PRECIP Daily Science Report
0000 UTC 5 Aug 2022 - 0000 UTC 6 Aug 2022
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Summary:

A relatively dry day overall. We did have some convection over the mountains that was long-lasting. Forecast from MPAS was pretty good - convection was primarily to the SSW of S-Pol.

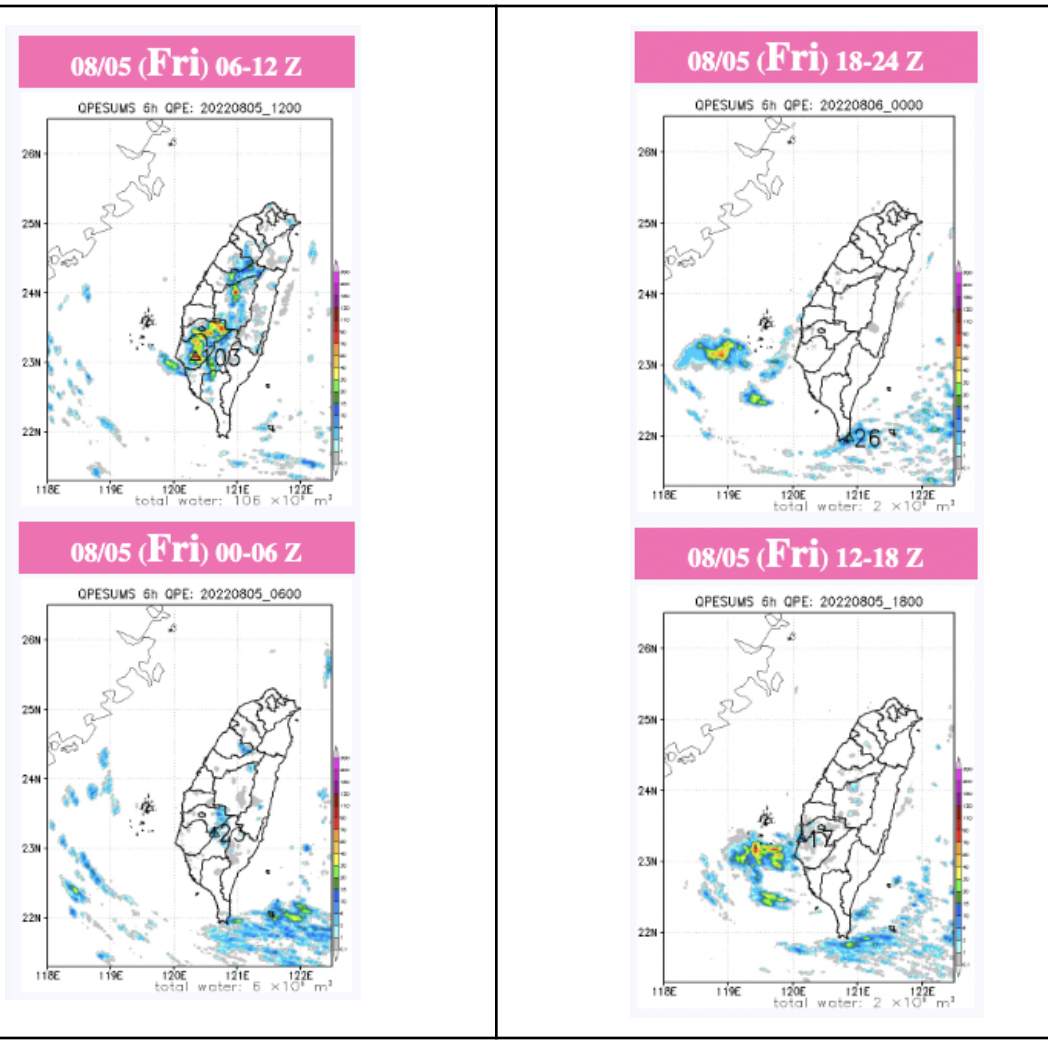


Figure 1: 6-hourly rainfall on 8/5.

Day Zero Forecast (0-24 h; 00 UTC 5 Aug - 00 UTC 6 Aug)

Things are drying out, and the subtropical high is building. It's another afternoon thunderstorm day, as can be seen from the 6-hourly QPF figure below. No significant moisture transport, just daytime heating, particularly in the central-to-southern part of

Taiwan. Many of the PSU ensemble members have significant rainfall over the mountains, and the ocean on the eastern side, but not many have precipitation on the western side within the S-pol domain. Note that SEA-pol is down currently.

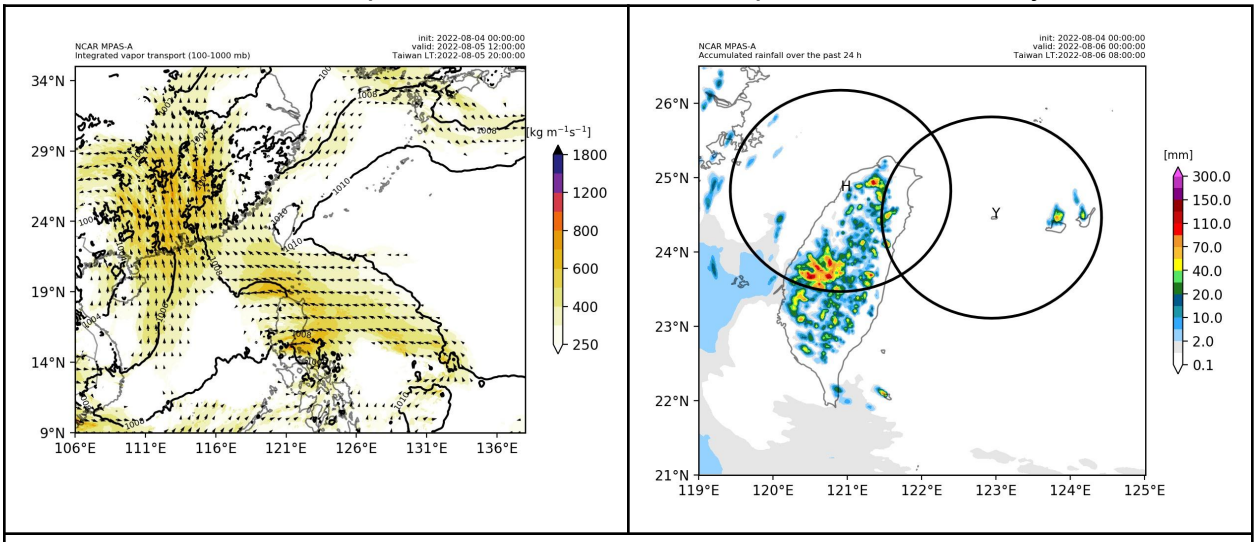


Figure 2: MPAS initialized 0z Aug 4 showing 24-hr accumulated rainfall at the end of Day 0, and IVT at 12z.

