

Summary

Typhoon Mangkhut has undergone rapid intensification and has been upgraded to Super Typhoon (STY) Mangkhut by JTWC, located at approximately 13.7N, 138.6E with a heading of 260 degrees at 12 kt. Its current intensity is now 140 kt with winds gusting to 170 kt. STY Mangkhut is still expected to make its closest approach to Palau between 0000-1200 UTC 12 September, but is now forecast to be more intense at 140-145 kt at this time. With favorable environmental conditions, STY Mangkhut could potentially intensify a bit more than 140-145 kt, which then could reflect in significant wave heights later. Winds over Palau from the SW between 25-30 knots are expected during the next 24 h. Additionally, significant wave heights at Palau are forecasted to increase, reaching anywhere between 9-15 ft during the next 24 h. STY 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 7-12 ft.

Day One (24 hr) Outlook: The Himawari-8 IR satellite imagery currently shows organized convection over and around Palau in association with STY Mangkhut's trailing rainbands. Similar, intermittent bouts of organized convection are forecasted to persist throughout the 24-h forecast period. Winds from the W-SW between 25-30 knots are expected and significant wave heights are forecasted to continue increasing throughout the 24-h forecast period, reaching between 12-15 ft. FNMOC WW3 places the 15-18 ft significant wave height contour directly to the north of Palau, and thus there remains a chance for significant wave heights reaching this threshold.

Day Two (48 hr) Outlook: A chance for widespread, organized convection over Palau will persist during the 24-48 h forecast period as STY Mangkhut tracks to the W-NW and its trailing rainbands move through the region. GFS shows winds from the SW between 15-25 knots at the beginning of the 24-48 h forecast period decreasing to 10-20 knots from the SW and becoming more southerly by the end of the forecast period. COAMPS favors slightly higher wind speeds near the end of the forecast period, showing SW winds between 25-30 knots. Significant wave heights are forecasted to remain 12-15 ft during the beginning of the 24-48 h forecast period, decreasing to 9-12 ft near the end.

Extended Outlook: Winds will continue to gradually weaken during the 48-72 h forecast period, beginning at 10-20 knots from the S-SW and decreasing to 5-15 knots from the S-SE. As STY Mangkhut continues to track W-NW away from Palau, organized convective activity will diminish and a chance for scattered precipitation will proceed. FNMOC WW3 shows significant wave heights near Palau between 7-12 ft at the beginning of the 48-72 h forecast period, decreasing

to between 5-9 ft near the end. Significant wave heights will then continue to decrease, reaching 3-5 ft during the 72-96 h forecast.

Discussion

TCs: Typhoon Mangkhut has undergone rapid intensification and has been upgraded to Super Typhoon (STY) Mangkhut by JTWC, located at approximately 13.7N, 138.6E with a heading of 260 degrees at 12 kt. Its current intensity is now 140 kt with winds gusting to 170 kt. STY Mangkhut is still expected to make its closest approach to Palau between 0000-1200 UTC 12 September, but is now forecast to be more intense at 140-145 kt (compared to yesterday's forecast). JTWC's forecast track is in close to the same position at 1200 UTC 12 September, but possibly slightly more to the south. STY Mangkhut is forecast to keep intensifying until it interacts with the northern part of Luzon, due to very favorable environmental conditions of low vertical wind shear, high SSTs, and high mid-level relative humidity. With these favorable environmental conditions, STY Mangkhut could potentially intensify a bit more than 140-145 kt, which then could reflect in significant wave heights later. The 00Z GEFS and EPS ensemble members are in close agreement in terms of track, and GEFS continues the trend of being slightly farther north than the EPS ensemble members. This is also reflected in the 12Z deterministic ECMWF and GFS; the 12Z ECMWF at 1200 UTC 12 September is slightly to the SW of the 12Z GFS at the same time. Large significant wave heights of potentially up to 15-18 ft and convection associated with trailing rainbands are the primary impacts at Palau.

Convection: Organized convective activity associated with STY Mangkhut's trailing rainbands is currently making its way over Palau. Similar, intermittent bouts of organized convective activity are expected to persist throughout the 24-48 h forecast period. As STY Mangkhut continues to track W-NW away from Palau, the chance for organized convection near Palau will decrease and begin transitioning to scattered convection near the end of the 48- forecast period.

