

Summary

The Himawari-8 IR satellite imagery currently shows suppressed convective activity over the area of operation, while some scattered convective cells are moving towards the region. An increased chance for isolated and scattered convection is expected over the area of operation during the 24-48 forecast period as Invest 92W slowly moves towards the area of operation. Significant wave heights are expected to increase to 5-7 ft over the next 48 hr.

Invest 92W is now located near 12N, 147E and is expected to continue tracking towards the W-NW, passing over (or near) Guam during the 24-72 h forecast period. Both the GFS and ECMWF show the center of Invest 92W shifting northward in the 48-72 h forecast period as deep convection continues to concentrate in its NE quadrant (see below for a detailed discussion). This would place the area of operation on the southern side of Invest 92W during its (forecasted) intensification throughout the 96-h forecast period, at which point it is forecasted to make a sharp turn to the NW and continue intensifying. JTWC continues to show a medium chance for development, and the global models along with COAMPS-TC are in general agreement that genesis (tropical depression) will occur some time in the next 48 hours. Invest 92W is currently forecasted to be a tropical storm located to the N of the area of operation in the 96-120 h forecast period. There is still uncertainty in the timing of both its initial shift to the north and its later recurvature to the NW, as well as its intensity. We will continue to closely monitor the development of Invest 92W as it progresses towards 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 as Invest 92W slowly tracks toward the region. Winds will remain primarily from the E-NE between 5-15 knots as the NE quadrant of Invest 92W moves over the area of operation. COAMPS favors more northerly winds between 10-15 knots throughout the 24-h forecast period. FNMOC WW3 forecasts significant wave heights near the area of operation between 4-5 ft during the 24-h forecast.

Day Two (48 hr) Outlook: Scattered precipitation is expected throughout the 24-48 h forecast period with a small chance for organized convection as Invest 92W continues to slowly develop and track W-NW towards the area of operation. Winds will remain from the E-NE between 5-15 knots throughout the 24-48 h forecast period as the northern portion of Invest 92W moves over the area of operation. FNMOC WW3 forecasts significant wave heights near the area of operation increasing to 5-7 ft during the 24-48 h forecast period.

Extended Outlook: Invest 92W will continue to slowly track over the area of operation throughout the 48-96 h forecast period. The 1200 UTC 19 September GFS deterministic run and GEFS show Invest 92W potentially reaching tropical storm strength in the beginning of the 48-72 h forecast period with its center located to the NE of the area of operation. Both the GFS

and ECMWF show the continued development of Invest 92W concentrating in its NE quadrant and thus the strongest winds and deepest convection are expected to remain away from the area of operation. GFS and ECMWF continue to slowly intensify Invest 92W throughout the 72-120 h forecast period and have it making a sharp turn to the NW beginning around the 96-h mark. Given that the center of Invest 92W will remain to the N of the area of operation, winds are currently not expected to exceed 15-25 knots throughout the 120-h forecast period. However, this forecast can change with a minor displacement of Invest 92W to the south during its development. FNMOOC WW3 forecast significant wave height near the area of operation remaining between 5-7 ft throughout the 48-72 h forecast, and increasing to 9-12 ft in the 72-144 h forecast period as Invest 92W continues to intensify.