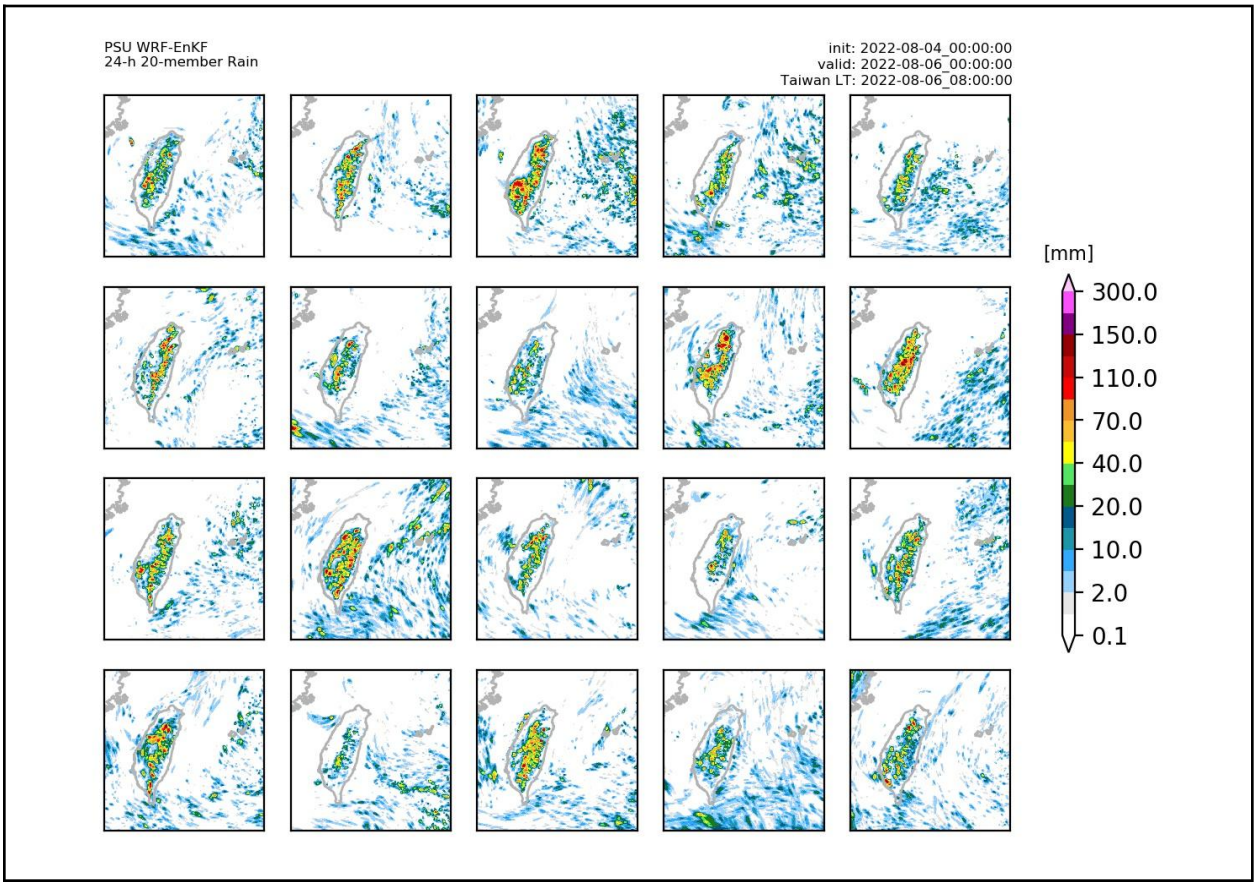


Figure 3: PSU WRF ensemble initialized 0z Aug 4, valid at the end of Day 0 at 0z Aug 6.

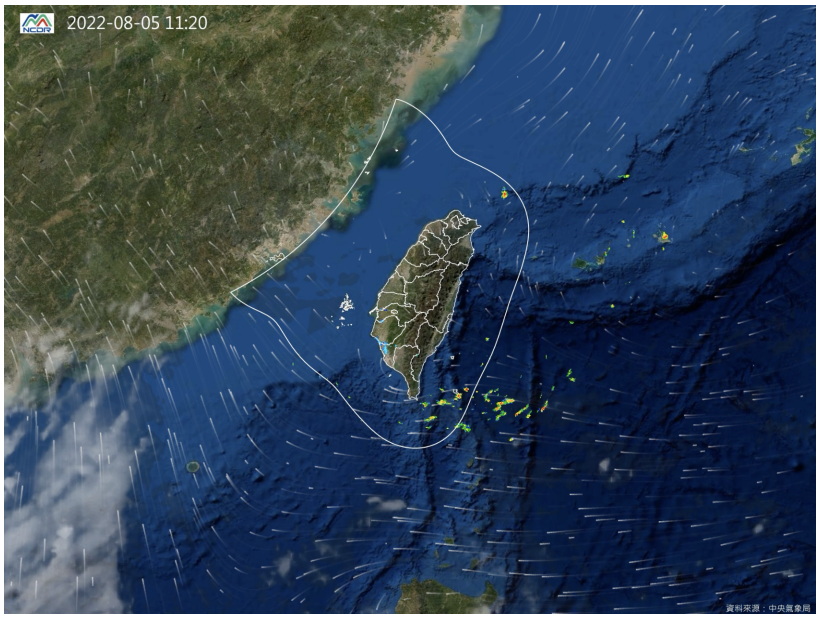


Figure 4: Satellite and radar image from 11:20 am LT on Aug 5.