MJO/BSISO: The MJO forecast provided by the ECMWF shows the two week period beginning on 11 September, and the BOM has not been updated since 06 September. The two models show a weak-amplitude MJO signal persisting throughout the two week forecast period. The BSISO forecast from BOM was updated and shows the 09-28 September forecast period while the ECMWF has not been updated and continues to show the 06-25 September forecast period. The BOM forecast shows a weak-amplitude BSISO1 signal in phase 3 for the 0-4 day forecast period, potentially transitioning to a weak-amplitude phase 1-2 signal in the 5-9 day forecast. The ECMWF forecast maintains a weak-amplitude BSISO1 signal in phase 3 signal throughout the same time period as the 0-4 day BOM forecast, and the signal becomes incoherent thereafter. The two models diverge in their forecasts for the BSISO2 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 increase during the 24-h forecast period, reaching 9-12 ft as STY Mangkhut makes its closest approach to Palau between 0000-1200 UTC 12 September and remaining anywhere between 12-18 ft throughout 0000 UTC 13 September. Significant wave heights are forecasted to decrease thereafter, remaining anywhere between 7-12 ft around the scheduled 0000 UTC 14 September departure time. Note that yesterday's forecast called for significant wave heights between 5-7 ft around the scheduled departure time and therefore NAVGEM may have misrepresented STY Mangkhut's size, forward motion, location, and/or intensity around this time period.

FORECASTERS: MARTINEZ, DESROSIERS, CASAS (DELAP)

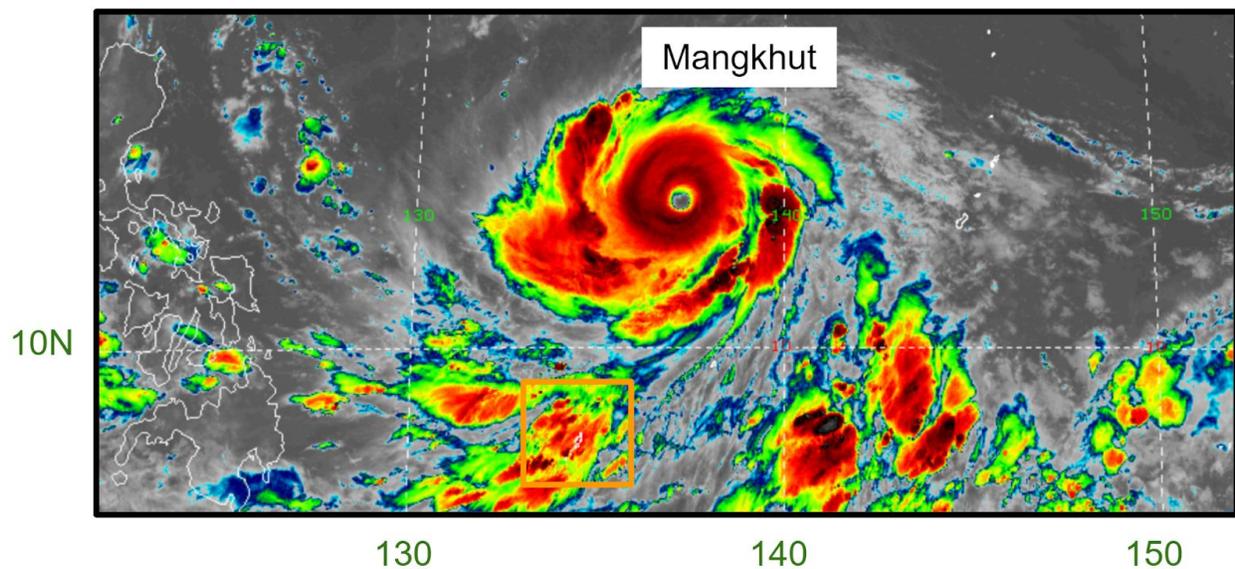


Fig. 1. Himawari IR imagery (10.4 microns) valid at 1800 UTC 11 September 2018. [1]

