

Summary

**** Invest 92W has been upgraded to TD28W as of 2100 UTC 20 September.**

The Himawari-8 IR satellite imagery currently shows isolated convective cells making their way through the area of operation. Scattered precipitation is expected to persist throughout the 48-h forecast period as TD 28W continues to track towards the area of operation, with an increasing chance for intermittent bouts of organized convective activity. Winds will primarily remain between 15-25 knots throughout the 48-h forecast period, gradually shifting counterclockwise and becoming W-NW as 28W situates to the north of the area of operation at the end of the 48-h forecast period. Significant wave heights are expected to rapidly increase to anywhere between 7-12 ft by the end of the 48-h forecast period.

JTWC has upgraded Invest 92W to TD 28W, with an intensity of 25 kt for the maximum sustained winds. TD 28W is now located near 12.8N, 146E, and is expected to continue tracking towards the W-NW, passing over Guam for the next 24 h. Both the global models and COAMPS-TC are in agreement with the track to the W-NW for the next 48 h, and TD 28W will be likely closest to the ship's current location for the next 48-72 h forecast, bringing 20-30 knots wind. Both the GFS and ECMWF show a northwestward track during the next 72-168 h forecast period, moving towards to the east coast of Taiwan. We will continue to closely monitor the development of TD 28 W as it moves closer to the area of operation.

Day One (24 hr) Outlook: Both GFS and COAMPS show an increasing chance for scattered precipitation over the area of operation throughout the 24-h forecast period along with a chance for organized convection as TD 28W slowly tracks toward the region. Winds will remain primarily from the N-NE between 10-20 knots as the western semi-circle of 28W's circulation moves over the area of operation. FNMOC WW3 shows significant wave heights near the area of operation remaining 4-5 ft throughout the 24-h forecast period while COAMPS favors significant wave heights of 5-7 ft.

Day Two (48 hr) Outlook: Scattered precipitation is expected throughout the 24-48 h forecast period with an increasing chance for organized convection towards the end of the forecast period as TD 28W situates north of the area of operation. Winds will likely shift to the W-SW between 15-25 knots as 28W tracks W-NW, located north of the area of operation. FNMOC WW3 shows significant wave heights rapidly increasing to anywhere between 7-12 ft throughout the 24-48 hour forecast period.

Extended Outlook: Both the GFS and ECMWF show TD 28W beginning a turn to the NW during the 48-72 h forecast period, intensifying and moving away from the area of operation. As the system intensifies, trailing rainbands are likely to move through the area of operation throughout the 48-96 h forecast period, bringing along an increased chance for organized convection. Winds will primarily remain from the SW between 15-25 knots throughout the 48-96

h forecast period, with intermittent bouts of increased wind speeds associated with organized convection embedded within 28W's trailing rainbands. Both the GFS and ECMWF keep the center of 28W around 4 degrees to the north of the area of operation during its closest approach in the 48-72 h forecast period. The wind and convective forecast can change with a minor displacement of TD 28W to the south during its development. FNMOC WW3 shows significant wave heights near the area of operation remaining between 9-12 ft throughout the 48-96 h forecast period, and potentially increasing to 12-15 ft in the 96-120 h forecast period as TD 28W rapidly intensifies during its slow northwestward course.

