StormGeo

Outlook for the 2024 Northwest Pacific Typhoon Season

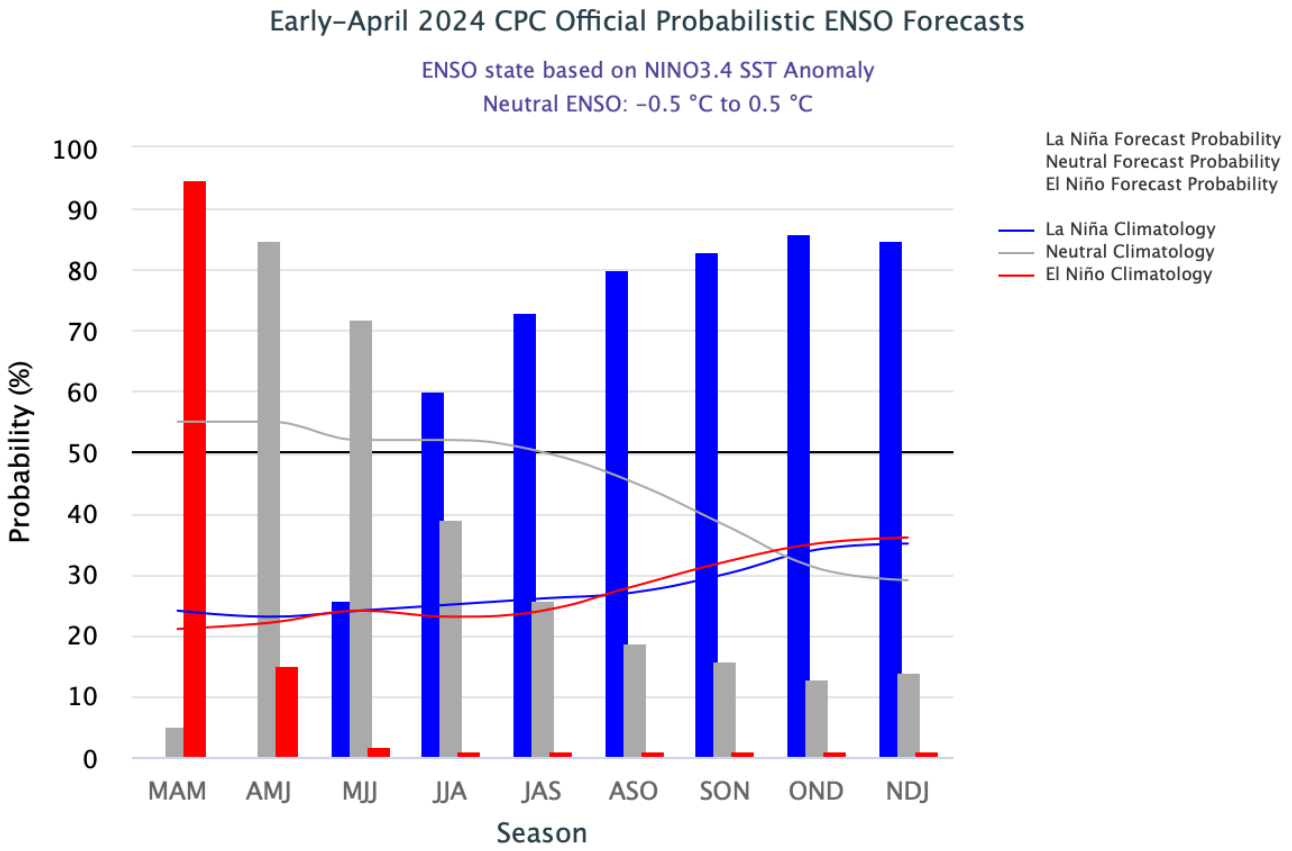
Issued: Wednesday, 17 April by Chris Hebert, TropicsWatch Manager, StormGeo, Inc.

The 2023 typhoon season was the fourth consecutive season with below-average numbers of tropical storms and typhoons. Only 17 named storms formed last year, with 10 becoming typhoons. That's well below the 30-year average of 26 named storms and 16 typhoons. The West Pacific has been quiet so far this year, with not a single depression or named storm as of mid-April. Early indications are that 2024 will be another relatively quiet typhoon season.