Discussion

TCs: Invest 92W is now located near 11.9 N, 147.4E, which is E-SE of Guam. An ASCAT pass around 1200 UTC 19 September depicts a broad, closed low-level circulation with average winds between 15-20 knots. The Himawari-8 IR imagery shows deep convective bursts persisting over the low-level circulation, likely amplifying the low-level vorticity. Furthermore, a low-shear, high-SST environment provides favorable conditions for the continued intensification of Invest 92W. Both the GFS and ECMWF continue to track Invest 92W towards the NW, passing by Guam during the next 24-72 h. The northeastern outflow channel of Invest 92W is currently accelerating towards a TUTT cell located to its northeast, providing enhanced upper level divergence and a sustained forcing mechanism in the NE quadrant of 92W. The global models appear to be picking up on this large-scale forcing and have the center of Invest 92W making a sharp shift to the north (near 16 N) in the 48-72 h forecast period, likely associated with a relocation of the vorticity centroid as deep convection continues to concentrate in its NE quadrant. The development of deep convection and higher surface winds will therefore occur primarily in the NE quadrant of Invest 92W throughout the 96-h forecast period. JTWC maintains a medium chance for development within the next 24 hours (i.e., tropical cyclone development is likely, but beyond the 24-h forecast period). Several ensemble members from the GEFS spin up Invest 92W into a tropical storm at the end of the 48-h forecast period, near 15N, 137E, and confidence increases for a continued spin-up of 92W over the next 72 h, placing it near 16N, 136E as a potential tropical storm or typhoon. Beyond the 96-h forecast period, the ECMWF favors a northward track for Invest 92W, while the GFS shows a northwestward track, moving towards the east coast of Taiwan before recurving to the N-NE. The GFS also shows an elongated vorticity band detaching from Invest 92W between 96-120 hours and forming another disturbance near or over Rota which then tracks to the north. We will continue to closely monitor the development of 92W.

Convection: The Himawari-8 IR satellite imagery currently shows scattered convective cells moving towards to the area of operation. Increasing scattered convection associated with Invest 92W's slow progression towards the area of operation is expected throughout the 48-96 h forecast period. As Invest 92W passes near the area of operation and tracks either N or NW,

there will be a decreased chance for organized convection over the area of operation throughout the 96-144 h forecast period.

MJO/BSISO: The MJO forecast provided by the ECMWF has been updated to show the two week period beginning on 19 September, and the BOM also updated, showing the two week period beginning on 16 September. The two models show a phase 8 MJO signal emerging and then rotating to phase 1. BOM 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 for the BOM remains the same as yesterday's forecast, while the BSISO forecast for the ECMWF has updated showing the forecast period between 17 September through 06 October. 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: Sea surface temperatures products are not available for today's forecast.

Currents and Wave Heights: Significant wave heights are expected to increase from 4-5 ft to 5-7 ft over the next 48 h as Invest 92W tracks towards the area of operation. As Invest 92W becomes more organized N-NE of the area of operation, significant wave heights are expected to increase to 9-12 ft during the 72-144 h forecast period.

