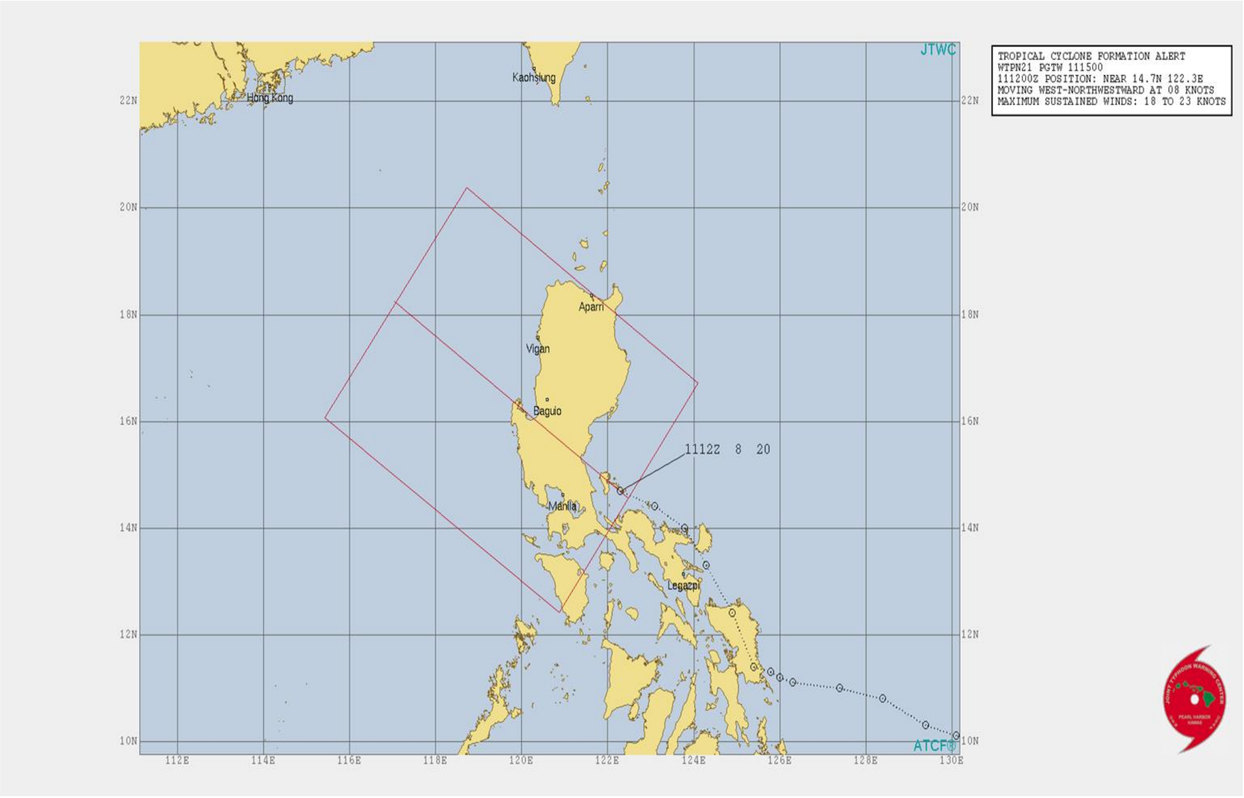
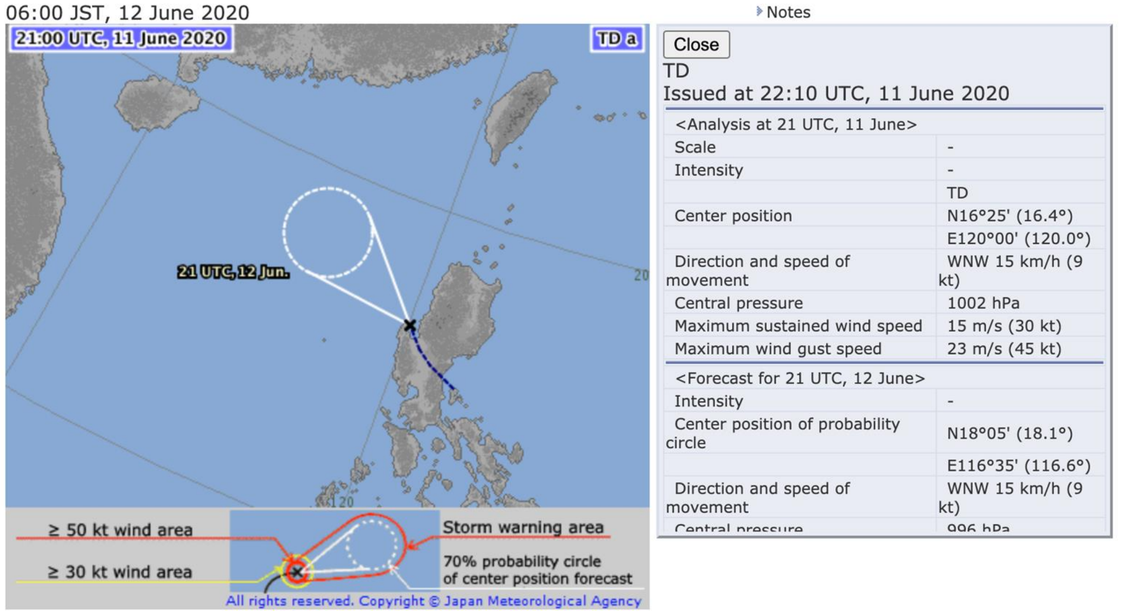
Weather Briefing (0612)

Forecaster: Frederick Iat-Hin Tam (NTU)

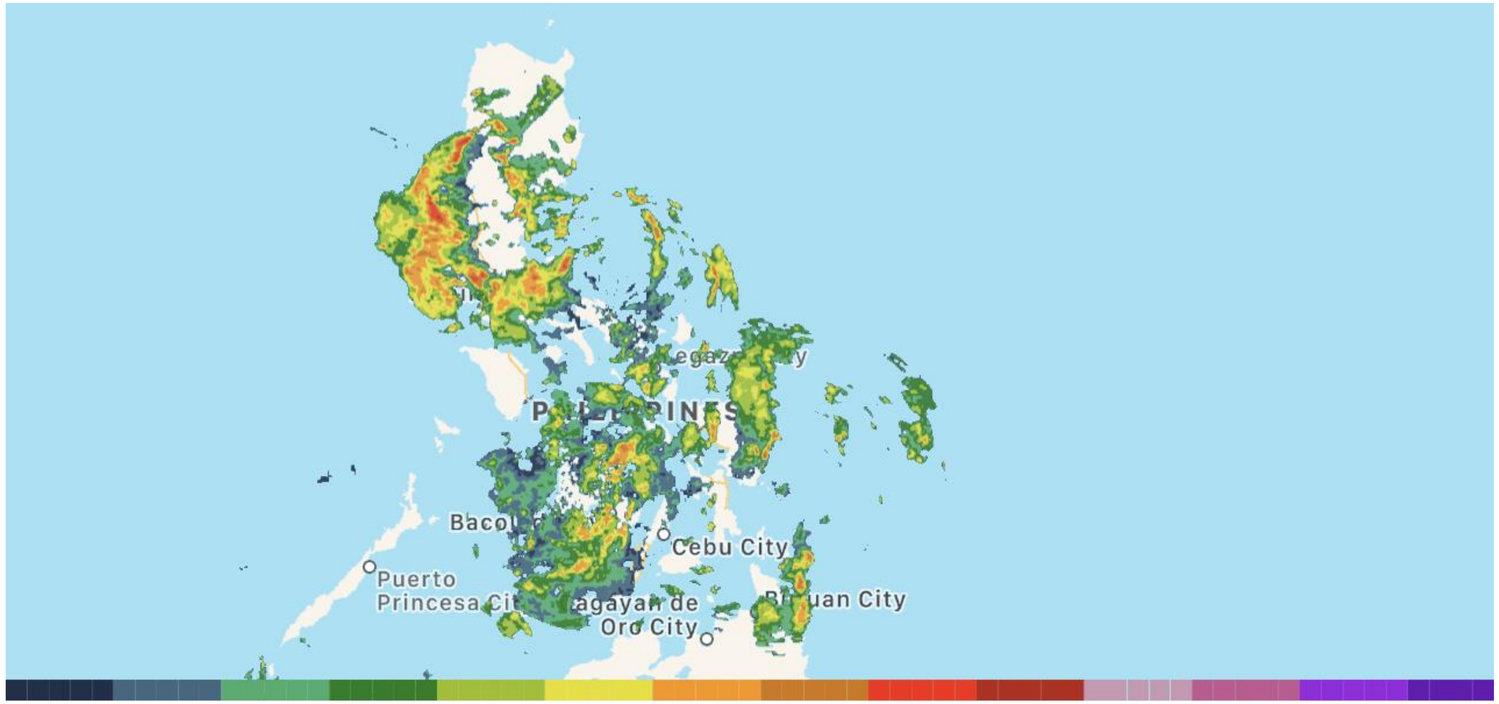
Tropical Disturbance (98W) update - cyclongenesis well under way

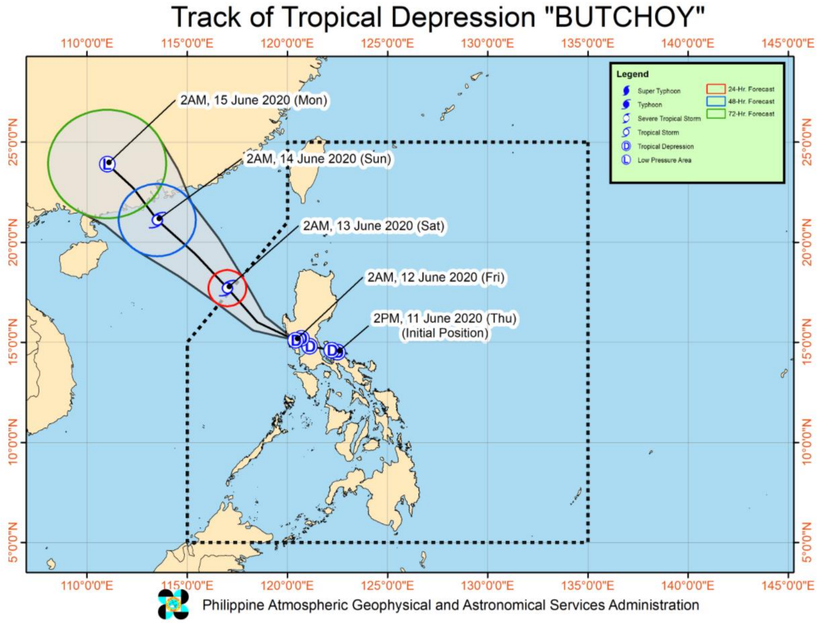




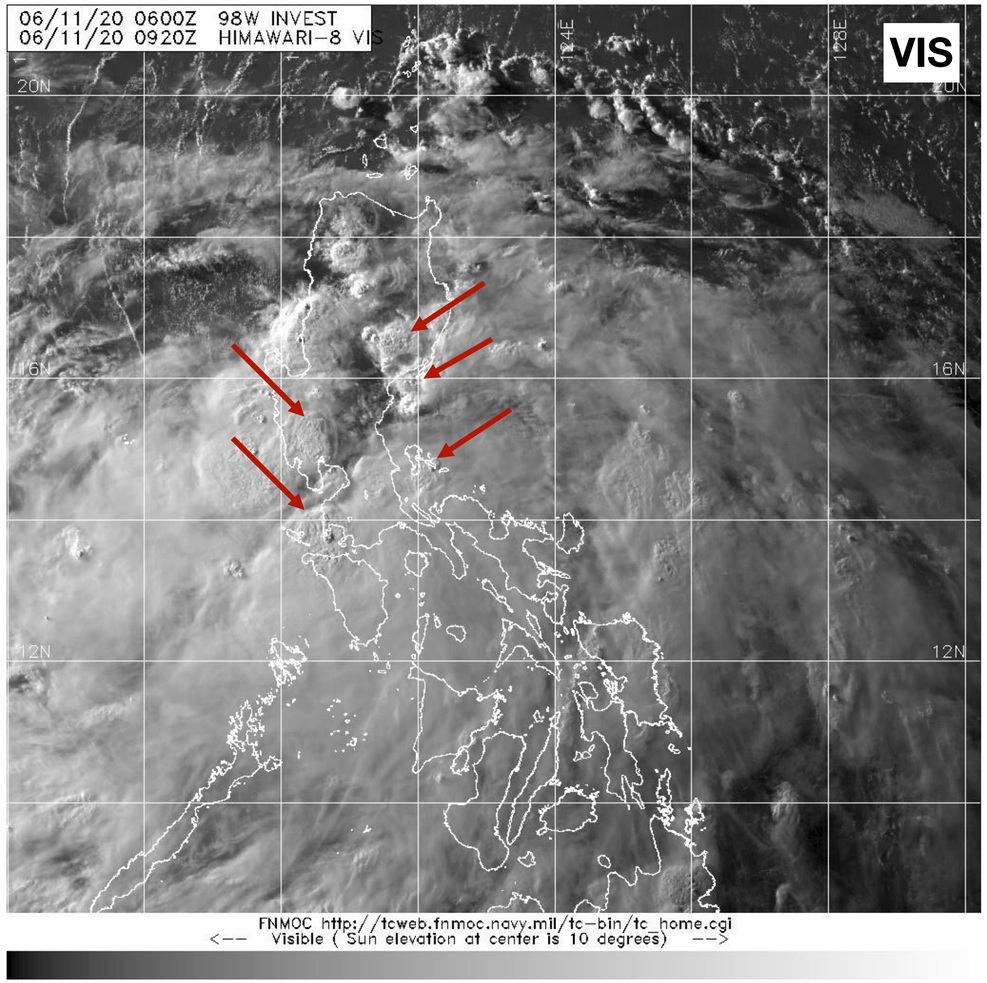
<Analysis at 21 UTC, 11 June>	
Scale	-
Intensity	-
	TD
Center position	N16°25' (16.4°)
	E120°00' (120.0°)
Direction and speed of movement	WNW 15 km/h (9 kt)
Central pressure	1002 hPa
Maximum sustained wind speed	15 m/s (30 kt)
Maximum wind gust speed	23 m/s (45 kt)
<Forecast for 21 UTC, 12 June>	
Intensity	-
Center position of probability circle	N18°05' (18.1°)
	E116°35' (116.6°)
Direction and speed of movement	WNW 15 km/h (9 kt)
Central pressure	996 hPa

