

# 中期(八天)雲解析颱風差時系集預報結果分析- 以康芮颱風、蘇拉颱風為例

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104年天氣分析與預報研討會

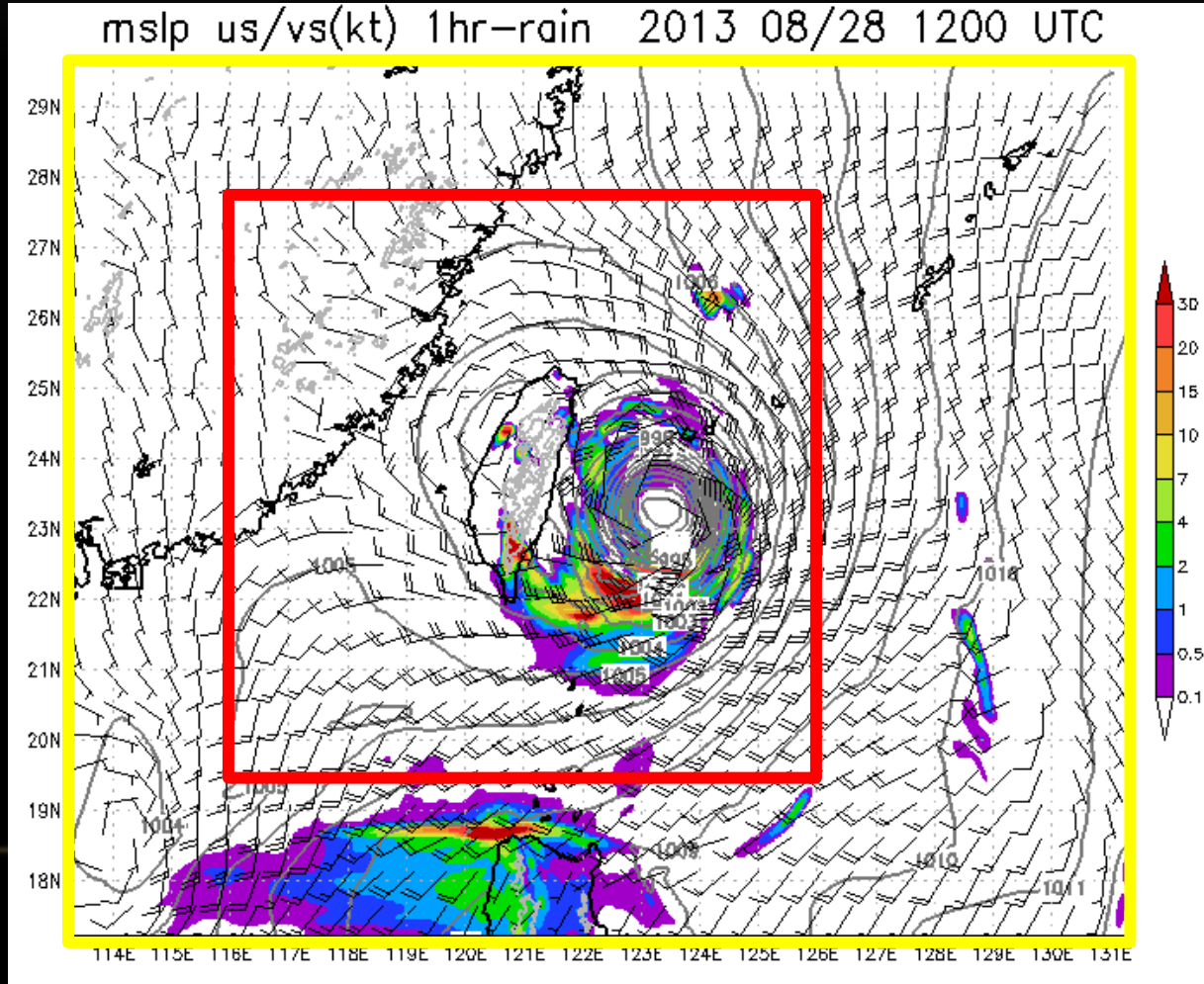
中華民國104年9月15-17日

中央氣象局

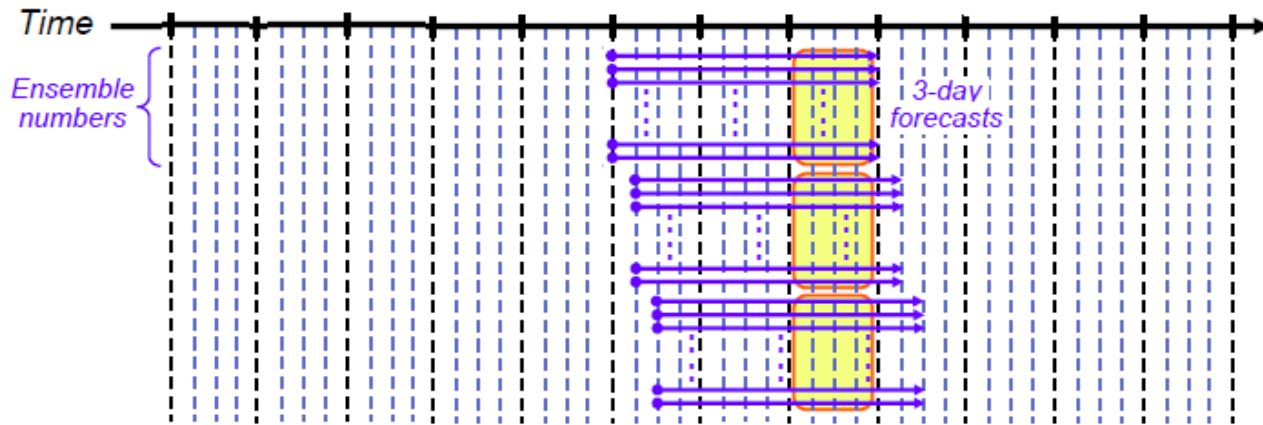
# INTRODUCTION

<i>Grid size</i>	<i>5 km</i>	
<i>Fine-domain size</i>	<i>750 km x 900 km</i>	
<i>Forecast range</i>	<i>3 days (72 h)</i>	
<i>Ensemble member</i>	<i>24 member</i>	
<i>CPU number</i>	<i>near 1500 cores</i>	

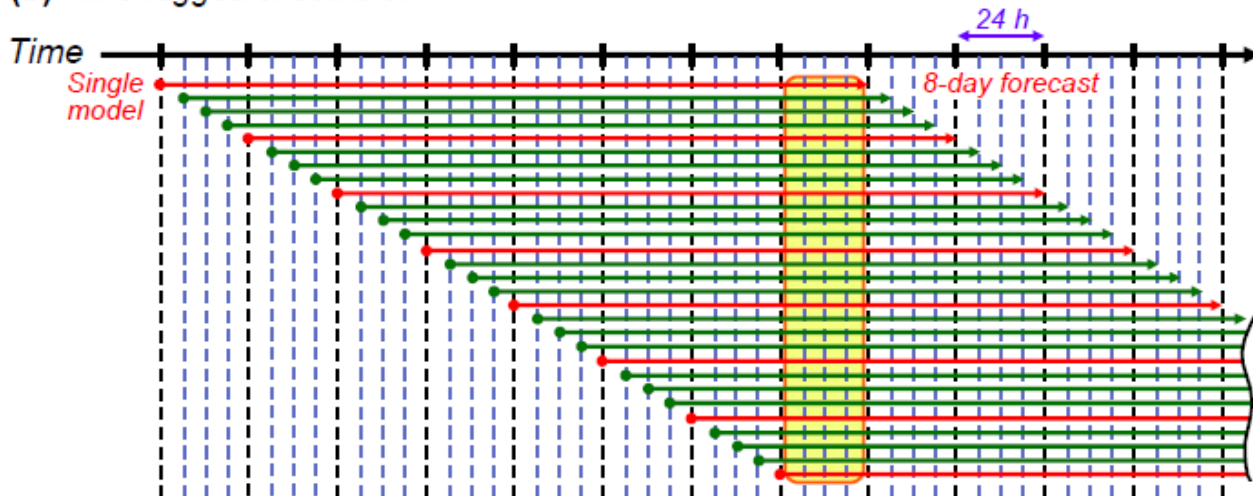
<i>Ensemble type</i>	<i>Cloud-resolving time-lagged</i>	<i>Low-resolution 24-member</i>
<i>Grid size</i>	<i>2.5 km</i>	<i>5 km</i>
<i>Fine-domain size</i>	<i>1860 km x 1360 km</i>	<i>750 km x 900 km</i>
<i>Forecast range</i>	<i>8 days (192 h)</i>	<i>3 days (72 h)</i>



(a) Typical ensemble:



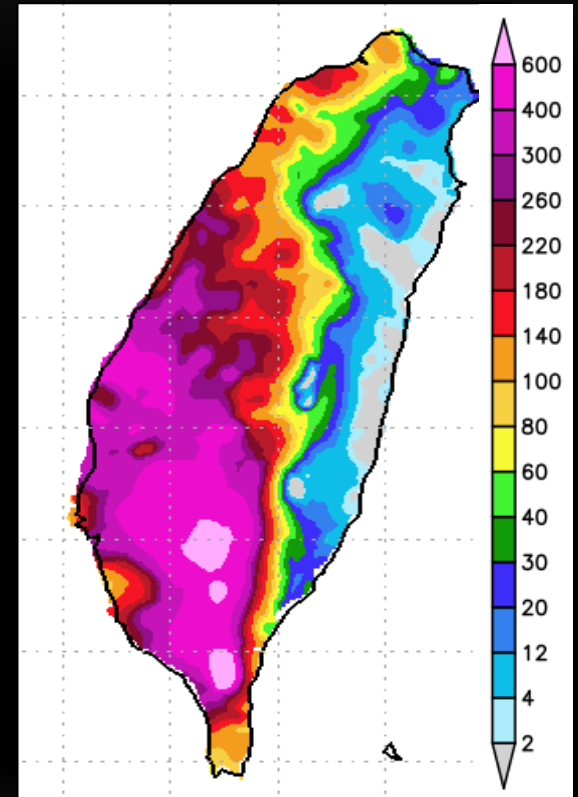
(b) Time-lagged ensemble:



# KONG-REY (2013)

- *Very weak (TS status)*
- *With strong SW flow*

OBS  
8/29 00Z-8/31 00Z

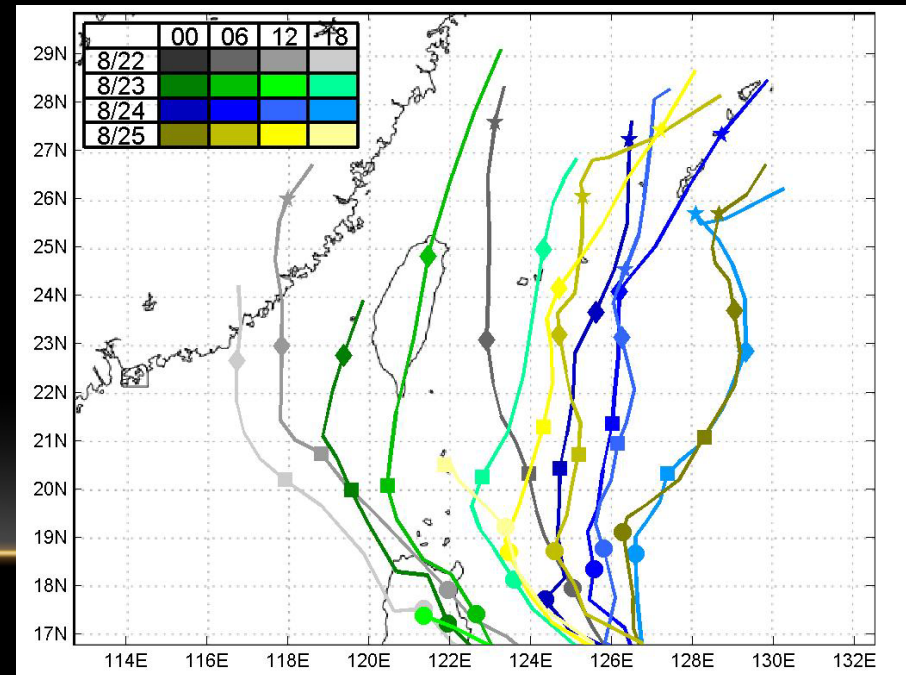
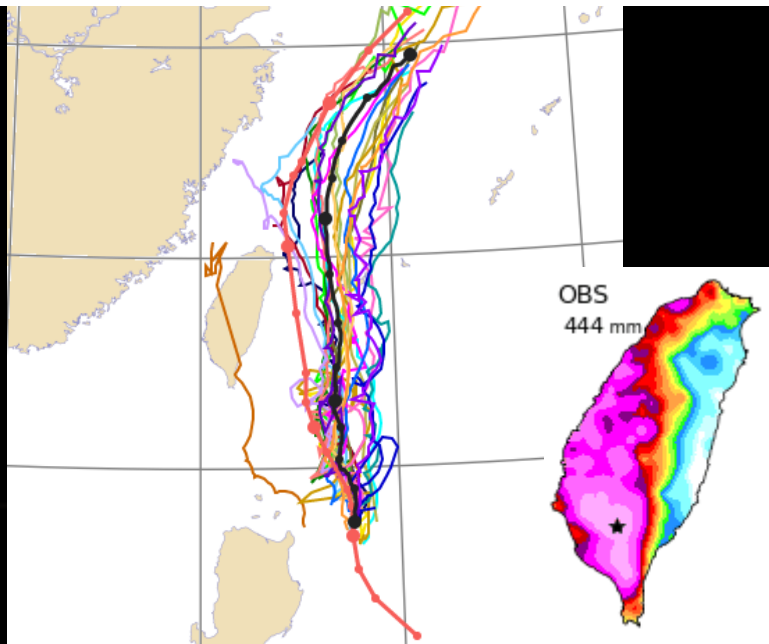
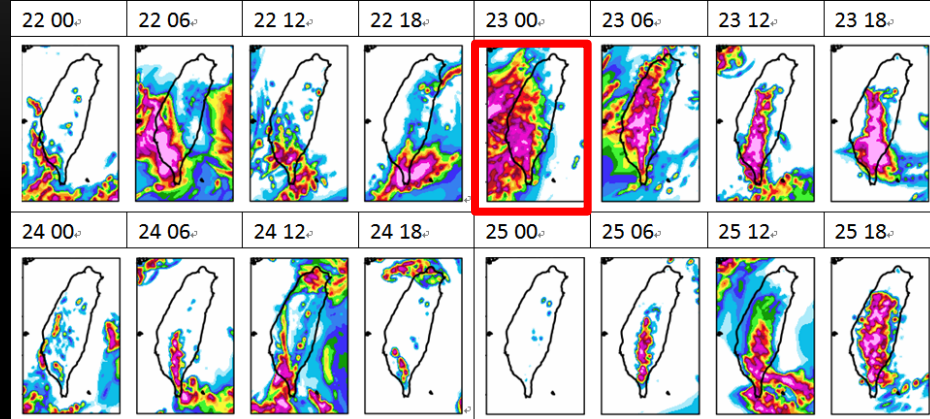
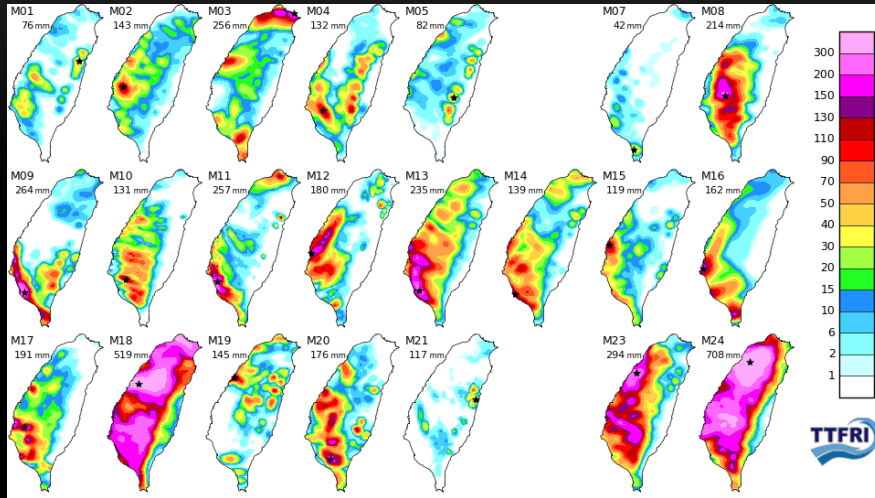


(48-h rainfall)

