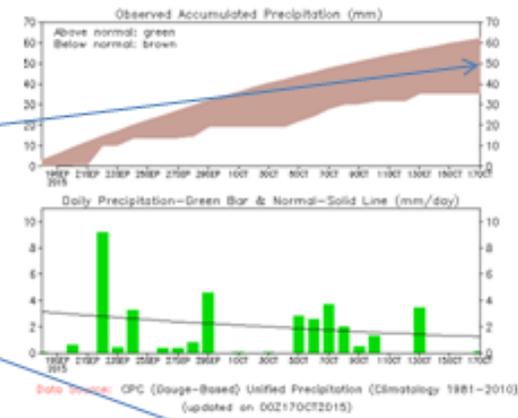
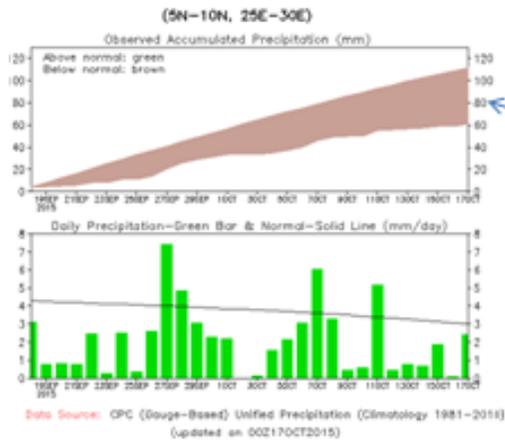


Moist Circulation transfer into and out of E. Africa, hence rainfall enhancement..

El Nino + IOD=100% confidence of Impact.

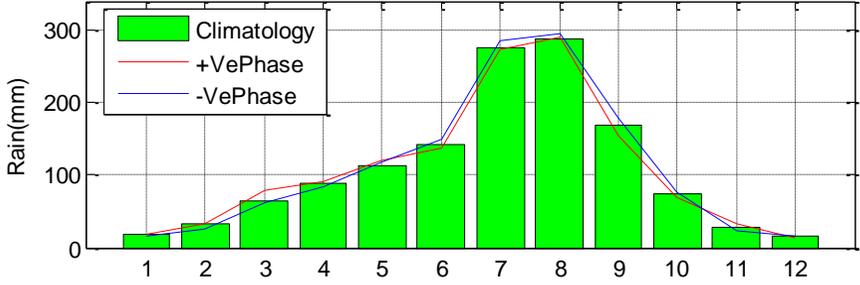


Performance GHA rainfall: 1st 2 weeks of October 2015

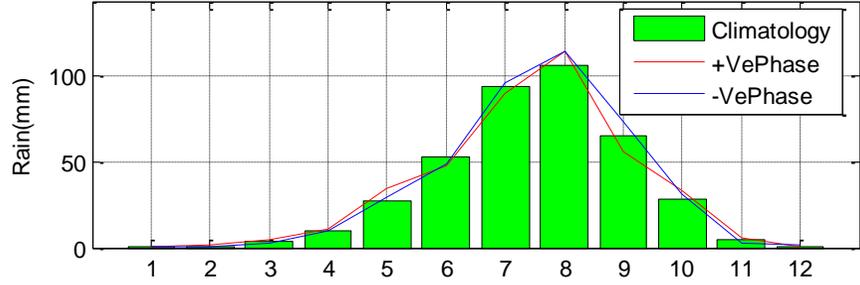


Country wise summary of typical Impacts...Countries to the North e.g. Ethiopia + Sudan

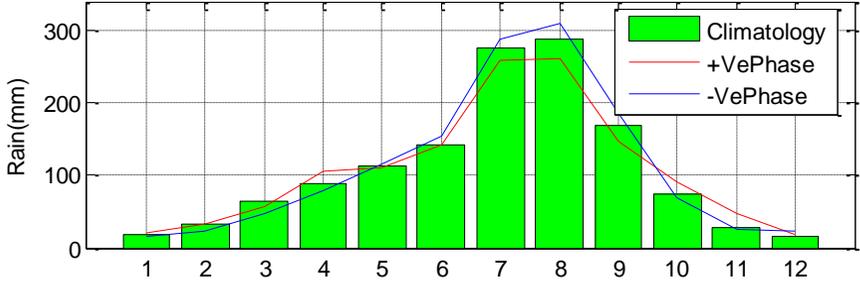
ETHIOPIA Annual Cycle of Precipitation and ENSO only



