201607 - Tropical cyclone - Nepartak

Status:Finalised Material from: Mohamed, Linus

Picture

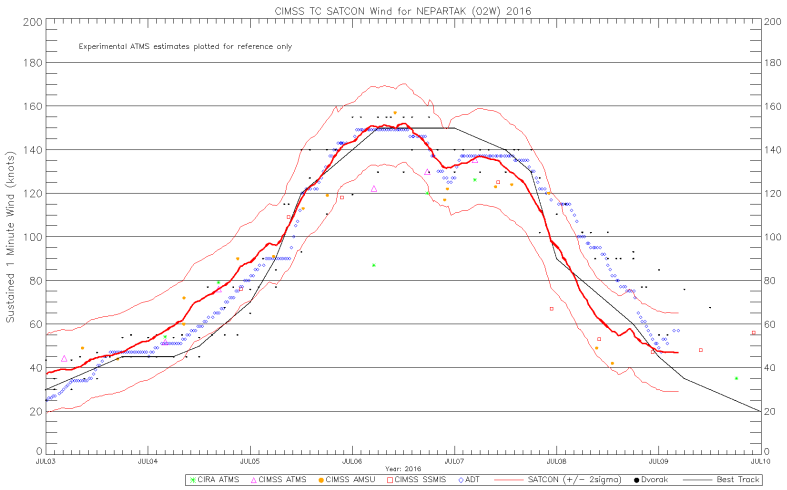
1. Impact

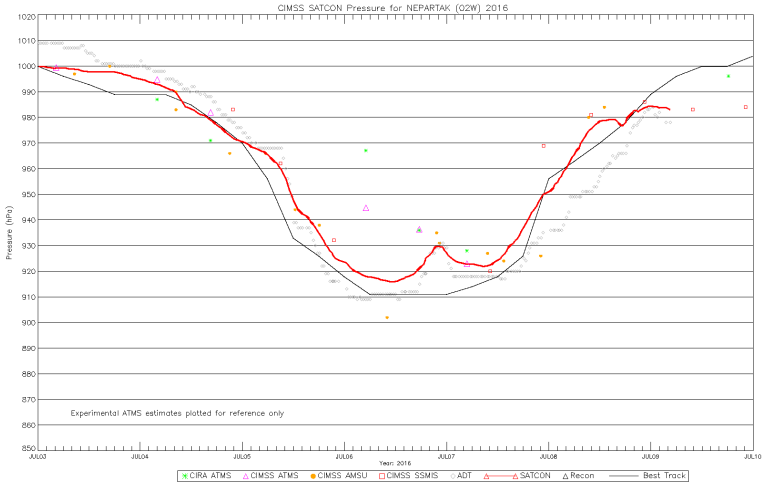
TC Nepartak formed on 2 July and made landfall on Taiwan on 8 July and China the day after. 13 people are believed to have been killed by the cyclone (3 on Taiwan and 10 in China).

https://en.wikipedia.org/wiki/Typhoon_Nepartak_(2016)

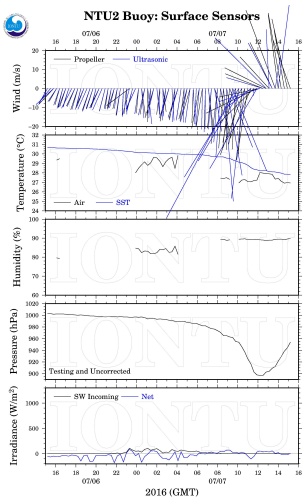
2. Description of the event

The plots below show the estimates of maximum wind speed and central pressure from different sources (from http://tropic.ssec.wisc.edu/tropic.php#)





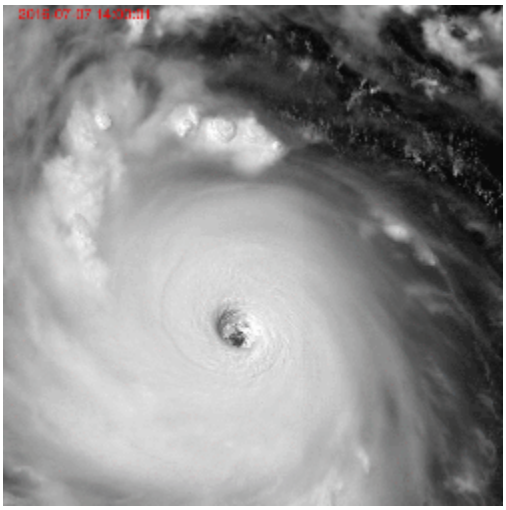
During its most intense phase the cyclone passed over a moored research buoy, which measured ~900 hPa.