El Niño/La Niña

One primary driver of typhoon activity in the Northwest Pacific is the state of El Niño Southern Oscillation (ENSO). ENSO is represented by the Oceanic Niño Index (ONI), which is defined as the 3-month average surface temperature anomaly for the Niño 3.4 region in the Tropical Pacific. When the sea surface temperature anomaly is less than 0.5C below normal over a three-month period, it is identified as a La Niña. Conversely, when the average sea surface temperature anomaly is greater than 0.5C for a three-month period, it is identified as an El Niño.

Last season, the tropics were dominated by a moderate to strong El Niño. During an El Niño, warm air rises in the eastern part of the Pacific Basin and sinks in the western part. This inhibits typhoon activity in the West Pacific. For 2024, the Tropical Pacific appears to be switching to a La Niña. All computer models are predicting that La Niña will be develop this summer. The current prediction is for an 80% chance of La Niña this summer and fall. This would be an enhancing factor in the West Pacific. However, El Niño will persist until June or July, which will act as an inhibiting factor until then.

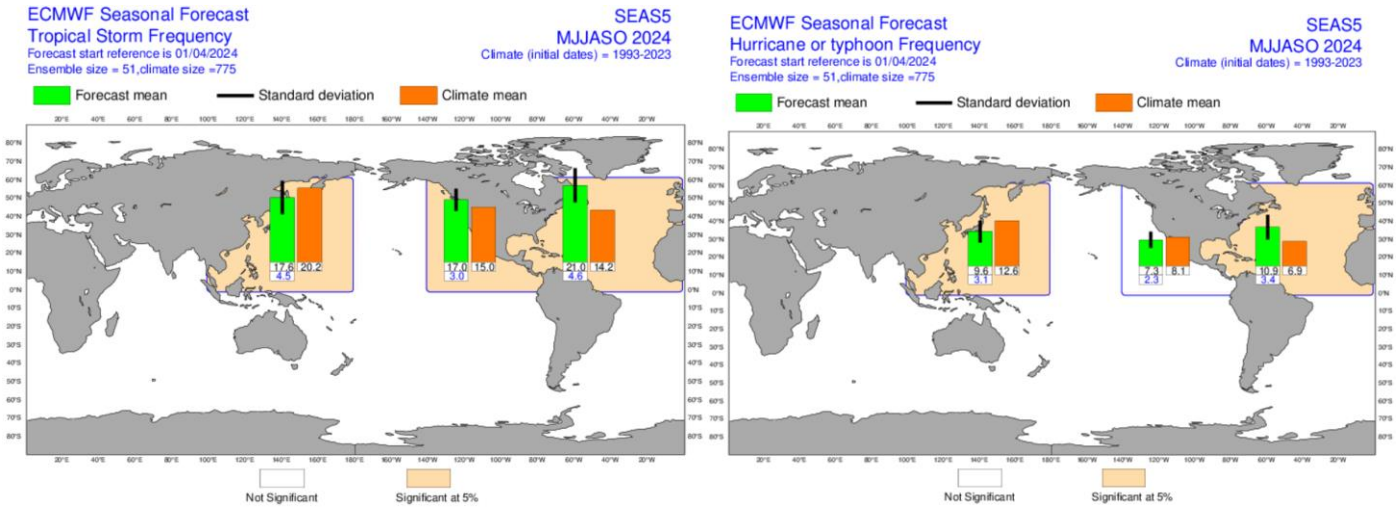


Source: https://iri.columbia.edu/our-expertise/climate/forecasts/enso/current/

StormGeo

European Model Seasonal Forecast

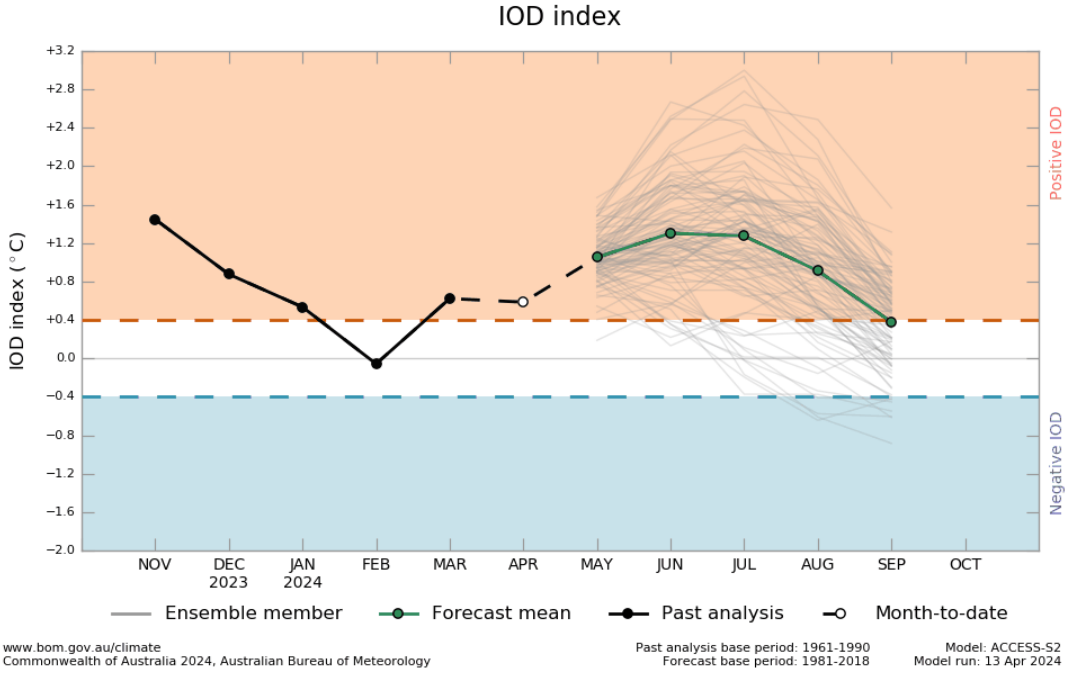
Each year, the European model produces seasonal tropical cyclone forecasts around the world. For 2024, the European model is predicting 17.6 named storms from May through October, compared to the normal number of 20.2 named storms during the same period. As for typhoons, the European model is predicting a total of 9.6 through October (normal is 12.6). In general, the European model is predicting that activity will be about 75% to 85% of normal through October.



European Model Tropical Cyclone Forecast (tropical storms on the left, typhoons on the right)

Indian Ocean Dipole (IOD)