FORECASTERS: MARTINEZ, CHA

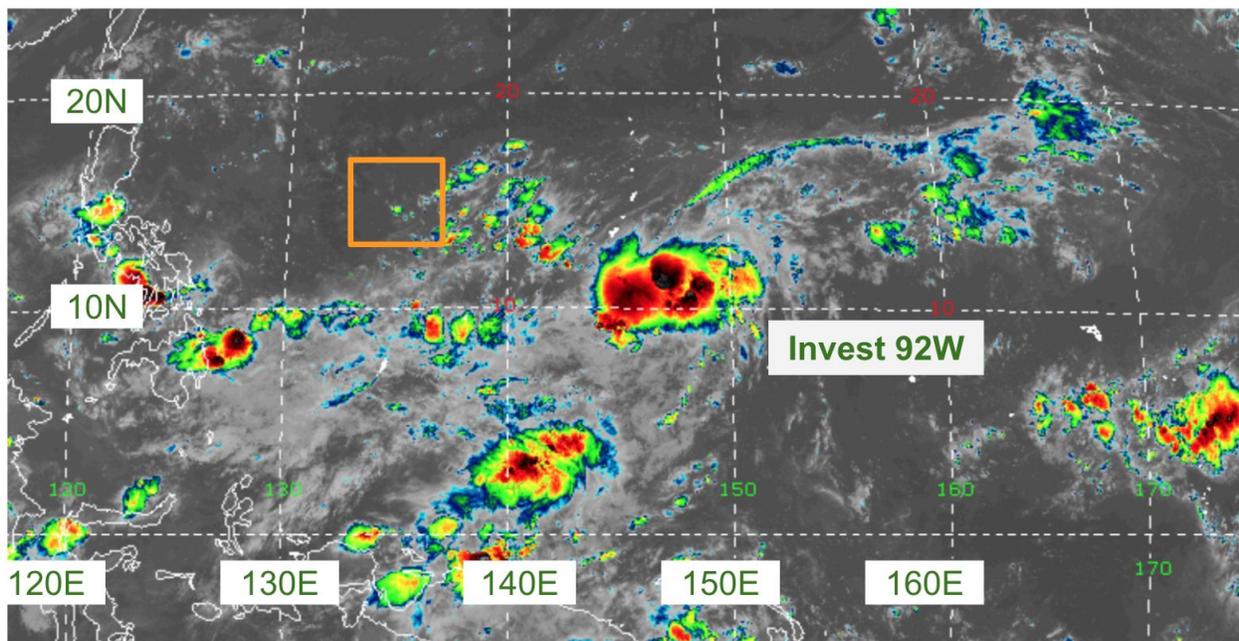


Fig. 1. Himawari IR imagery (10.4 microns) valid at 1800 UTC 19 September 2018. [1]

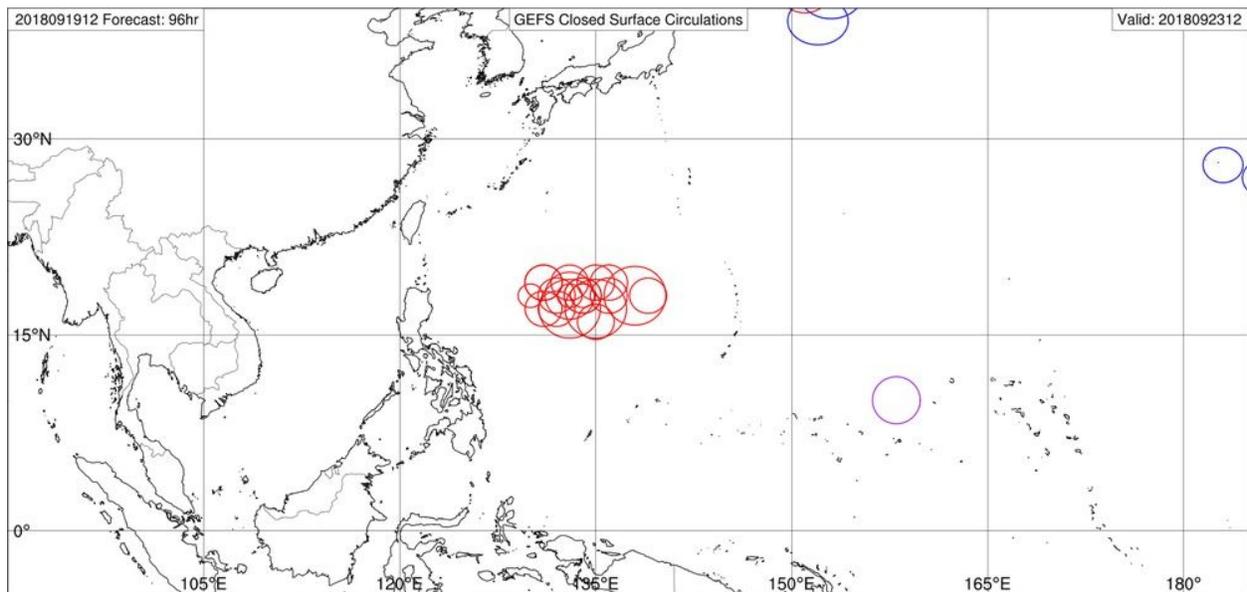


Fig. 2. GEFS ensemble 10-m circulation forecast initiated at 1200 UTC 19 September 2018 and valid at 1200 UTC 23 September. Circulation centers are colored with respect to maximum wind speed. Purple: ≤ 20 knots, Blue: 20-34 knots, Red: > 34 knots. [2]

