

## Summary

Typhoon Mangkhut is currently located at approximately 14.1 N, 144.2 E with an estimated intensity of 100 knots. TY Mangkhut is forecasted to continue intensifying during its closest approach to Palau between 0000-1200 UTC 12 September, reaching 130 knots at the end of this period. Winds over Palau are expected to shift to the SW at 15-25 knots during the next 24 h and increasing to anywhere between 25-35 knots during the next 48 h. Additionally, significant wave heights at Palau are forecasted to rapidly increase with TY Mangkhut's passage to the north, reaching 9-12 ft during the next 24 h and increasing to anywhere between 12-18 ft in the next 48 h. TY Mangkhut's passage will also provide an increased chance for organized convection over Palau as its trailing rainbands move through the area during the next 48 h. Conditions forecasted over Palau at the expected departure time (0000 UTC 14 September): A chance for light, scattered precipitation with winds from the S-SW at 10-20 knots and significant wave heights between 5-9 ft.

**Day One (24 hr) Outlook:** Conditions over Palau currently show no convection, although Mangkhut's outflow is now extending over the area. As Mangkhut begins to make its closest approach to Palau, scattered convective activity is expected to increase and at times, transition to organized convection in association with Mangkhut's trailing rainbands. Winds from the W-SW are expected throughout the 24-h forecast period, increasing from between 5-15 knots to 15-25 knots. Significant wave heights are forecasted to rapidly increase, reaching 9-12 ft by the end of the 24-h forecast period.

**Day Two (48 hr) Outlook:** A chance for widespread, organized convection over Palau will persist during the 24-48 h forecast period as Mangkhut tracks to the north and its trailing rainbands move through the region. Winds from the SW at 25-35 knots are expected for the duration of the 24-48 h forecast period. Significant wave heights are forecasted to increase, reaching 12-15 ft throughout the 24-48 h forecast period and potentially reaching 18 ft.

**Extended Outlook:** Winds will become more southerly over Palau during the 48-72 h forecast period, weakening to 10-20 knots as Mangkhut continues to track to the W-NW. Organized convection associated with Mangkhut's trailing rainbands will begin to diminish during the 48-72 h forecast period, transitioning to a more scattered convection regime. Significant wave heights will decrease to anywhere between 5-9 ft during the 48-72 h forecast period and remain between 5-7 ft near Palau throughout 0000 UTC 16 September.

## Discussion

**TCs:** Typhoon Mangkhut is currently located at approximately 14.1 N, 144.2 E with a heading of 260 degrees at 15 knots. Its current intensity is 100 knots with winds gusting to 125 knots. Mangkhut is forecasted to continue intensifying as it makes its closest approach to Palau

between 0000-1200 UTC 12 September, reaching 130 knots at the end of this period. JTWC has shifted Mangkhut's track slightly further to the south compared to yesterday's forecast as it makes its closest approach to Palau; however, the 34-knot ship avoidance area has been reduced. Little deviation is expected from this forecasted track as both the GFS and ECMWF agree that Mangkhut's track will begin to shift to the W-NW after moving west of 140 E. Environmental conditions along Mangkhut's forecasted track are characterized by sea-surface temperatures exceeding 30 C and deep-layer (850-200 hPa) vertical wind shear between 5-10 knots, providing a healthy environment for continued intensification.

**Convection:** Convection remains relatively weak prior to the arrival of TY Mangkhut. Outer rainbands associated with Mangkhut are anticipated to impact Palau within 24 hrs as the TY moves to the north of the sampling region. The region will continue to be under the influence of these outer rainbands for the subsequent 48 h as Mangkhut moves westward.

**MJO/BSISO:** The MJO forecast provided by the ECMWF shows the two week period beginning on 10 September, and the BOM has not been updated since 06 September. The phase 8 MJO signal is forecasted to decay with an overall weak-amplitude MJO signal during the next two weeks. The BSISO indices from ECMWF and BOM show forecasts for the 06-25 September time period. Both the BOM and ECMWF indicated a weak-amplitude signal for phases 3 & 4 in the BSISO1 index for the 0-4 day forecast period, although we are now at the end of this forecast period. Both models show an overall weak-amplitude signal for the BSISO index during the next week.