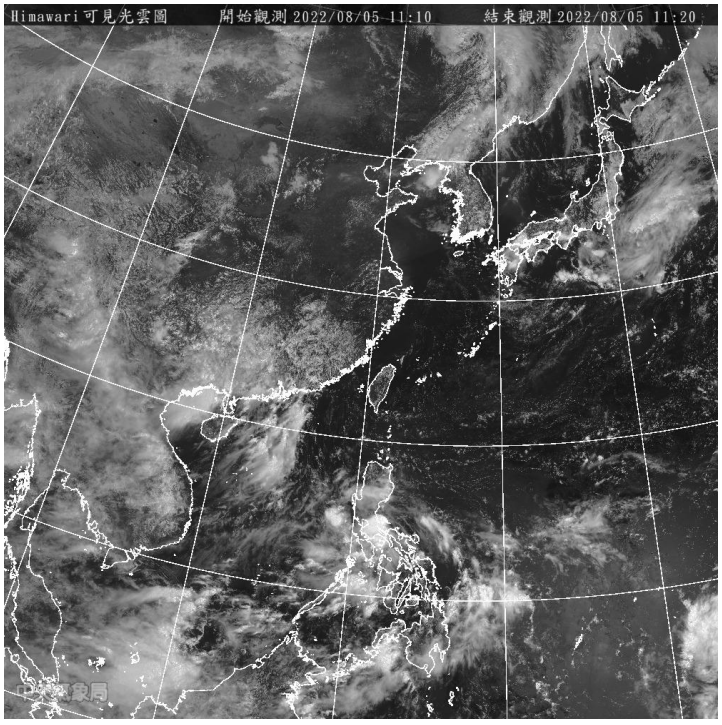
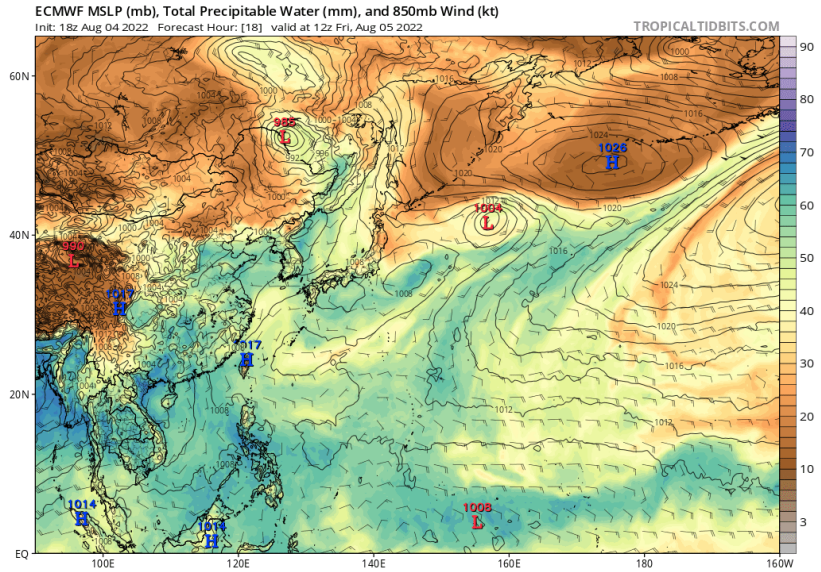


Figure 5: Himawari satellite VIS image from 11:10am LT on Aug 4.



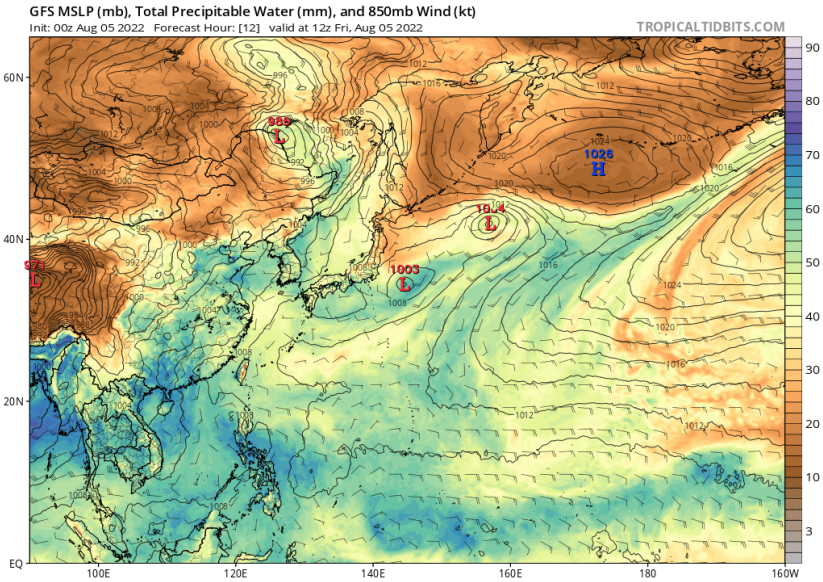


Figure 6: EC & GFS, initialized 18z Aug 4 and 0z Aug 5 respectively, showing PWAT and 850 mb Wind for the whole Pacific at 12z Aug 5.

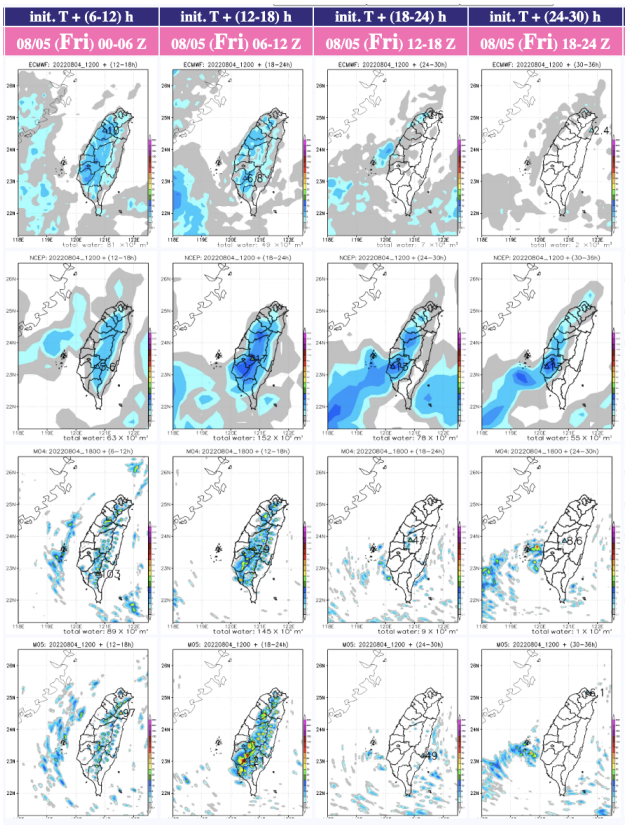


Figure 7: 6-hourly QPF on Day 0 from (top to bottom) EC, NCEP, WRFD and TWRF initialized 18z August 4th.

