



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

### ENFEN OFFICIAL STATEMENT N° 17-2015

*Peruvian Governmental Assessment on El Niño-Southern Oscillation*

#### Status warning system: **Coastal El Niño Alert<sup>1</sup>**

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 El Niño event of “strong” magnitude evolving in the Peruvian coast, with temperatures above normal along the coast but, due to the seasonality, heavy rains are not expected at this time.

The updated probabilities of the magnitude of Coastal El Niño event in austral summer 2015-2016 maintain a chance of 55% that it will be strong or extraordinary.

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 September 2015.

In September, the Central Equatorial Pacific continued showing evidence of an El Niño event. The magnitude of the western wind anomalies (160°E-160°W; 5°S-5°N) continued above the 1982 value but below that of 1997. The sea surface temperature (SST) in the Central Equatorial Pacific continued showing a similar evolution as of El Niño 1997/1998, although convective activity in the Central-Eastern Equatorial region has reduced, below the 1982 values. Despite this, El Niño-Southern Oscillation warm phase still continues. The evolution of the downwelling Kelvin wave, formed in the first week of September by a westerly wind burst around 180°, as reported in the previous ENFEN Statement, was not as intense as the two previous. In the second fortnight of September, another westerly wind anomaly occurred between ~160°E y 160°W, forcing another downwelling Kelvin wave. To date, observational (ARGO profilers) and satellite (JASON-2) data show the impact of the (Kelvin) wave in the deepening of the thermocline and in the increase of the Mean Sea Level (MSL), respectively. The westerly wind anomalies observed between 180° and 140°W, presented at the end of September and beginning of October, would enhance this warm wave.

The mean SST anomaly was +2.5°C in the Northern and Central coast of Peru. In the same region, air temperatures continued above normal, with average anomalies of +2°C for the minimum temperature and of +2.8°C for the maximum temperature.

The Coastal El Niño Index (ICEN, in Spanish) for August was 2.15, maintaining the category of “strong” warm conditions, as in June and July. Accordingly, the Coastal El Niño that began in April, has operationally reached a strong magnitude, but due to the seasonality, there were no heavy rains.

The MSL on the northern coast was, on average, +16 cm above normal, while in the central and southern coast, anomalies were, on average, +11 cm. The fixed oceanographic station at Paita, located seven nautical miles from the coast, presented +3°C anomalies in the upper 80 m depth in the last



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fortnight of September. These anomalies were associated with the arrival of the downwelling Kelvin wave to the Peruvian coast in the third week of September.

At the beginning of the hydrological year 2015-2016, rainfall and river flows in the coast 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, slightly deeper than normal off Chimbote. Biological indicators of the anchovies showed that they are maturing and spawning within their historical pattern, although with a delay in the start of the spawning period. On the other hand, warm water oceanic species were present off the northern and central coast, such as *Sarda chiliensis* "bonito", *Katsuwonus pelamis* "skipjack" and *Decapterus macrosoma* "mackerel skad".

### PERSPECTIVES

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

The downwelling Kelvin wave formed in the second fortnight of September is expected to arrive at the Peruvian coast in November, 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 slopes according to its magnitude. 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 has updated the probabilities of El Niño magnitudes for austral summer 2015-2016, concluding that there is an 80% chance that El Niño in the Central Equatorial Pacific is strong or very strong this summer, as the SST anomalies maintain their upward trend (see Table 2).

El Niño in the Central Pacific implies the possibility of reduced rainfall in the Andes and the Amazon, in austral summer, although this is not determinant, particularly in the southern zone. The 55% chance that El Niño reaches a strong or extraordinary magnitude is maintained (Table 1), although the likelihood to be extraordinary decreased slightly and the likelihood to be strong has increased at the same rate, which is mainly based on the persistence of southeasterly winds that could attenuate the intensity of the arriving Kelvin waves.

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

ENFEN Multisectorial Committee

Callao-Perú, October 6<sup>th</sup>, 2015



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**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	5%
Moderate Coastal El Niño	35%
Strong Coastal El Niño	40%
Extraordinary Coastal El Niño	15%

**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	10%
Strong Central Pacific El Niño	45%
Very Strong Central Pacific El Niño	35%