*Low-resolution 24-member*  
 First report ini. time:082700

*Cloud-resolving time-lagged*  
 16 member report ini. time:082518

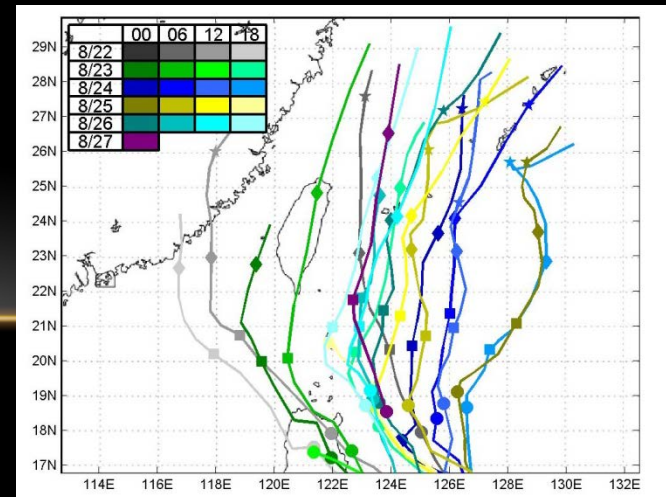
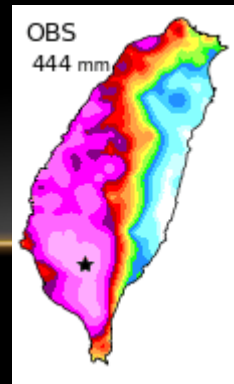
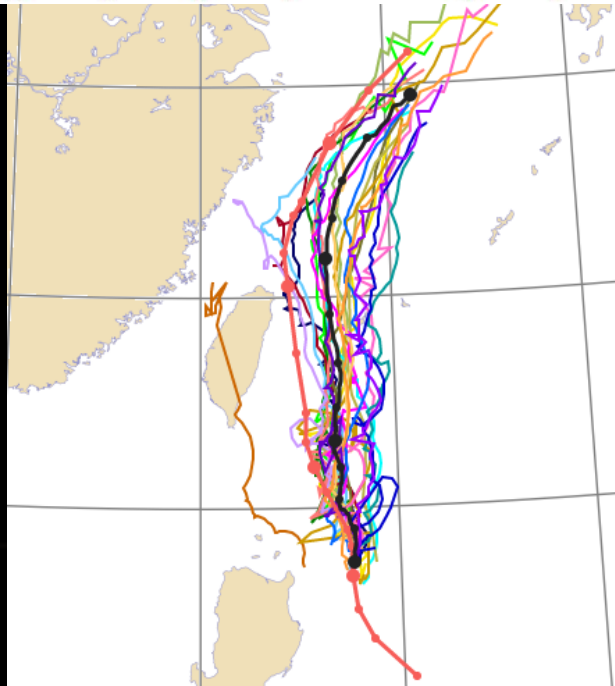
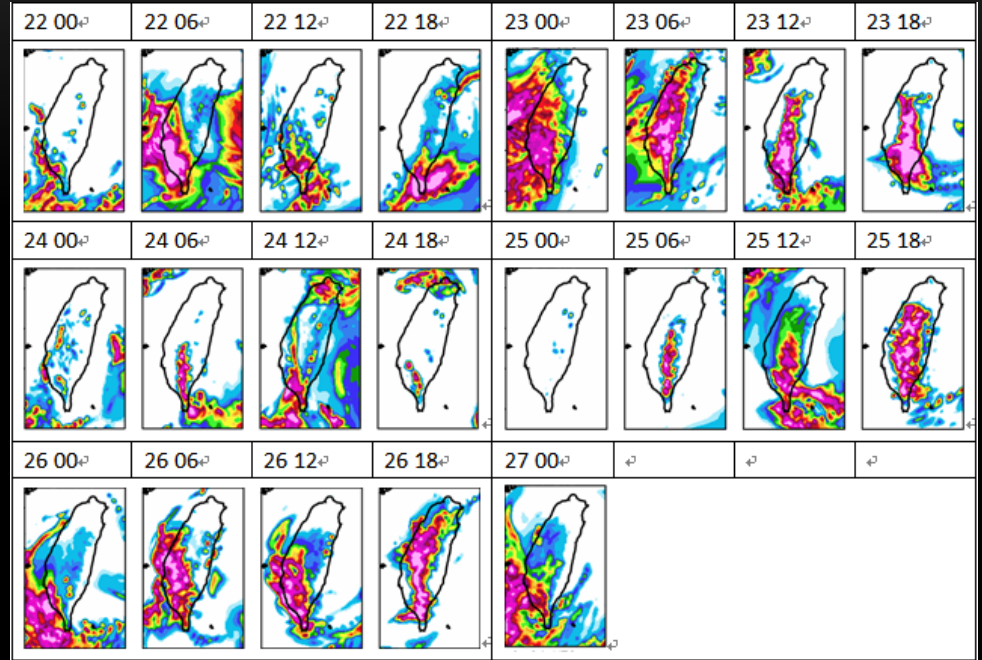
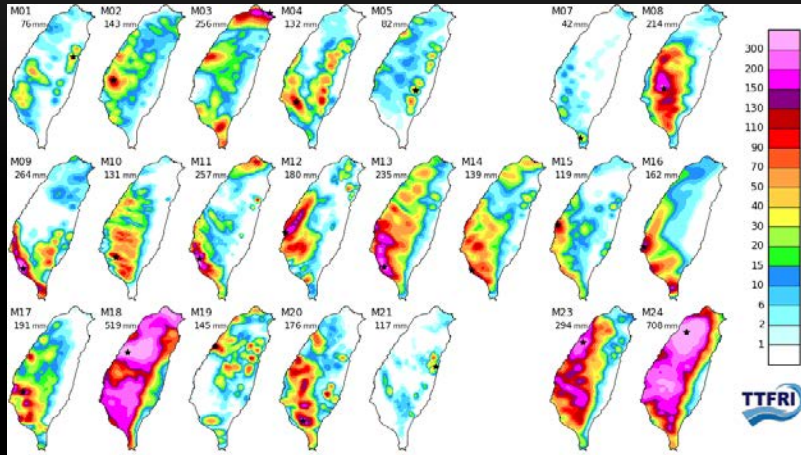
2013082900-24 UTC Rainfall



**Low-resolution 24-member**  
**First report** ini. time:082700

**Cloud-resolving time-lagged**  
**21 member report** ini. time:082700

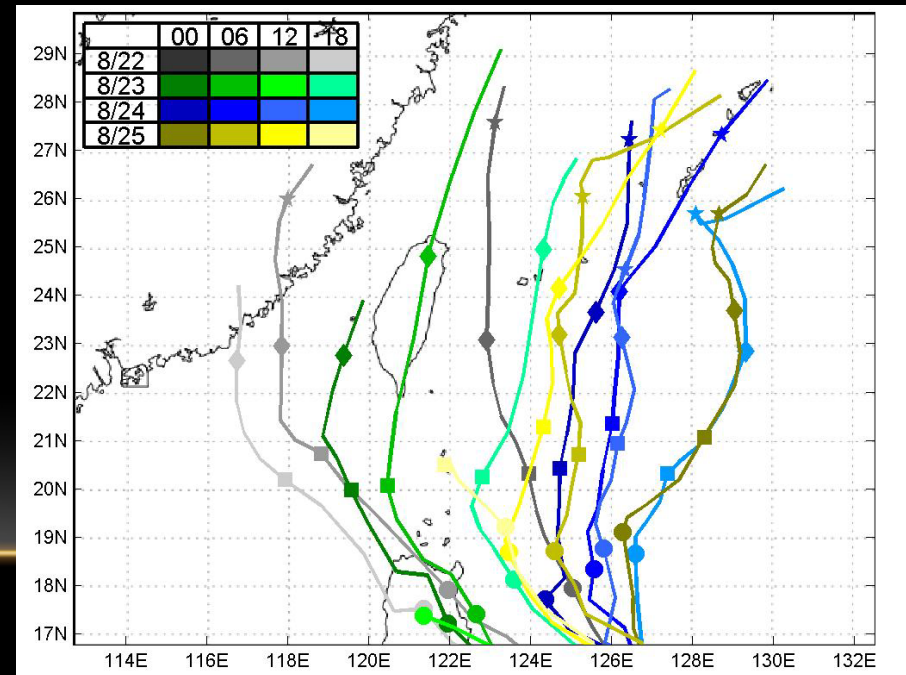
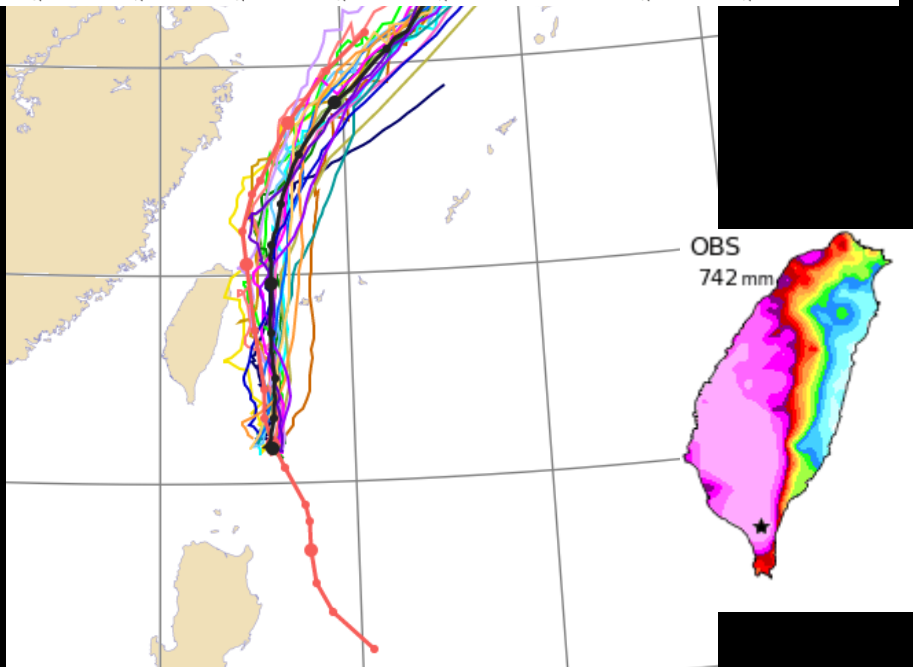
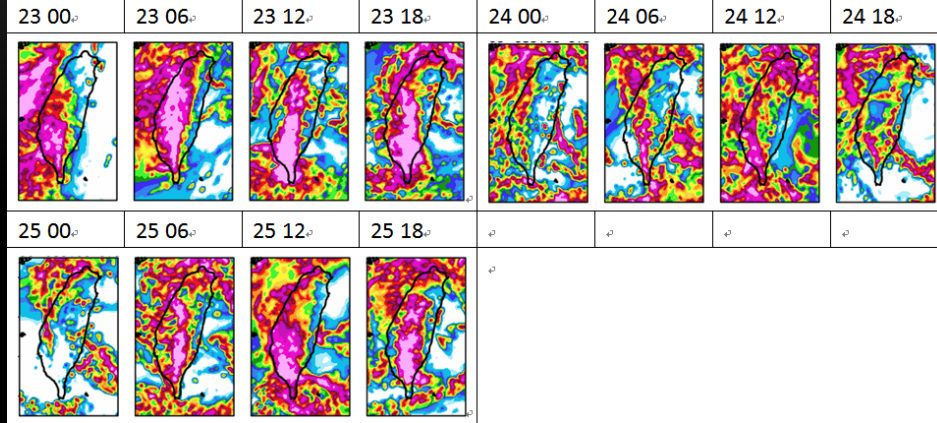
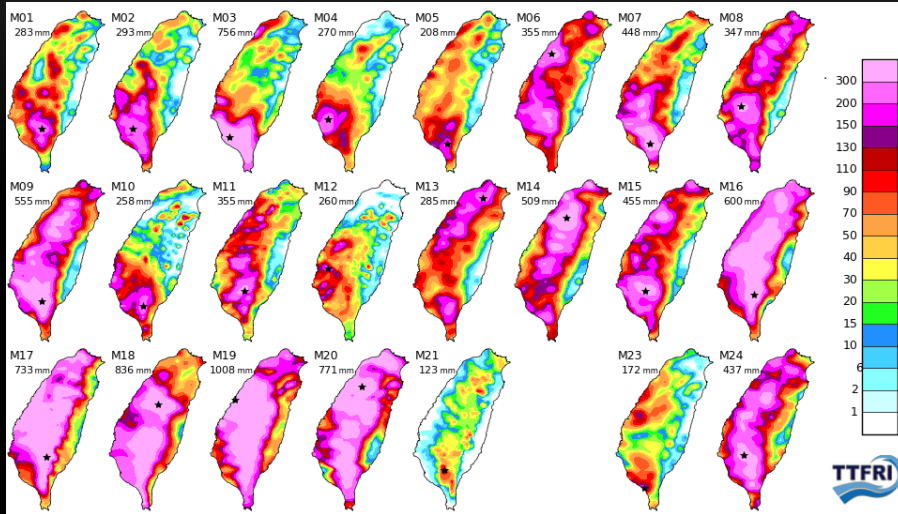
2013082900-24 UTC Rainfall



