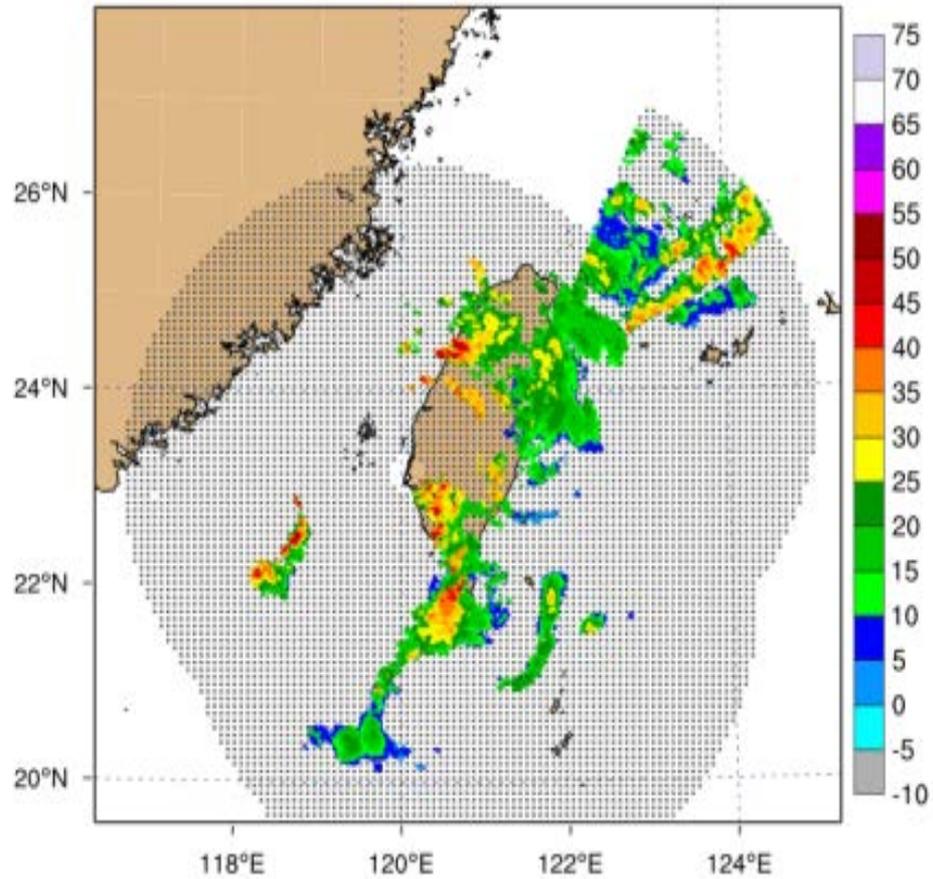


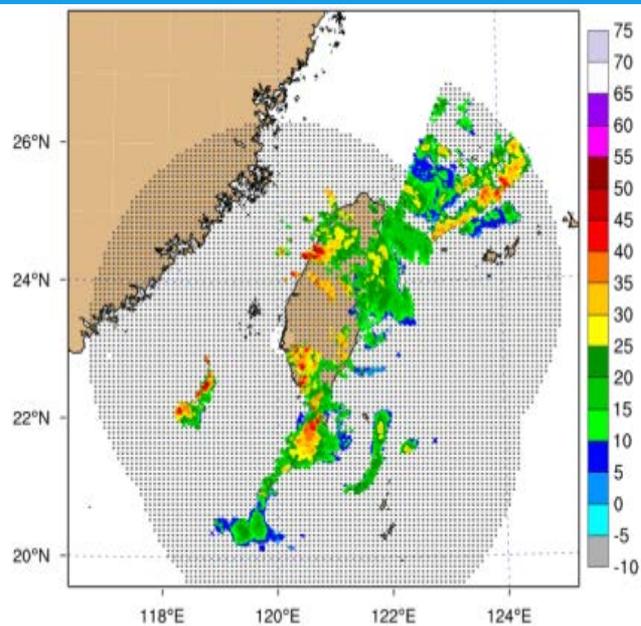
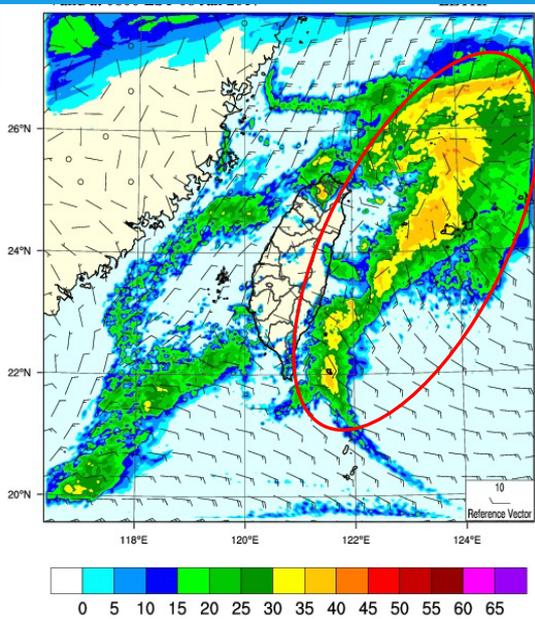
LETKF雷達資料同化系統中 No Rain回波觀測之應用