Below you can find a video of satellite images. Plese note hte gravity wave pattern that radiates out from the cyclone centre.

160705_himawar...artak_anim.mp4

The animation below show animated sequence of high-resolution visible imagery from a new Chinese civilian geostationary satellite Gao Fen 4 (GF-4). (Provided by Chris Velden.)



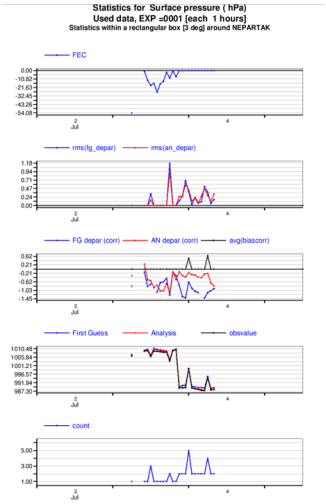
The file below includes the TCVitals for Nepartak. Column 10 is the central pressure, column 11 the environment pressure, column 12 the radius to outermost closed isobar (km), column 13 the maximum wind speed (m/s) and column 14 the radius to maximum wind speed (km).

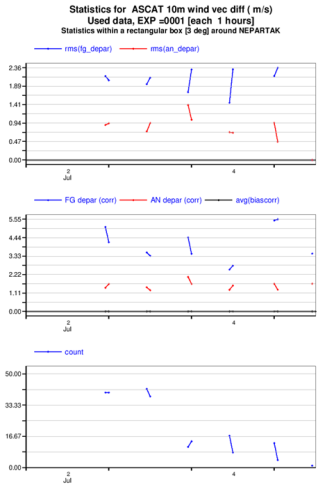
NEPARTAK.tcvitals.2016.dat

3. Predictability

3.1 Data assimilation

The plots below show the statistics (or rather lack of) from observations close to the cycle (3 degree box).





3.2 HRES

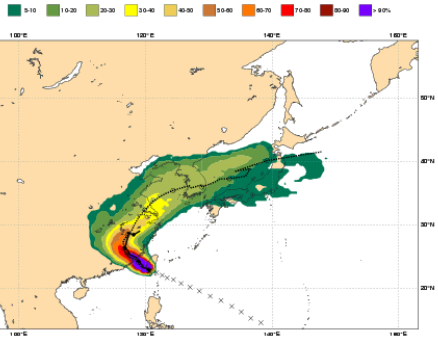
3.3 ENS

The plots below show the tropical cyclone product for Nepartak.

Date 20160708 00 UTC **@ECMWF**

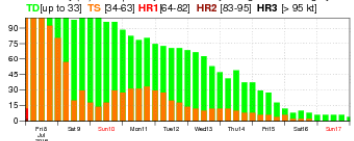
Probability that **NEPARTAK** will pass within 120 km radius during the next **240** hours

tracks: **solid**=HRES; **dot**=Ens Mean [reported minimum central pressure (hPa) **945**]

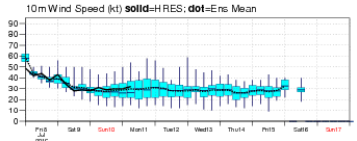


Probability (%) of Tropical Cyclone Intensity falling in each category

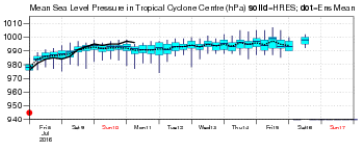
TD[up to 33] TS [34-63] HR1[64-82] HR2 [83-95] HR3 [> 95 kt]



10m Wind Speed (kt) **solid**=HRES; **dot**=Ens Mean

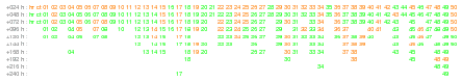


Mean Sea Level Pressure in Tropical Cyclone Centre (hPa) **solid**=HRES; **dot**=Ens Mean