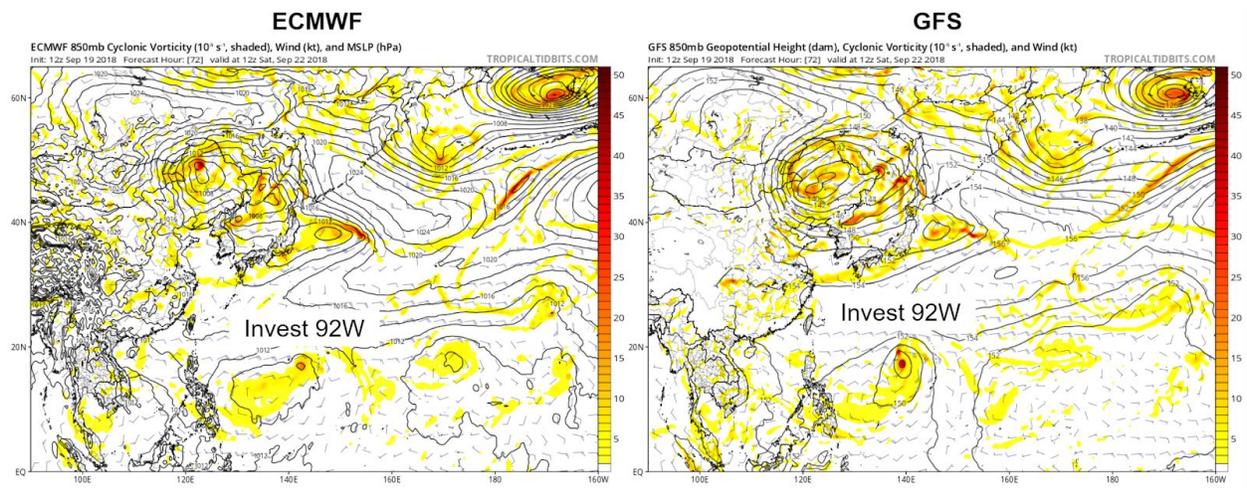


Fig 3. (left) ECMWF and (right) GFS 850-hPa vorticity (shaded), wind barbs, (left) MSLP (contoured), and (right) 850-hPa heights (contoured) initiated at 1200 UTC 19 September 2018 and valid at 1200 UTC 22 September 2018. [3]

+96h: Valid 0000 UTC 23 Sep 2018

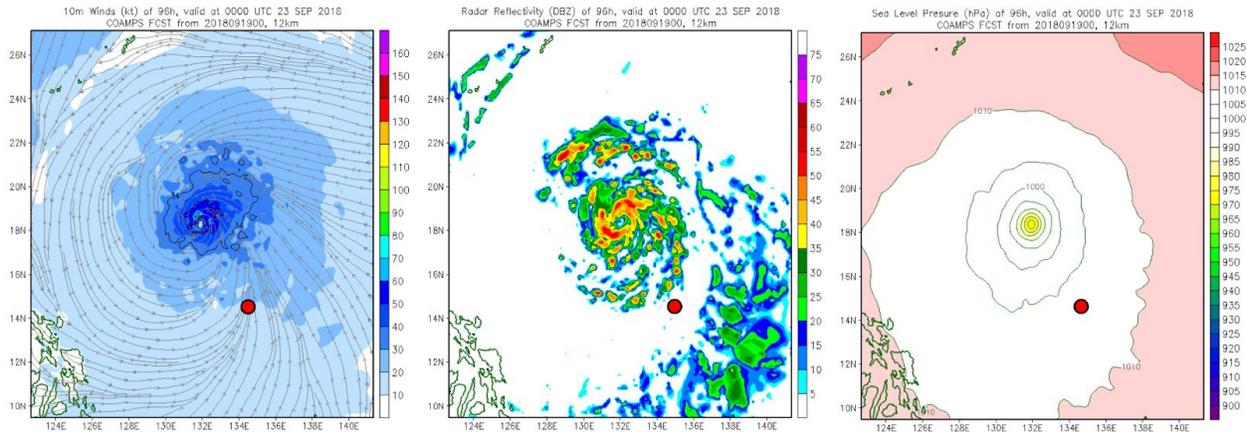


Fig. 4. COAMPS-TC 96-h forecast for Invest 92W initialized at 0000 UTC 19 September and valid at 0000 UTC 23 September. The mesoscale domain shows (left) 10-m wind speed (knots; shaded) and streamlines, (middle) radar reflectivity (dBZ), and (right) sea level pressure (hPa; shaded and contoured). The COAMPS-TC forecast was initialized using the 0000 UTC GFS analysis.

