

## 2000 UTC 02 October 2018 Forecast Discussion

**Summary:** Impacts from STY Kong-Rey will continue to decrease for the next 24-h, and be mostly gone by 48-h at the ship location. Kong-Rey likely peaked in intensity at 140 kts, but the supertyphoon is currently undergoing an eyewall replacement cycle, so intensity fluctuations due to internal dynamics are possible. Kong-Rey will continue to track northwest away from the area of operations, but some convection from trailing rainbands is possible in the next 24-h. Winds and waves will continue to decrease at the ship location over the next 24-48 h, and gradually decay to the north as well. No typhoon activity is expected in the next several days after Kong-Rey. BSISO and MJO products suggest a possible propagation of an active convective phase into the region the 1-2 week timeframe, but this is a low confidence forecast.

**Day One (24 hr) Outlook:** Chances for convectivity activity in association with trailing rainbands from TY Kong-Rey over the area of operation are still high throughout the 24-h forecast period. Winds over the area of operation are expected to decrease to 15-25 knots and will transition to the S for the next 24-h. Wave products forecast significant wave heights decreasing to 7-9 ft for the next 24-h.

**Day Two (48 hr) Outlook:** Convective activity is expected to decrease as STY Kong-Rey tracks away from the ship location. Winds over the area of operation will rotate counterclockwise to the N and remain 5-15 kts throughout 48-h forecast period. Wave products forecasts significant wave heights decreasing to 5-7 ft throughout the 24-48 h forecast period.

**Extended Outlook:** As Kong-Rey continues a NW track away from the ship, chances for convection in association with Kong-Rey decrease and winds are expected to be between 5-15 kts throughout 48-96 h forecast period. There is no TC activity expected throughout the next 48-96 h. Wave products forecasts shows significant wave heights persisting 5-7 ft over the ship's current location and decreasing from 7-9 ft to 5-7 ft over the first mooring location (near 16N, 134 E) throughout 48-96 h forecast period.

## Discussion

**TCs:** STY Kong-Rey (30W) has likely peaked in intensity, reaching 140 kts at 00 UTC 02 October, and is now near 18.9N, 131.2 E with an intensity of 135 kts at 12 UTC 2 October. The supertyphoon has held a steady NW track at 10 kts away from the ship. Kong-Rey is expected to continue its northwest track and gradually weaken over the next 24-h. The supertyphoon is currently undergoing an eyewall replacement cycle, so intensity fluctuations due to internal dynamics are possible. Convection and winds from the outer circulation will decrease over the next 24-48 h, with some lingering trailing rainbands expected. Significant wave heights will decrease over the next 48-h. After 48-h Kong-Rey will start to feel the effects of increased vertical wind shear and will begin to weaken further and turn to the northeast towards Korea and the main islands of Japan. The direct circulation of Kong-Rey is no longer a threat, and there are no other TC activity expected in the next few days.

**Convection:** The Himawari-8 IR satellite imagery has shown trailing rainbands from Kong-Rey impacting the area of operation. Convective activity in association with Kong-Rey will start to decrease after the next 24-h, and scattered precipitation is expected throughout the next 48-96 h forecast period.

**MJO/BSISO:** An updated BOM BSISO forecast shows some amplitude in phase 1, with some suggestions that northeastward propagation of the active phase could be possible in the coming weeks. Some ensemble members show amplitude in phase 5 -7 in the two week time frame near the end of the project. An updated MJO forecast on 2 Oct from ECMWF shows a more coherent eastward propagation from the current phase 1 in the same time frame. These new products suggest possible changes from the previous BOM MJO and ECMWF BSISO forecasts. Whether an active BSISO or MJO-type pattern can manifest in the area of operations in time before the end of the cruise remains to be seen.

**SSTs:** Sea surface temperatures are expected to be between 28-30 C throughout the 24-h forecast period. Some cooler water is to the north of the ship location due to the upwelling from Trami and Kong-Rey.

**Currents and Wave Heights:** Wave products forecast significant wave heights decreasing to 7-9 ft for the next 24-h, and persisting 5-7 ft throughout the 24-96 h forecast period. Significant wave heights over the first mooring location (16N, 134E) are expected to decrease from 7-9 ft to 5-7 ft throughout the 48-96 h forecast period. Currents will come from the NW throughout the 96-h forecast period.