Discussion

We had another GPM overpass today with coordinated S-Pol scans (see below). A little bit of rainfall was occurring during the overpass time. We had some afternoon storms in the southern part of Taiwan, but not much elsewhere. The storms to the south were intense, long-lasting, but very localized (small spatially).

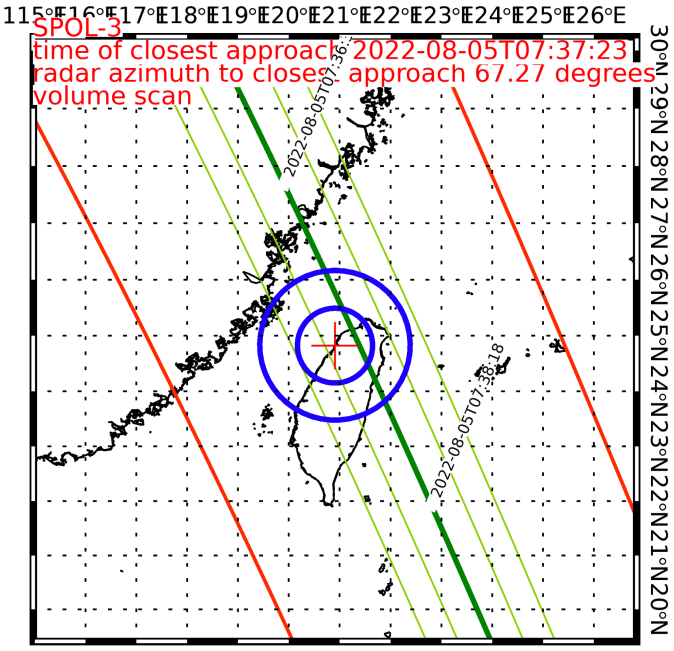


Figure 8: Anticipated GPM overpass for today at 0737 UTC (3:37 PM LT).

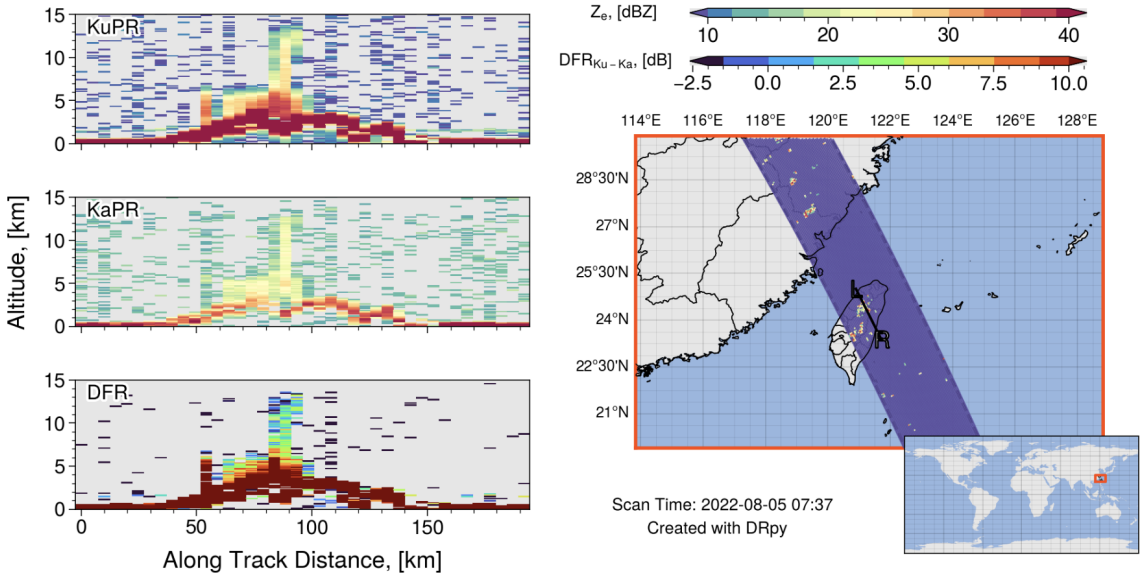


Figure 9: Near real-time GPM overpass showing mostly convection over the mountains.

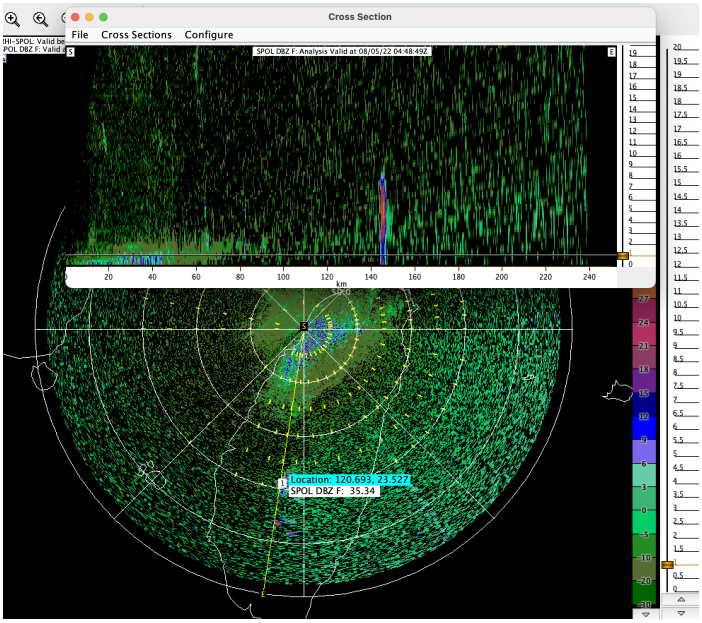


Figure 10: Cells over Chiayi area started to grow around 05 UTC.