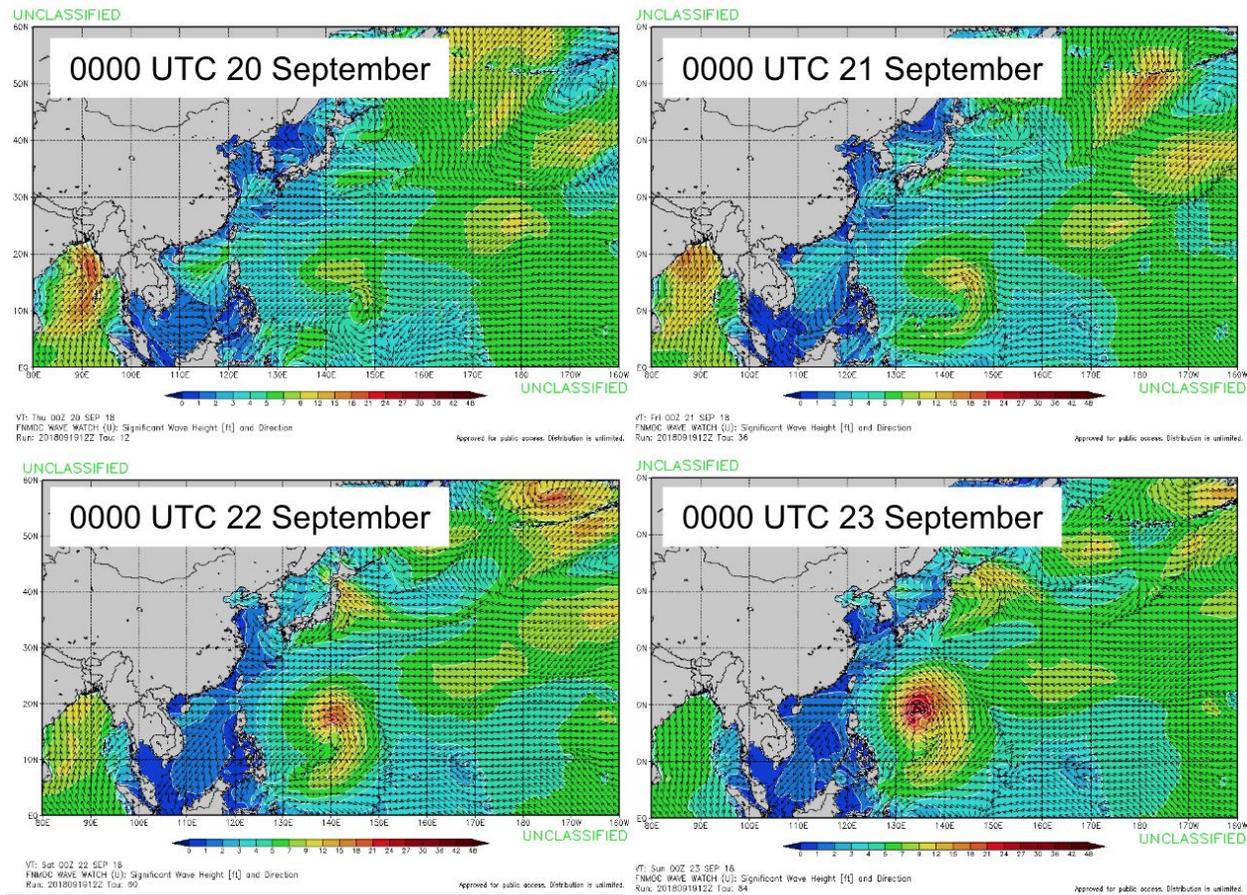


Fig. 5. FNMOC WW3 significant wave height forecast initiated at 1200 UTC 19 September and valid at (top left) 0000 UTC 20 September, (top right) 0000 UTC 21 September, (bottom left) 0000 UTC 22 September, and (bottom right) 0000 UTC 23 September. [5]