FORECASTERS: BELL and CHA

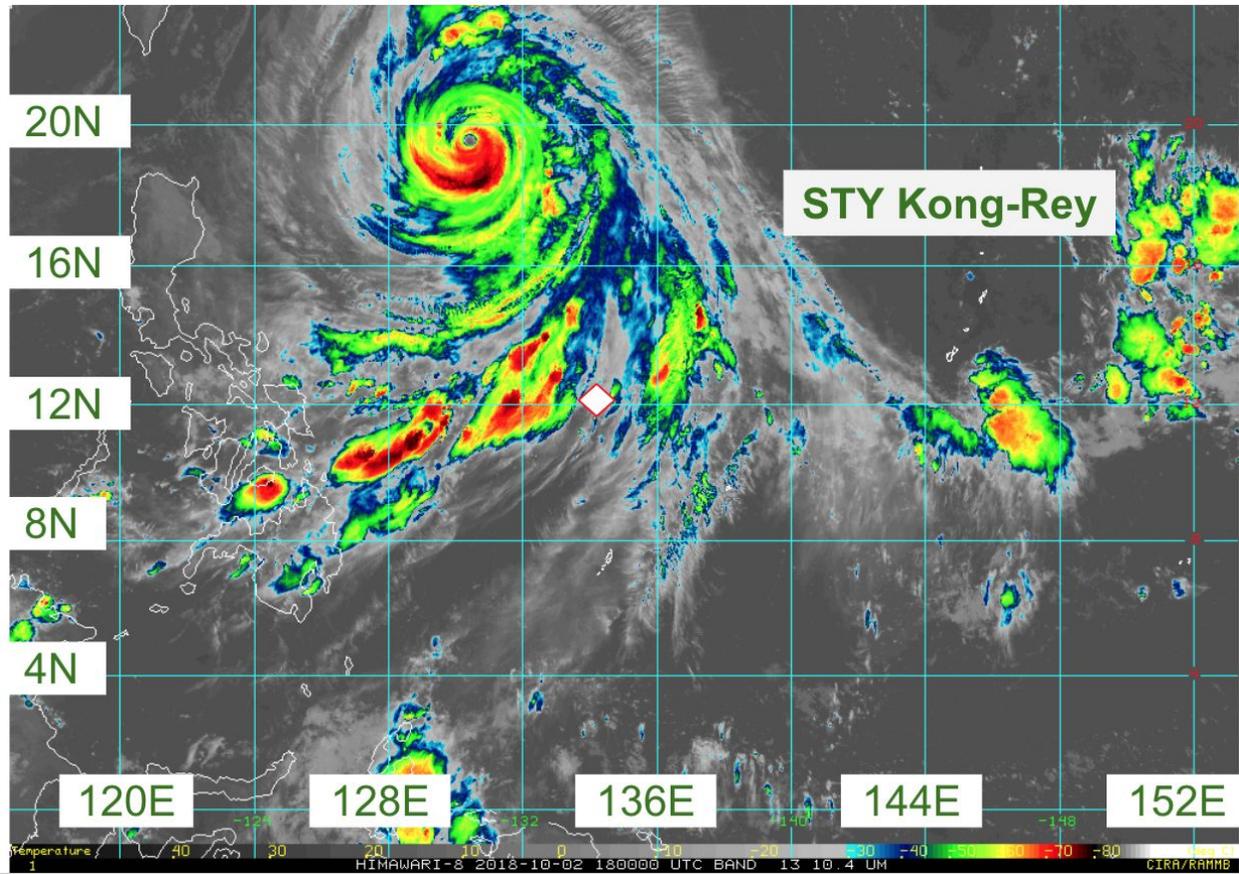


Fig. 1. Himawari IR imagery (10.4 microns) valid at 1800 UTC 02 October 2018. Ship location is marked with a diamond. [1]