List of ensemble members numbers forecast Tropical Cyclone

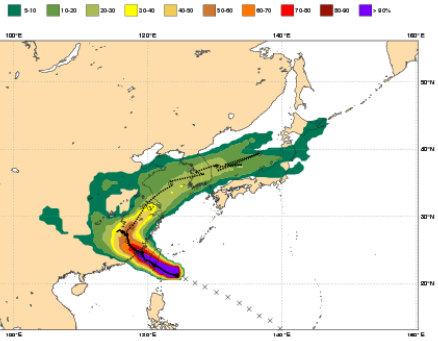
Intensity category in colours: TD[up to 33] TS[34-63] HR1[64-82] HR2[83-95] HR3[>95 kt]



Date 20160707 00 UTC **@ECMWF**

Probability that **NEPARTAK** will pass within 120 km radius during the next **240** hours

tracks: **solid**=HRES; **dot**=Ens Mean [reported minimum central pressure (hPa) **900**]



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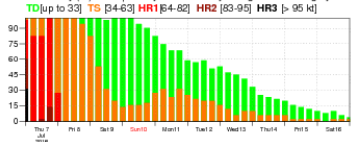
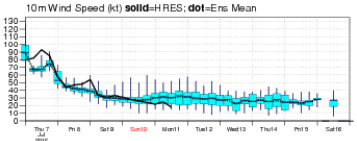
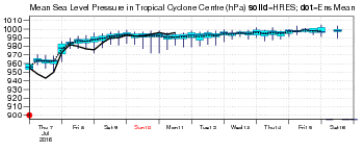


10m Wind Speed (kt) **solid**=HRES; **dot**=Ens Mean



Mean Sea Level Pressure in Tropical Cyclone Centre (hPa) **solid**=HRES; **dot**=Ens Mean



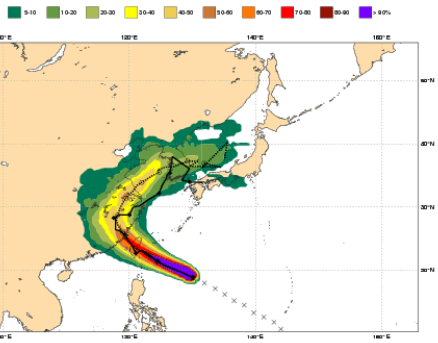
List of ensemble members numbers forecast Tropical Cyclone

Intensity category in colours: TD[up to 33] TS[34-63] HR1[64-82] HR2[83-95] HR3[>95 kt]

Date 20160706 00 UTC **@ECMWF**

Probability that **NEPARTAK** will pass within 120 km radius during the next **240** hours

tracks: **solid**=HRES; **dot**=Ens Mean [reported minimum central pressure (hPa) **910**]



Probability (%) of Tropical Cyclone Intensity falling in each category

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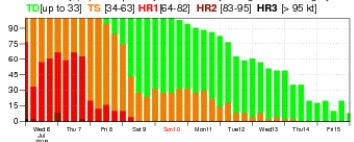
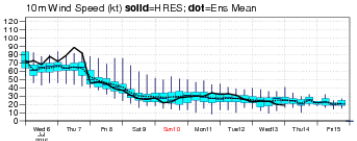
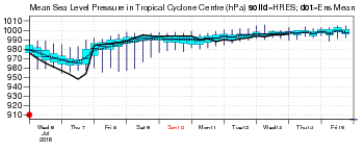


10m Wind Speed (kt) **solid**=HRES; **dot**=Ens Mean



Mean Sea Level Pressure in Tropical Cyclone Centre (hPa) **solid**=HRES; **dot**=Ens Mean