Tropical Disturbance (98W) update - cyclongenesis well under way

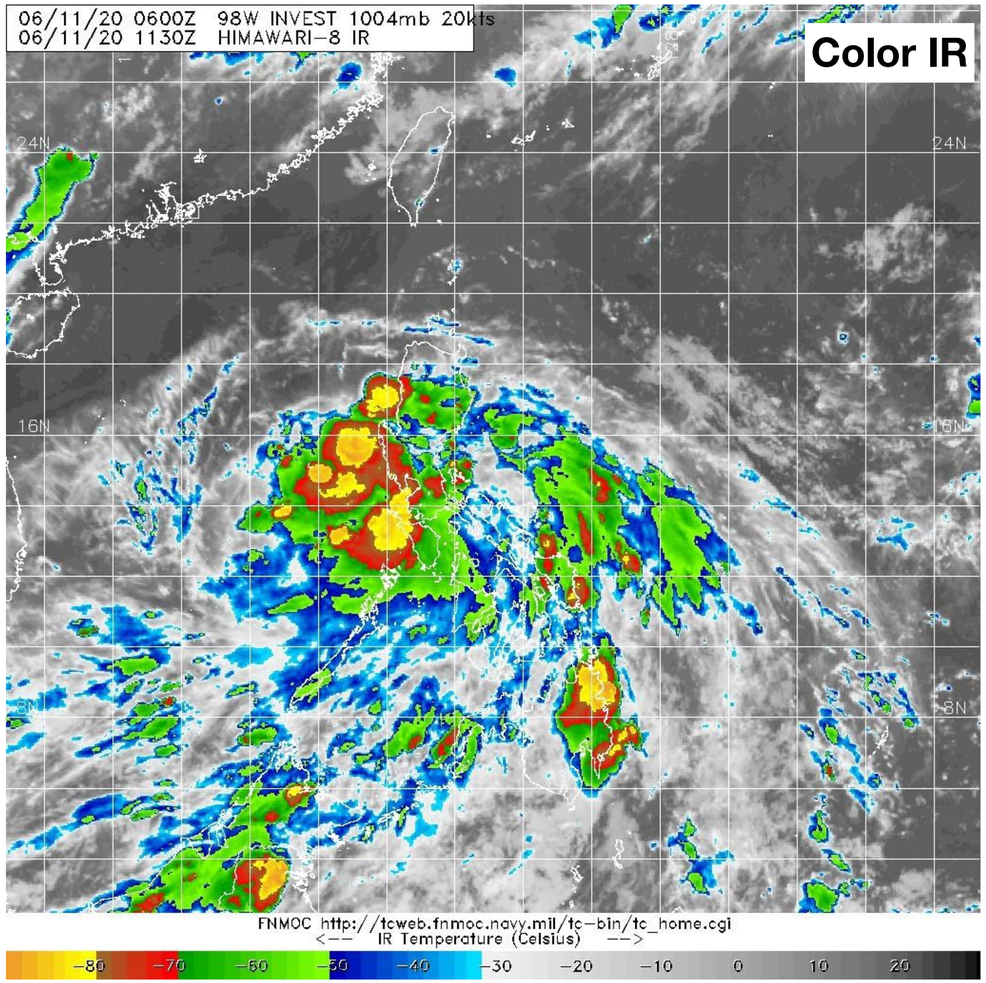




Tropical Disturbance (98W) update - cyclongenesis well under way

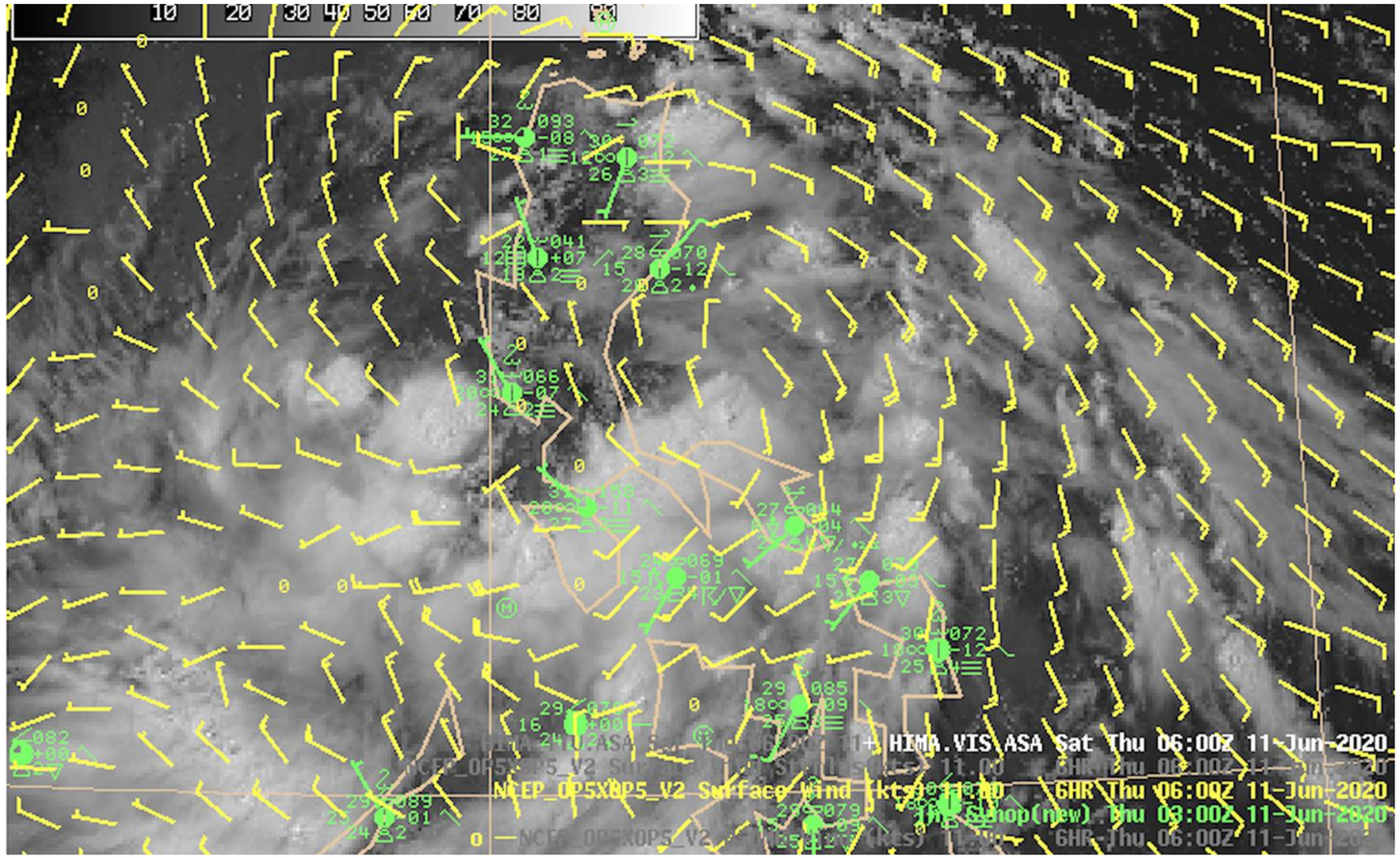


11 June 1130Z



- Multiple hot towers near the cyclonic centre

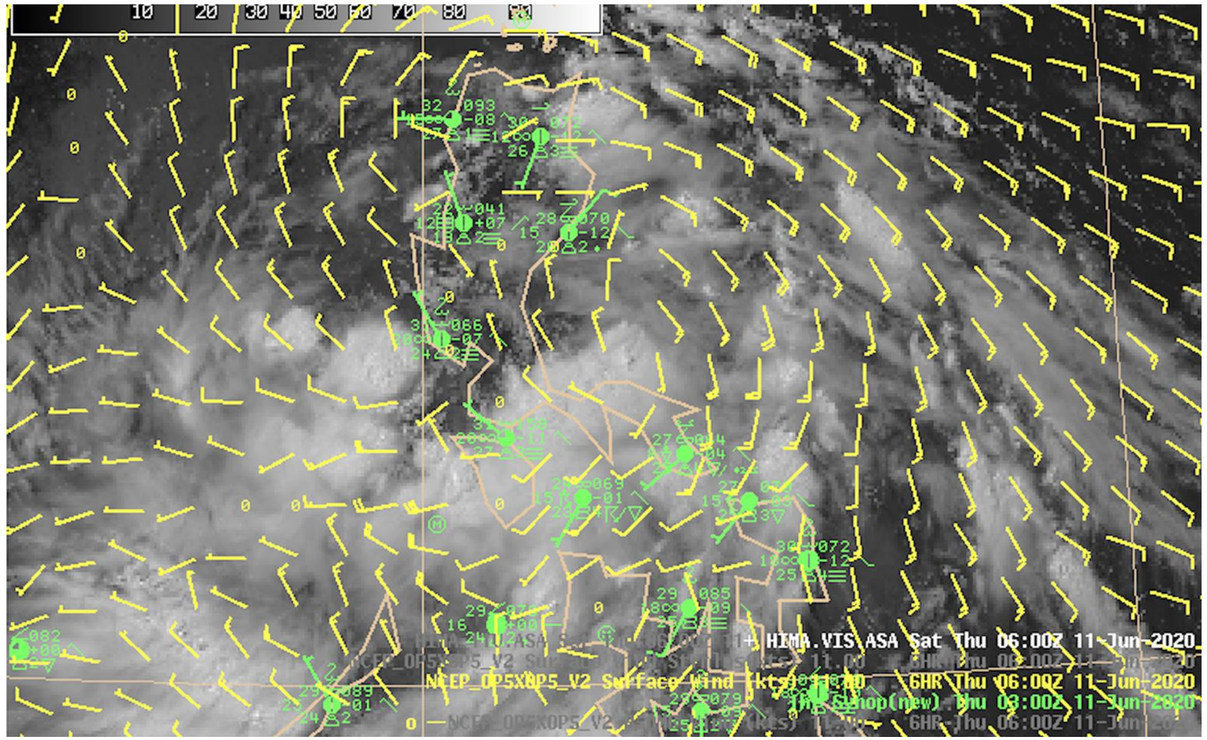
Consolidating low-level circulation



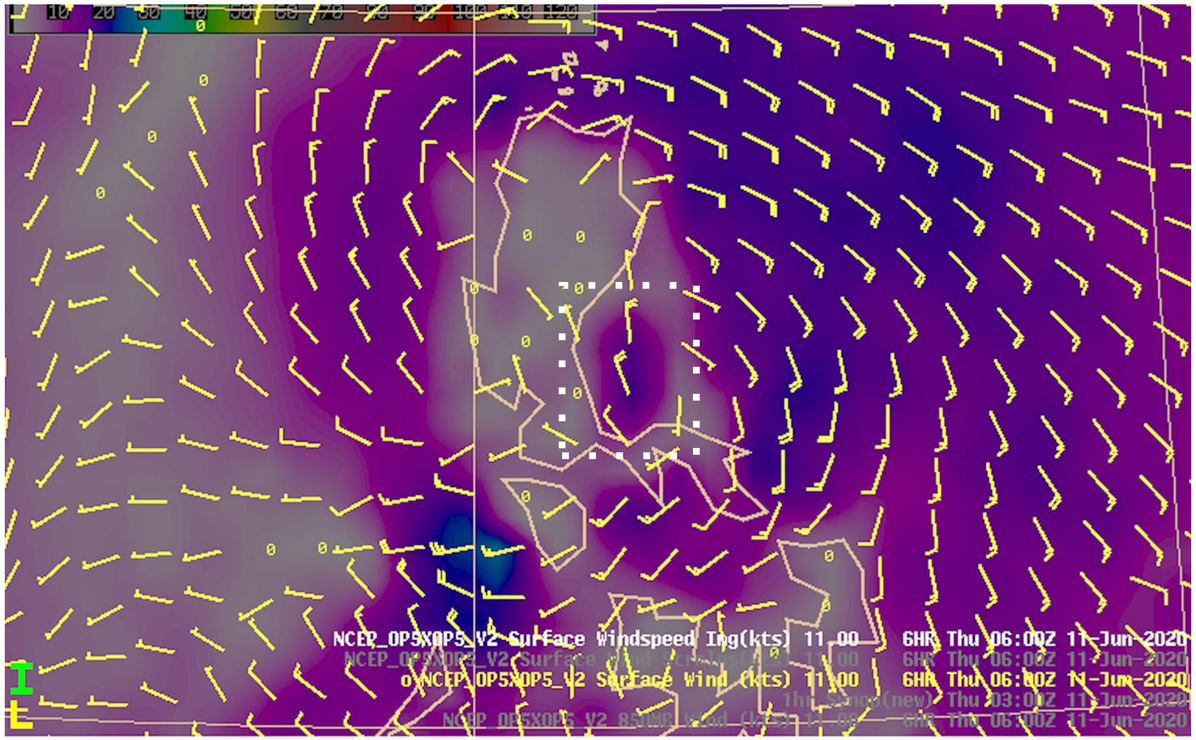
Shading: **Himarawi-8 IR channel imagery**
Barbs: **NCEP surface wind analysis field, 11 June 06Z**

- Low-level circulation much less elongated less yesterday, deep convection can now almost entirely cover the LLCC

Possible low-topped coastal jet?

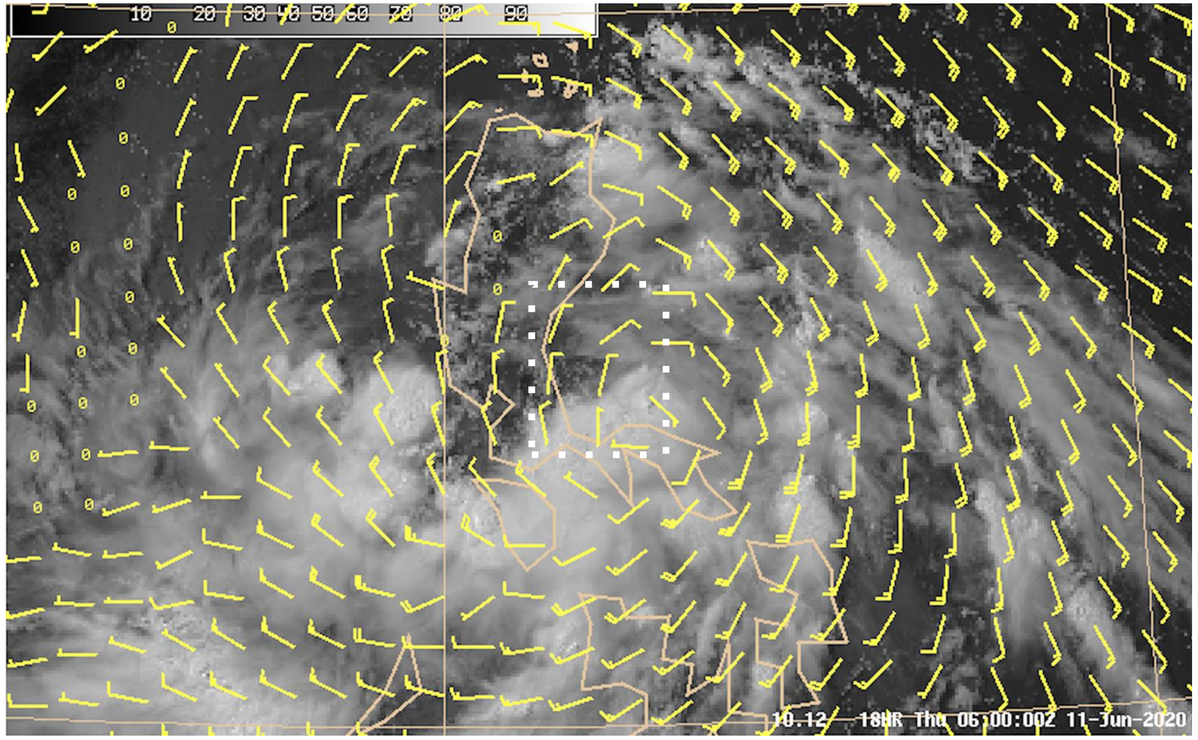


Shading: **Himarawi-8 visible channel imagery**
Barbs: **NCEP surface wind analysis field, 11 June 06Z**

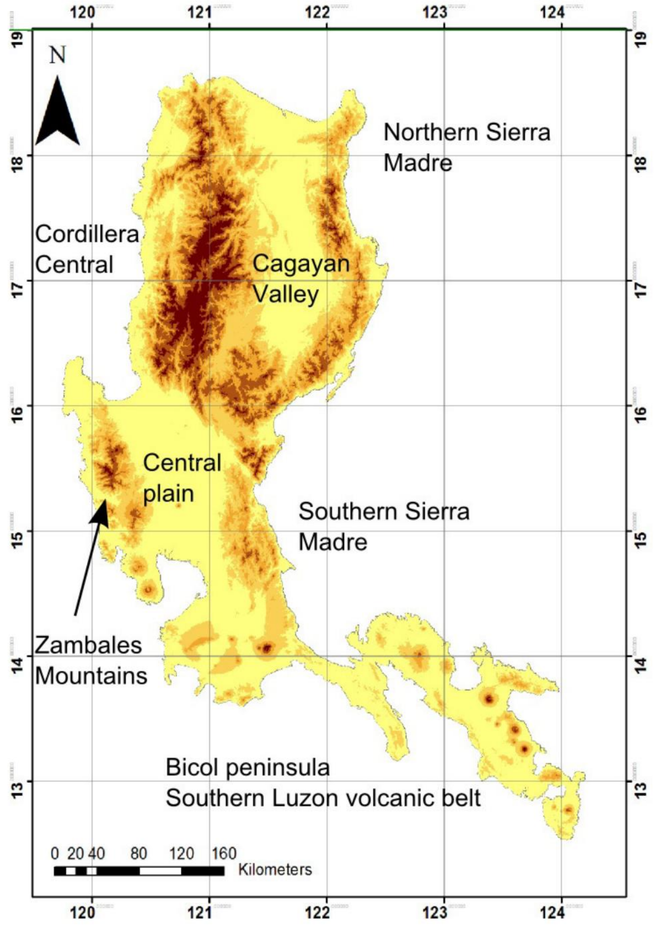


Shading: **NCEP analysis field - surface wind speed**
Barbs: **NCEP surface wind analysis field, 11 June 06Z**

Possible low-topped coastal jet?