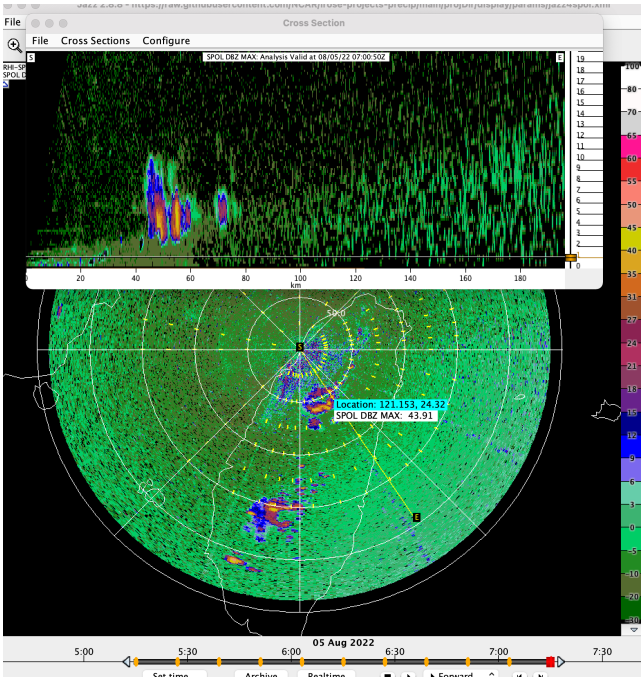


Figure 11: Cells growing over the mountains south-east of S-Pol at 0700 UTC.

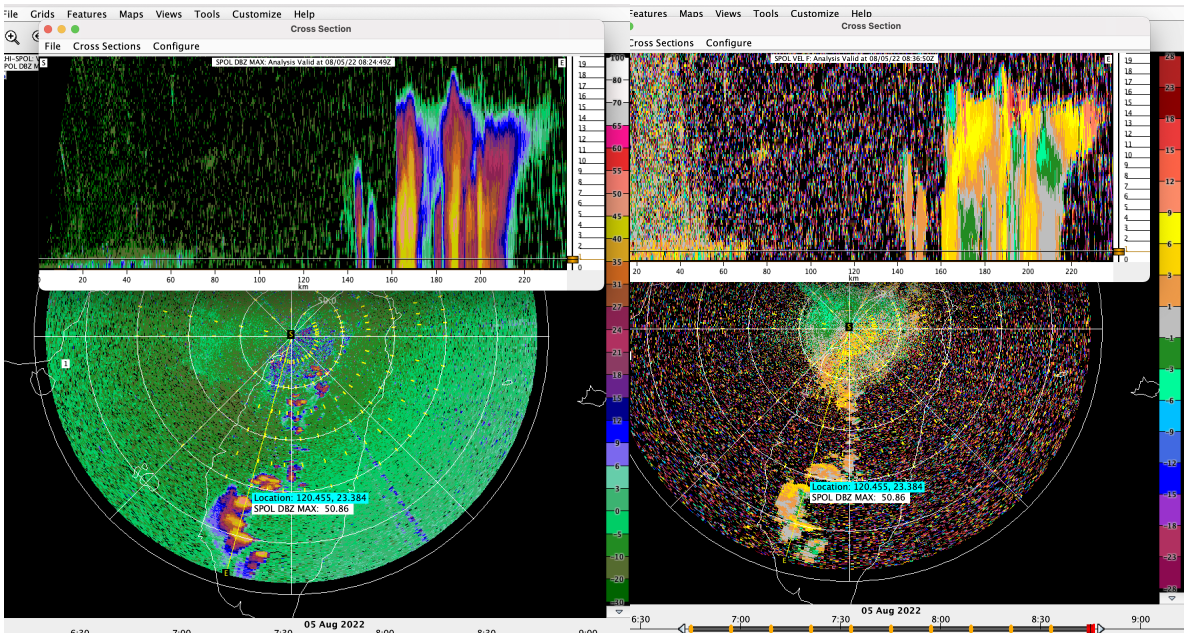


Figure 12: Storms over Chiayi area got intense, with overshooting top (reflectivity, Doppler velocity, ZDR, and KDP). The convection extends up to 18 km, and the satellite imagery shows high cloud top.

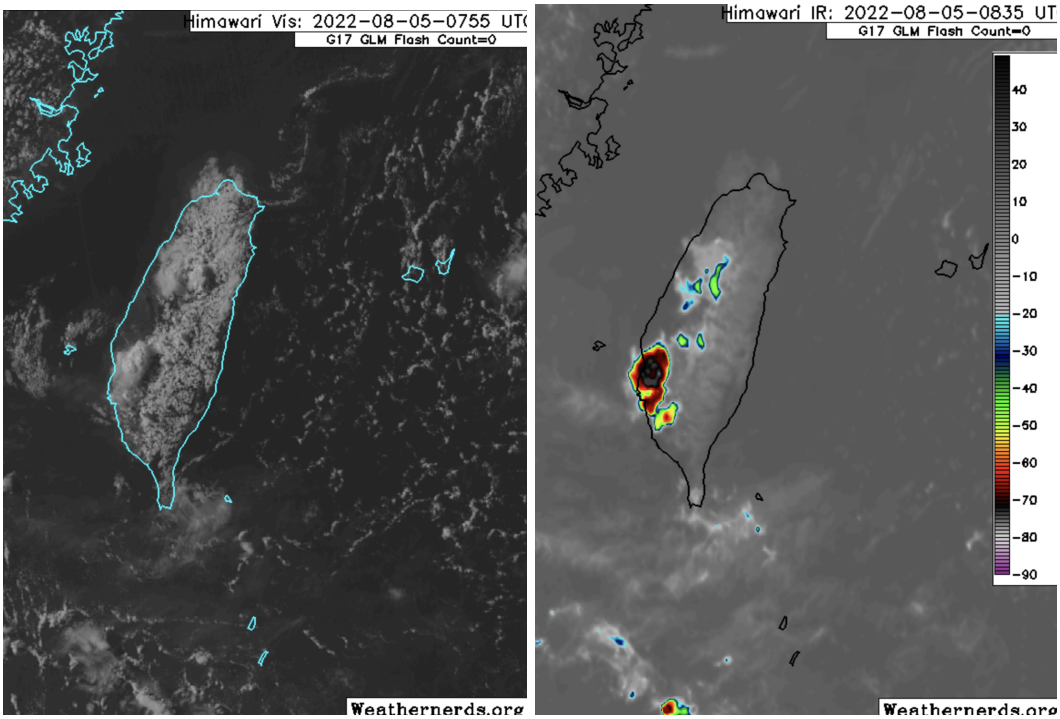


Figure 13: (left) VIS and (right) IR Color images from Himawari at 8:35 UTC.