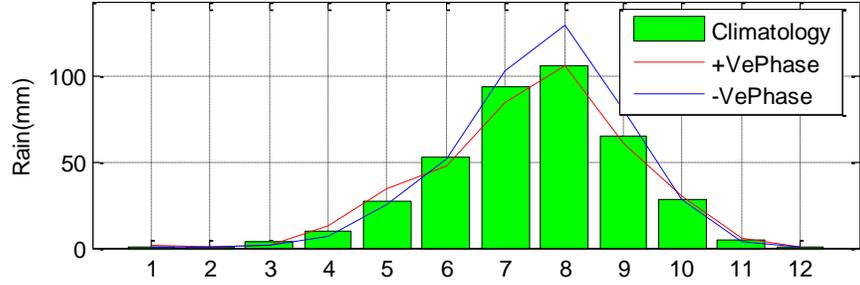
SUDAN Annual Cycle of Precipitation and ENSO only



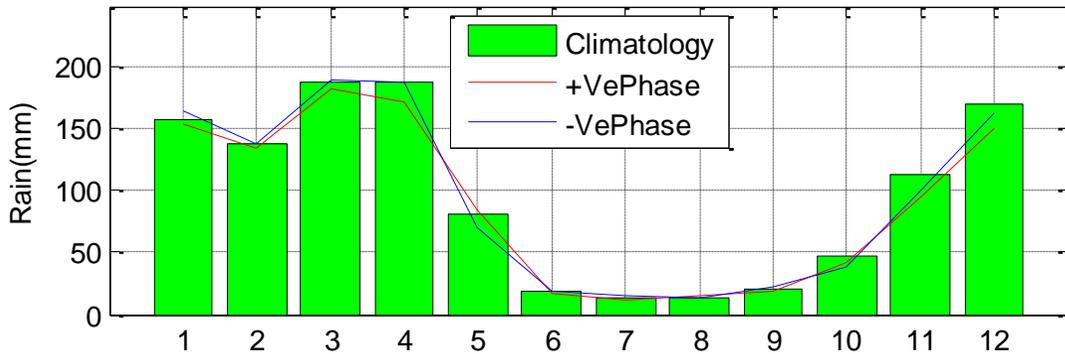
ETHIOPIA Annual Cycle of Precipitation and ENSOIOZM



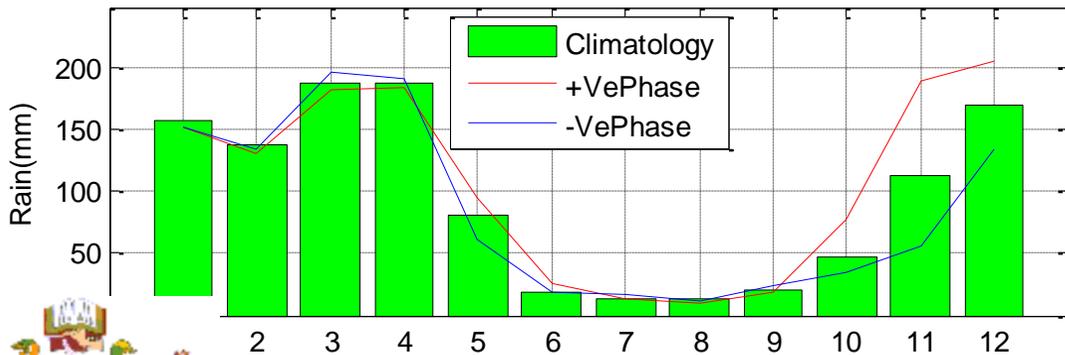
SUDAN Annual Cycle of Precipitation and ENSOIOZM



TANZANIA Annual Cycle of Precipitation and ENSO only



TANZANIA Annual Cycle of Precipitation and ENSOIOZM



Notably, impacts are just like across the Equatorial sub-region, Kenya + Uganda and similarly over Rwanda and Burundi



Conclusive Key messages

- El Nino/ La Nina is the major driver of year to year differences in climate conditions which constitute climate predictability and therefore provision of Climate services for decision support.
- Impacts over Eastern Africa are strongest when El Nino occurs concurrently with Positive Indian Ocean Dipole.
- Both El Nino and IOD are associated with warmer than average Sea Surface temperatures (SSTs) over the Tropical East & Central Pacific and Over Western Equatorial Indian Ocean extending to Arabian sea.
- These patterns of SSTs have direct implication on moist transfer into, and out of Eastern Africa, therefore influencing rainfall systematically. With rainfall information in advance of occurrence, many critical socio-economic decisions can be made to maximize taking advantage of positive benefits (plenty of water, increased environmental productivity, etc), and also cushion E. Africa communities against adverse impacts.
- The EL Nino coincides with the negative phase of the Southern Oscillation, hence positive and negative ENSO phases, **with nearly mirror image type of impacts.**
- For Eastern Africa, The Indian Ocean Dipole (IOD) is the single most important qualifier of the extend and severity of ENSO Impacts. **These indicators have to attain critical thresholds.** As regional climate services provider, we are very careful with this aspect of the information processing & knowledge management.





**With thanks to DFIF for WISER Initiative In
Support of Capacity Building to Provide
Actional Climate Information Services to
Address Adverse Impacts, and take
Optimal Advantage For Improved
Livelihoods and Sustainable Development
Across Eastern Africa**