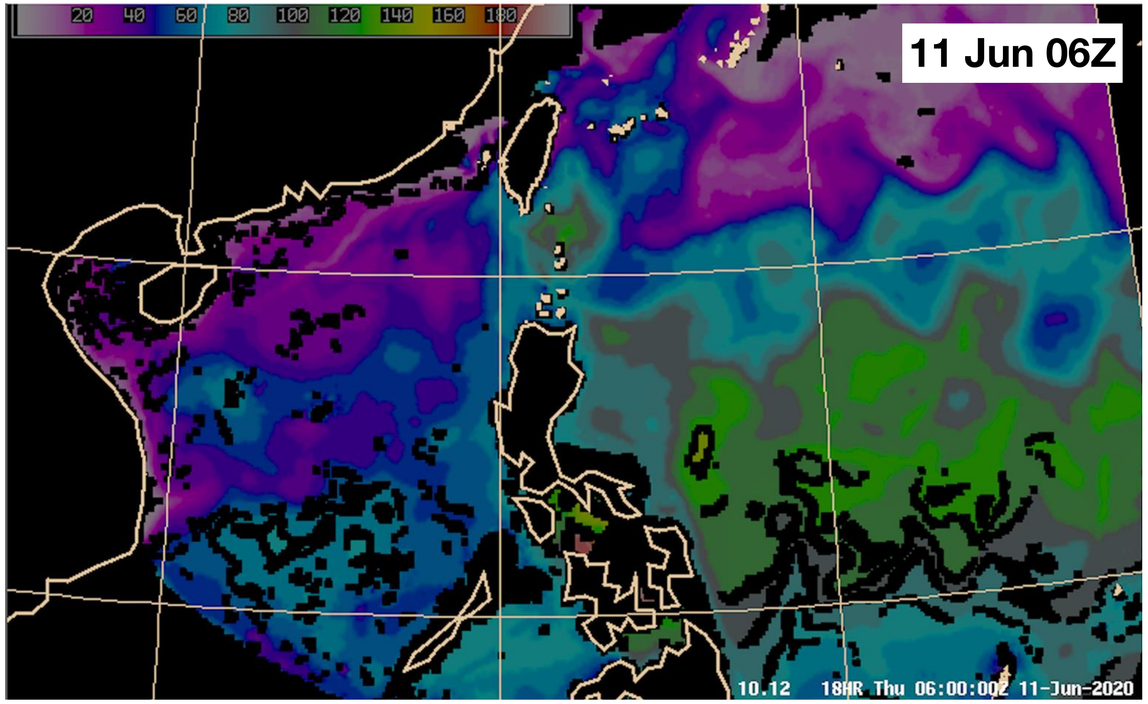


Shading: **Himarawi-8 visible channel imagery**
Barbs: **NCEP 850 hPa wind analysis, 11 June 06Z**

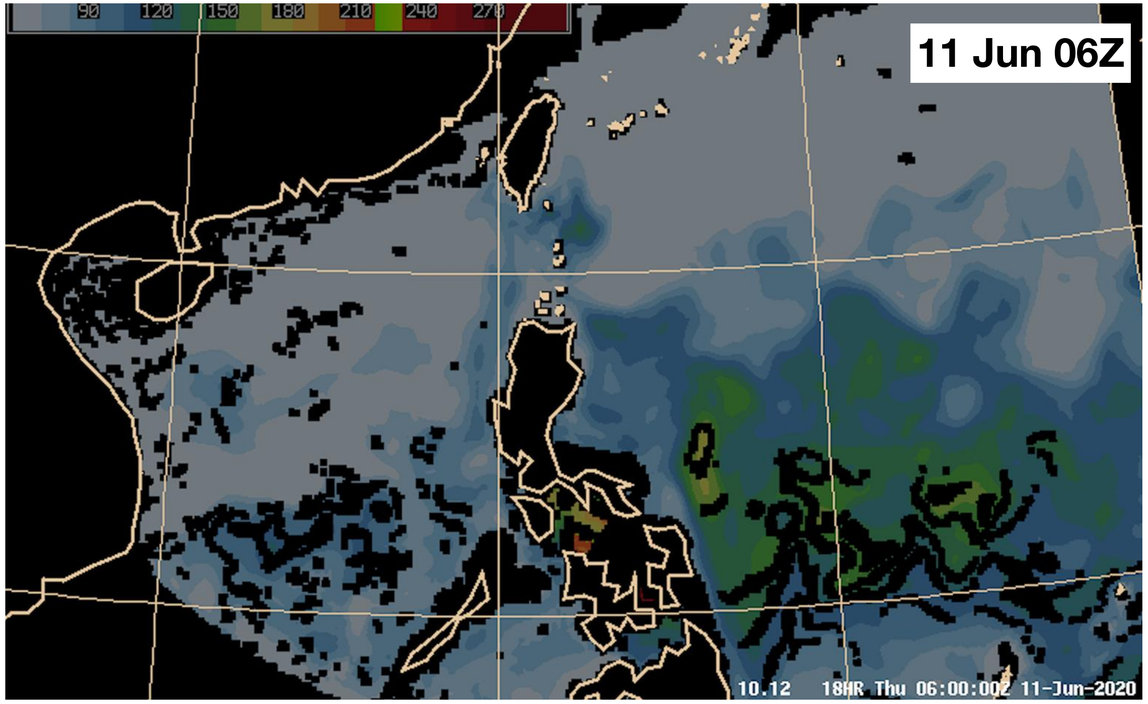


Geographical features of Luzon Island, the Philippines (Vallejo 2014)

Upper ocean conditions near 98W



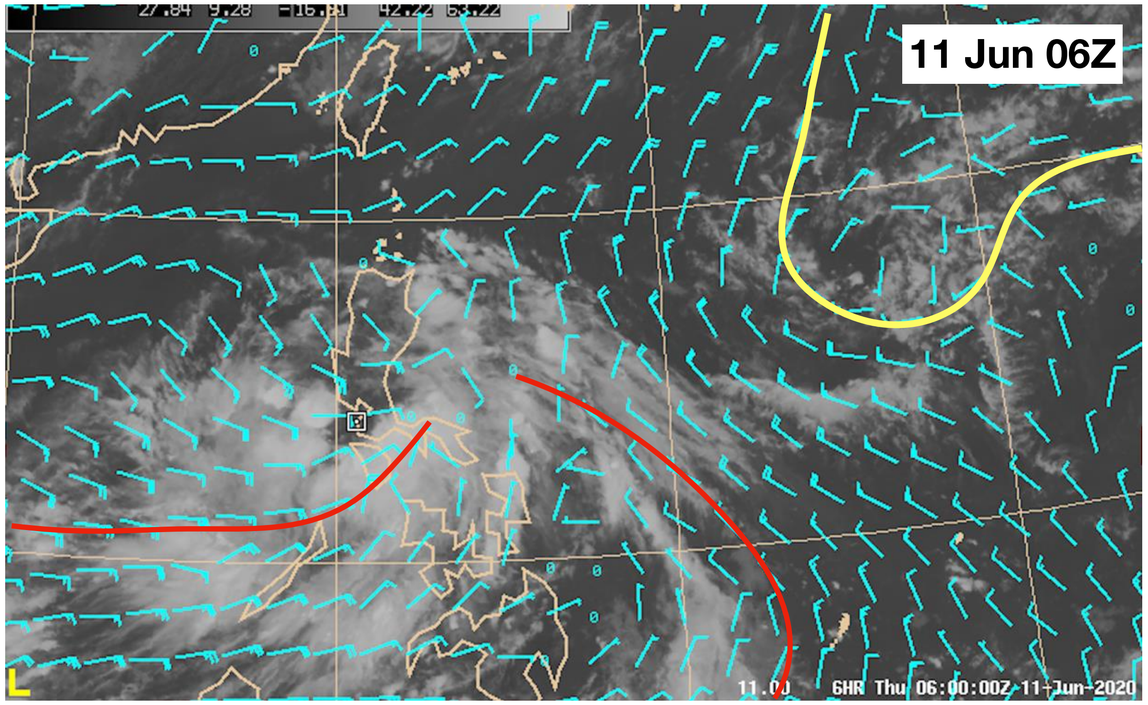
Shading: **OCM2 Depth of 26°C isotherm (m)**



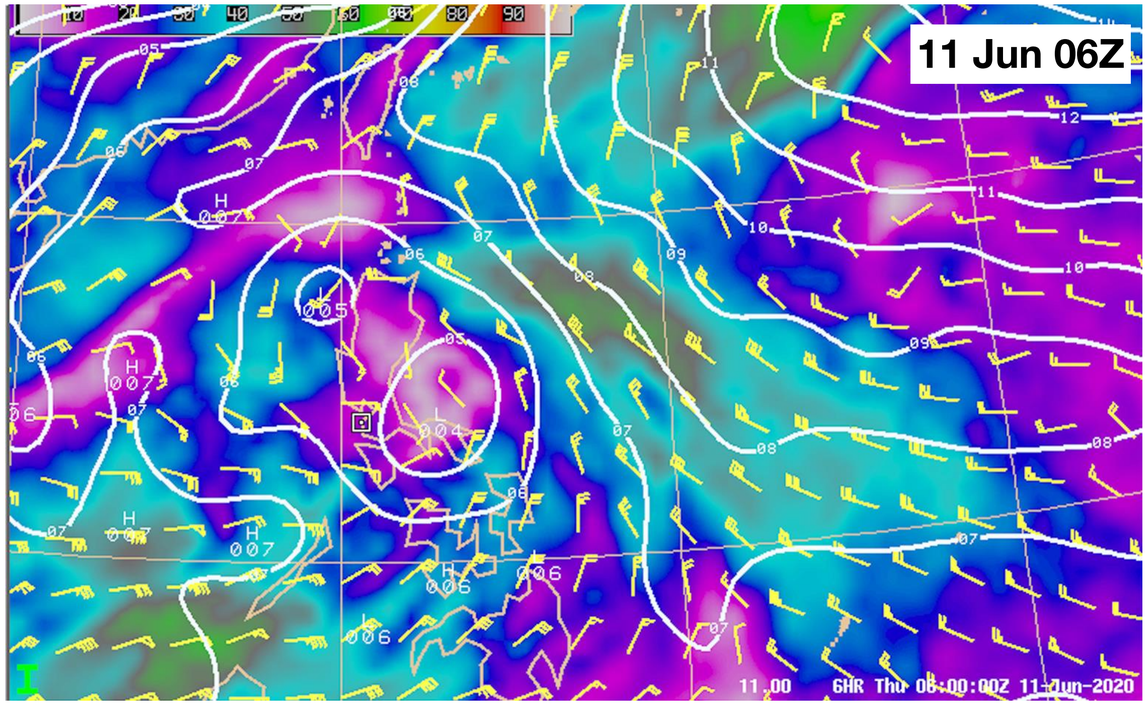
Shading: **OCM2 Tropical Cyclone Heat Potential (kJ cm^{-2})**

- 98W is moving towards an area with slightly less favorable upper ocean conditions

Upper level flow pattern and shear conditions



Barbs: **300-200 hPa wind (kts)**



Shading: **850-200 hPa bulk shear magnitude (kts)**
Contours: **Sea level pressure (hPa)**

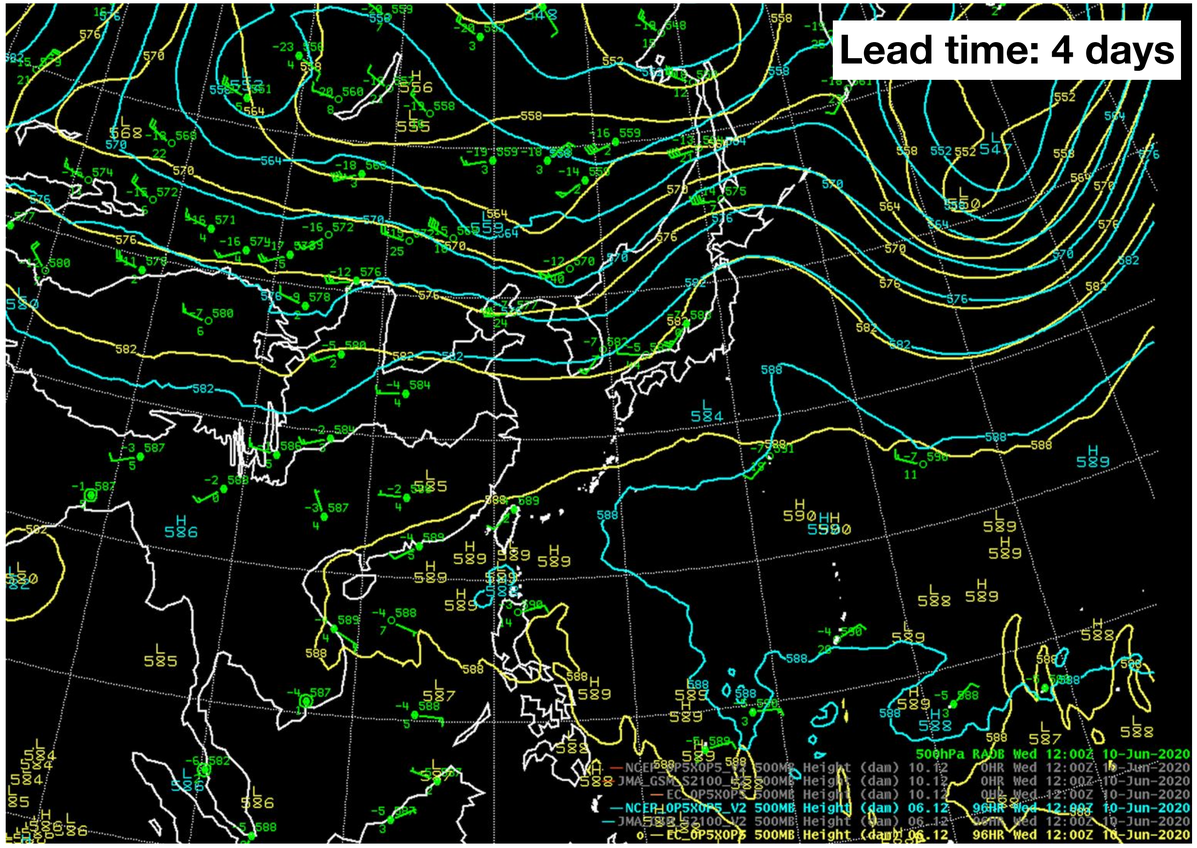
- TUTT seems to fill a bit compared to yesterday, it is therefore not expected to impact 98W further
- 98W is still in an area with little shear, despite shear increase elsewhere

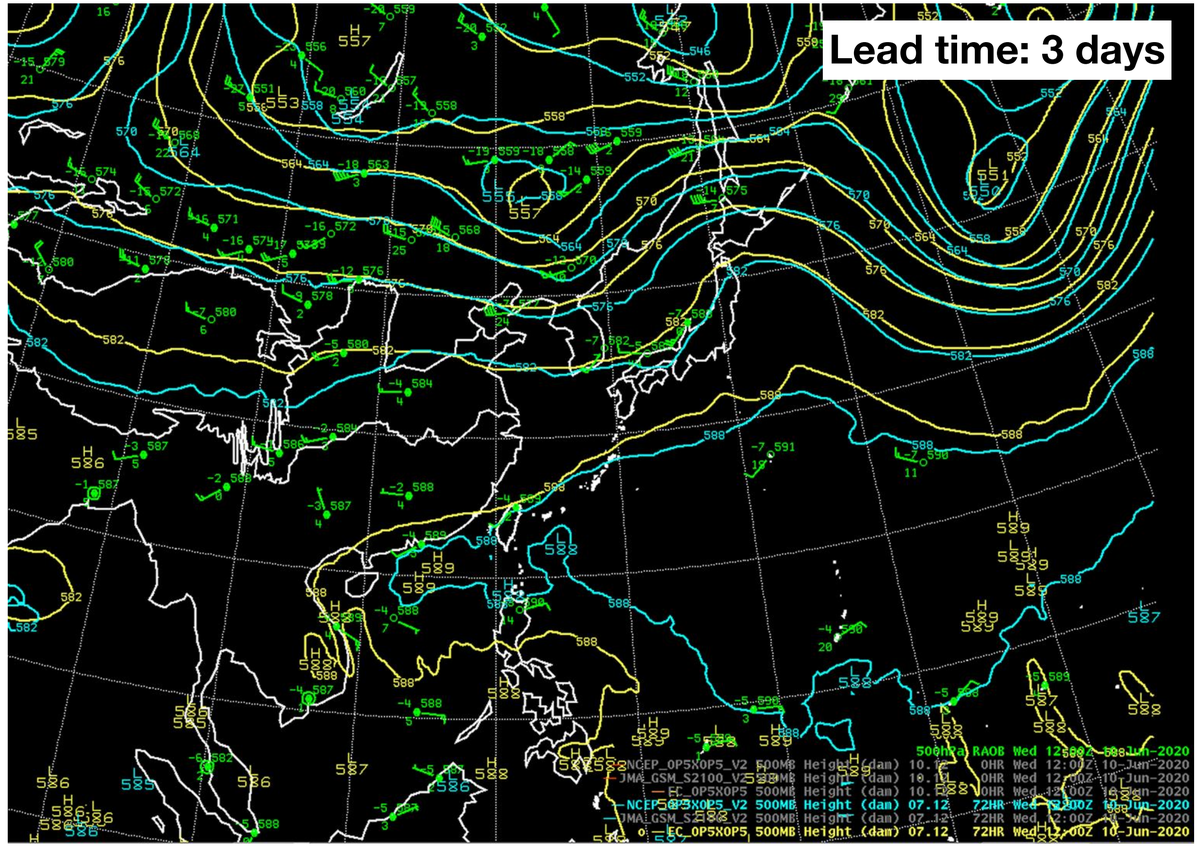
Short summary on 98W

- 98W is moving steadily towards the northwest. It has made landfall at Luzon Island and will reach SCS pretty shortly
- Recent observation data show a well-defined and organized low-level circulation centre
- Multiple hot towers near LLCC is consistent with ongoing cyclogenesis process
- Some indications of a coastal jet northeast of the LLCC
- Environment near 98W continued to be favorable for continued system consolidation

Validating the model predictions for subtropical high

Yellow Contours: **EC 500 hPa height**
Cyan Contours**: NCEP 500 hPa height**
Reference**: 10 June 12Z**





- Large difference in the west and south extent of subtropical high between NCEP and EC for older runs