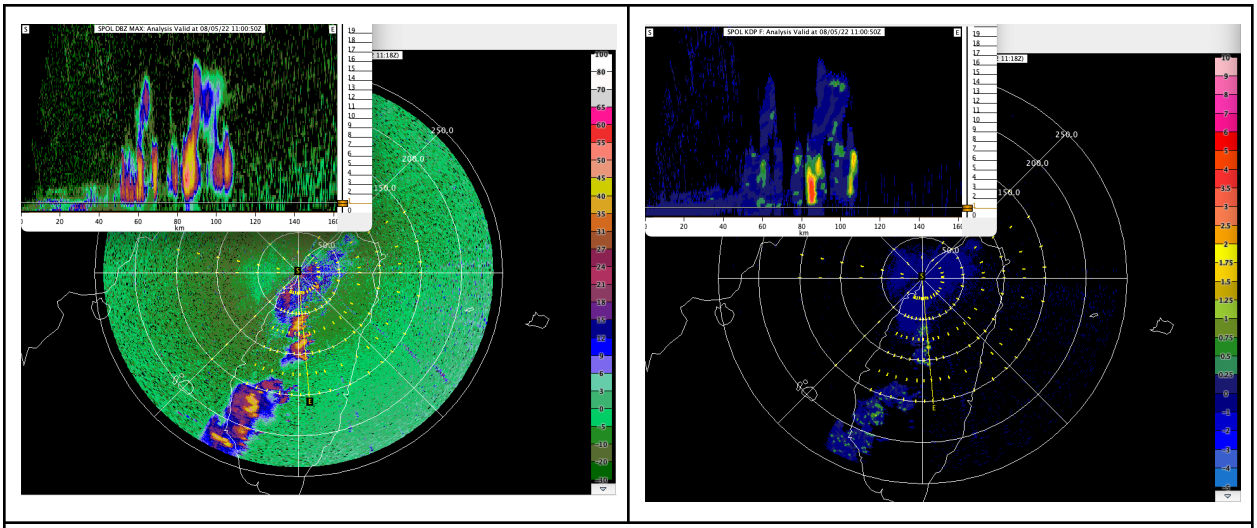
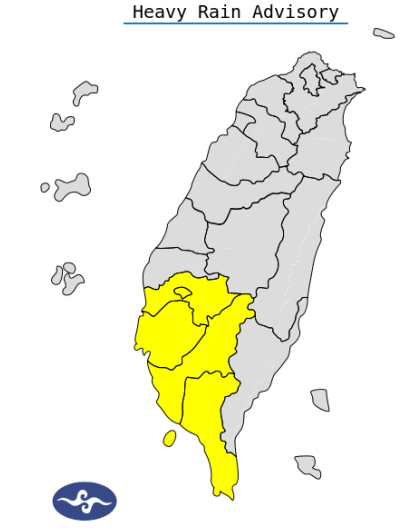


Figure 14: Today's storms over the mountains were long-lasting but isolated. This snapshot was taken around 11 UTC.

Issue Time: 2022/08/05 16:40

Heavy Rain Advisory

1. Chiayi City, Chiayi County, Tainan City, Kaohsiung City, Pingtung County, Hengchun Peninsula,
Heavy Rain Advisory in effect from late this afternoon (08/05) through tonight (08/05)



Description

- Extremely Torrential Rain
- Torrential Rain
- Extremely Heavy Rain
- Heavy Rain

Area	Weather Advisory	Area	Weather Advisory
Keelung City		Chiayi City	Heavy Rain
Taipei City		Chiayi County	Heavy Rain
New Taipei City		Tainan City	Heavy Rain
Taoyuan City		Kaohsiung City	Heavy Rain
Hsinchu City		Pingtung County	Heavy Rain
Hsinchu County		Yilan County	
Miaoli County		Hualien County	
Taichung City		Taitung County	
Changhua County		Penghu County	
Nantou County		Kinmen County	
Yunlin County		Lienchiang County	

Figure 15: Heavy rain advisory issued around 0840 UTC (1640 LT).

Verification (how well did the models do for this event?)

Models overestimated the amount of rainfall for today - global worse than regional, but both highly overestimated.

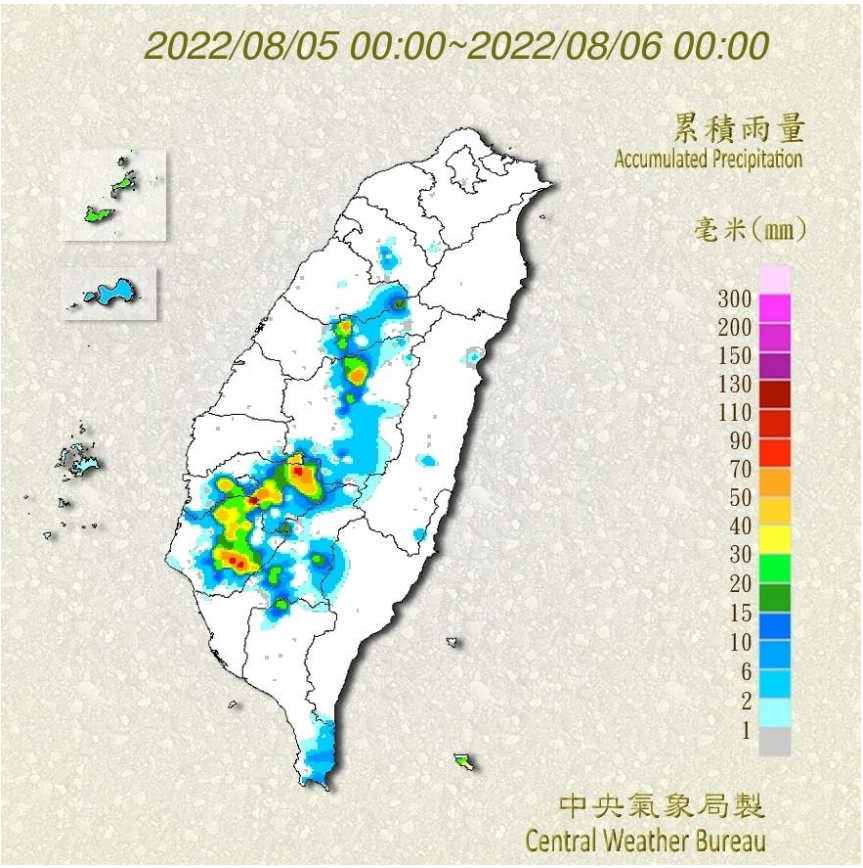


Figure 16: 24-hr rainfall accumulation from CWB.

