Jin, H., Y. Jin, and J. D. Doyle, 2019: An evaluation of COAMPS-TC real-time forecasts for Super Typhoon Nepartak (2016). *J. Meteor. Soc. Japan*, **97**, 191-203.
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Plain Language Summary: Typhoon Nepartak was a category 5 tropical cyclone of 2016 and had significant societal impacts. It went through a rapid intensification (RI), with an increase of maximum wind speed of 51 m s^{-1} and a decrease of minimum sea level pressure of 74 hPa in 42 h. The real-time forecast from the Coupled Ocean/Atmosphere Mesoscale Prediction System – Tropical Cyclone (COAMPS-TC), starting from 1200 UTC 3 July, predicted the track and intensity reasonably well for Super Typhoon Nepartak and captured the storm's RI process.

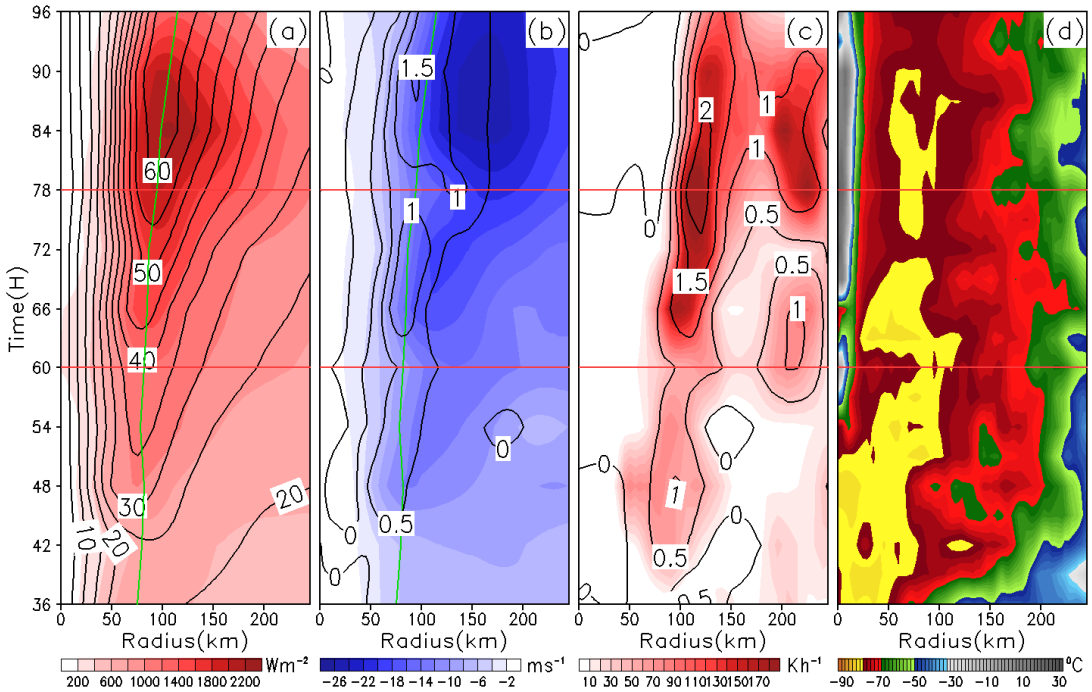

Figure 1. Radius-time plots of the azimuthally averaged (a) surface enthalpy heat flux (shaded, W m^{-2}), 10-m tangential wind (black contours, m s^{-1}) and the RMW (green line, defined as the radius of maximum 10-m winds from storm center to 250 km); (b) 10-m radial wind (shaded, m s^{-1}), 1-km height vertical velocity (black contours, m s^{-1}), and the RMW (green line); (c) 8-km height diabatic heating rate (shaded, K h^{-1}) and 8-km vertical velocity (black contours, m s^{-1}); (d) brightness temperature (shade, °C) from the 36- to 96-h simulations. The period between red lines are an example of positive interactions between primary, secondary circulations, enthalpy flux, and diabatic heating.

- Positive interactions among primary and secondary circulations, surface enthalpy fluxes, and mid-level convective heating are demonstrated to be critical for the RI.
- The storm structure variations seen from the simulated satellite infrared brightness temperature during RI bear considerable resemblance to the Himawari-8 satellite images, although the forecast inner core is too broad, presumably due to the relatively coarse resolution (5 km) used for the real-time forecasts at the time.