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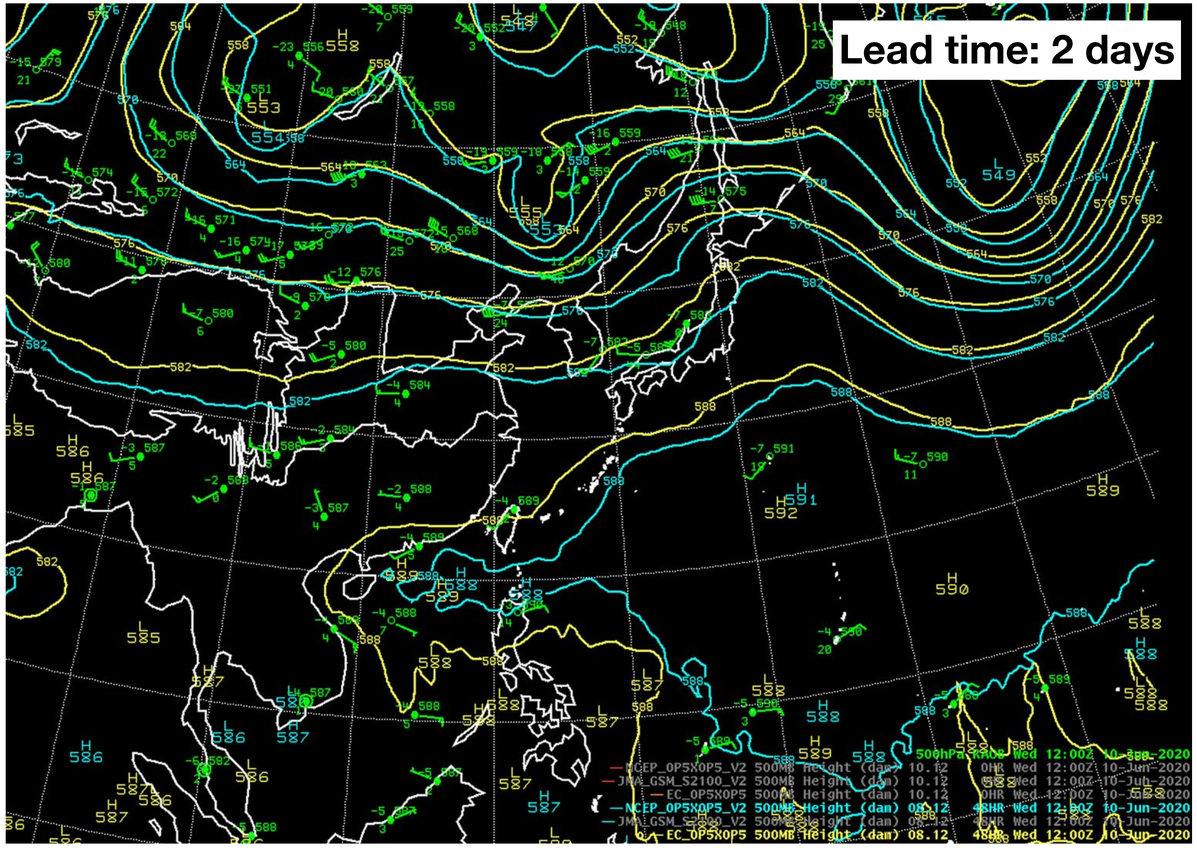
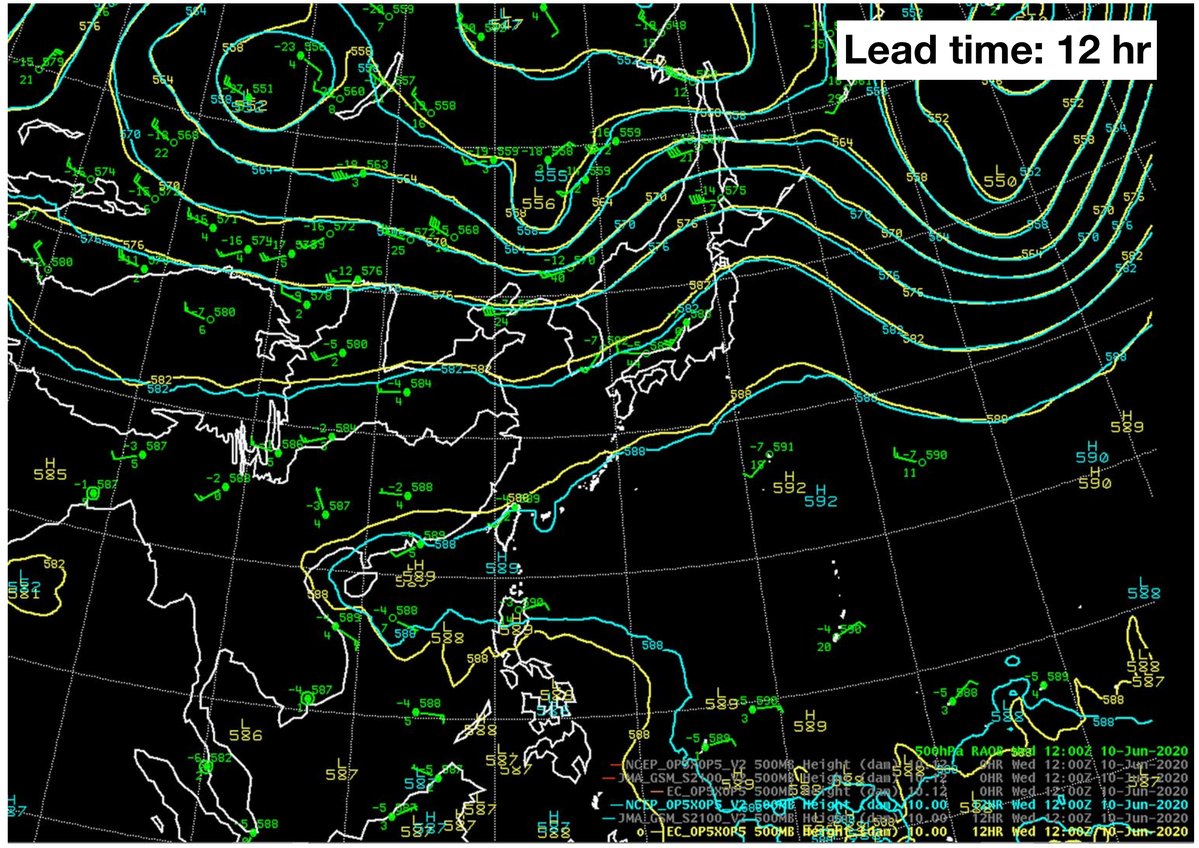
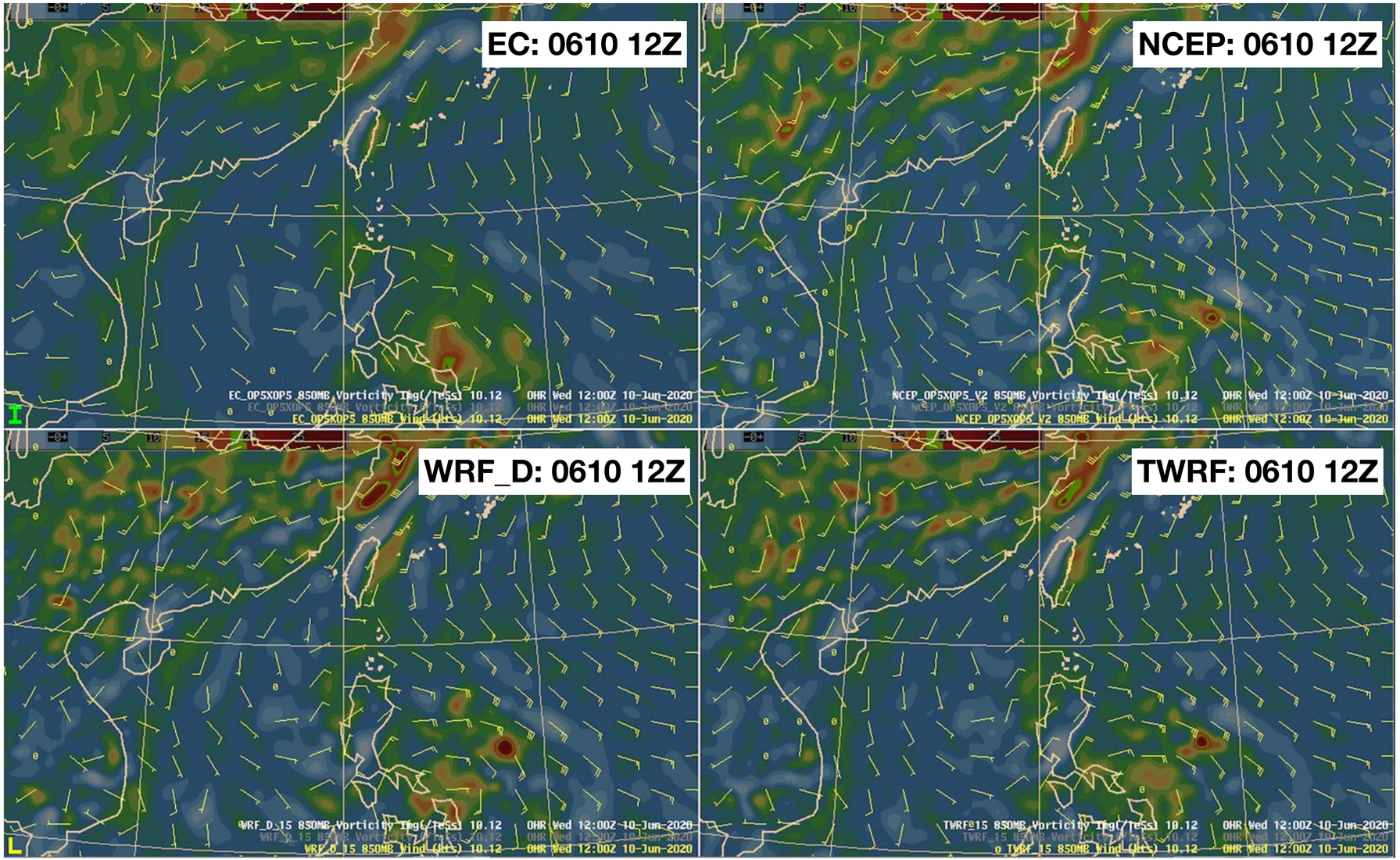




- Clear tendency for the NCEP solution to converge towards the EC solution in later model runs
- Notice the EC subtropical high shape really hasn't changed much with lead time, unlike the NCEP

Increase confidence in TC propagation speed forecasts

Shading: **850 hPa vorticity**
Barbs**: 850 hPa wind**



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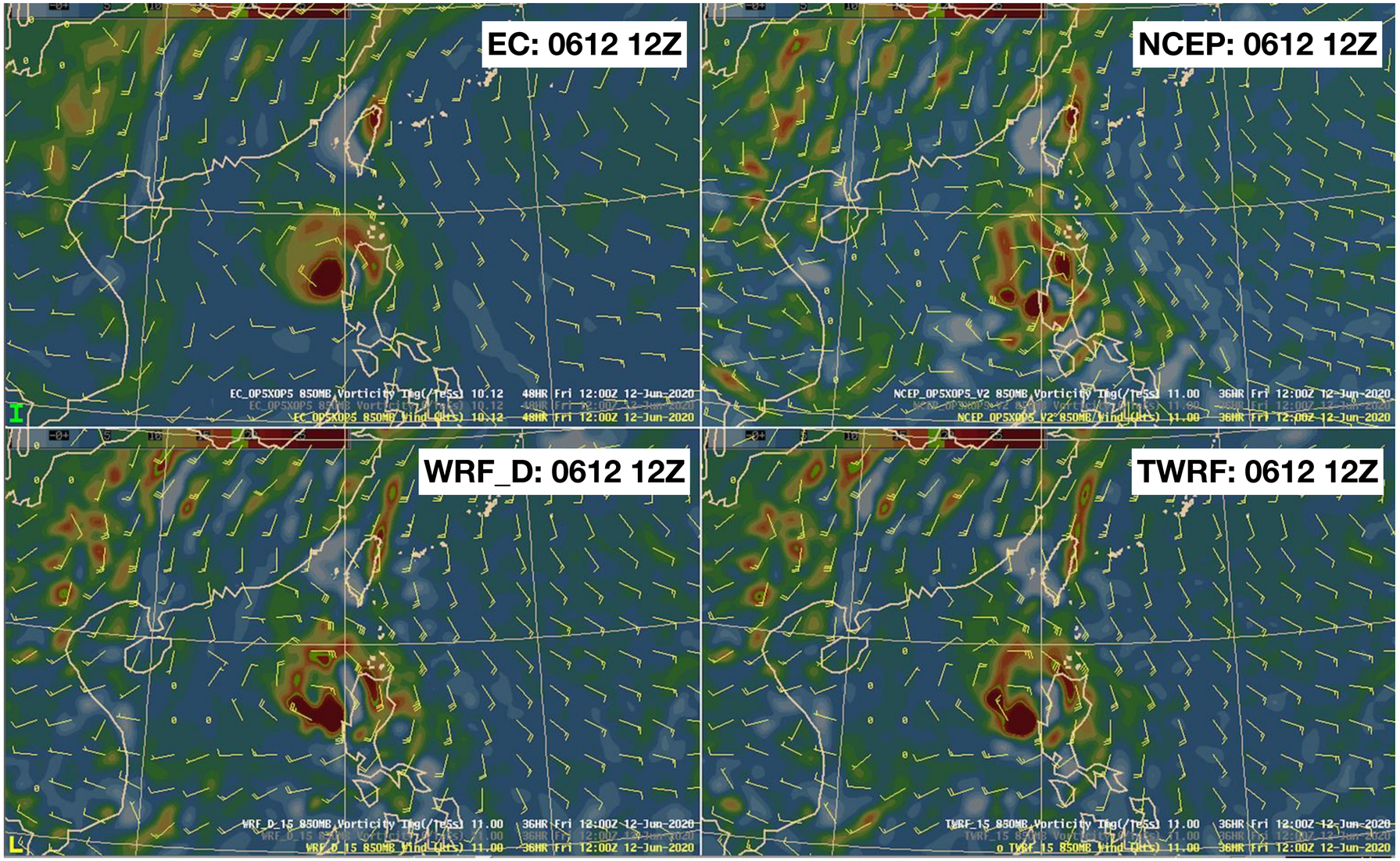