**Low-resolution 24-member**  
**First report ini. time:082800**

**Cloud-resolving time-lagged**  
**12 member report ini. time:082518**

**2013082900-3100 UTC Rainfall**

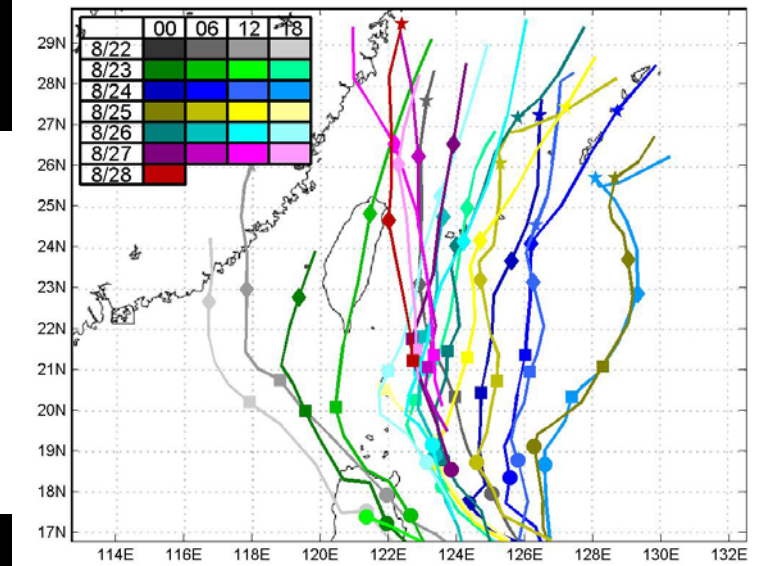
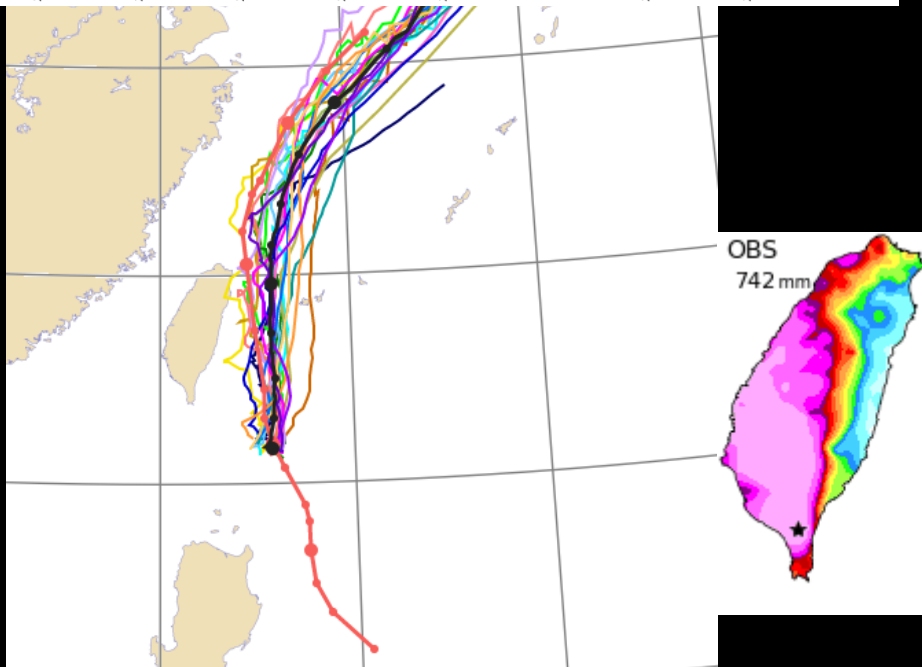
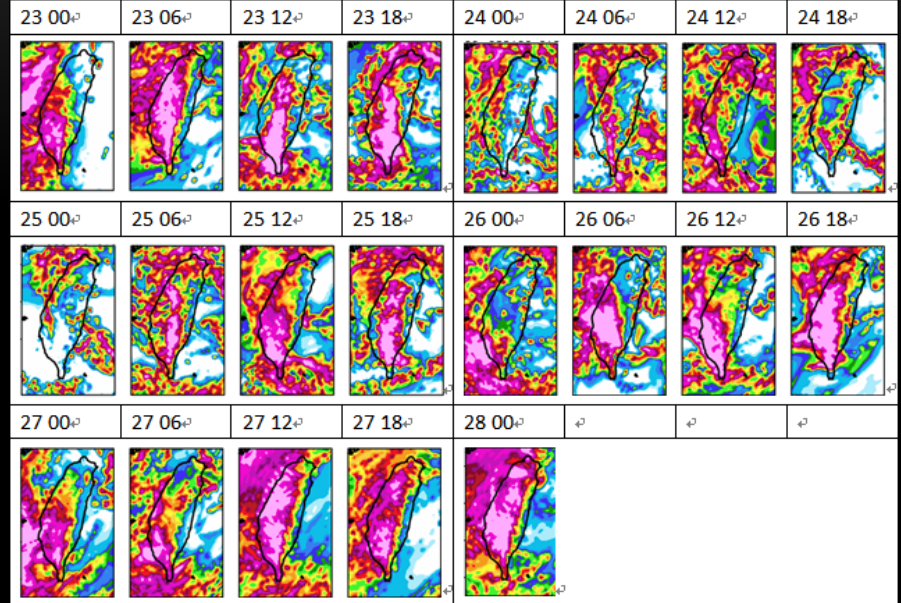
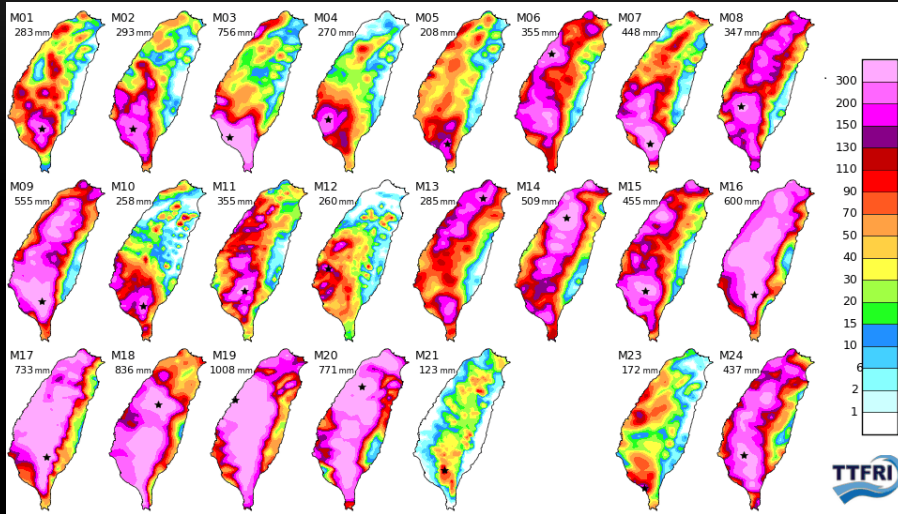