List of ensemble members numbers forecast Tropical Cyclone

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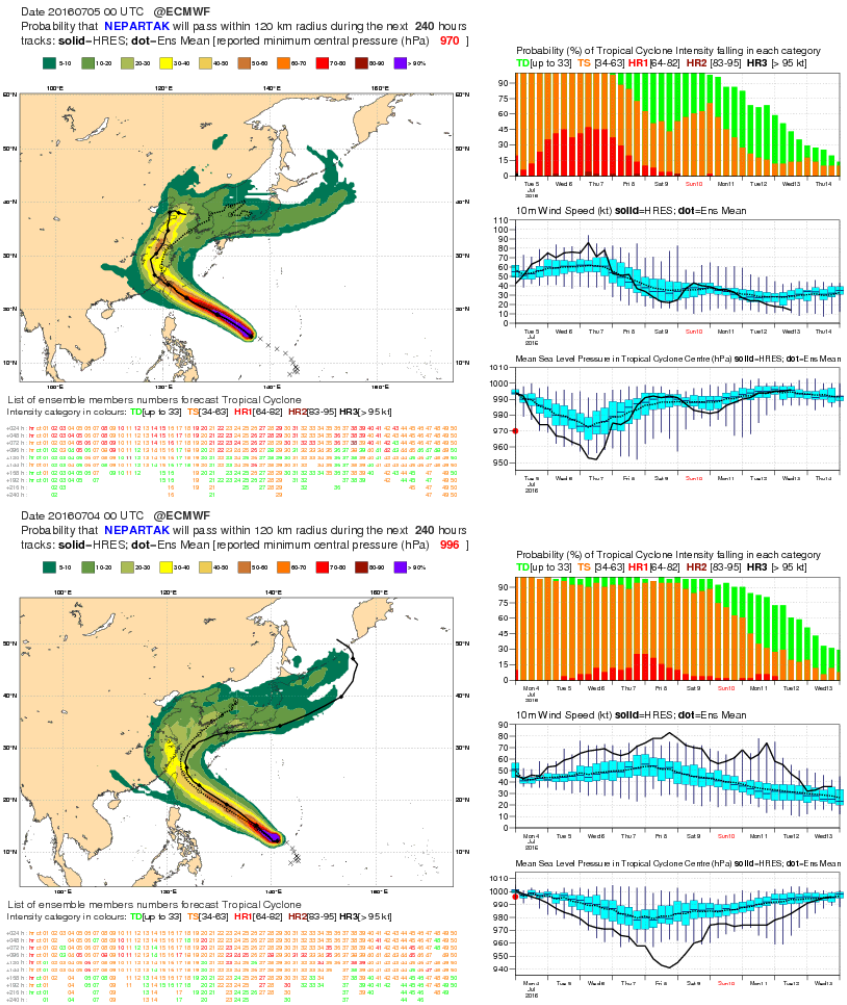
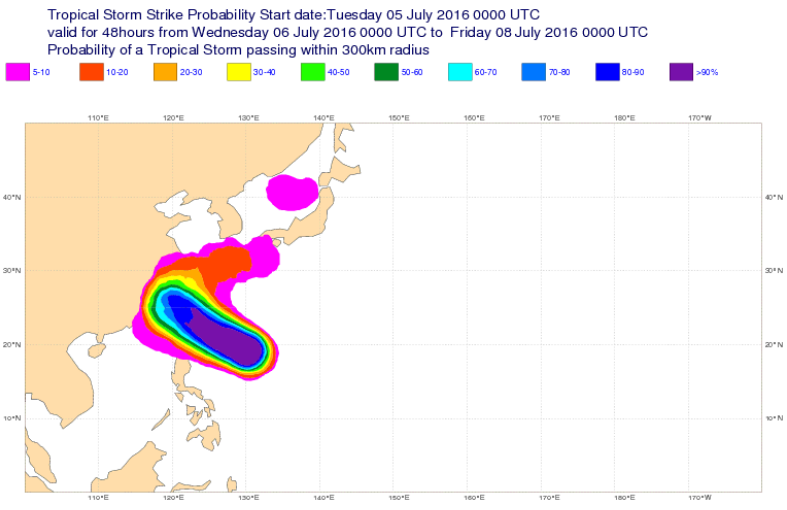
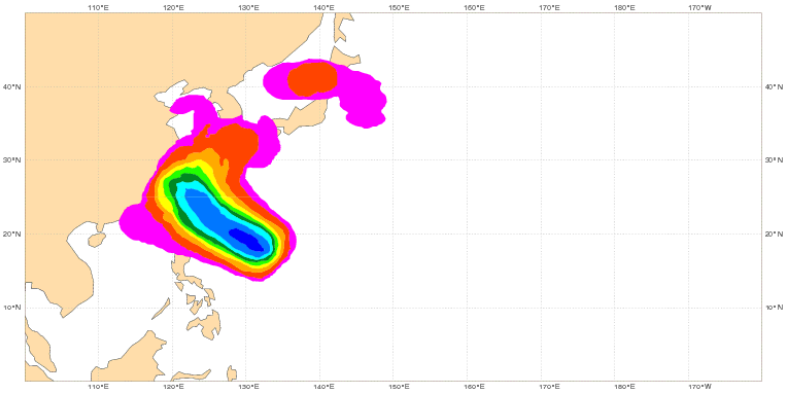