Discussion

TCs: TD 28W is now located near 12.8 N, 146.1 E, which is SE of Guam. An ASCAT pass around 1200 UTC 20 September depicts a broad, closed low-level circulation with up to 20-25 knots observed in the inner core. The Himawari-8 IR imagery shows deep convective bursts persisting over the low-level circulation, and towards Guam. The environment is favorable for TD 28W to develop, with low-shear and high SST (28-30 Celcius). However, the location of TD 28W intensifying to be likely a tropical storm for the next 24-48 h forecast is still uncertain in terms of the latitude with both the ECMWF and GFS. Both the GFS and ECMWF continue to track TD 28W towards the NW, passing by Guam within the next 24 h, while the GFS favors a slightly northward location than ECMWF. Likewise, most of the ensemble members from the GEFS spin up TD 28W into a tropical storm for the next 24-48 h, and in a good agreement with location slightly east of Guam but with some variations in latitudes. Both the GFS and ECMWF in an agreement that TD 28W will be likely closest to the ship's current location for the next 48-72 h forecast, bringing 20-30 knots wind, and show TD 28W moving slowly to the northwest for the next 72-144 h forecast period, which would be most likely to increase the wave heights around the area of operation. Both the GFS and ECMWF show a northwestward track, moving towards to the east coast of Taiwan during the next 72-168 h forecast period. Then, depending on the strength of 500mb ridge, the forecast track of TD 28W is diverged between the ECMWF and GFS. The GFS favors a more northwestward track, while the ECMWF curves to the northeast after the forecast hour of 168. In addition to the development of TD 28W, the GFS continues to show an elongated vorticity band detaching from TD 28W after 96h forecast period, forming another potential tropical storm near 16N, 142E, and tracking towards to the north. This potential TC formation might also bring some impact to the area of operation, and we will closely monitor it as well.

Convection: The Himawari-8 IR satellite imagery currently shows scattered convective cells moving towards to the area of operation, embedded within the NE flow associated with TD 28W's circulation. There is a chance for these convective scales to grow upscale as they move over the area of operation. Scattered precipitation is expected to increase throughout the 48-h forecast period as TD 28W situates itself to the north of the area of operation. During the 48-96 h forecast, 28W will continue to intensify as it slowly tracks northwest, providing an increased chance for organized convection as trailing rainbands move over the area of operation.

MJO/BSISO: The MJO forecast provided by the ECMWF has been updated to show the two week period beginning on 20 September, which shows a similar pattern as yesterday's forecast with a phase 8 MJO signal emerging and then rotating to phase 1. The BOM has no updates, and shows an extended forecast period throughout 28 October and continues to propagate the MJO signal from phase 1 to phases 2 and 3. The BSISO forecast from both the BOM and ECMWF have not been updated. Both models show a BSISO1 phases 3 and 4 signal over the next 5 days, and then remaining in phase 2 or 3 in the 5-9 day outlook. ECMWF favors a relatively strong amplitude BSISO1 signal in phase 2, while BOM favors a weak-amplitude BSISO1 signal in phase 2 or 3 for the 5-9 day forecast.

SSTs: FNMOC shows sea surface temperatures between 30-31 C, although no forecast products are available at this time.

Currents and Wave Heights: FNMOC WW3 shows significant wave heights near the area of operation remaining 4-5 ft throughout the 24-h forecast period, although significant wave heights up to 5-7 ft are possible depending on the precise location of TD 28W during the period. COAMPS favors significant wave heights of 5-7 ft throughout the 24-h forecast period. Significant wave heights are then forecasted to rapidly increase to anywhere between 7-12 ft throughout the 24-48 hour forecast period as TD 28W tracks to the north of the area operation. FNMOC WW3 shows significant wave heights near the area of operation remaining between 9-12 ft throughout the 48-96 h forecast period, and potentially increasing to 12-15 ft in the 96-120 h forecast period as TD 28W rapidly intensifies during its slow northwestward course.