*Low-resolution 24-member*  
 First report ini. time:082800

*Cloud-resolving time-lagged*  
 21 member report ini. time:082800

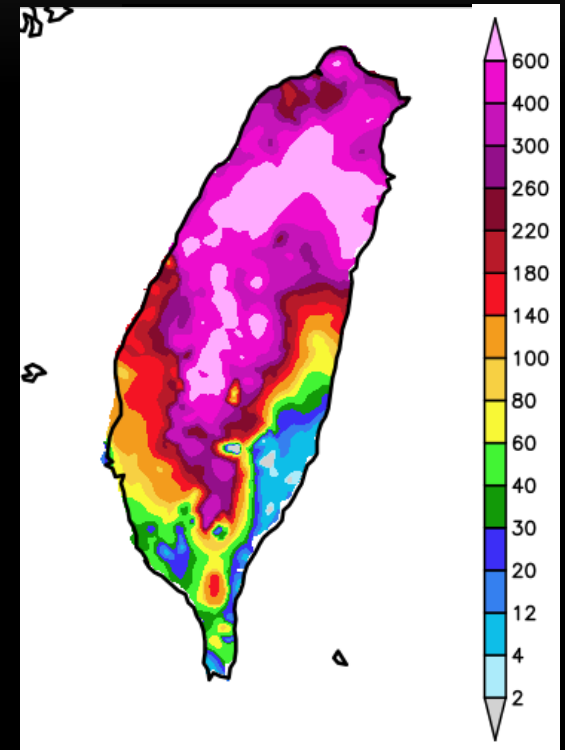
2013082900-3100 UTC Rainfall



# SAOLA (2012)

- *TS status not strong*
- *But heavy rainfall*

OBS  
8/01 00Z-8/03 00Z

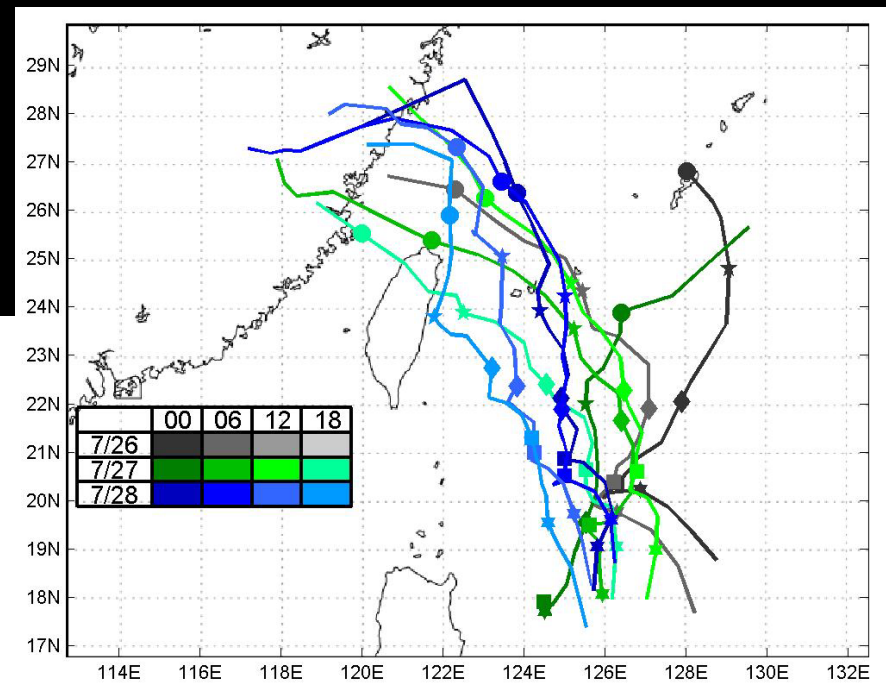
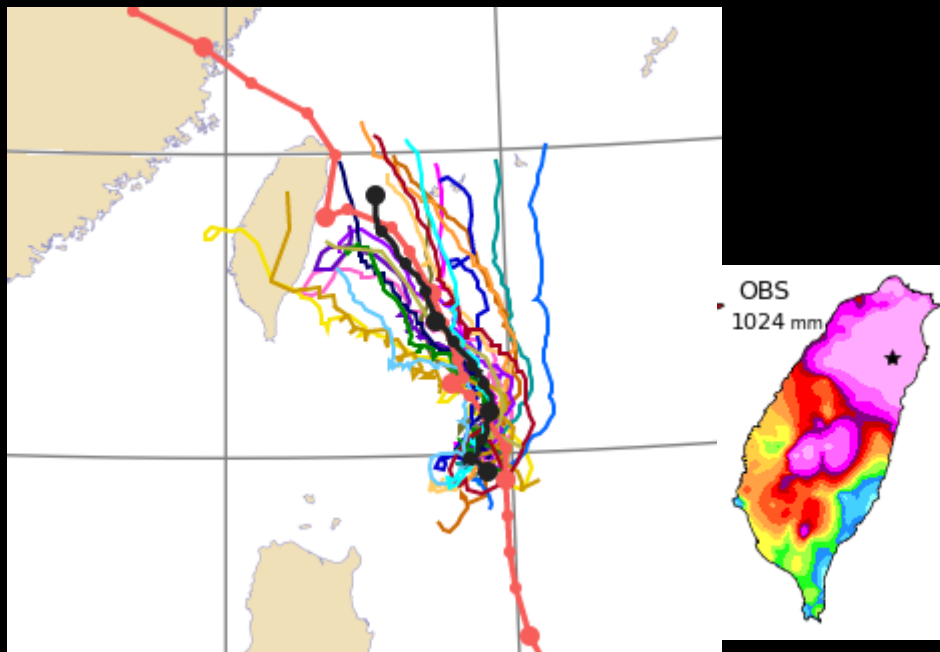
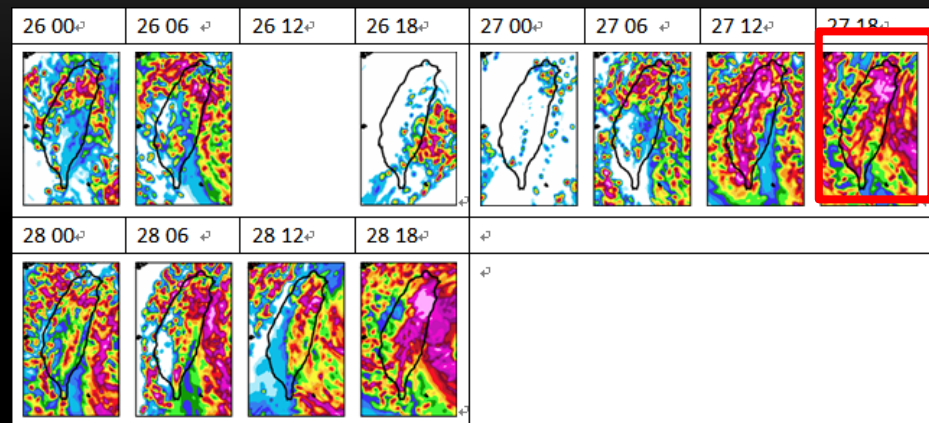
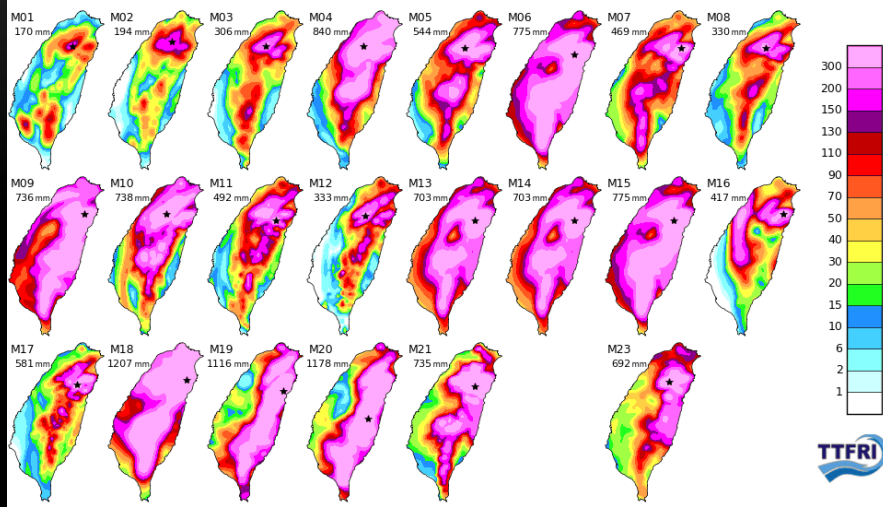


*(48-h rainfall)*

**Low-resolution 24-member**  
**First report ini. time:073000**

**Cloud-resolving time-lagged**  
**12 member report ini. time:072818**

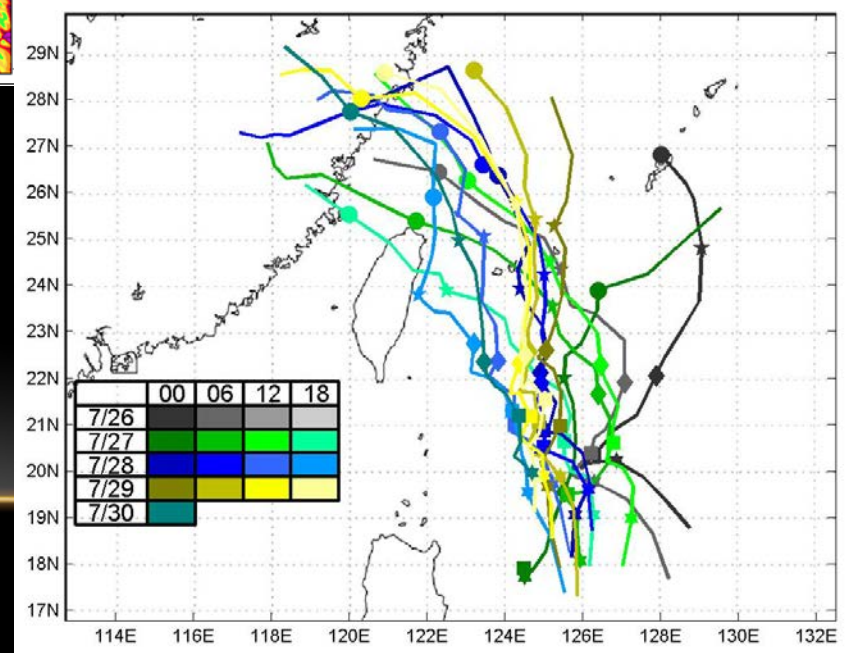
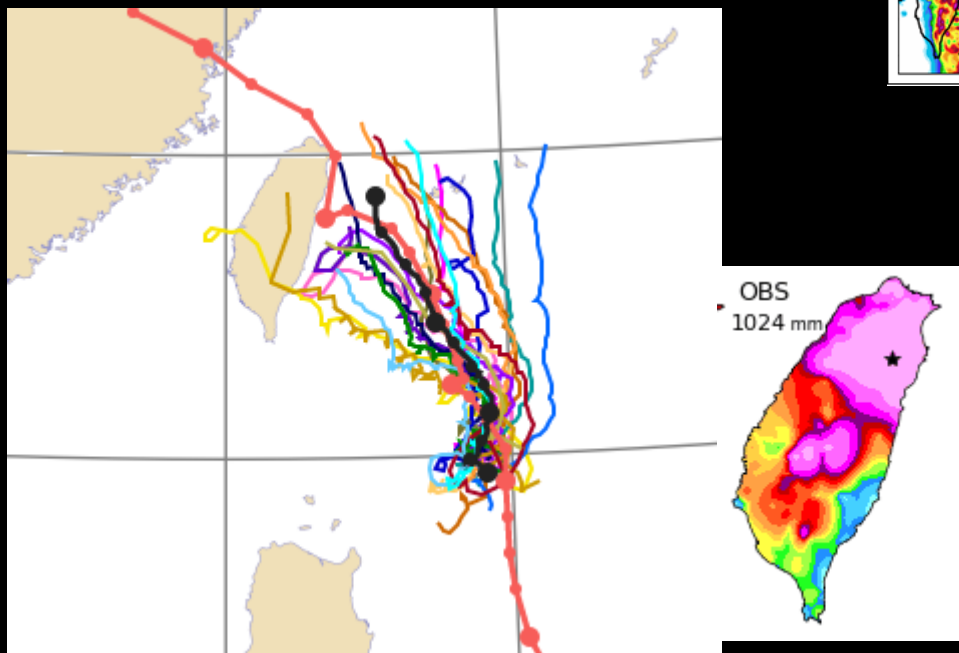
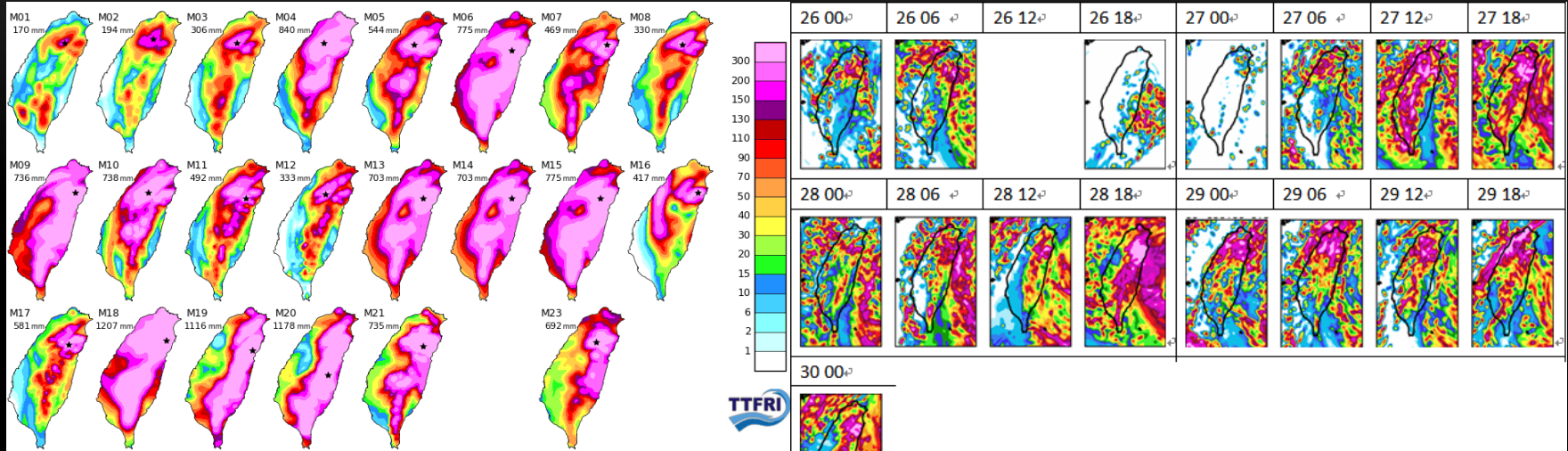
**2012080100-24 UTC Rainfall**