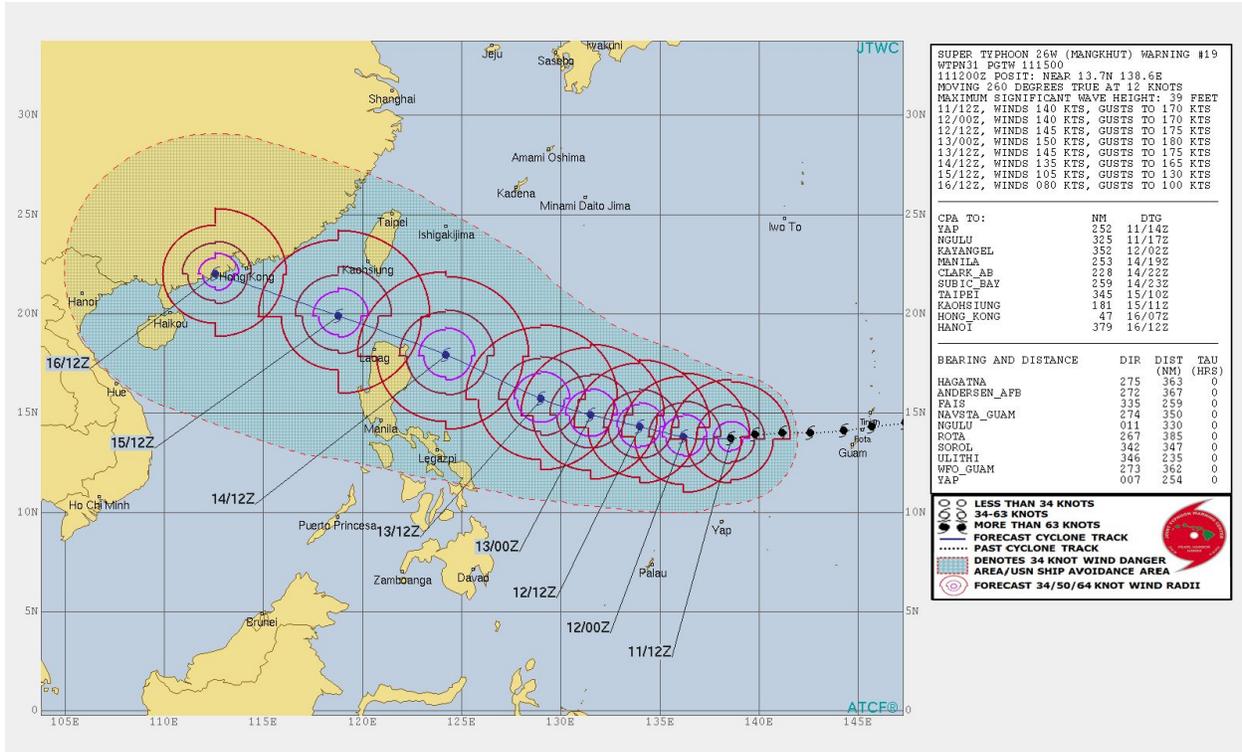


Fig 2. JTWC forecasted track/intensity for TY Mangkhut at 1200 UTC 11 September 2018. [2]

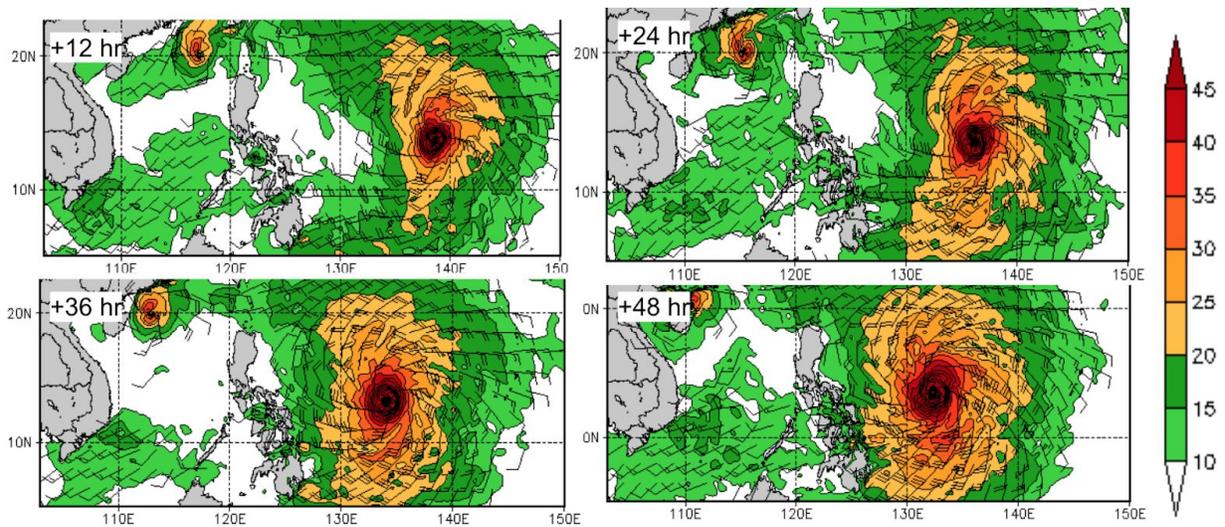
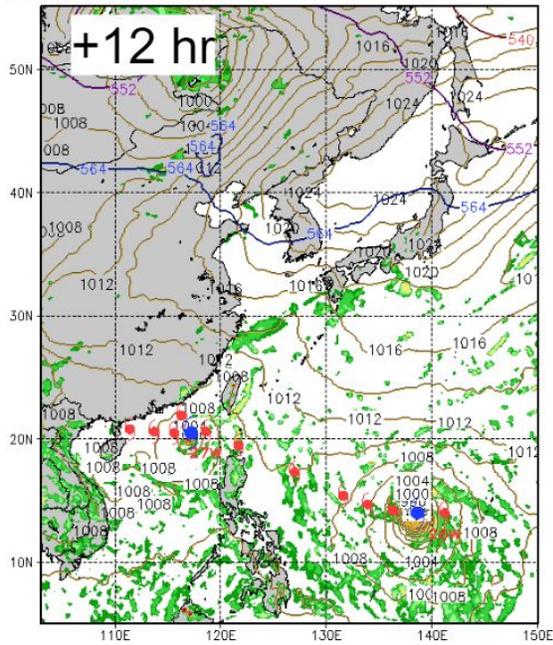
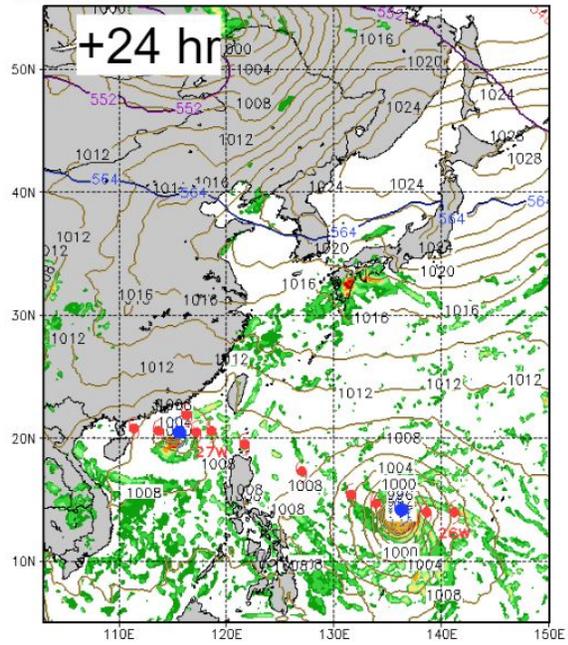