FORECASTERS: CHA, MARTINEZ

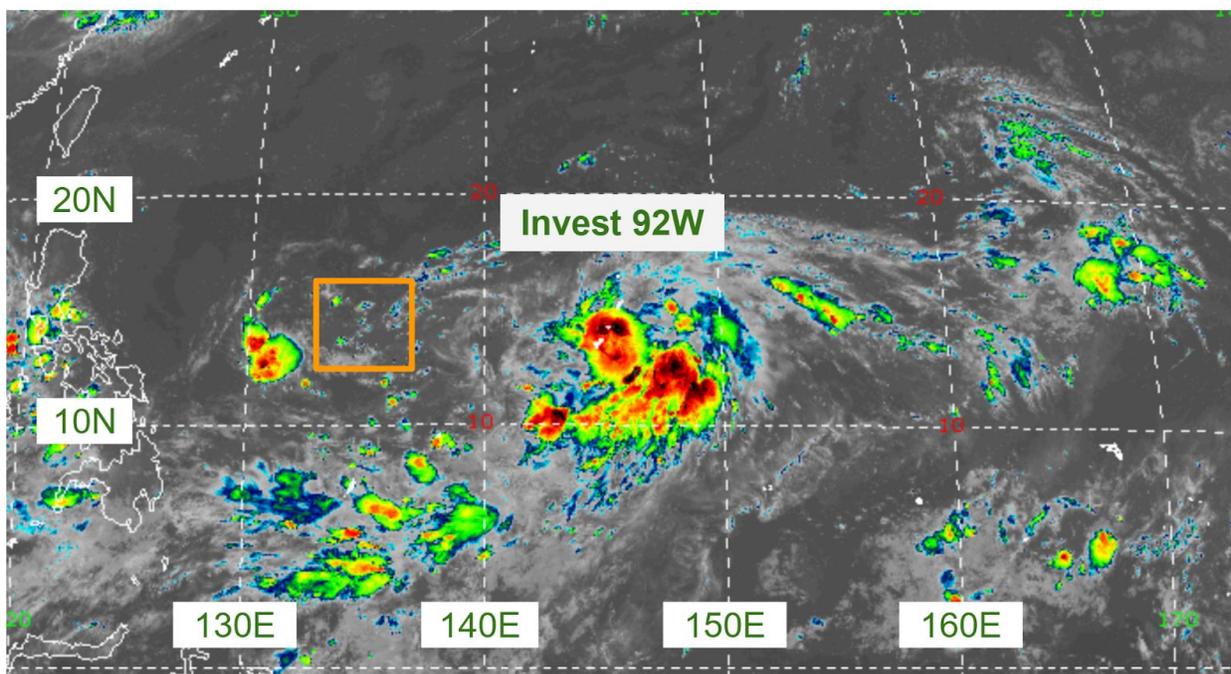


Fig. 1. Himawari IR imagery (10.4 microns) valid at 1800 UTC 20 September 2018. [1]