**Low-resolution 24-member**  
**First report ini. time:073000**

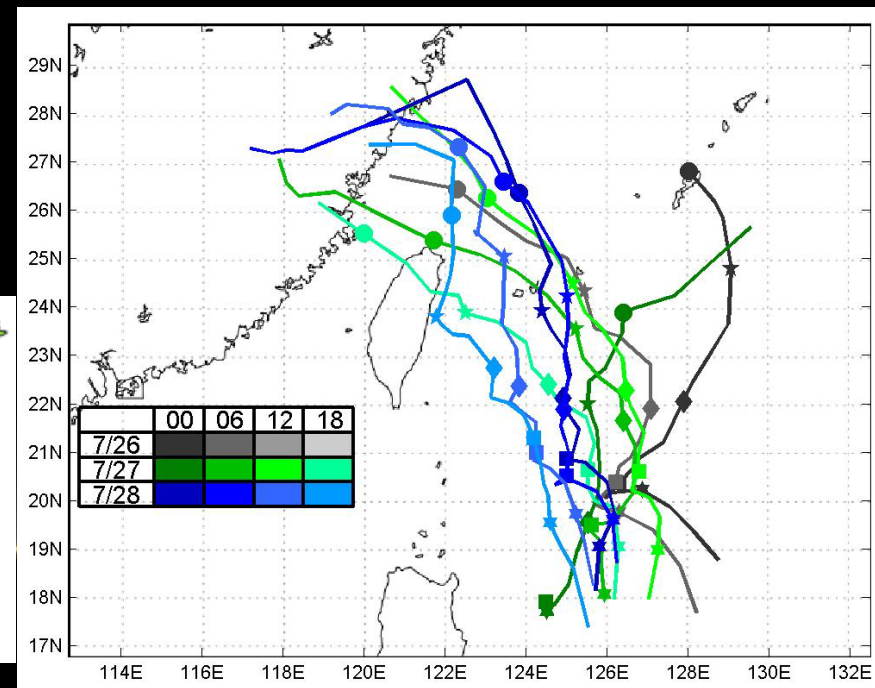
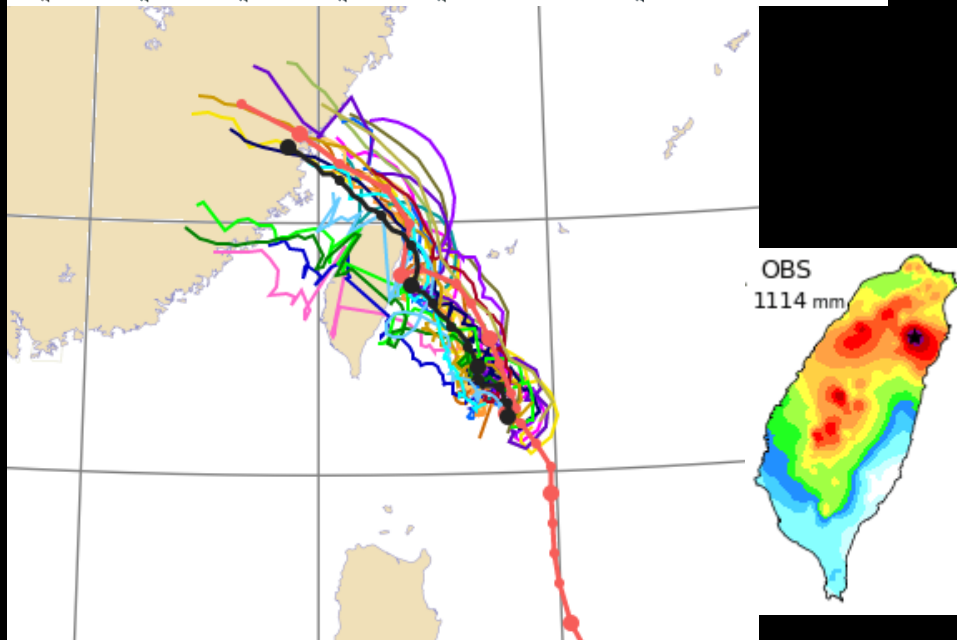
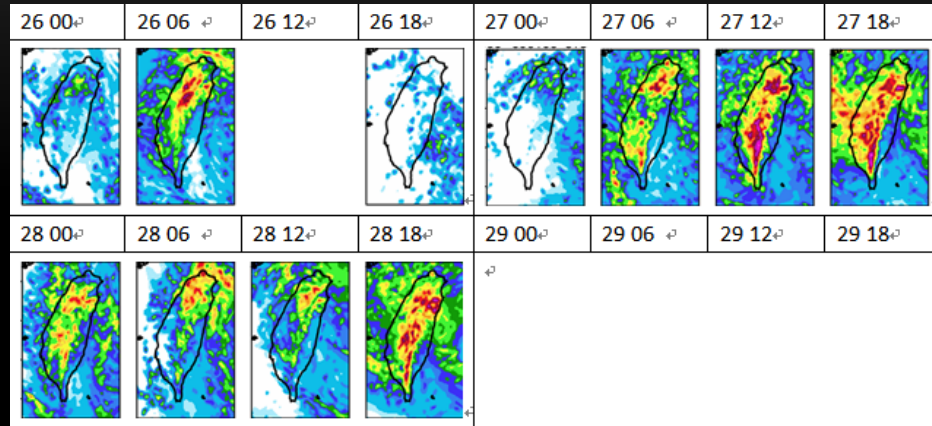
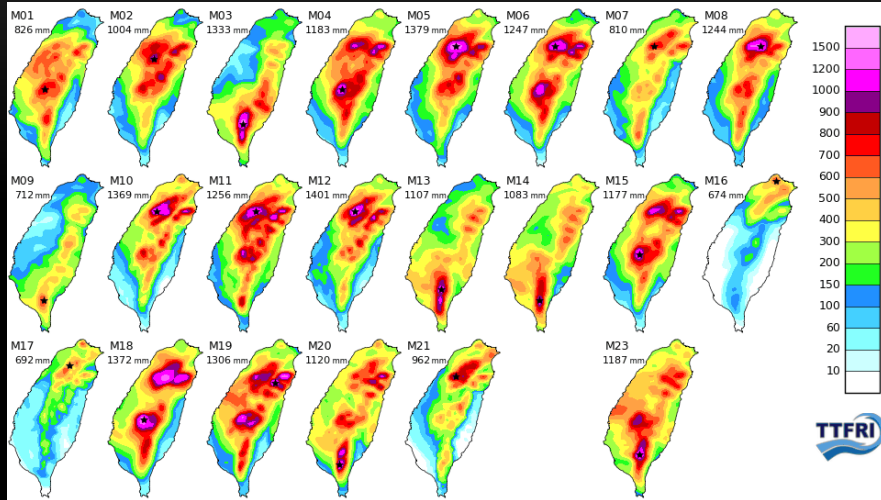
**Cloud-resolving time-lagged**  
**17 member report ini. time:073000**