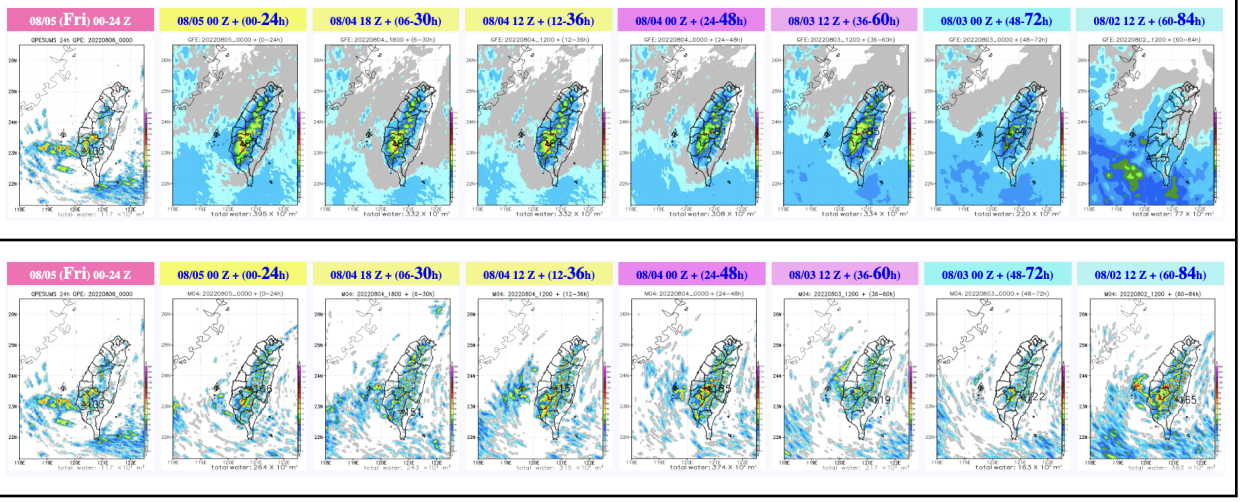


Figure 17: Official (top) and WRFD (bottom) 24-hr verification for August 5th.

Days One and Two Outlook (24-72 h; 00 UTC 6 Aug - 00 UTC 8 Aug)

Looking like a very dry weekend. No strong forcing, minimal afternoon showers expected.

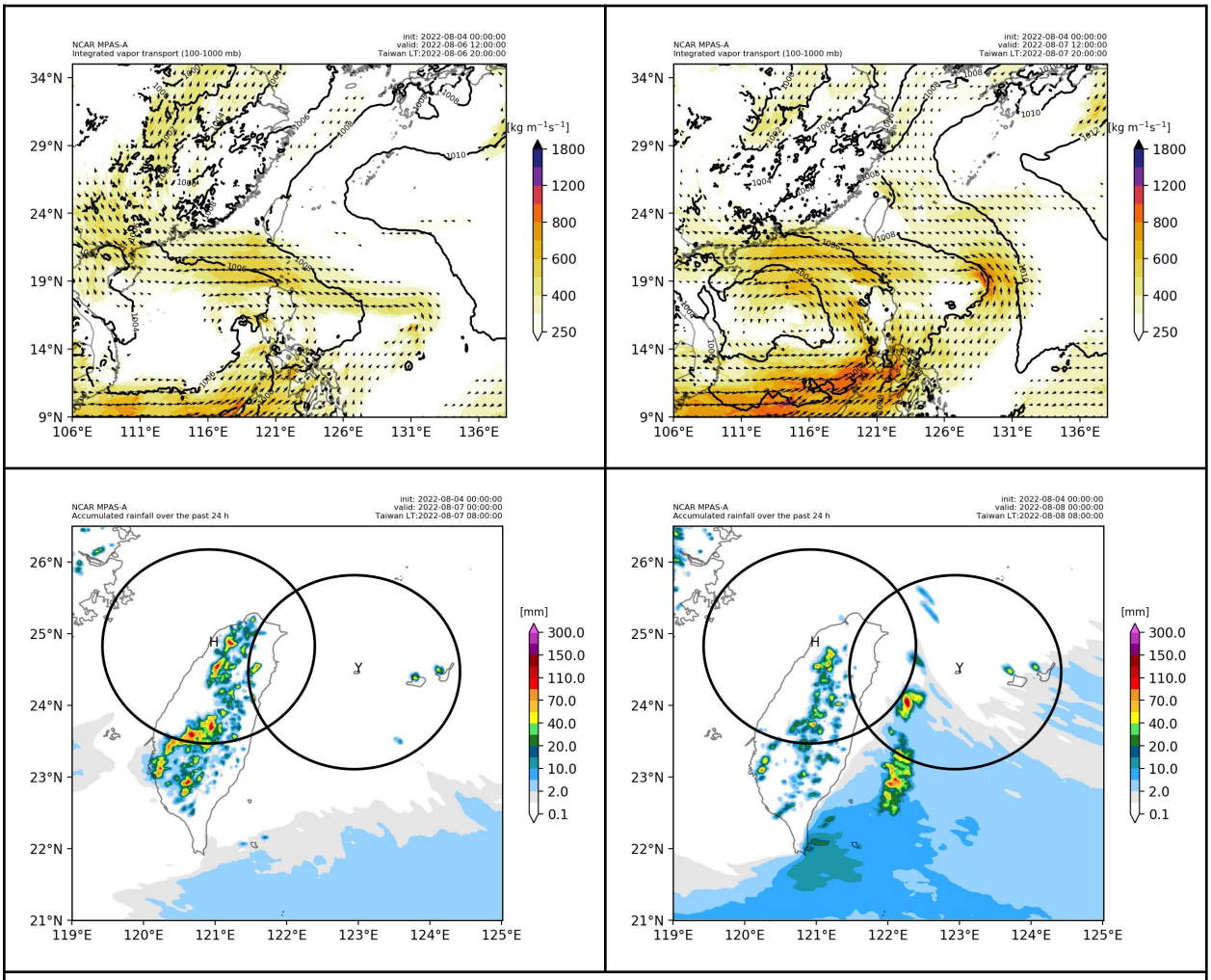


Figure 18: MPAS run initialized 0z on 4 Aug. Left is Day 1, right Day 2. (top) is IVT at the halfway point of the day (12z 6 Aug and 7 Aug) and (bottom) is 24-hr accumulated precipitation at the end of the day (0z 7 and 8 Aug).