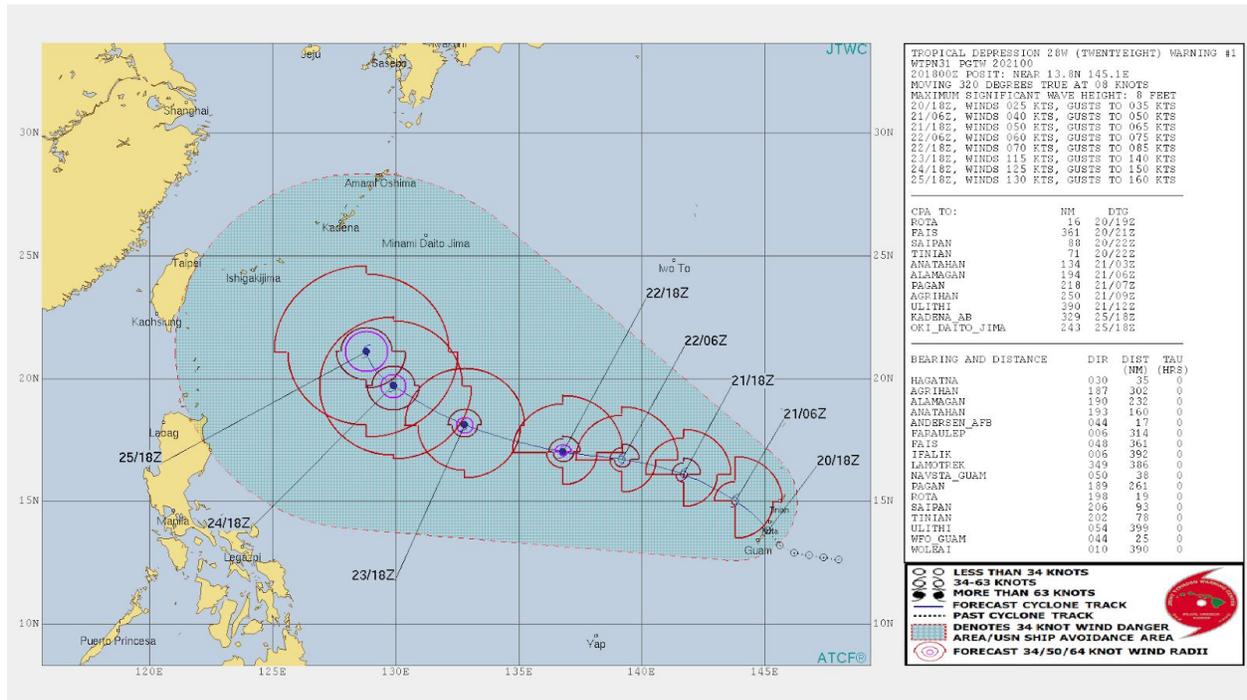


Fig. 2. JTWC forecasted track and intensity of recently declared TD 28W, issued at 2100 UTC 20 September 2018 and valid through 1800 UTC 25 September 2018. [2]

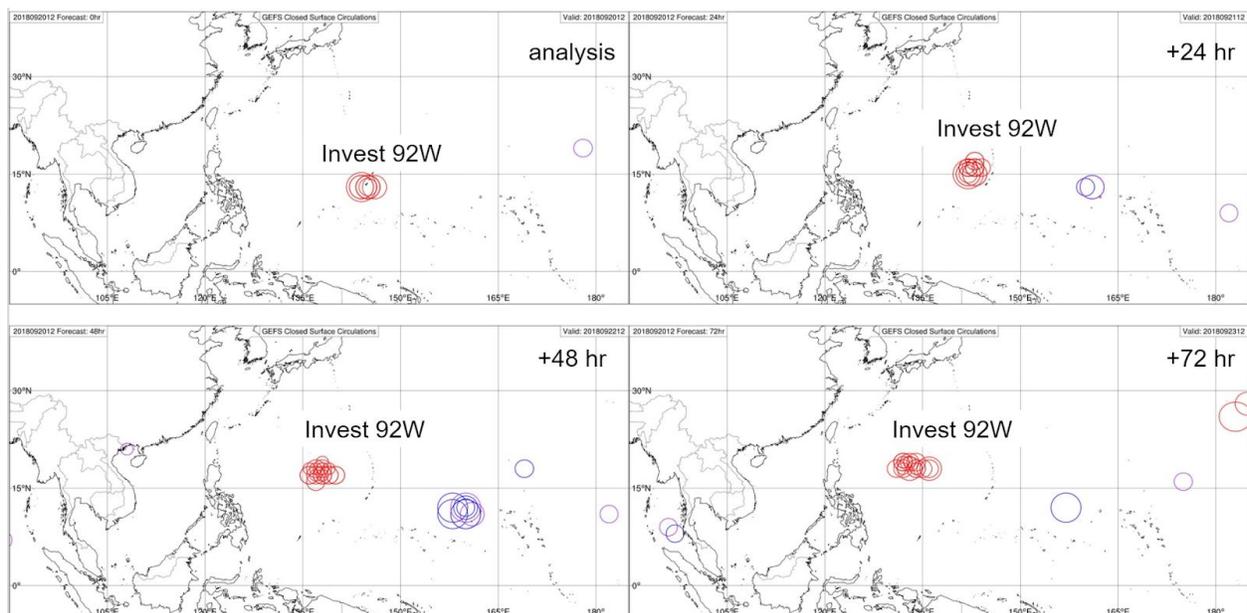


Fig. 3. GEFS ensemble 10-m circulation forecast initiated at 1200 UTC 20 September 2018 and valid from the analysis time throughout 1200 UTC 23 September. Circulation centers are colored with respect to maximum wind speed. Purple: ≤ 20 knots, Blue: 20-34 knots, Red: > 34 knots. [3]