The plots below show the tropical storm activity for 6-8 July.



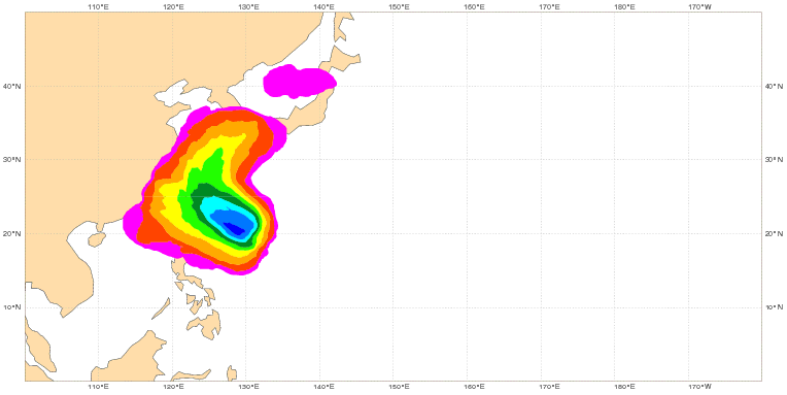
Tropical Storm Strike Probability Start date:Monday 04 July 2016 0000 UTC
valid for 48hours from Wednesday 06 July 2016 0000 UTC to Friday 08 July 2016 0000 UTC
Probability of a Tropical Storm passing within 300km radius

5-10 10-20 20-30 30-40 40-50 50-60 60-70 70-80 80-90 >90%



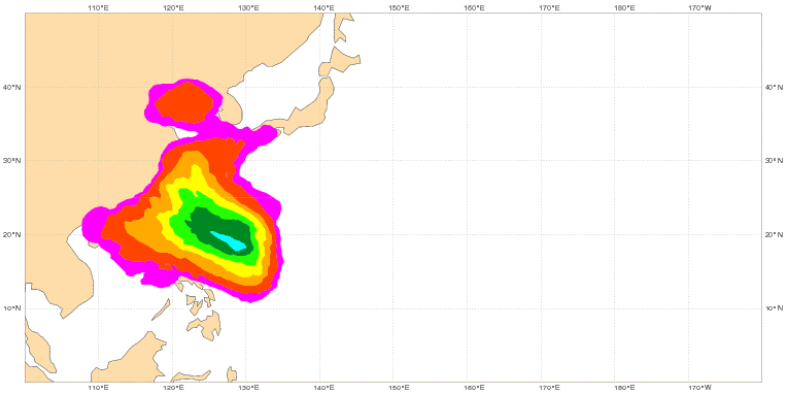
Tropical Storm Strike Probability Start date:Sunday 03 July 2016 0000 UTC
valid for 48hours from Wednesday 06 July 2016 0000 UTC to Friday 08 July 2016 0000 UTC
Probability of a Tropical Storm passing within 300km radius