**SSTs:** Sea surface temperatures are expected to be between 29-31 C.

**Currents and Wave Heights:** Significant wave heights at Palau are forecasted by FNMOC WW3 to begin increasing, reaching 5-7 ft at 0000 UTC 11 September. They will continue to increase as Mangkhut makes its closest approach to Palau between 0000-1200 UTC 12 September, reaching 9-12 ft by 1800 UTC 11 September and remaining between 9-15 ft from 0000 UTC 12 September through ~1800 UTC 13 September. Significant wave heights will begin to decrease from this point forward to anywhere between 5-9 ft around 0000 UTC 14 September (approximate departure time). They will remain between 5-7 ft near Palau throughout 0000 UTC 16 September.

FORECASTERS: MARTINEZ, DESROSIERS, LOMBARDO

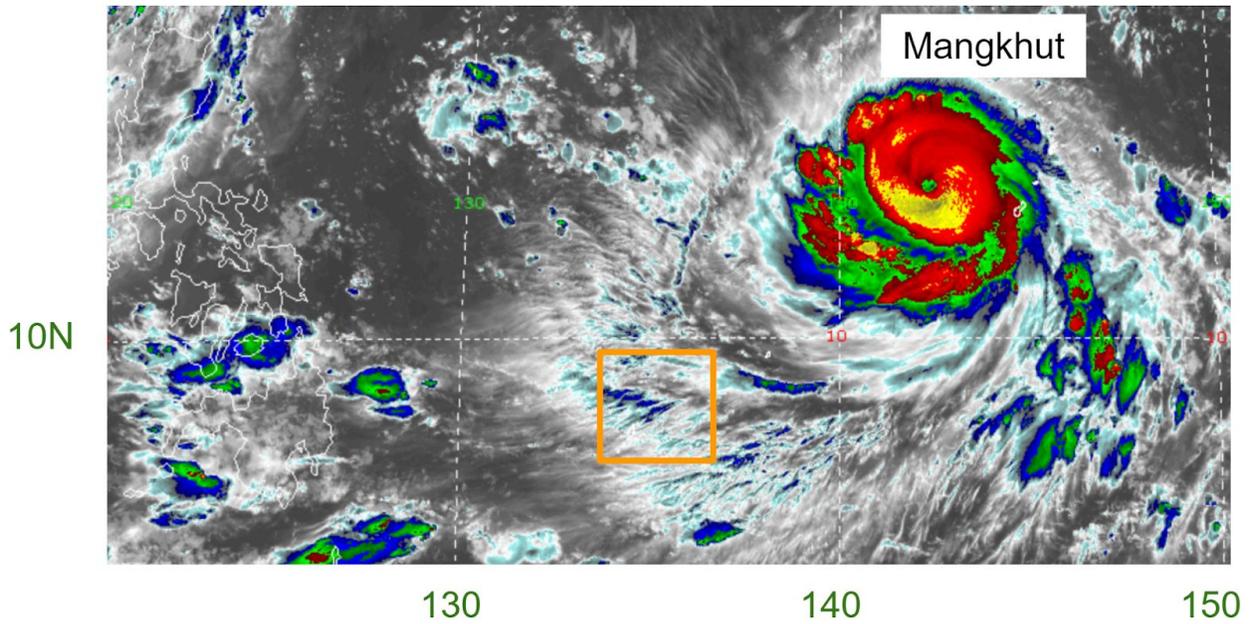


Fig. 1. Himawari IR imagery (10.4 microns) valid at 1840 UTC 10 September 2018. [1]