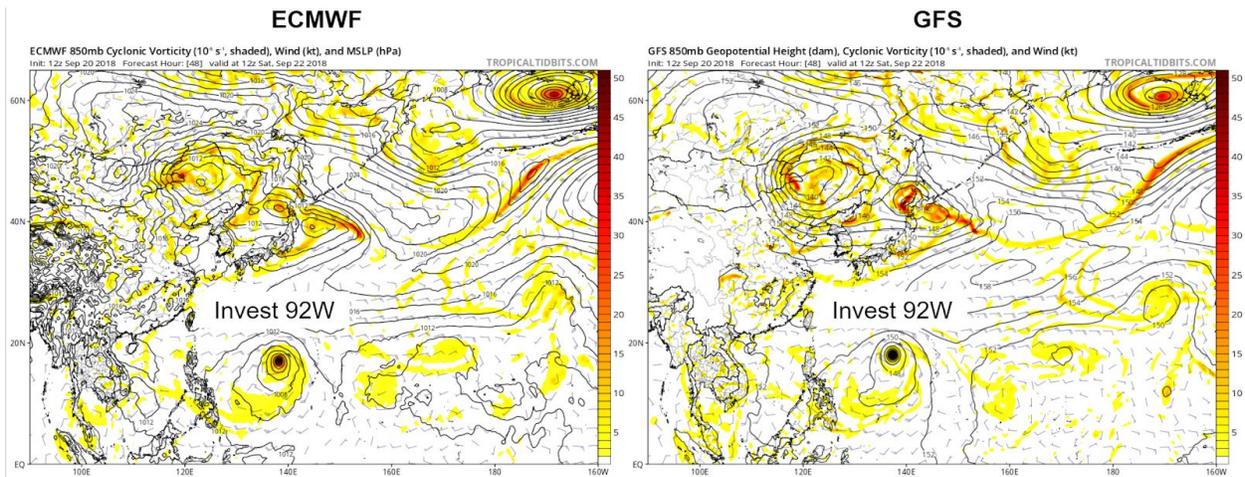


Fig 4. (left) ECMWF and (right) GFS 850-hPa vorticity (shaded), wind barbs, (left) MSLP (contoured), and (right) 850-hPa heights (contoured) initiated at 1200 UTC 20 September 2018 and valid at 1200 UTC 22 September 2018. [4]

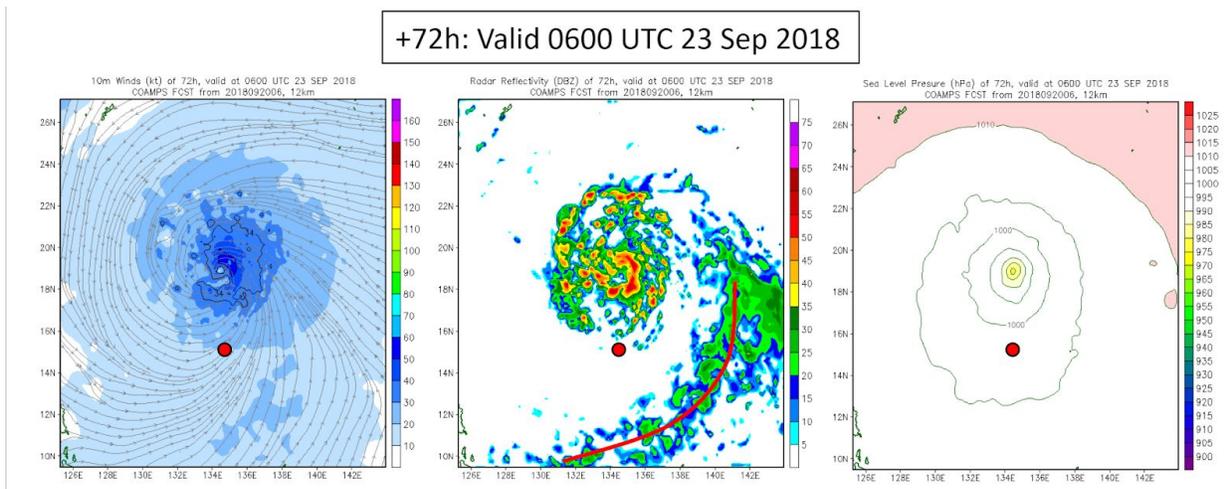


Fig. 5. COAMPS-TC 72-h forecast for TD 28W initialized at 0600 UTC 20 September and valid at 0600 UTC 23 September. The mesoscale domain shows (left) 10-m wind speed (knots; shaded) and streamlines, (middle) radar reflectivity (dBZ), and (right) sea level pressure (hPa; shaded and contoured).

