



COMITÉ MULTISECTORIAL ENCARGADO DEL ESTUDIO NACIONAL DEL FENÓMENO EL NIÑO (ENFEN)

ENFEN OFFICIAL STATEMENT N° 16-2015

Peruvian Governmental Assessment on El Niño-Southern Oscillation

Status warning system: **Coastal El Niño Alert**¹

Note: This translation is provided for convenience, the official version is in Spanish

The Multisectoral Committee for the National Study of El Niño (ENFEN) maintains the state of alert, as current conditions remain consistent with a warm event of “strong” magnitude, without presence of heavy rains but with above normal temperatures alongshore.

The 55% chance that Coastal El Niño will exhibit similar magnitudes as those observed in summer 1982-1983 or 1997-1998 is maintained.

The Multisectoral Committee for the National Study of El Niño (ENFEN) met to review and update the meteorological, oceanographic, biological-fishery and hydrological information of the first fortnight of September 2015.

In the central equatorial Pacific, the large-scale coupling between the ocean and the atmosphere continues. The zonal westerly wind anomalies continued between 160°E and 160°W, while easterly wind anomalies in the Eastern Pacific weakened. The sea surface temperature (SST) in the Niño 3.4 region showed similar evolution as the extraordinary 1997/1998 El Niño, although convection in the central equatorial Pacific has weakened since mid-August, from a magnitude similar to the 1997/1998 El Niño to that of the 1982/1983 event. All this is consistent with the warm phase of El Niño-Southern Oscillation. The warm Kelvin wave formed by a westerly wind burst by the end of July between 160°E and the International Date Line, which strengthened as a result of westerly wind anomalies in the central Pacific, presented positive anomalies in the thermocline depth and in the Mean Sea Level (MSL) in the far-eastern equatorial Pacific, east of 95 °W. This is an indicator that this warm Kelvin wave would not be as attenuated as in the past two months. In the first week of September, a new westerly wind burst occurred in the vicinity of the International Date Line that could generate a new Kelvin wave, its evolution will be clearer in the following weeks.

In the coastal region of Peru, the SST anomaly in the first fortnight of September was +2 °C in the northern and central region. Along the coast, air temperatures continued above normal, with average anomalies of +2.3 °C (+1.8 °C) for maximum (minimum) air temperatures. As indicated in the previous Official Statement, the value of Coastal El Niño Index (ICEN, in Spanish) for July is 2.15 °C, which corresponds to “strong” warm conditions.

The MSL was, on average, around +10 cm above normal in the northern coast, while in the southern zone the average anomalies increased in +4 cm with respect to August. These anomalies are probably due to the arrival of the warm Kelvin wave expected in August - September. The oceanographic fixed

¹ Definition of Coastal El Niño Alert: According to recent conditions using expert judgment in a collegial manner, the ENFEN Committee considers that Coastal El Niño event has begun and/or ICENtmp value indicates warmer conditions, and is expected that Coastal El Niño consolidates (ENFEN Technical Note N°01-2015).



COMITÉ MULTISECTORIAL ENCARGADO DEL ESTUDIO NACIONAL DEL FENÓMENO EL NIÑO (ENFEN)

station at Paita presented warm anomalies of around +2°C in the 100-m water column, decreasing slightly by the end of the fortnight.

At the beginning of the hydrological year 2015-2016, rainfall and river flows in the country's coastline were within normal for this period. The reservoirs in the northern and southern coasts have, on average, 76% and 64% of their maximum storage capacity, respectively.

Anchovies were present within the 10 nautical miles off Chimbote and Pisco. Off Chimbote they were located slightly deeper than normal. Biological indicators of the anchovies, such as spawning fraction, were well below their historical pattern, similar to August, except for the gonadosomatic index, which was near normal. On the other hand, the anchovies continued their reproductive maturation period, but the spawning season did not evolve as usual for this period. Warm water oceanic species were observed off the central coast, such as *Sarda chiliensis* "bonito", *Katsuwonus pelamis* "skipjack", and *Decapterus macrosoma* "mackerel scad".

PERSPECTIVES

In the following months, positive anomalies of the SST, MSL and thermocline depth will continue along the Peruvian coast, as a result of the El Niño event underway.

The warm Kelvin wave formed in late July is expected to arrive at the Peruvian coast in late September and early October, which would help maintaining the current warm conditions and may even enhance them.

As the rainy season begins, the Coastal El Niño will intensify precipitations in the Pacific slope depending on its magnitude and on the seasonal hydrological characteristics of each region. While El Niño will have greater influence on the precipitation pattern in the northern coast, there is strong spatial heterogeneity in this impact.

For the central Pacific (Niño 3.4 region), global climate models continue to forecast an intensification of El Niño conditions by the end of the year, with SST anomalies that could exceed +2 °C. The ENFEN Committee maintains their estimation of a 75% chance that El Niño will reach magnitudes of “strong” or greater in summer (Table 2).

El Niño in the central Pacific implies the possibility of reduced rainfall in the Andes and the Amazon, without being determining, in austral summer, especially in the south.

According to Table 1 of the ENFEN Technical Note No. 02-2015, there is a 95% probability that Coastal El Niño continue in austral summer and a 55% chance that El Niño reaches a extraordinary or strong magnitude this summer. These probabilities will be updated in the next ENFEN release.

The ENFEN Multisectoral Committee will continue to report on the evolution of the observed conditions and will update monthly the probability estimations of the magnitude of Coastal El Niño and Central Pacific El Niño for austral summer.

ENFEN Multisectoral Committee

Callao-Perú, September 17th, 2015



COMITÉ MULTISECTORIAL ENCARGADO DEL ESTUDIO NACIONAL DEL FENÓMENO EL NIÑO (ENFEN)

Table 1. Probability of the magnitudes of Coastal El Niño in summer 2015-2016 (December 2015-March 2016)

Magnitudes during December 2015-March 2016	Probability of occurrence
Neutral or Coastal La Niña	5%
Weak Coastal El Niño	10%
Moderate Coastal El Niño	30%
Strong Coastal El Niño	35%
Extraordinary Coastal El Niño	20%

Source: ENFEN Technical Note N° 02-2015

Table 2. Probability of the magnitudes of El Niño in the central Pacific in summer 2015-2016 (December 2015-March 2016)

Magnitudes during December 2015-March 2016	Probability of occurrence
Neutral or Central Pacific La Niña	5%
Weak Central Pacific El Niño	5%
Moderate Central Pacific El Niño	15%
Strong Central Pacific El Niño	40%
Very strong Central Pacific El Niño	35%

Source: ENFEN Technical Note N° 02-2015