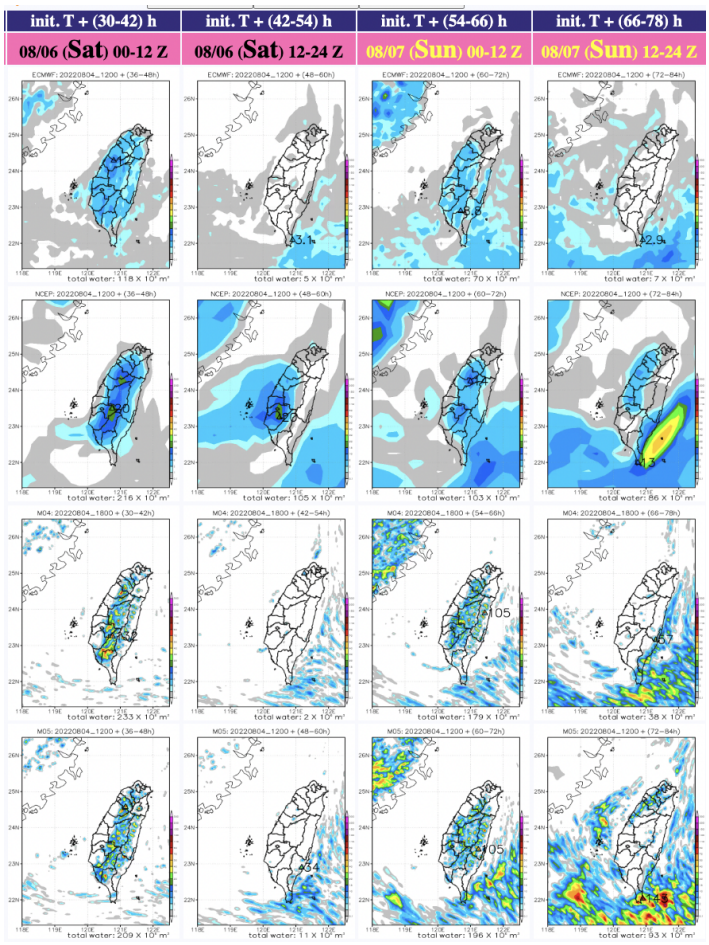


Figure 19: Initialized 18z Aug 4, for Day 1 and 2 in 12-hourly increments.

Extended Outlook (Days 3-5; 00 UTC 8 Aug - 00 UTC 11 Aug)

We are still keeping an eye on a possible TC at the end of PRECIP, but forecasts differ in position, strength, and timing. Below GFS clearly has some sort of tropical activity, but EC does not.

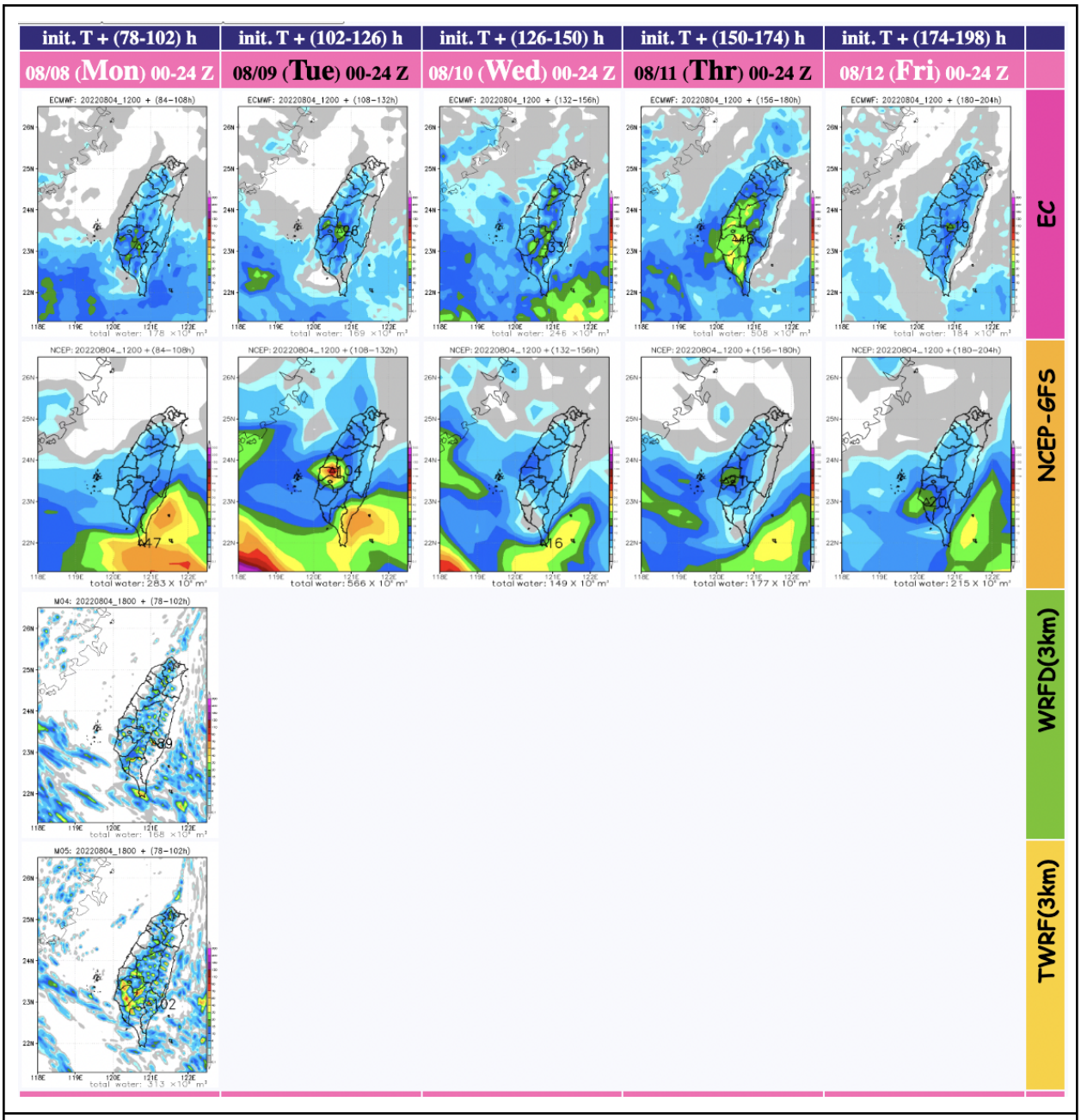


Figure 20: Aug 8 - Aug 12, 24-hr accumulated precipitation initialized 18z Aug 4.