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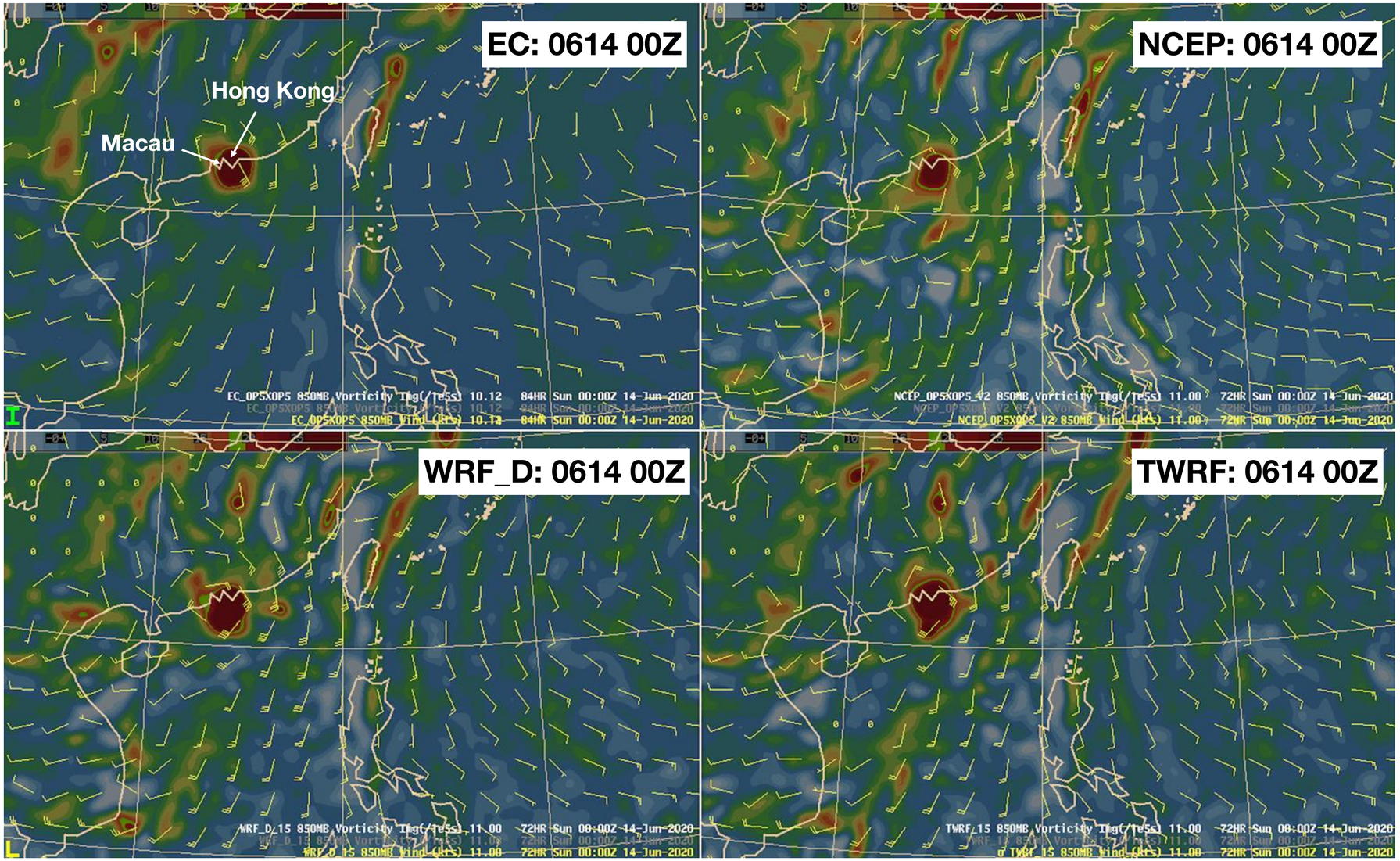
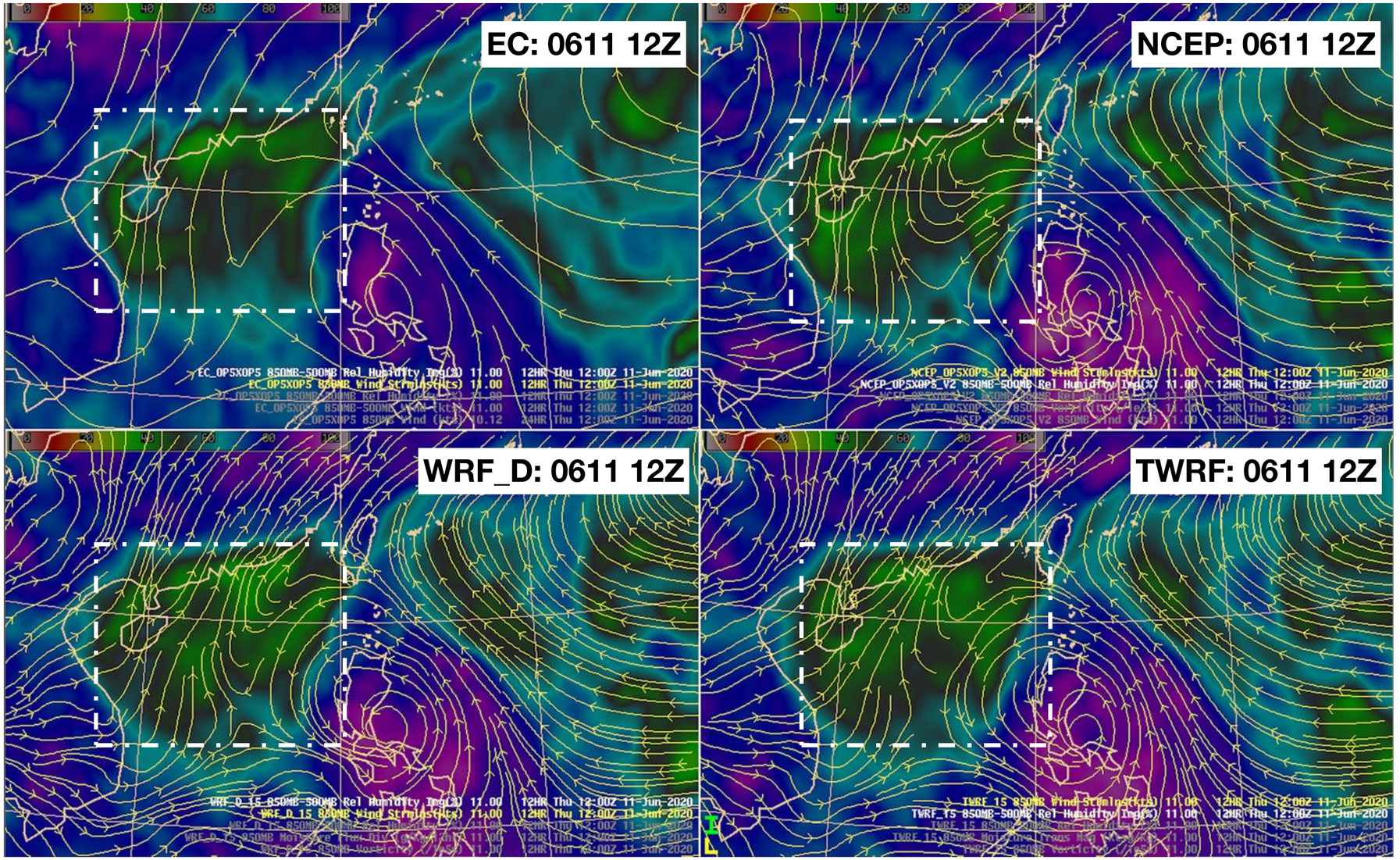


Persistence of dry air along TC forecast tracks

Shading**: 850-500 hPa relative humidity**
Streamline**: 850 hPa wind**



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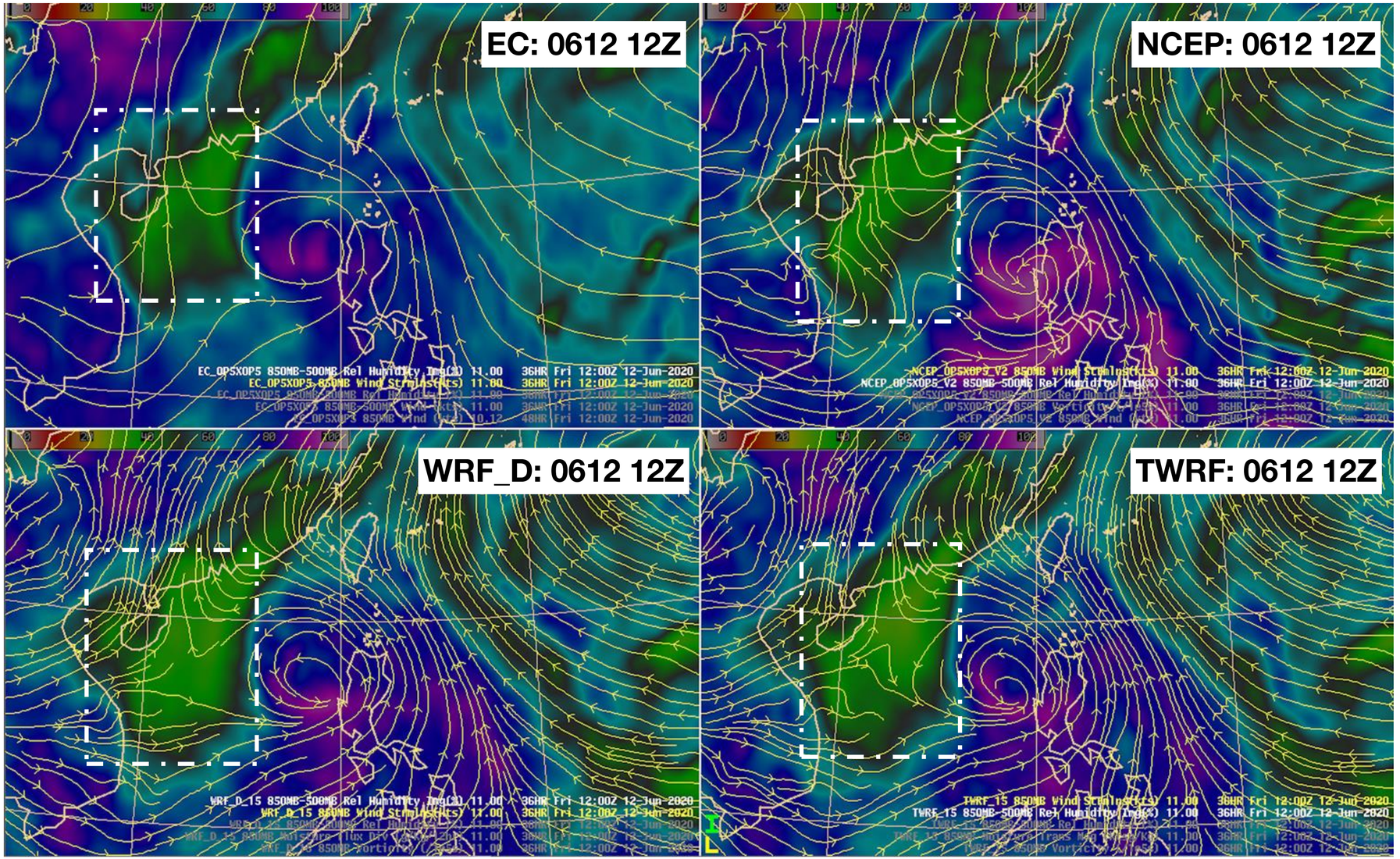

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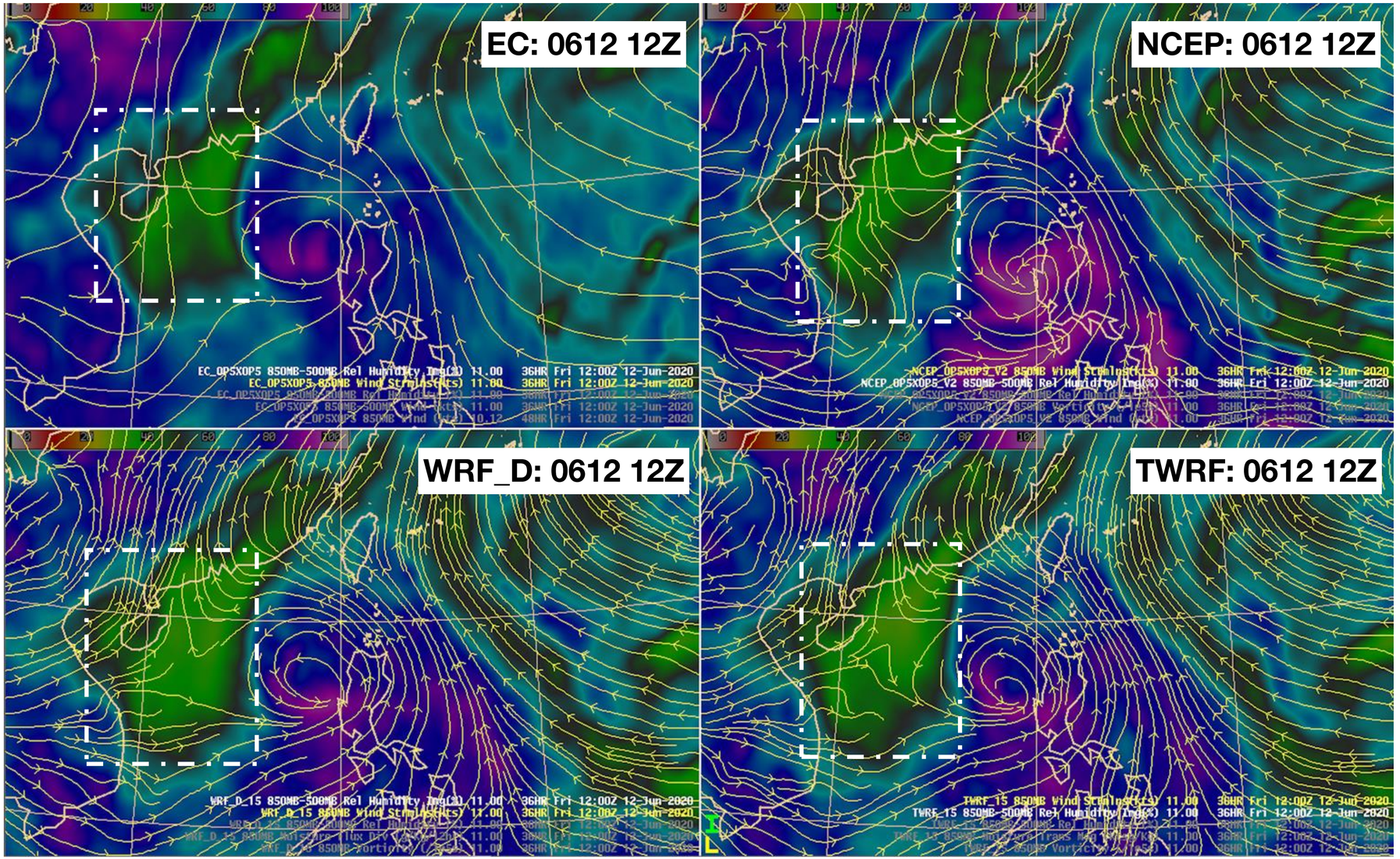

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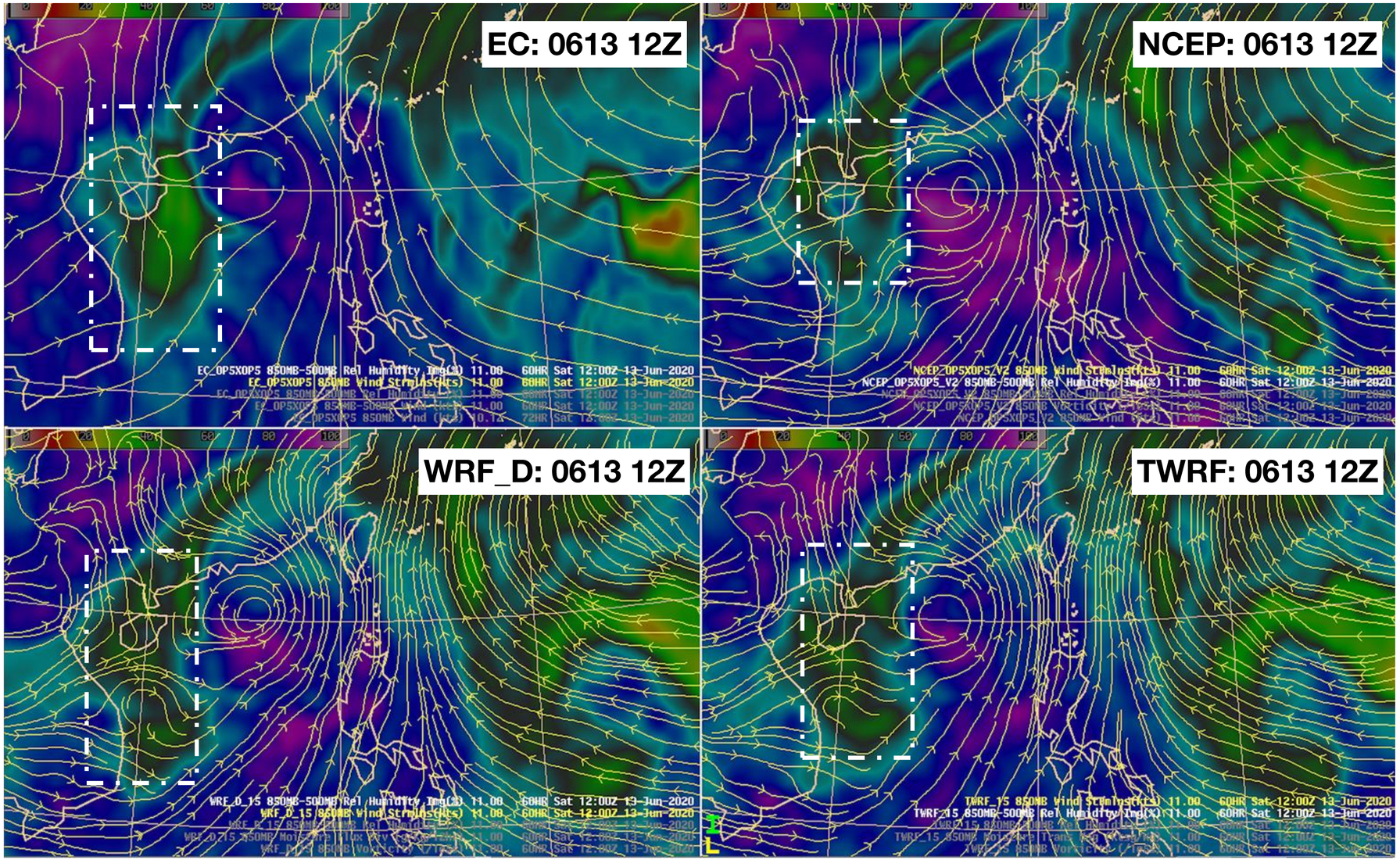
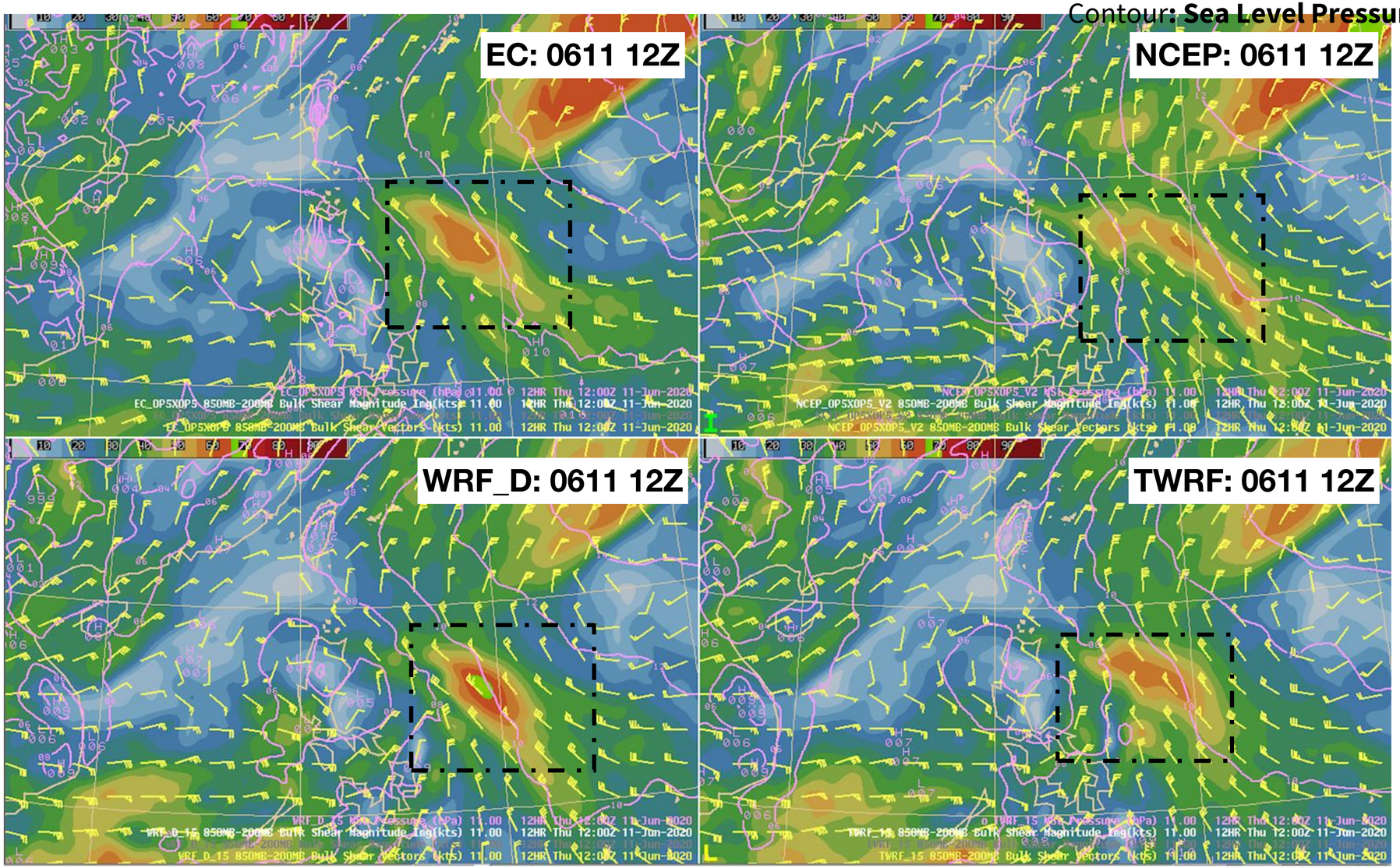