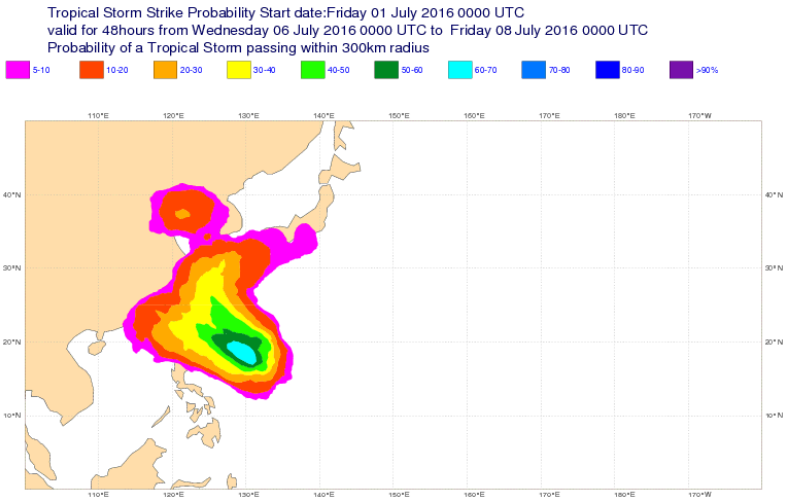
5-10 10-20 20-30 30-40 40-50 50-60 60-70 70-80 80-90 >90%

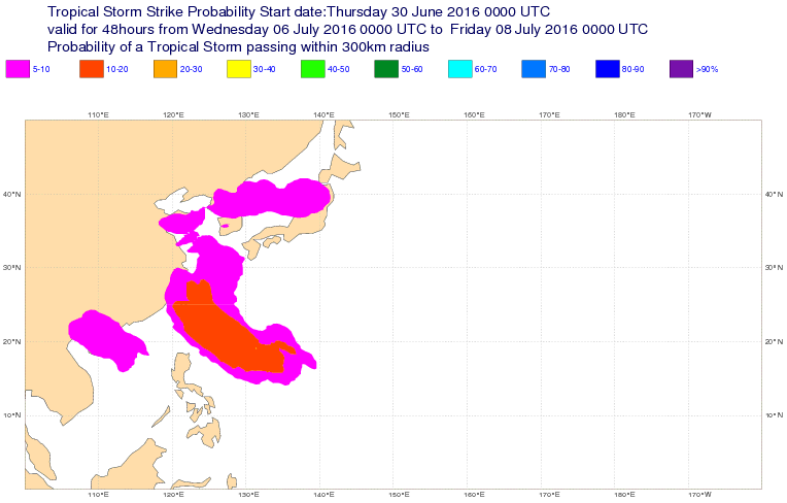


Tropical Storm Strike Probability Start date:Saturday 02 July 2016 0000 UTC
valid for 48hours from Wednesday 06 July 2016 0000 UTC to Friday 08 July 2016 0000 UTC
Probability of a Tropical Storm passing within 300km radius

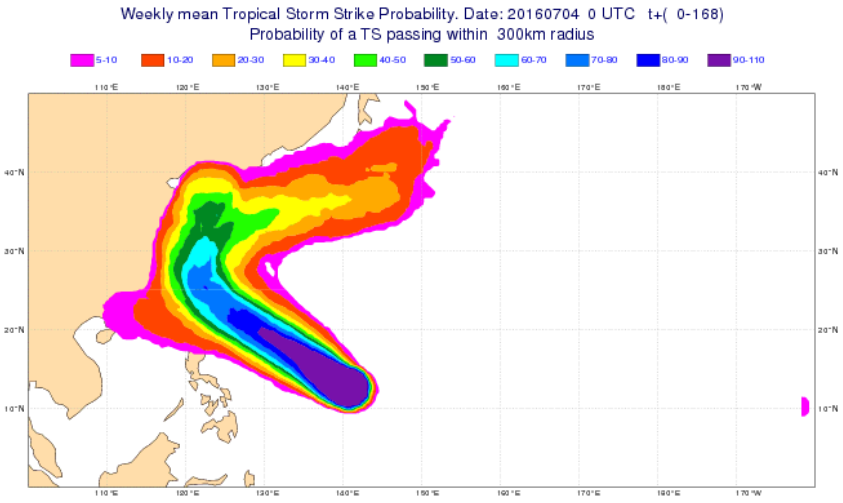
5-10 10-20 20-30 30-40 40-50 50-60 60-70 70-80 80-90 >90%