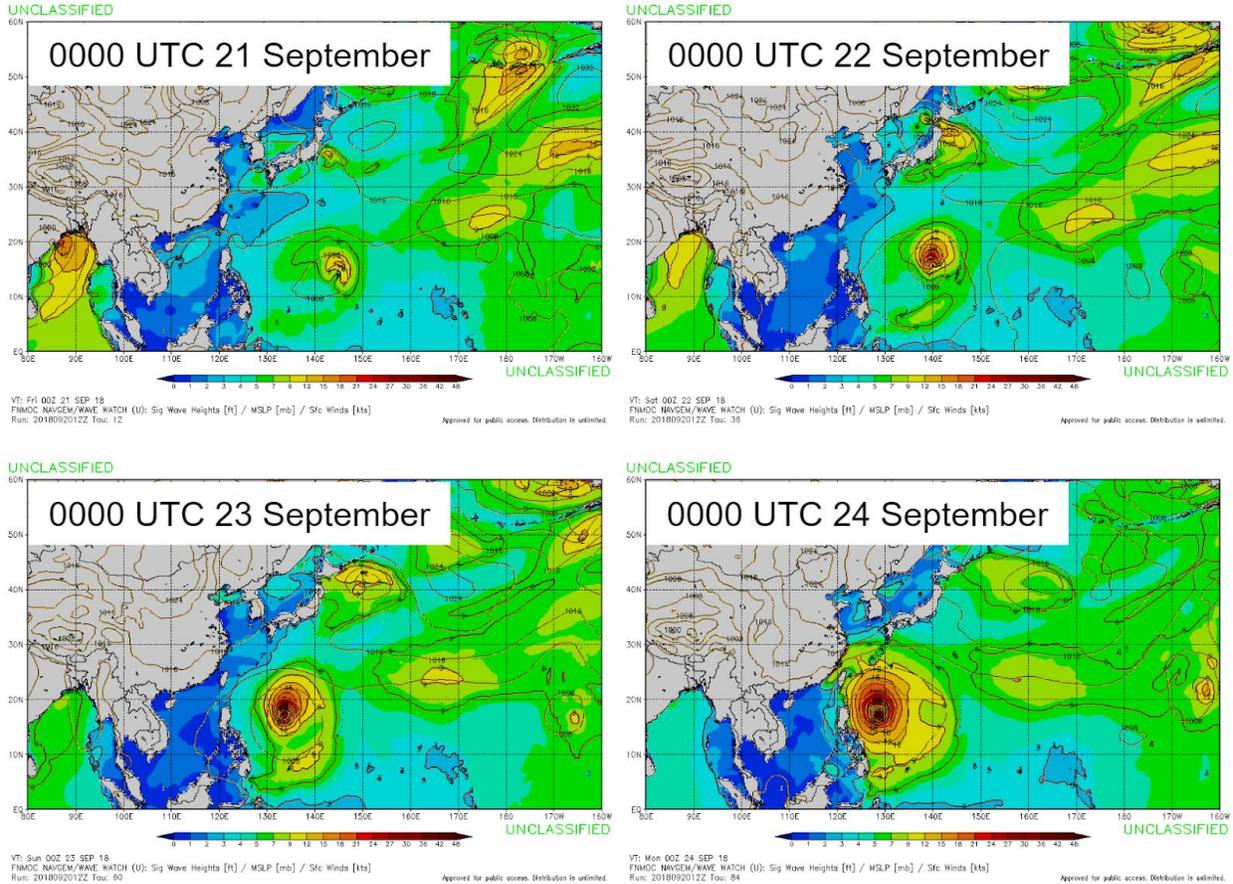


Fig. 6. FNMOC WW3 significant wave height forecast initiated at 1200 UTC 20 September and valid at (top left) 0000 UTC 20 September, (top right) 0000 UTC 21 September, (bottom left) 0000 UTC 22 September, and (bottom right) 0000 UTC 23 September. [6]