**2012080100-24 UTC Rainfall**



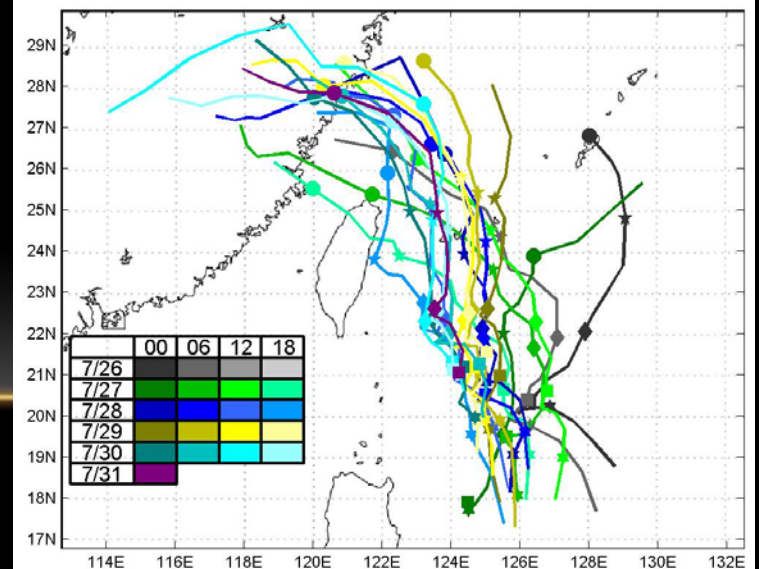
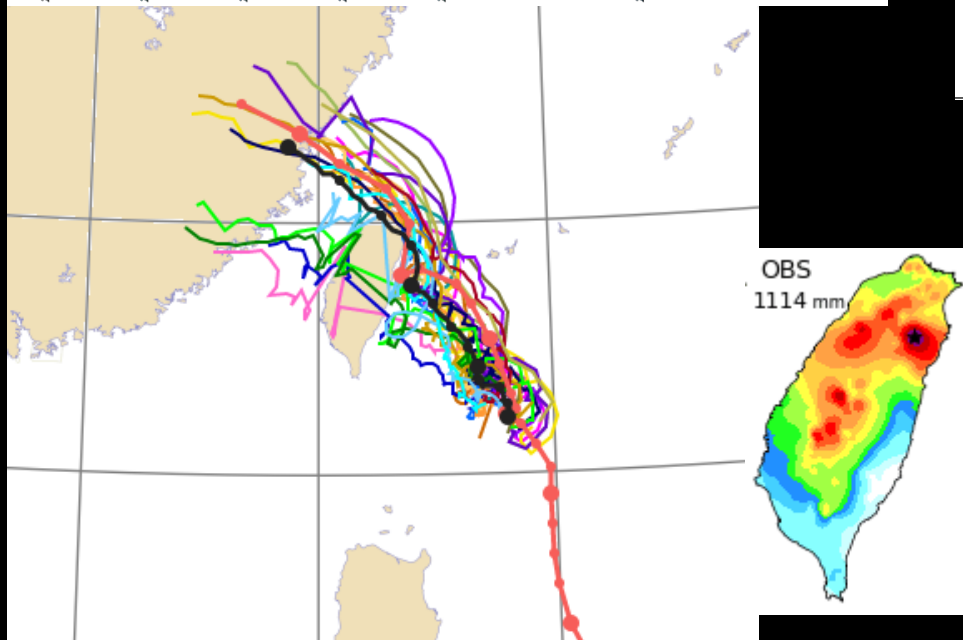
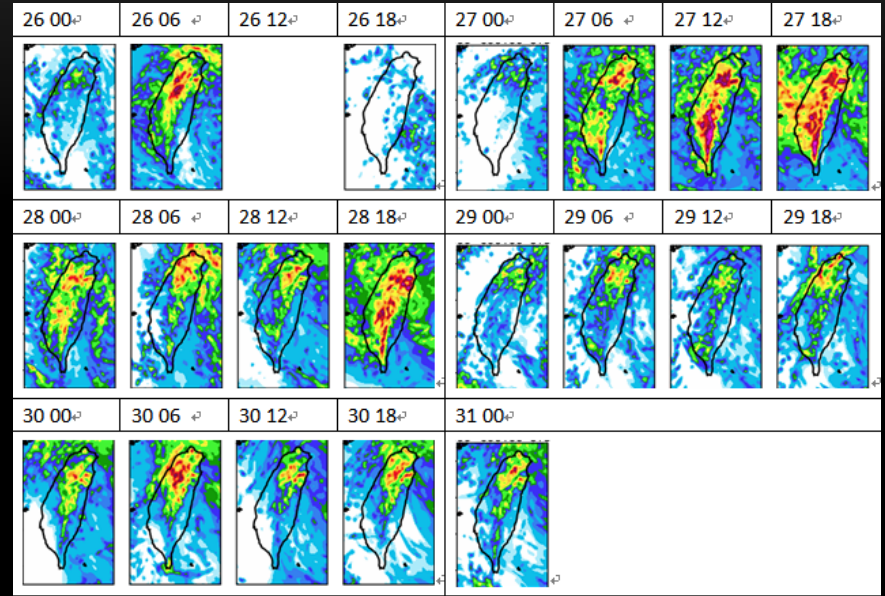
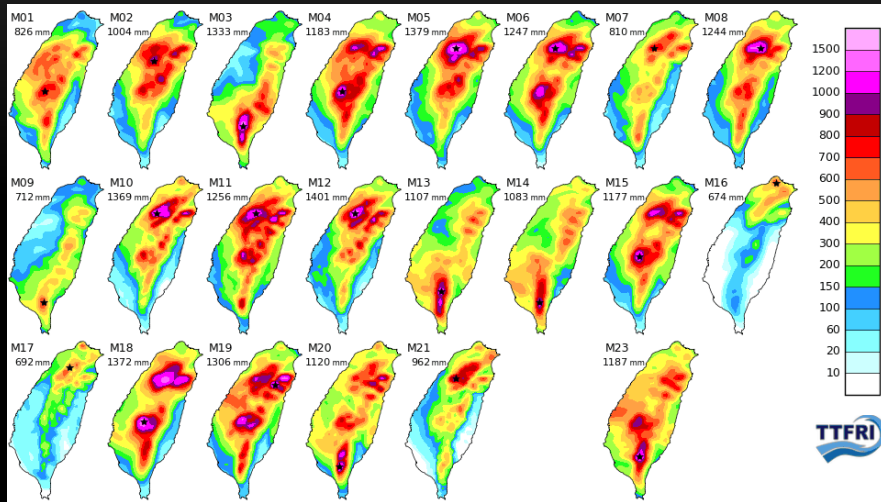
**Low-resolution 24-member**  
**First report ini. time:073100**

**Cloud-resolving time-lagged**  
**12 member report ini. time:072818**  
**2012080100-0300 UTC Rainfall**

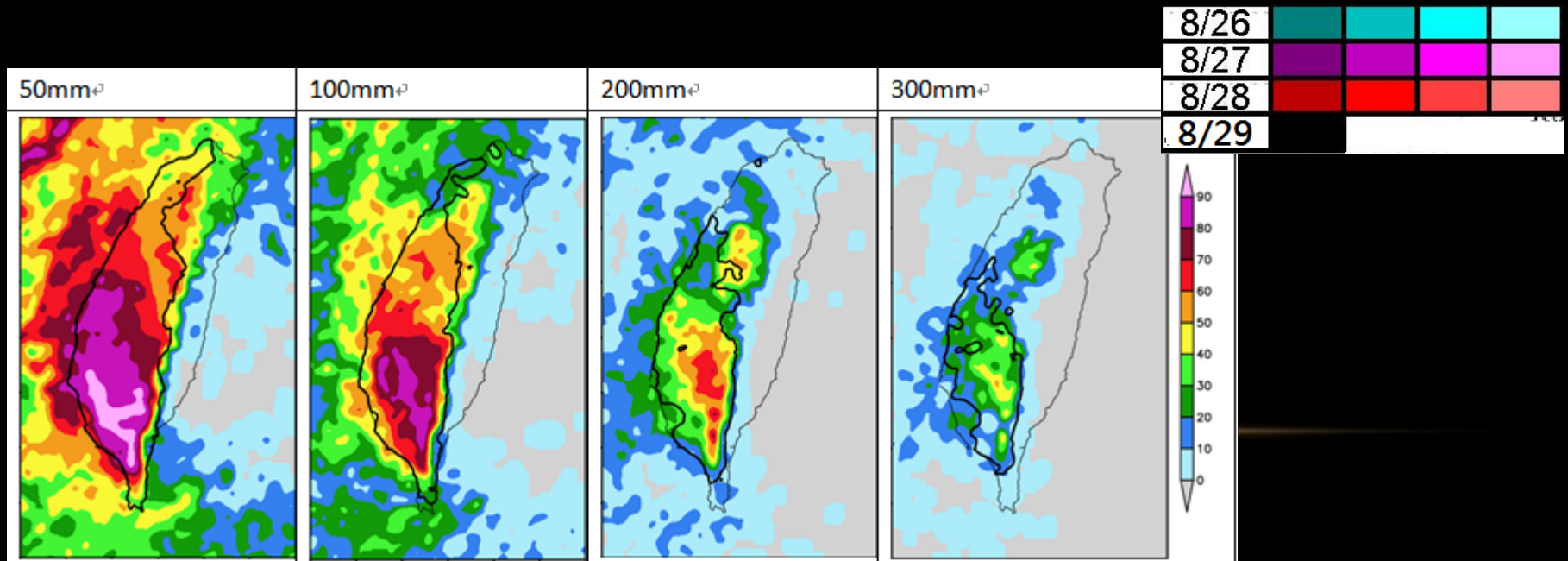
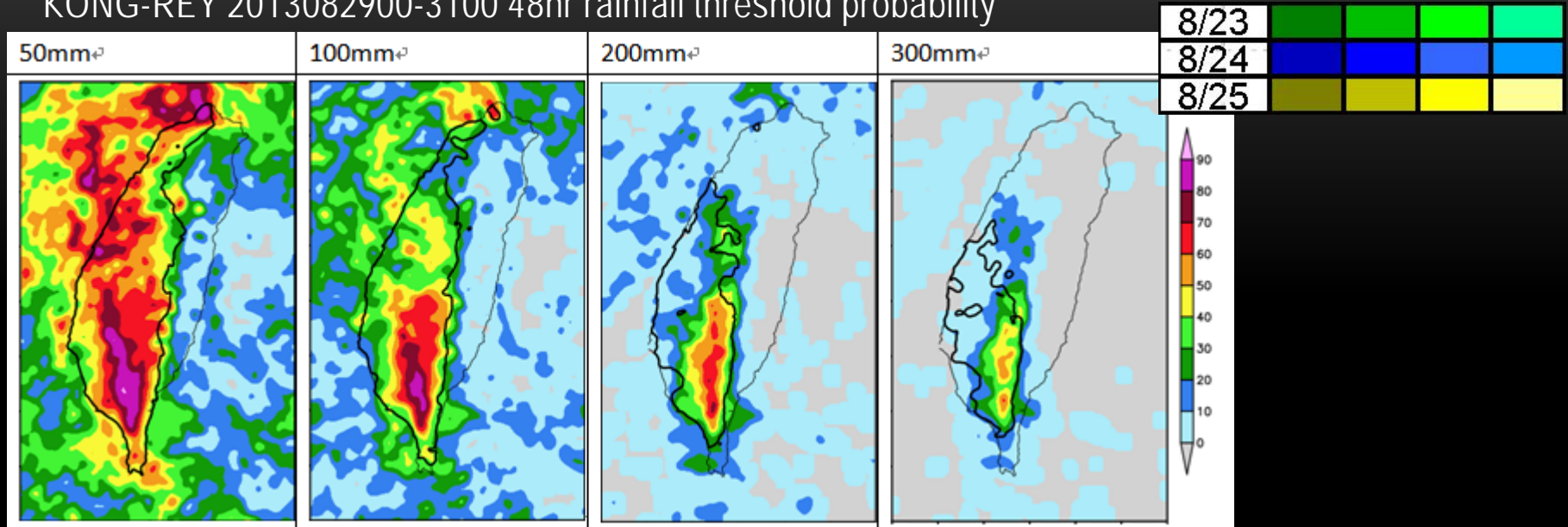