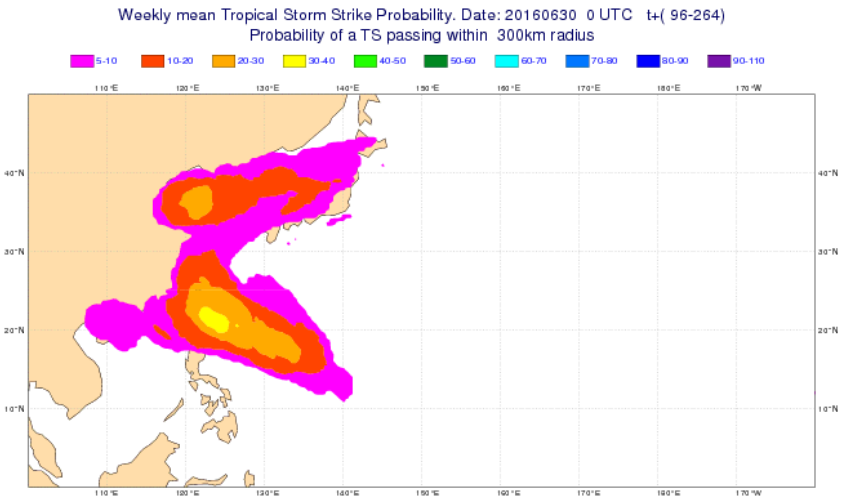


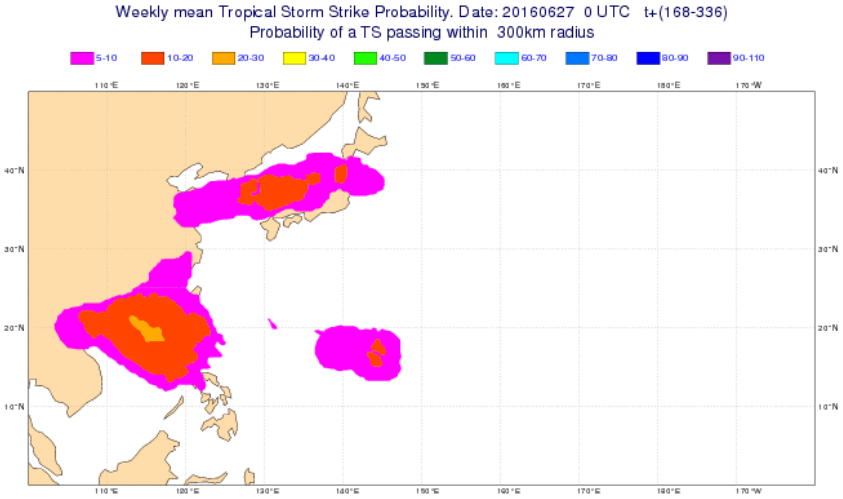


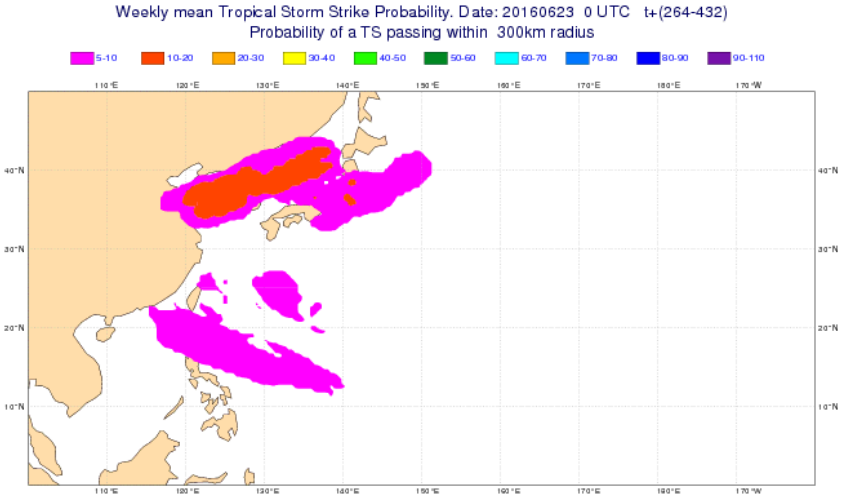


3.4 Monthly forecasts









3.5 Comparison with other centres

4. Experience from general performance/other cases

5. Good and bad aspects of the forecasts for the event

6. Additional material