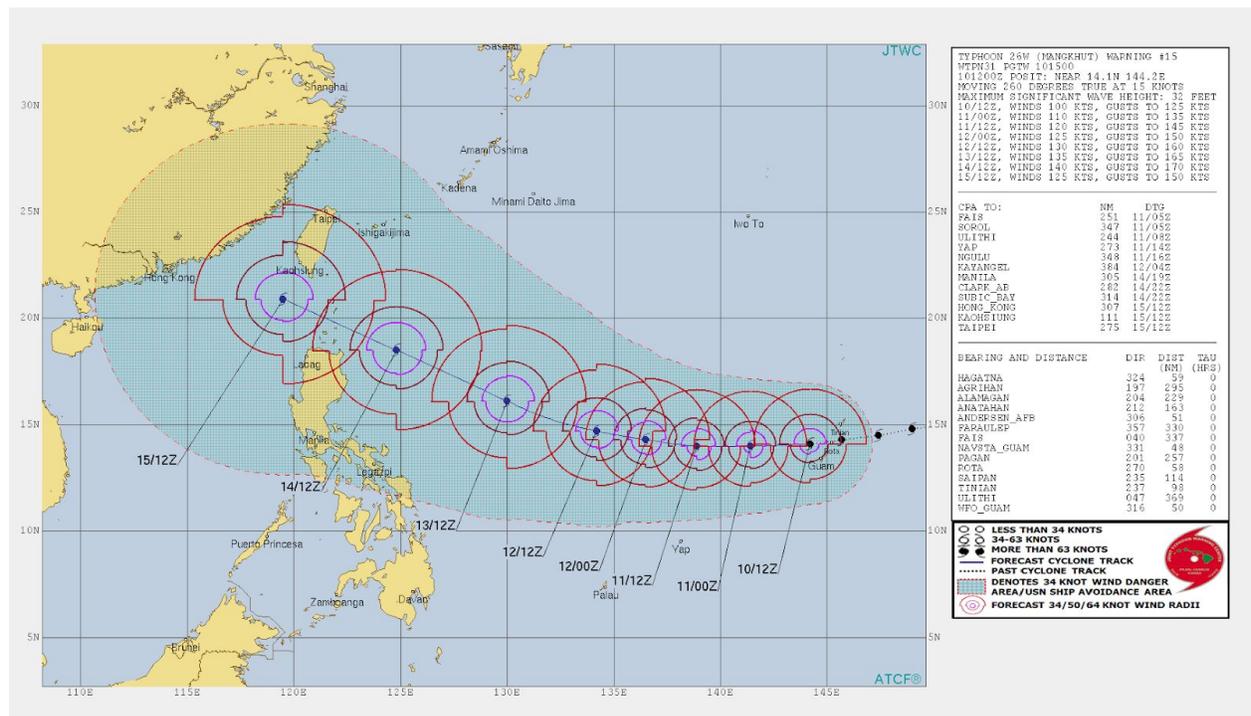


Fig 2. JTWC forecasted track/intensity for TY Mangkhut at 1200 UTC 10 September 2018. [2]