**Low-resolution 24-member**  
**First report** ini. time:073100

**Cloud-resolving time-lagged**  
**21member report** ini. time:073100  
 2012080100-0300 UTC Rainfall



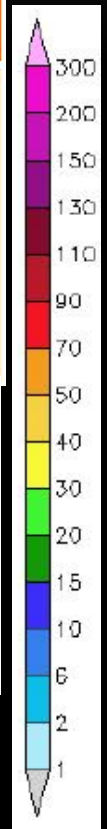
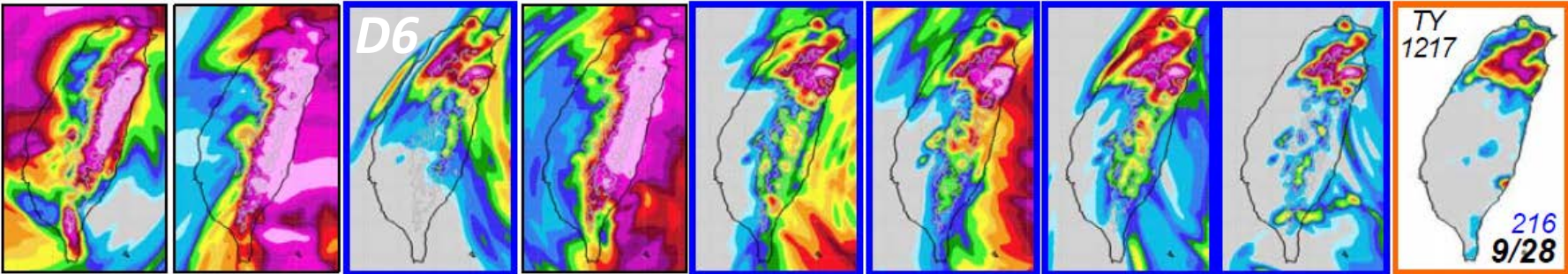
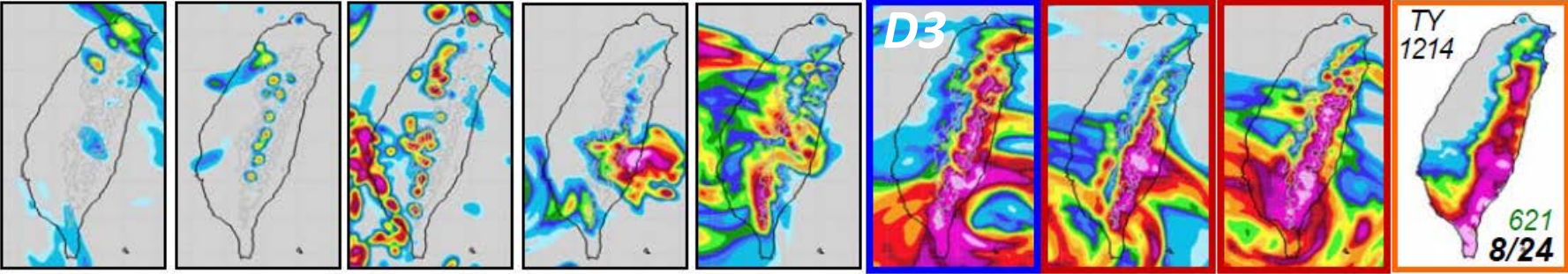
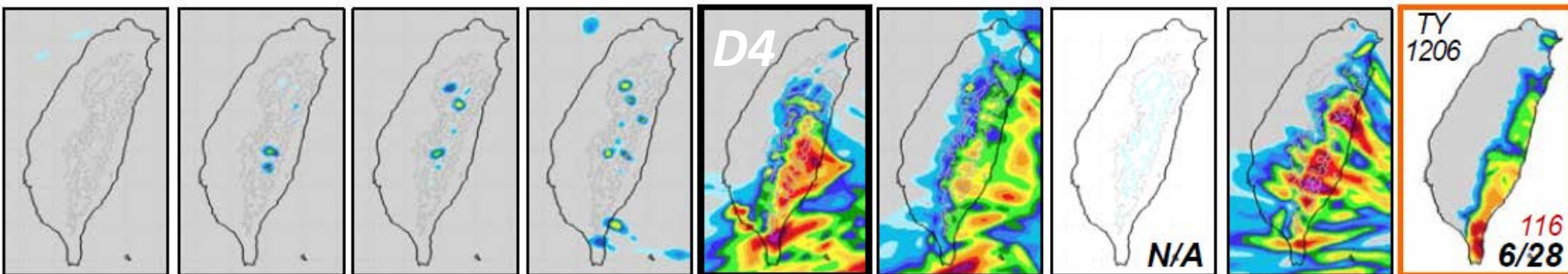
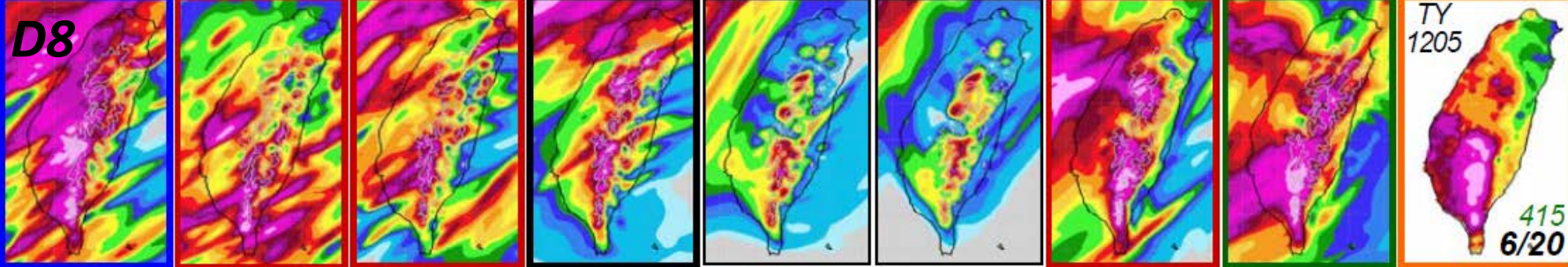
# KONG-REY 2013082900-3100 48hr rainfall threshold probability



<i>Ensemble type</i>	<i>Cloud-resolving time-lagged</i>	<i>Low-resolution 24-member</i>
<i>Grid size</i>	<i>2.5 km</i>	<i>5 km</i>
<i>Fine-domain size</i>	<i>1860 km x 1360 km</i>	<i>750 km x 900 km</i>
<i>Forecast range</i>	<i>8 days (192 h)</i>	<i>3 days (72 h)</i>
<i>Forecast frequency</i>	<i>4 times per day</i>	<i>4 times per day</i>
<i>Intensity</i>	<i>Good</i>	<i>Average</i>
<i>Lead time</i>	<i>Very good</i>	<i>Average</i>
<i>CPUs</i>	<i>Near 1500 cores</i>	<i>Near 1500 cores</i>



Day 8 (168-192 h)   Day 7 (144-168 h)   Day 6 (120-144 h)   Day 5 (96-120 h)   Day 4 (72-96 h)   Day 3 (48-72 h)   Day 2 (24-48 h)   Day 1 (0-24 h)   OBS (00-24Z)



## CONCLUSIONS

“Cloud-resolving time-lagged method” give a wide range of realistic rainfall scenarios (associated with different tracks) at lead times (up to 8 days) significantly earlier than “low-resolution ensemble method” (3 days at most).