Shear conditions along forecast TC tracks

Shading**: 850-200 hPa bulk shear magnitude**
Vector**: 850-200 hPa bulk shear vectors**
Contour**: Sea Level Pressure**



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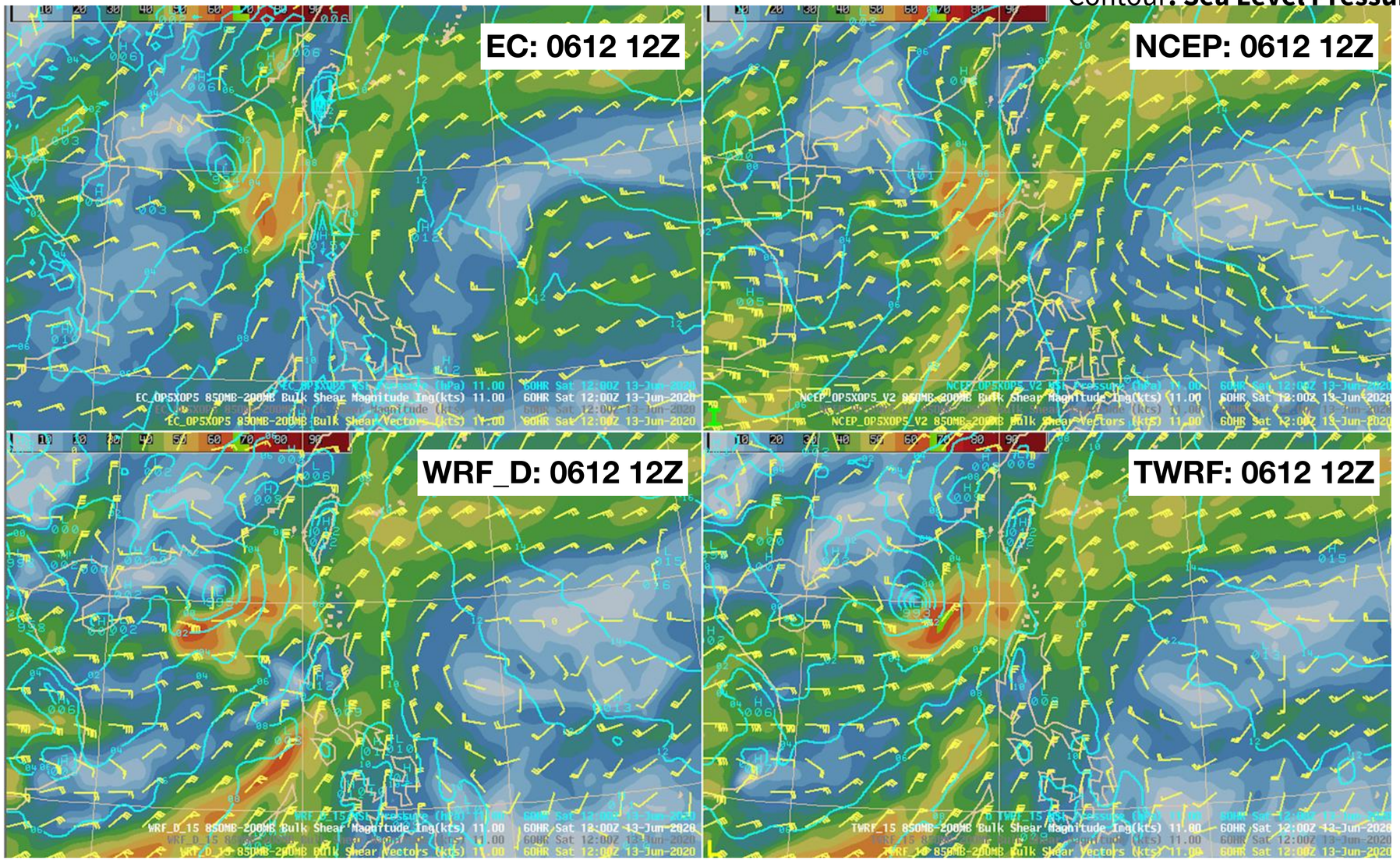
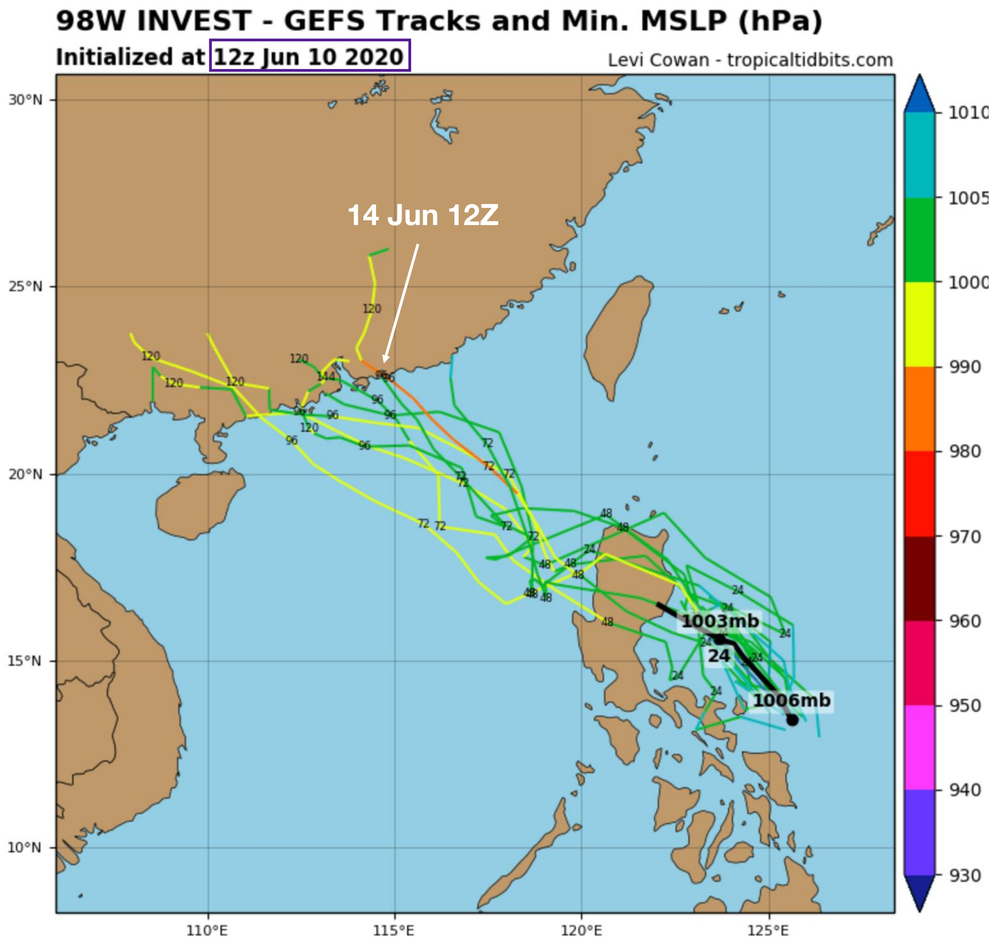
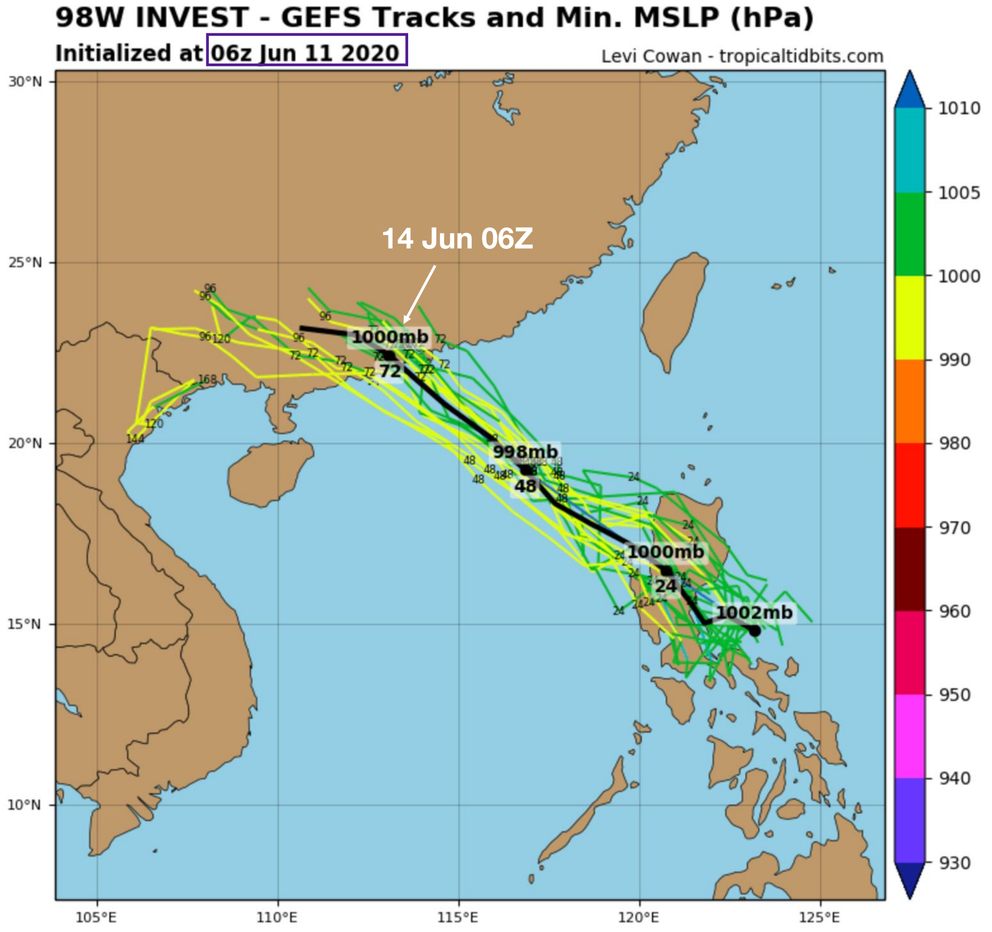


Earlier landfall time for the NCEP ensemble members

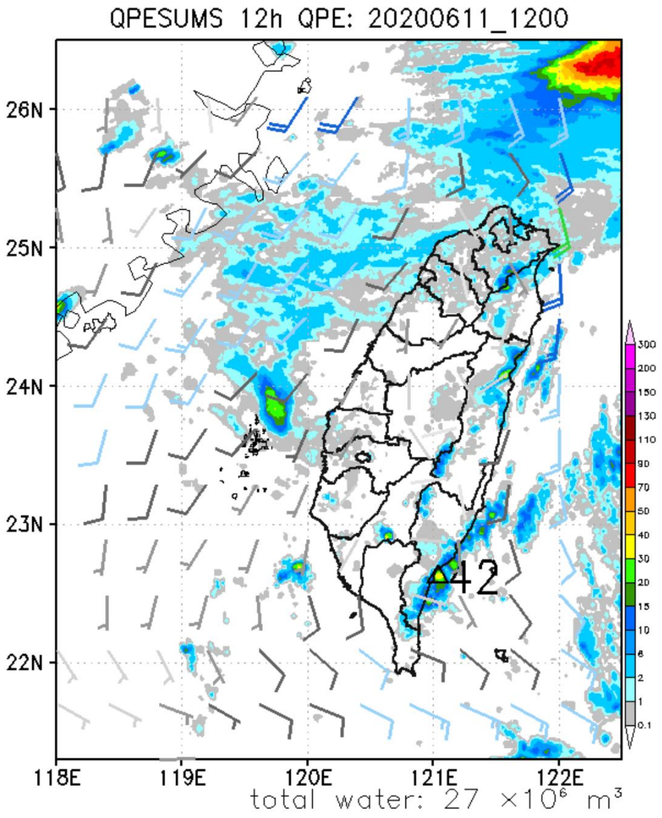




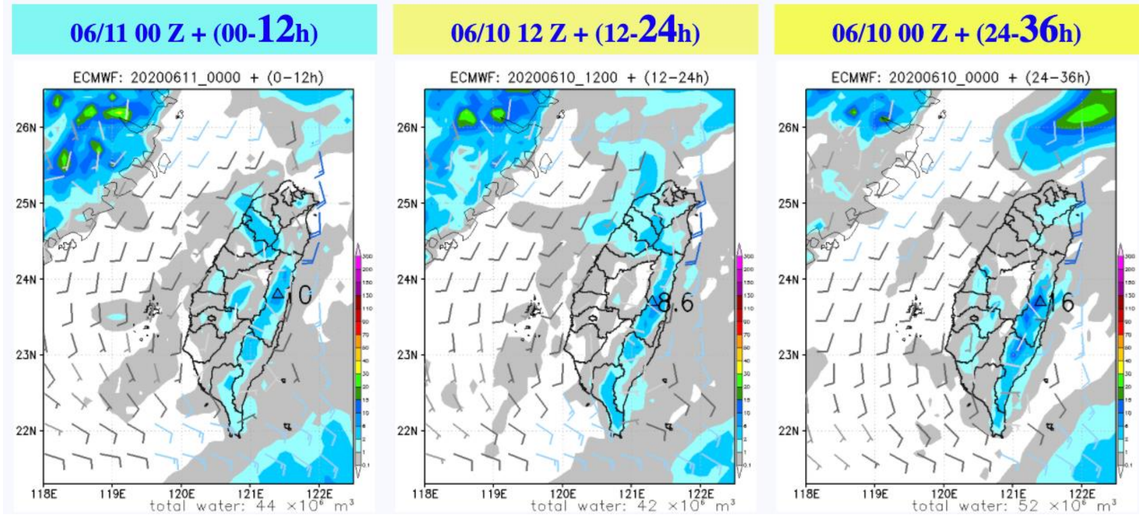
Short summary on model forecasts on 98W

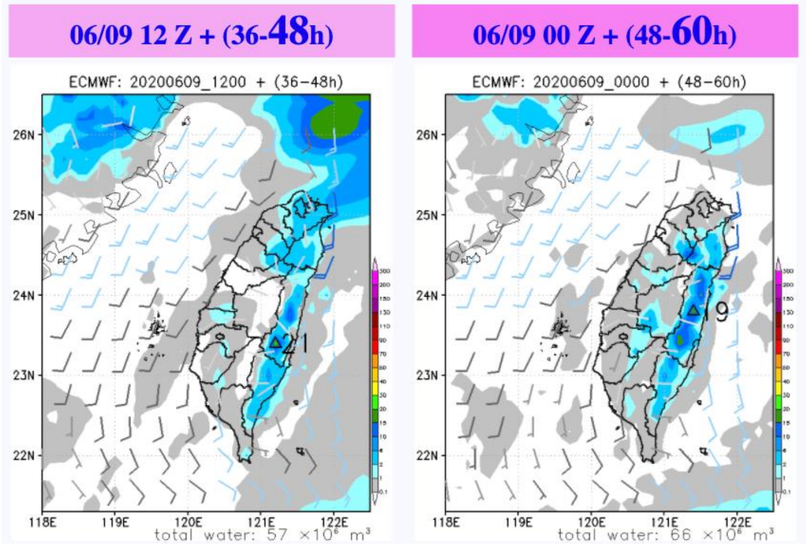
- Since the NCEP subtropical high intensity and extent was adjusted to close to EC solutions in later runs, timing of TC landfall near Hong Kong/Macau started to converge
- We are now confident that the TC will make landfall near Hong Kong/Macau on Sunday morning. This timing is consistent for the four main model guidances
- No change to yesterday’s conclusion that the environment in the SCS will be somewhat marginal
- We are sticking to our prior forecast that 98W will not intensify beyond TS strength whilst in the SCS