報告人：邵彥銘

日期：09/12

觀測





分析場

LETKF

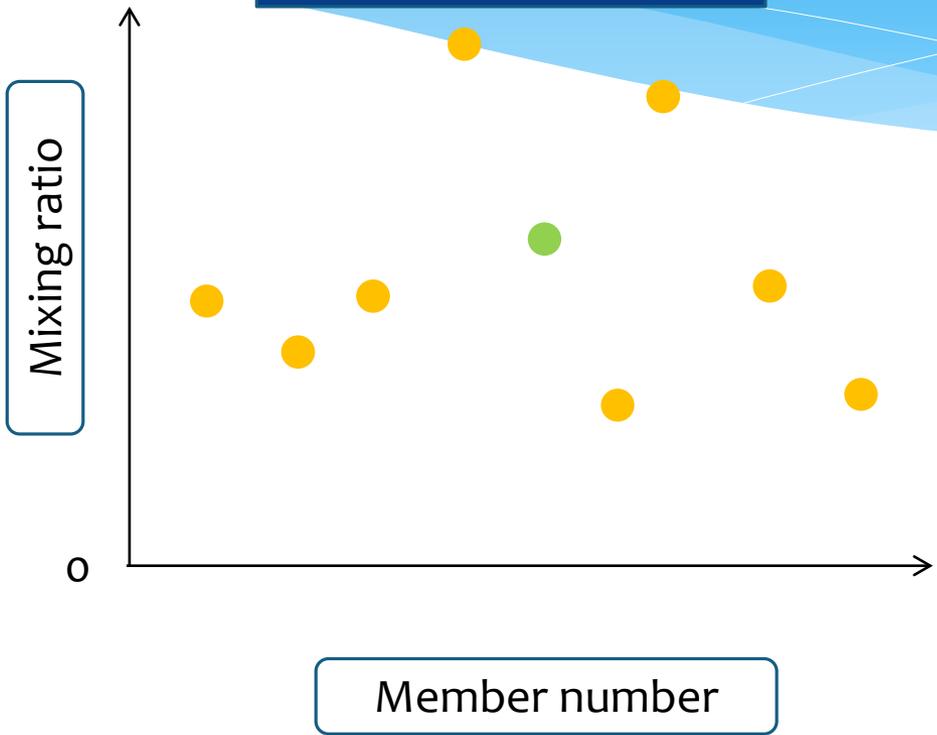
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