Another feature which can significantly influence Northwest Pacific typhoon activity is the Indian Ocean Dipole (IOD). The IOD is defined by the difference in sea surface temperatures between the eastern and western tropical Indian Ocean. The current forecast is for a positive (warm) phase through August, switching to neutral by September. During a positive phase, air tends to rise over the Indian Ocean and sink over the western Pacific (particularly the South China Sea). This suppresses typhoon activity in the West Pacific basin. A positive IOD could be a significant inhibiting factor at least through August.



Source: http://www.bom.gov.au/climate/enso/#tabs=Indian-Ocean

Water Temperatures

Water temperatures in the northwest Pacific are generally not a major issue during typhoon season, as the water is always warm enough for typhoons to form. However, water temperatures so far this season are significantly cooler than average. While the water isn't cool enough to prevent typhoons from forming, the cooler water may limit the number of very strong typhoons this season.

Our Forecast

Most seasonal predictors are indicating that activity across the West Pacific will be below normal again this season. The current El Niño typically inhibits activity, but a La Niña is predicted to develop late this summer. This could result in tropical cyclone activity concentrated toward the latter part of the season.

Sinking air in the South China Sea due to the current positive Indian Ocean Dipole combined with the persisting El Niño through July, could limit significant typhoon activity there. The European model is predicting a below-normal season in the basin.

Water temperatures, particularly across the deep tropics and South China sea are below normal, which may limit typhoon activity there.

Considering the factors mentioned above, we think that activity will be below normal again this year. In particular, the first half of the season will be below normal. Stronger typhoons may be concentrated farther north and east than is typical, threatening southeast China through Japan more than Vietnam. The South China Sea may be relatively quiet again this season. We are predicting a total of 21 named storms this season, which is below the 30-year average of 26. As for typhoons, we are predicting a total of 12 this season, which is below the 30-year average of 16 typhoons.

2024 Season
21 Named Storms (-)
12 Typhoons (-)
5 Intense Typhoons (-)

30-yr Average
26 Named Storms
16 Typhoons
9 Intense Typhoons