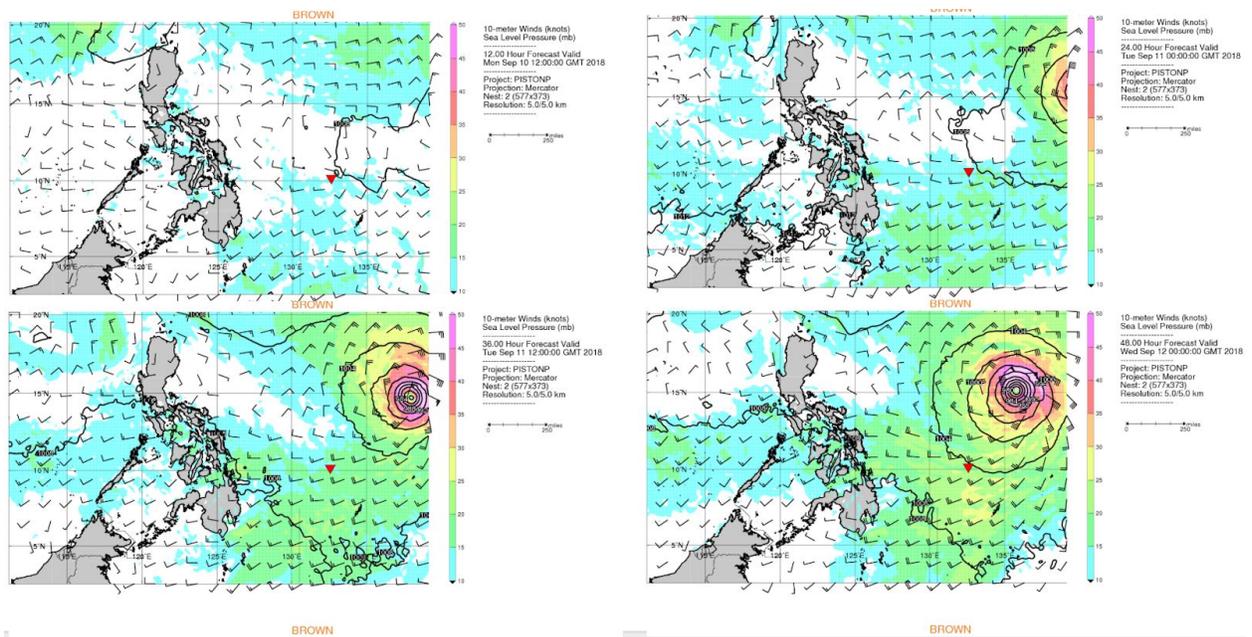


Fig. 3. COAMPS forecasted 10-m wind speed (shading, knots) and direction (barbs) and MSLP (contours) initiated at 0000 UTC 10 September 2018 and valid at (top left) 1200 UTC 10 September, (top right) 0000 UTC 11 September, (bottom left) 1200 UTC 11 September, and (bottom right) 0000 UTC 12 September.

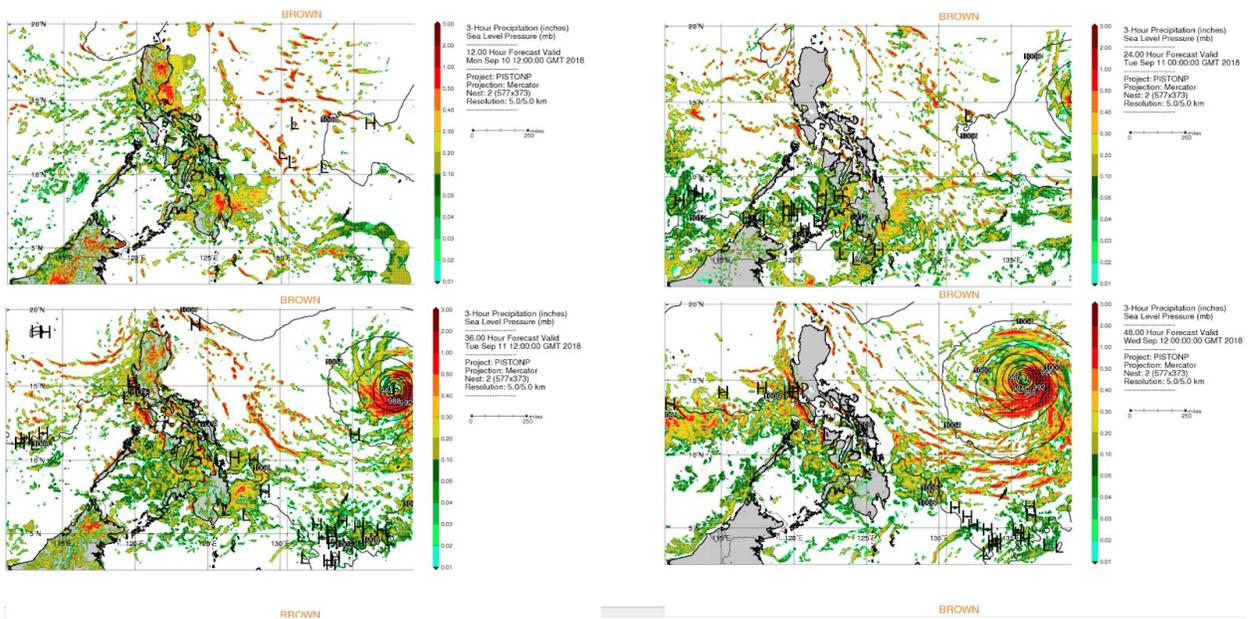


Fig 4. COAMPS 3-hourly precipitation (shading, inches) and MSLP (contours) initiated at 0000 UTC 10 September 2018 and valid at (top left) 1200 UTC 10 September, (top right) 0000 UTC 11 September, (bottom left) 1200 UTC 11 September, and (bottom right) 0000 UTC 12 September.