Evaluating past QPF performances for different models



EC





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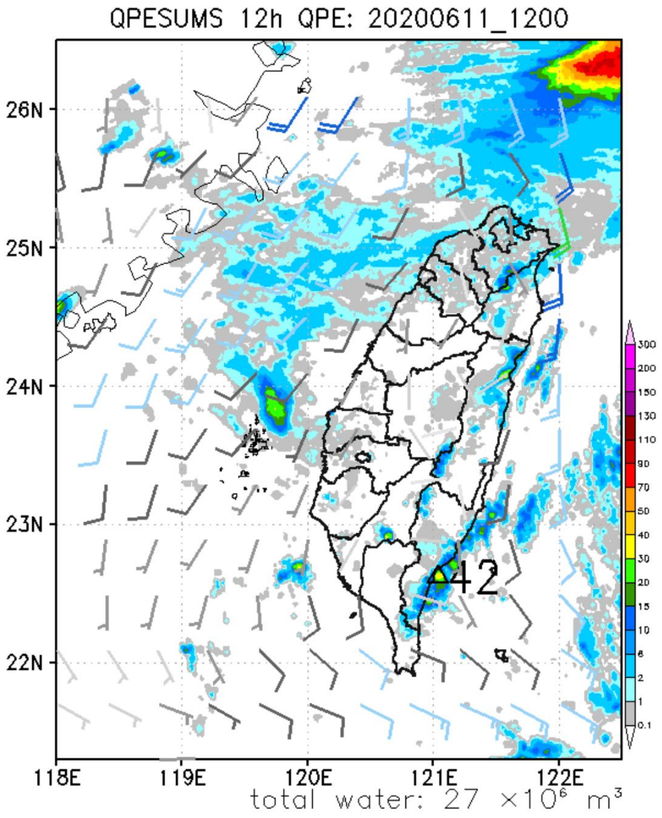
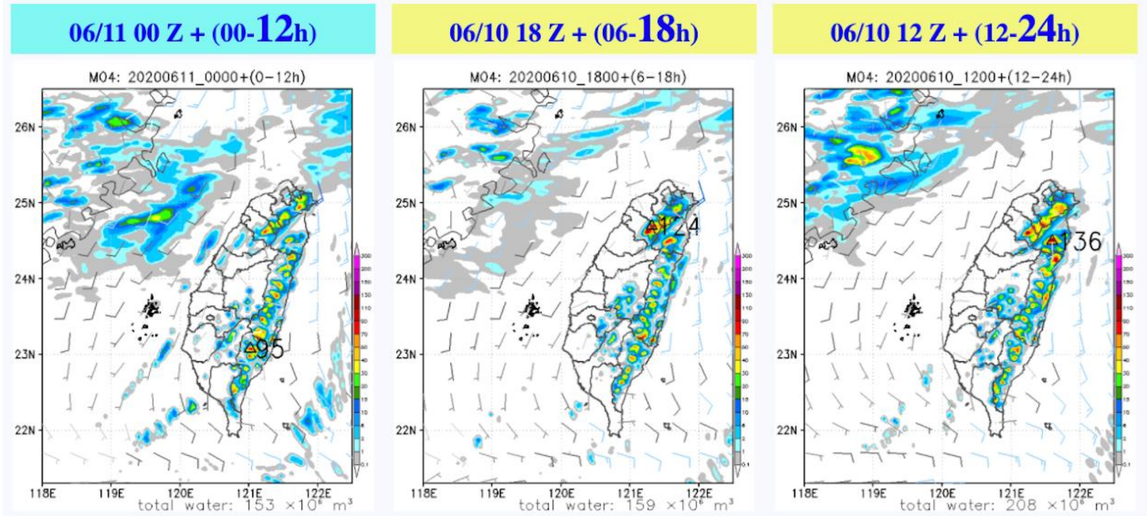
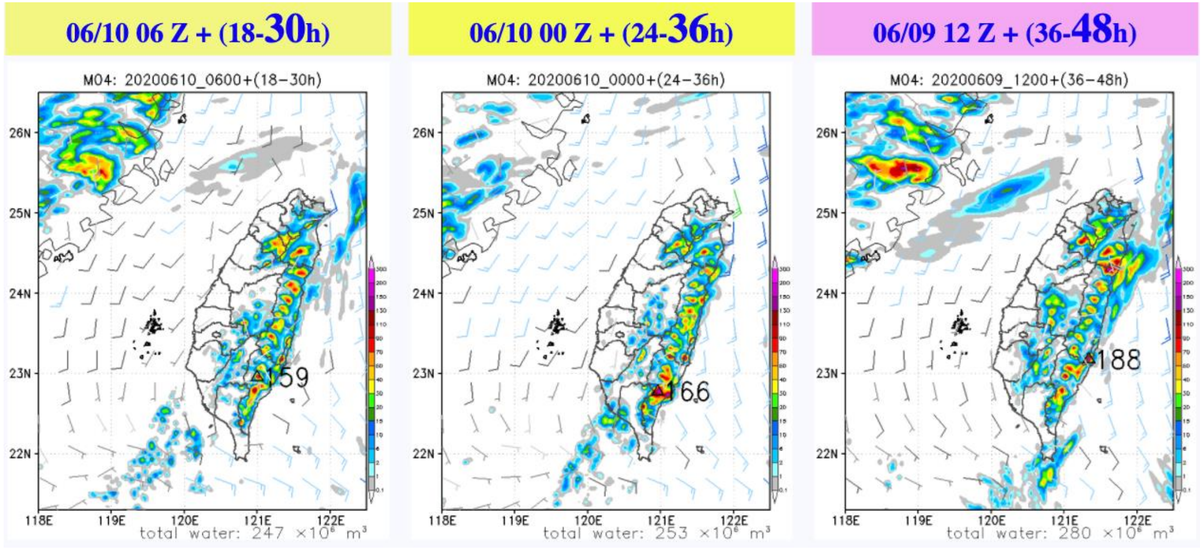
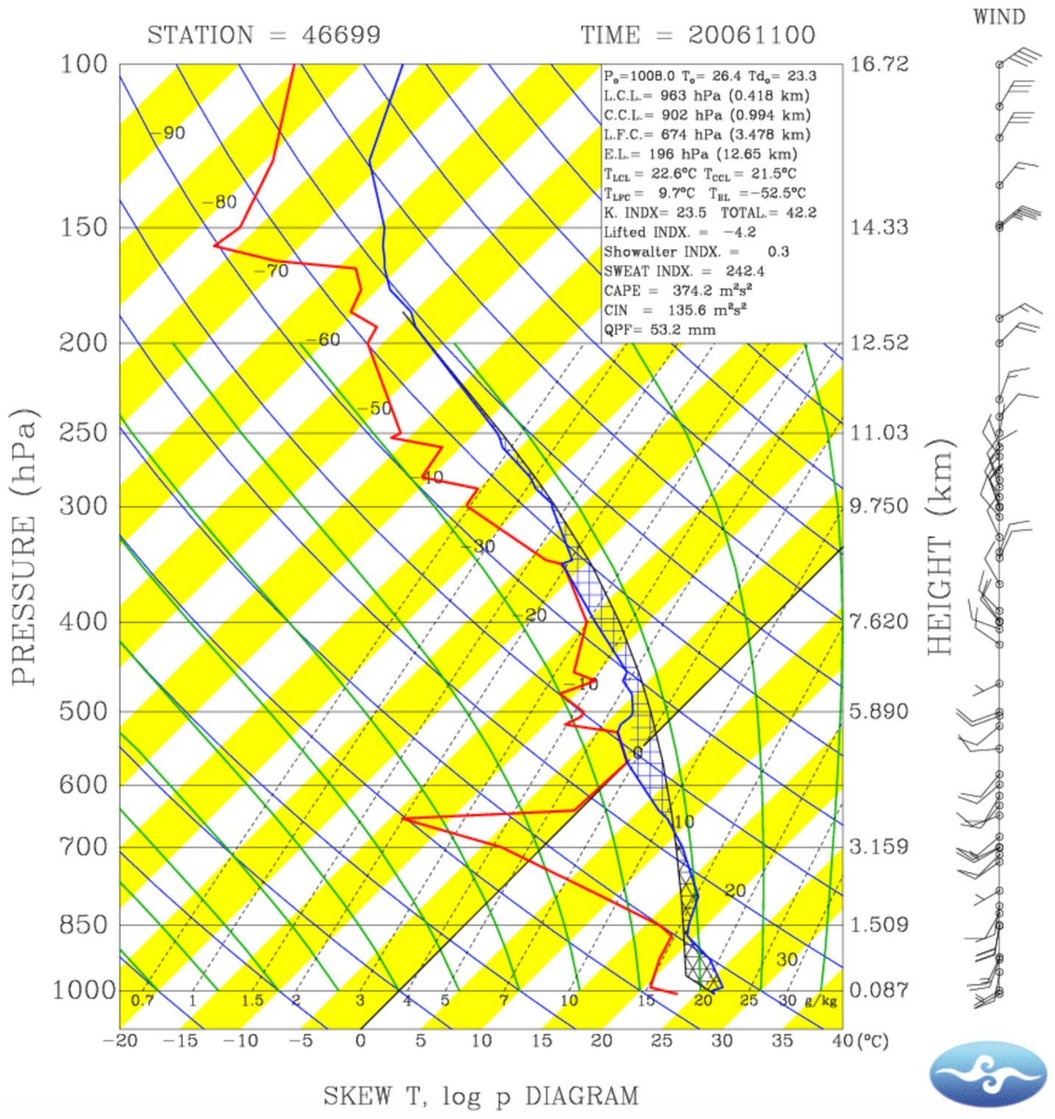


WRF-D



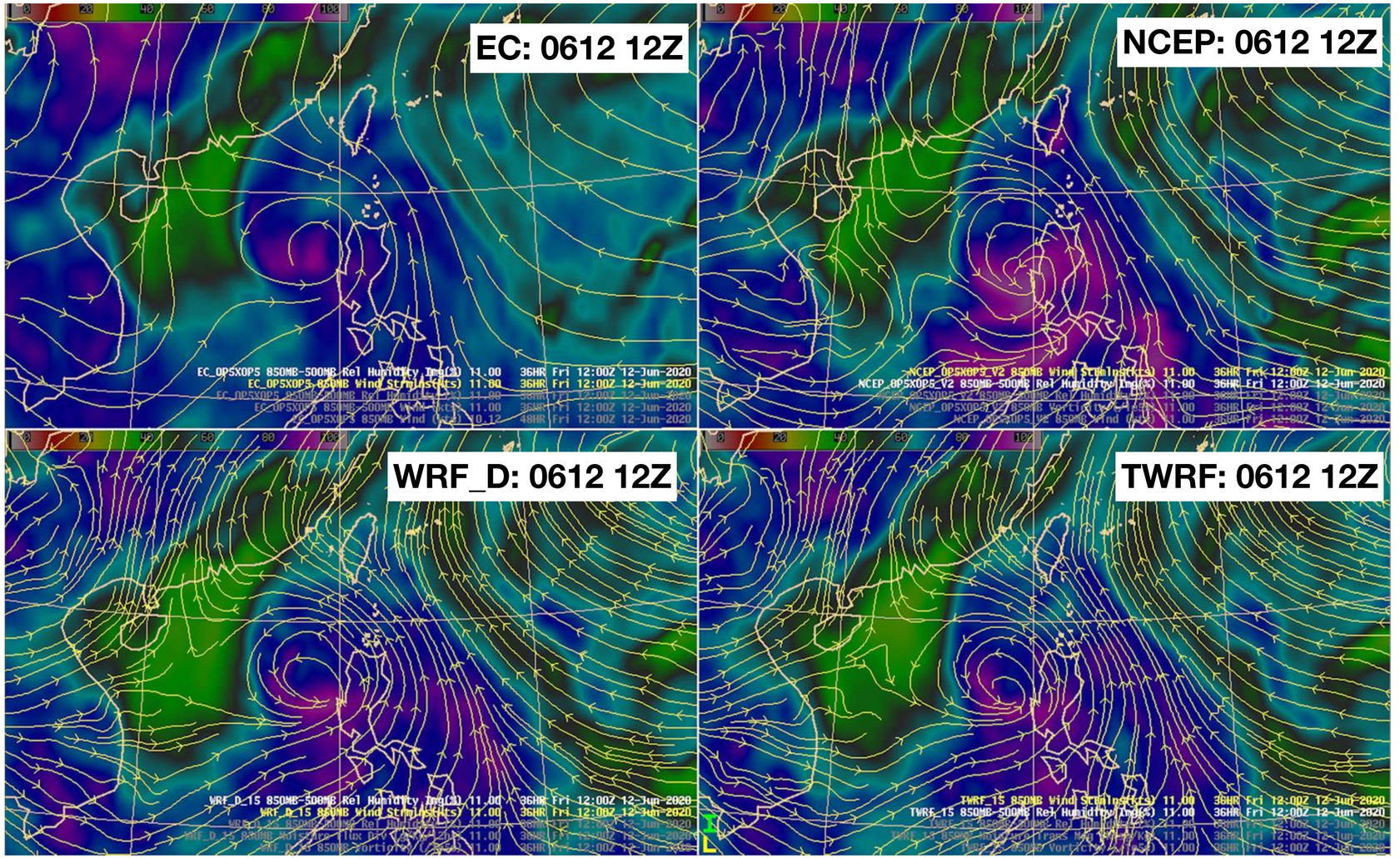




Hualien sounding - 11 June 00Z

Aug 13: Advancement of tropical moisture from the southeast

Shading**: 850-500 hPa relative humidity**
Streamline**: 850 hPa wind**



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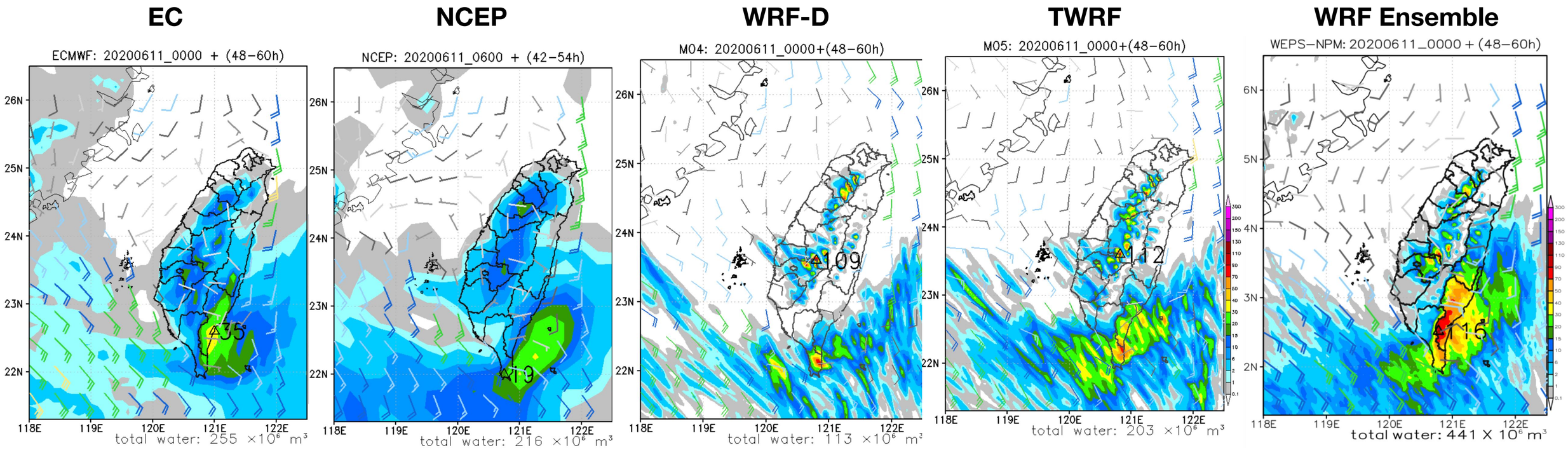
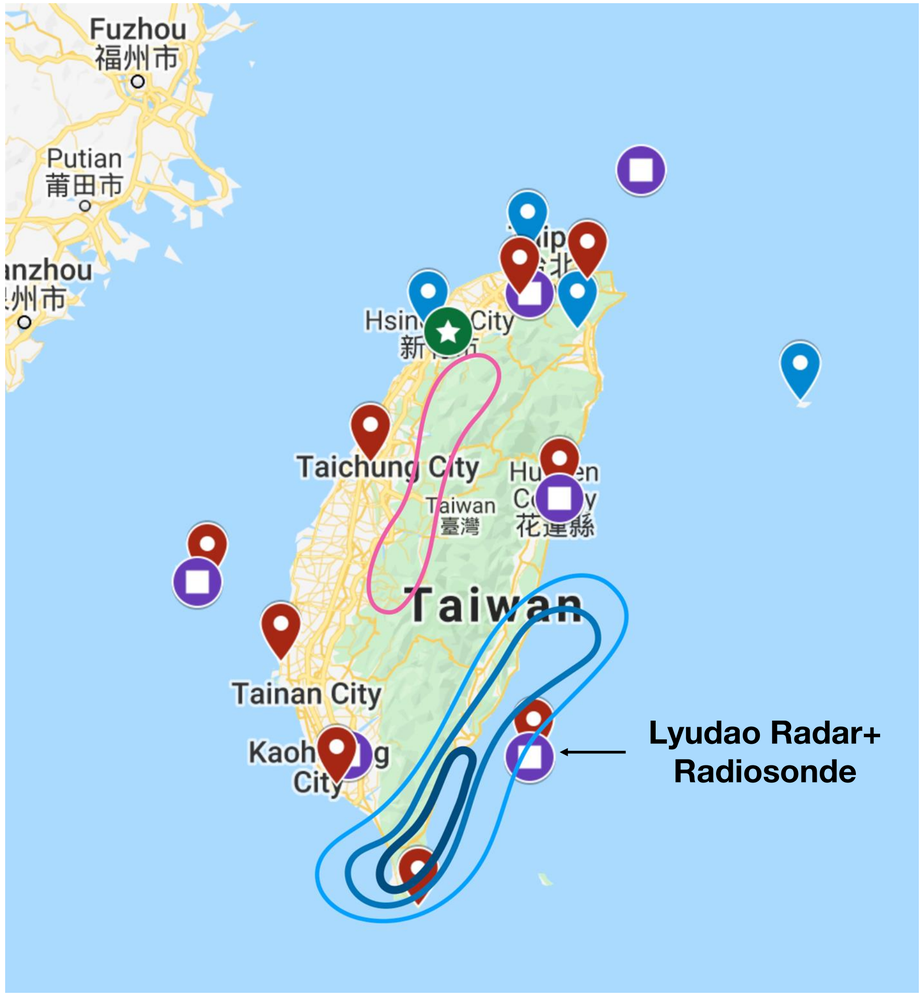