Fig. 3. COAMPS forecasted 10-m wind speed (shading, knots) and direction (barbs) and MSLP (contours) initiated at 0000 UTC 11 September 2018 and valid at (top left) 1200 UTC 11 September, (top right) 0000 UTC 12 September, (bottom left) 1200 UTC 12 September, and (bottom right) 0000 UTC 13 September.

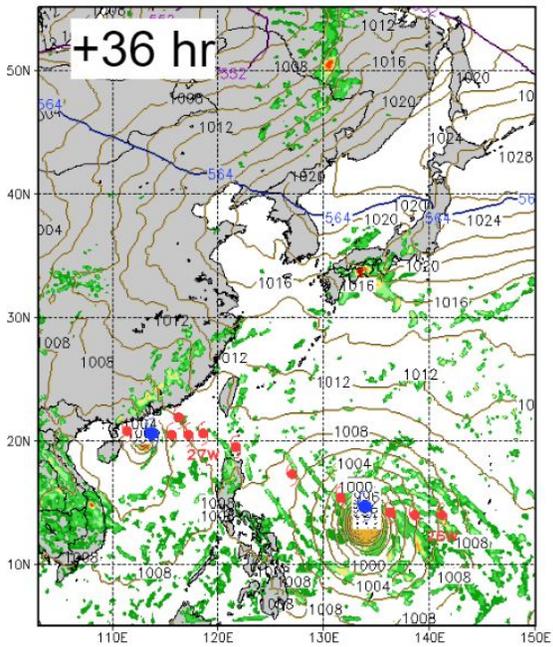
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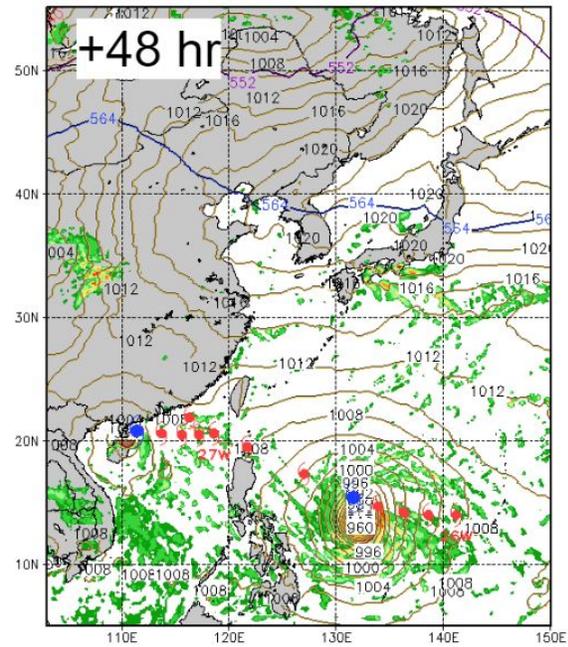


