

El Niño-Southern Oscillation (ENSO) Update April 2015

Weak El Niño Conditions Exist in Tropical Pacific Ocean

Assessment of Current ENSO State:

Most of the features used to monitor the state of the El Niño–Southern Oscillation (ENSO) phenomenon continue to show a weak El Niño signal exist in the equatorial Pacific Ocean which started during March 2015. In the Niño 3.4 area (5S-5N; 170W-120W), sea surface temperature (SST) anomalies averaged 0.6 °C during March 2015, climbing steadily to 0.7°C at the beginning of April 2015 (Figure 1). SSTs at or above 0.5°C have continued for the last three months signalling the presence of El Niño conditions.

At the sub-surface in the Niño 3.4 region (Figure 2), temperature anomalies increased during the month of March 2015, while in the atmosphere, equatorial low-level trade winds continued to be anomalous with westerly anomalies over the Western equatorial Pacific (Figure 3). In the upper atmosphere, upper-level easterly anomalies continue over the central Pacific Ocean and Niño 3.4 region. These conditions are indicative of weak El Niño status.

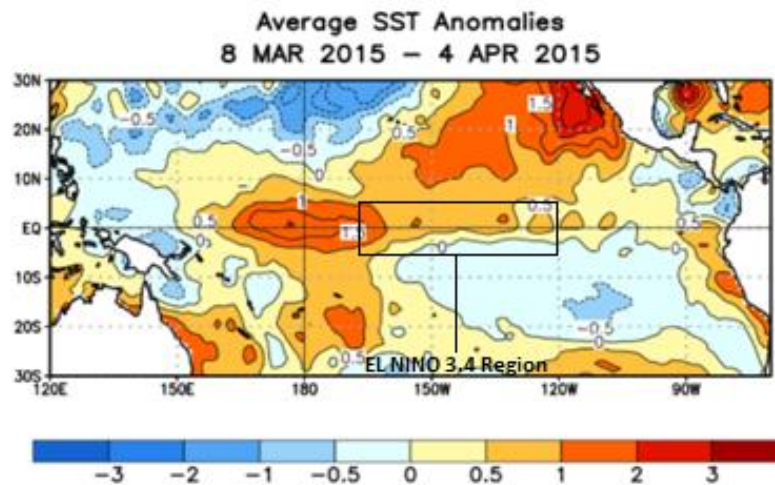


Figure 1: SST Anomalies in the Equatorial Pacific Ocean between 8th March 2015 to 4th April 2015 with the Niño 3.4 region highlighted. Adopted from http://www.cpc.ncep.noaa.gov/products/analysis_monitoring/enso_advisory/ensodisc.pdf

Looking forward, increase in subsurface temperatures, coupled with the increased persistence of low-level westerly wind anomalies indicate the likelihood of El Niño conditions continuing over the next four weeks. However, model skills tend to be lower during this time of the year which limits confidence on how El Niño will progress throughout the year.

Current Influence of ENSO on Trinidad and Tobago's climate

Recent analysis shows that evidence of a weak El Niño signature weather patterns continue to exist over our region. During January 2015 to March 2015, SSTs east of Trinidad and Tobago have cooled and SST anomalies have decreased slightly but remain above normal for this time of the year. Positive anomalies in sea level pressures continue to be present and low level wind speeds anomalies continue to be near average to above average. At the upper levels, velocity potential anomalies strengthened near Trinidad and Tobago and this has led to strong vertical wind shear and suppression of deep cloud development in our region. These conditions have led to a decrease in convection and rain clouds and have contributed to drier than average weather conditions in and

around Trinidad and Tobago during most of March 2015. Combined, these features are expected to continue exerting negative influences on rainfall patterns and positive influences on temperatures over Trinidad and Tobago during the remainder of the dry season.

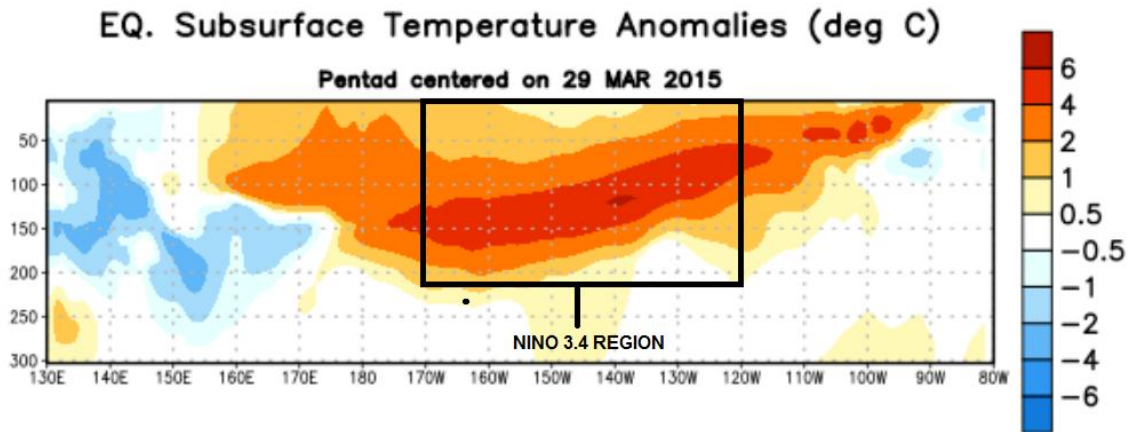


Figure 2: Positive subsurface temperature anomalies increased at depth in the central and east-central Pacific including in the Niño 3.4 region, while negative anomalies are present in the eastern Pacific.

Adopted from http://www.cpc.ncep.noaa.gov/products/analysis_monitoring/enso_advisory/ensodisc.pdf

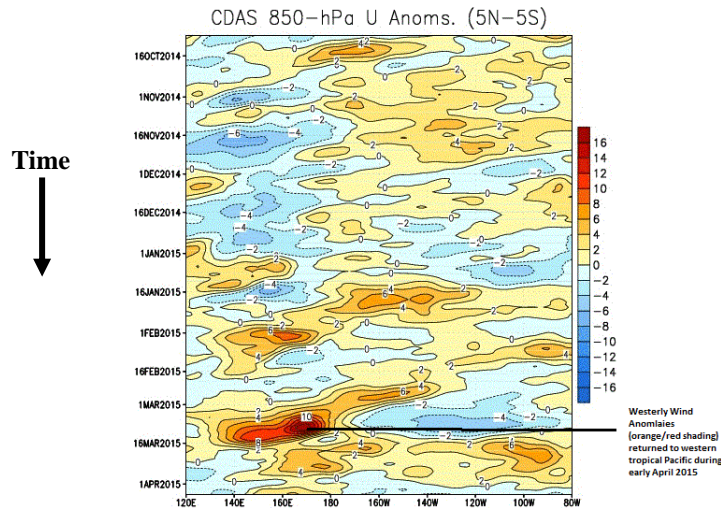


Figure 3: Westerly wind anomalies across the western equatorial Pacific. Adopted from http://www.cpc.ncep.noaa.gov/products/analysis_monitoring/enso_advisory/ensodisc.pdf.

Historical Influences of El Niño on Trinidad and Tobago Climate

Historically, the El Niño climate phenomenon has been the major climatic influence that determines whether the local wet or dry season will be wetter or drier or warmer or cooler than average. Trinidad and Tobago tend to experience a drier and warmer dry season when an El Niño is present. However, the influence of different El Niño events on the Trinidad and Tobago’s rainfall and temperature are not identical.