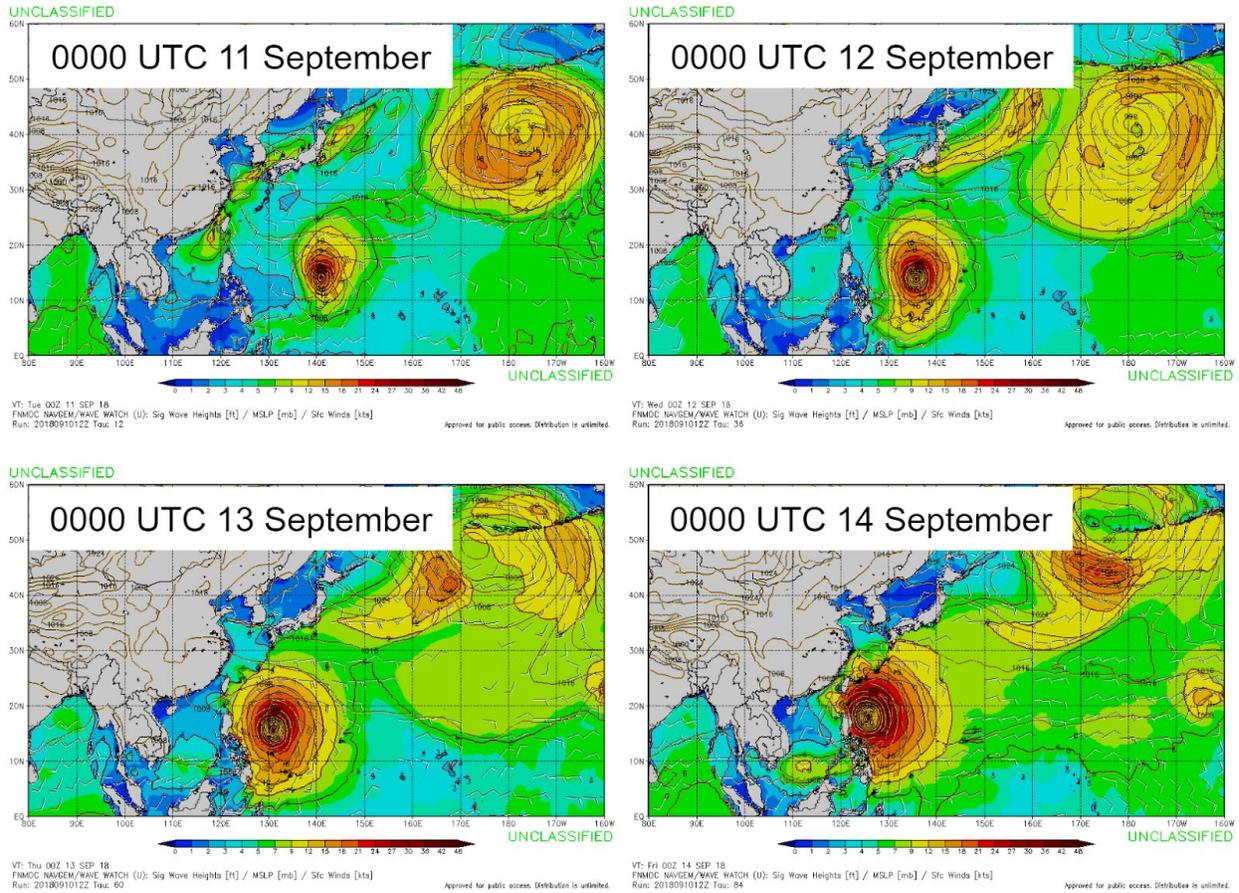


Fig. 5. FNMOC WW3 significant wave height forecast initiated at 1200 UTC 10 September and valid at (top left) 0000 UTC 11 September, (top right) 0000 UTC 12 September, (bottom left) 0000 UTC 13 September, and (bottom right) 0000 UTC 14 September. [5]