Fig 4. COAMPS 3-hourly precipitation (shading, mm) and MSLP (contours) initiated at 0000 UTC 11 September 2018 and valid at (top left) 1200 UTC 11 September, (top right) 0000 UTC 12 September, (bottom left) 1200 UTC 12 September, and (bottom right) 0000 UTC 13 September.

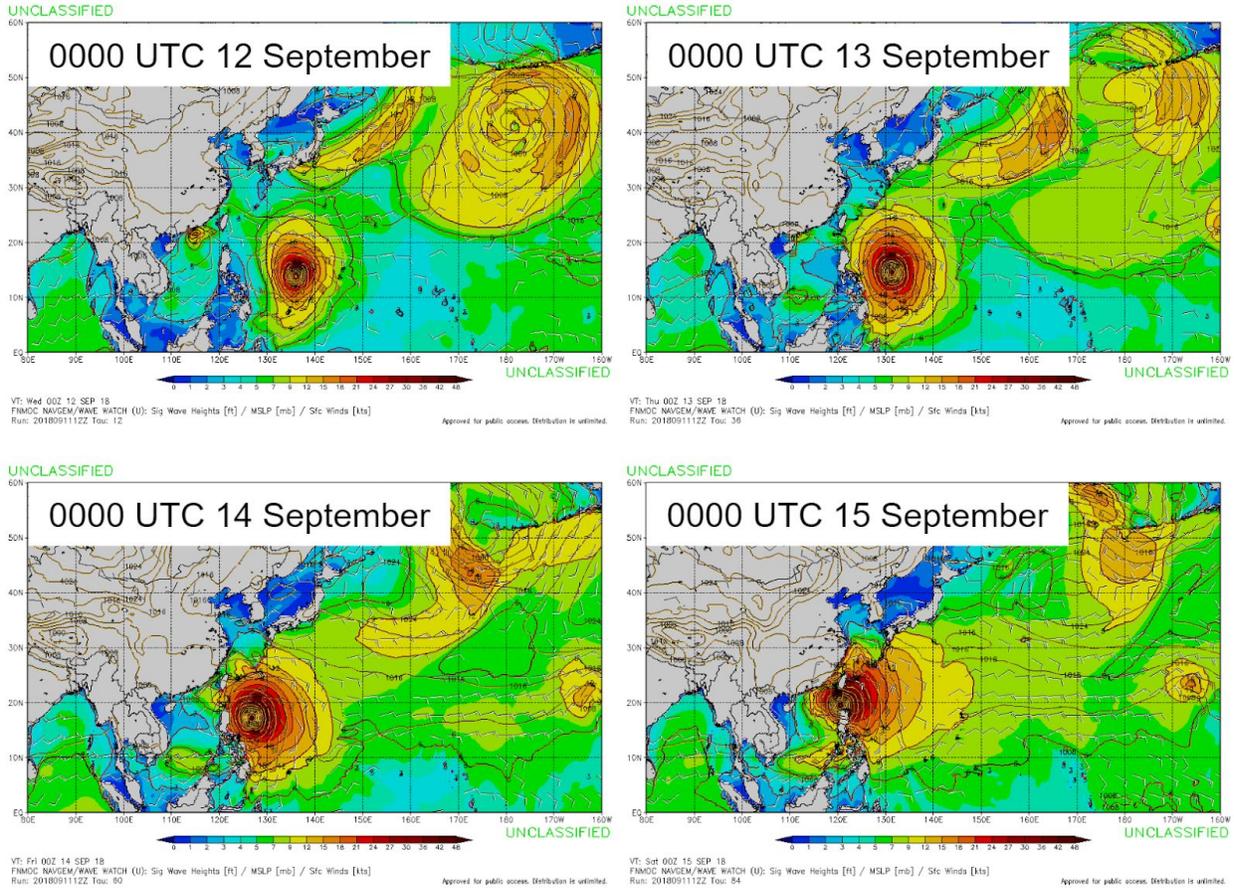


Fig. 5. FNMOC WW3 significant wave height forecast initiated at 1200 UTC 11 September and valid at (top left) 0000 UTC 12 September, (top right) 0000 UTC 13 September, (bottom left) 0000 UTC 14 September, and (bottom right) 0000 UTC 15 September. [5]