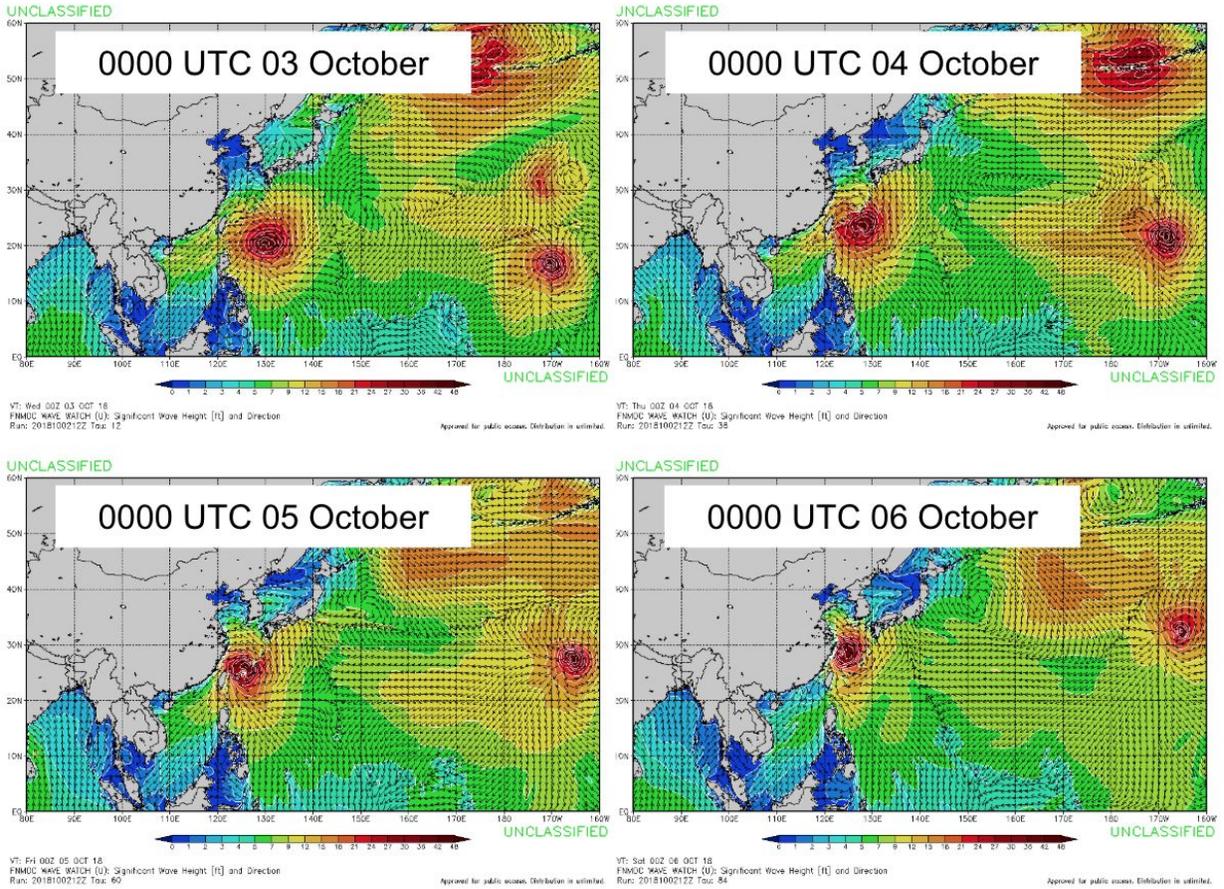


Fig. 2. FNMOC WW3 significant wave height forecast initiated at 1200 UTC 01 October and valid at (top left) 00 UTC 03 October (top right) 00 UTC 04 October (bottom left) 00 UTC 05 October and (bottom right) 00 UTC 06 October. [2]

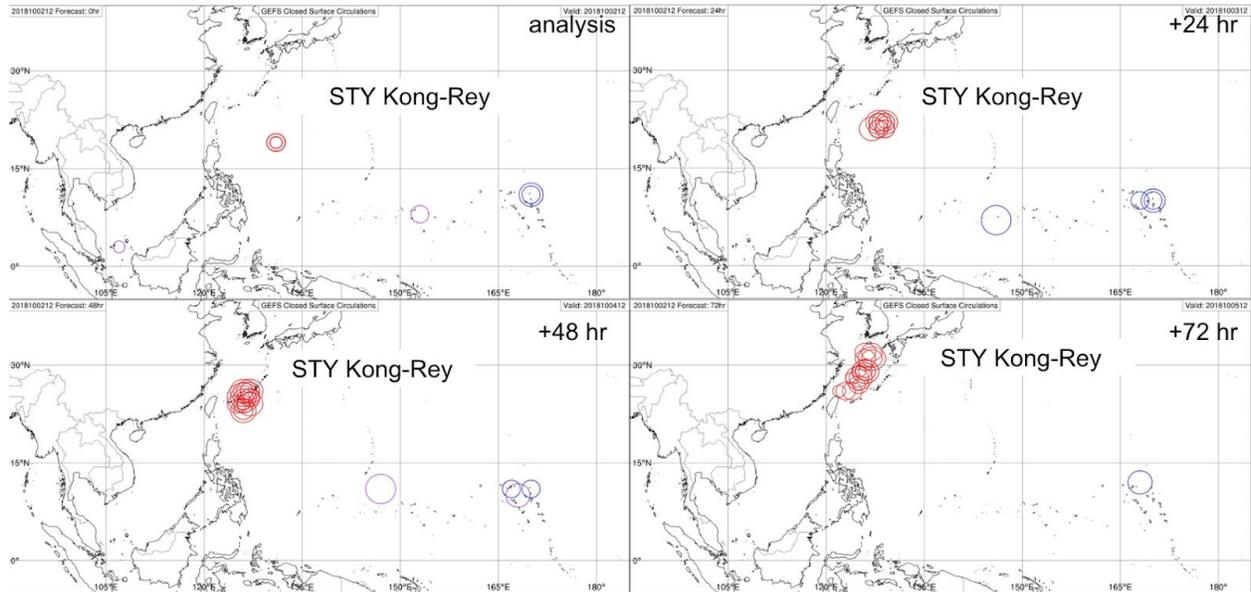


Fig. 3. GEFS ensemble 10-m circulation forecast initiated at 1200 UTC 02 October 2018 and valid from the analysis time through 1200 UTC 05 October. Circulation centers are colored with respect to maximum wind speed. Purple:  $\leq 20$  knots, Blue: 20-34 knots, Red:  $> 34$  knots. [3]