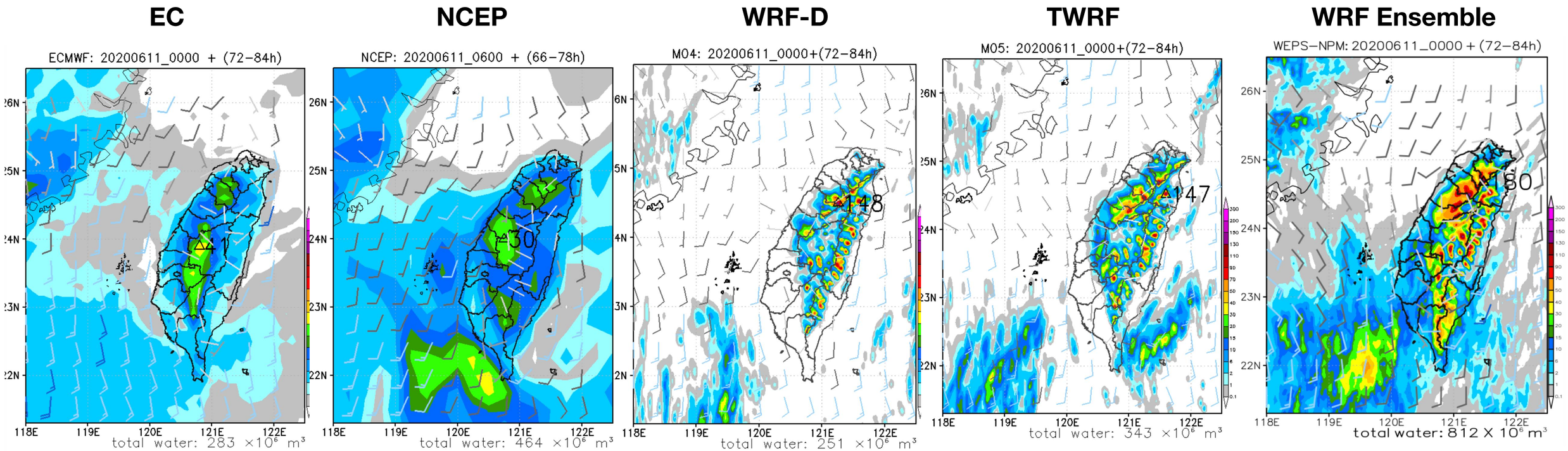
Aug 13 00Z-12Z

- Quite confident in predicting windward precipitation along the mountain slopes of southeastern Taiwan
- Could be some short-lived, not very intense afternoon thunderstorm near CMR

Aug 13: Guidance for Science Planning



Aug 14: Afternoon thunderstorms after TC landfall

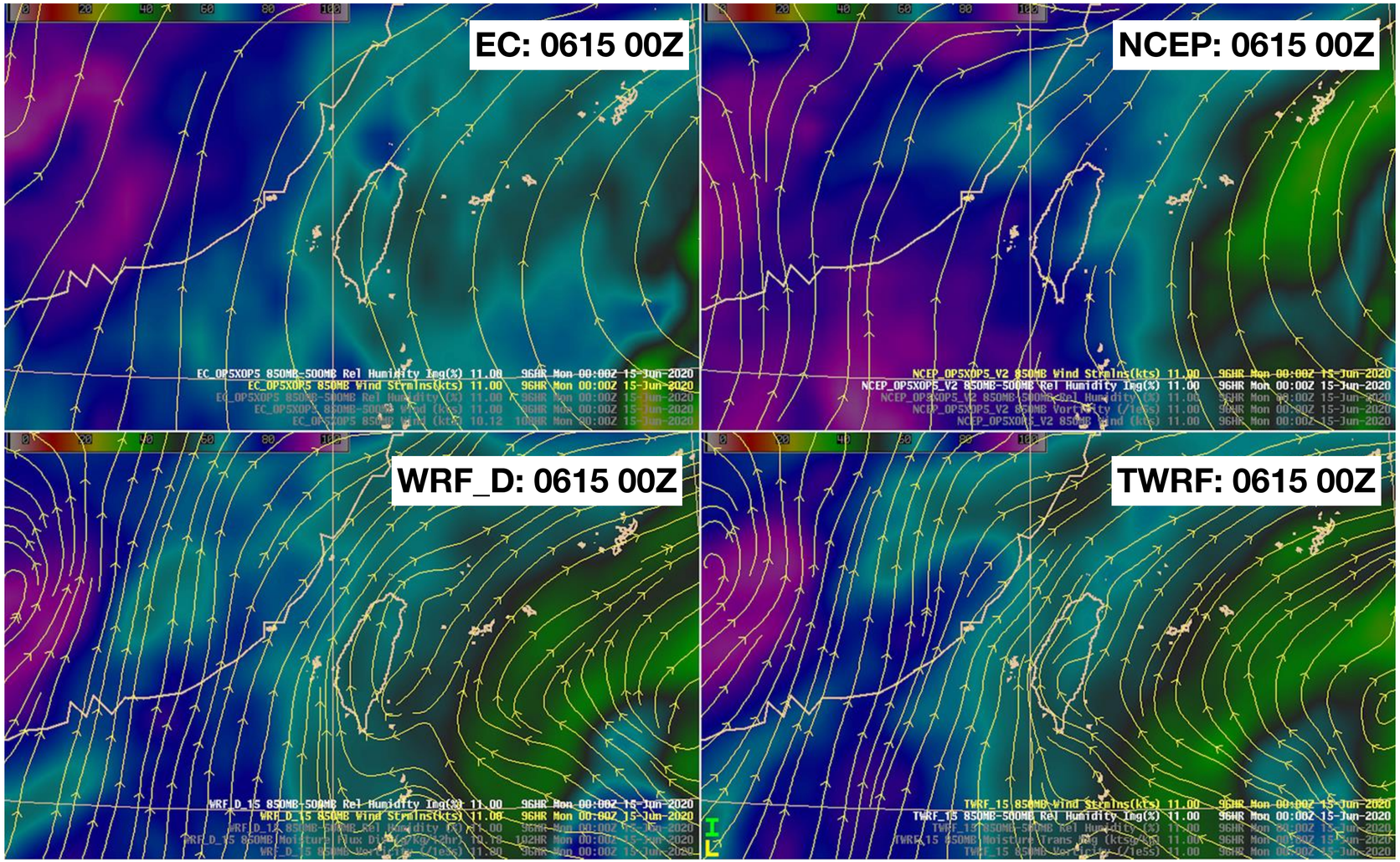


Aug 14 00Z-12Z

- Upstream wind direction is primarily southerly, liking the possibility of afternoon thunderstorm activity along mountain slopes in central and northern Taiwan (confidence level: reasonably high)
- Regional models are pretty adventurous in developing these systems

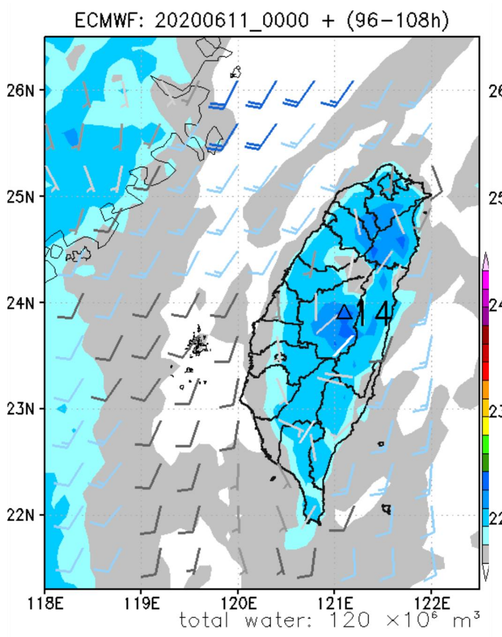
Aug 14: Guidance for Science Planning

Extend forecast period

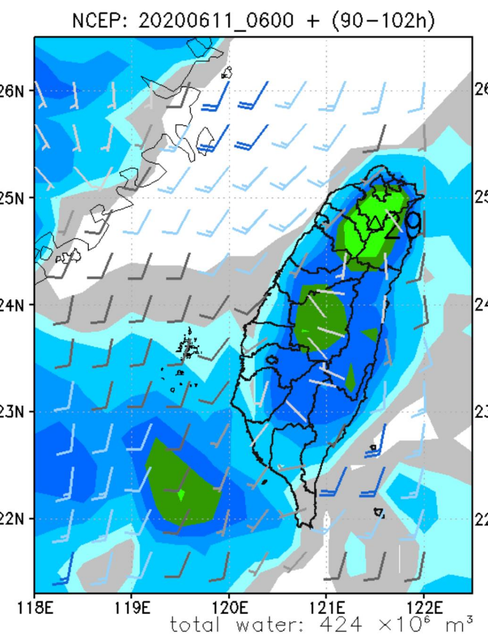


Extend forecast period

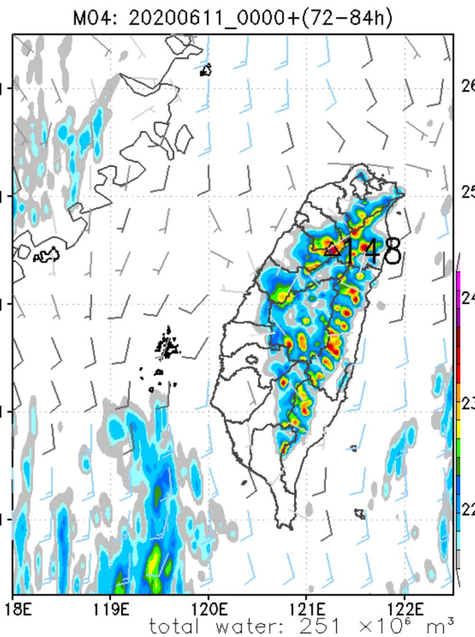
EC



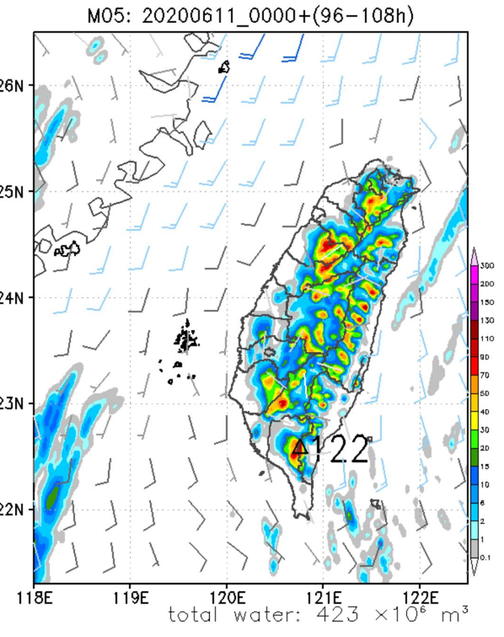
NCEP



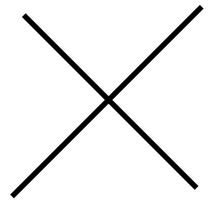
WRF-D



TWRF

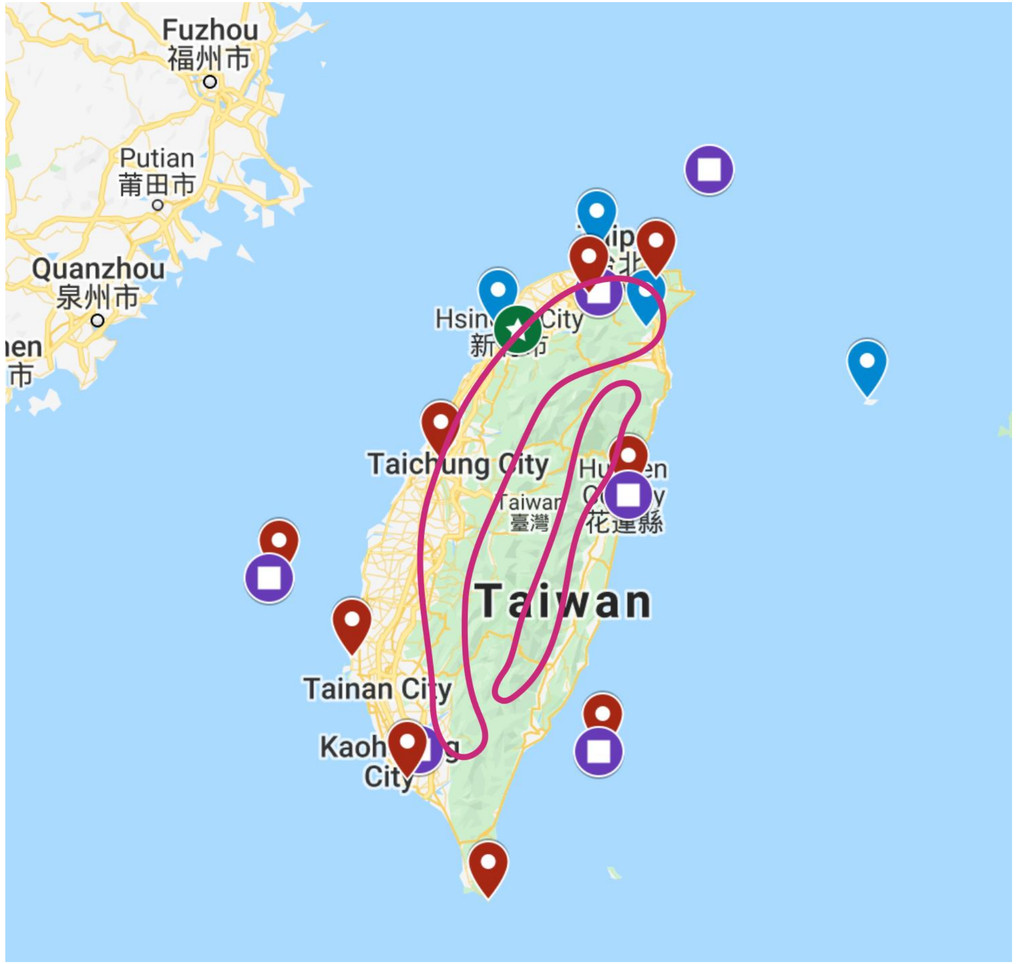


WRF Ensemble



Aug 15 00Z-12Z

Extend Forecast Period: Guidance for Science Planning



General ideas

- A tropical depression crossed the Luzon Island in the past couple of hours. This TD is expected to intensify further and becomes the 2nd named storm of the year (Nuri). Confidence for the landfall timing is high.
- Debrief on QPFs for 11 June indicates the regional models to be over-forecast afternoon thunderstorm activity near terrain
- High confidence in windward precipitation in southeastern Taiwan tomorrow. This area is rather remote and is with relatively scarce observational resources, though.
- Reasonably high confidence in intense afternoon thunderstorm activities in central and northern Taiwan. Hotspot is relatively close to SPolKa. A potential IOP mission could utilize radar network and vertical-pointing instruments at Hsinchu site
- Moderate confidence in afternoon thunderstorm activity for most mountainous terrains in Taiwan

Signing off. Thank you for tuning in for the past two weeks!