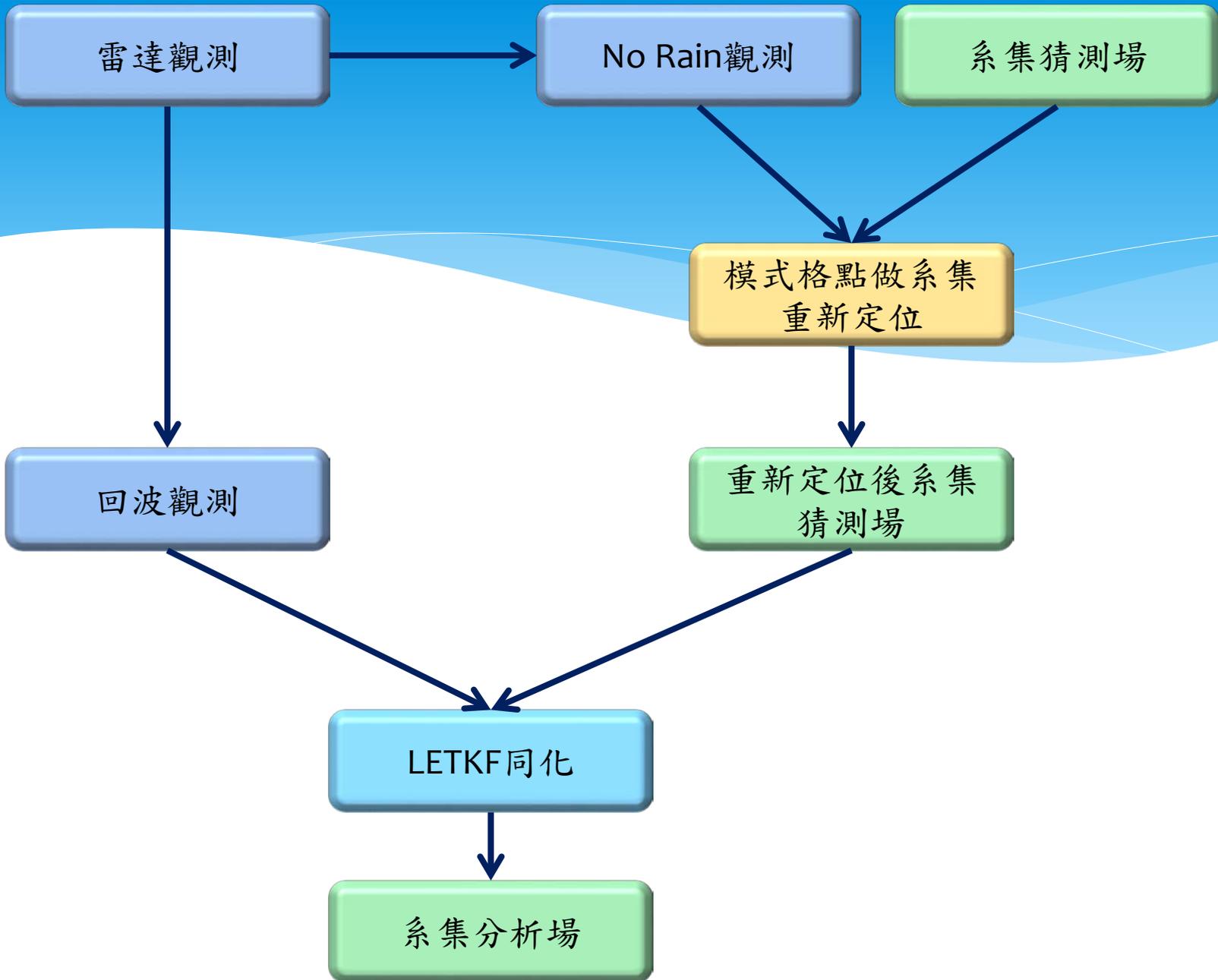
1. 流場相依的背景場誤差
2. 透過Localization延伸雷達觀測

缺點：

1. 運算時間較長

Qrain

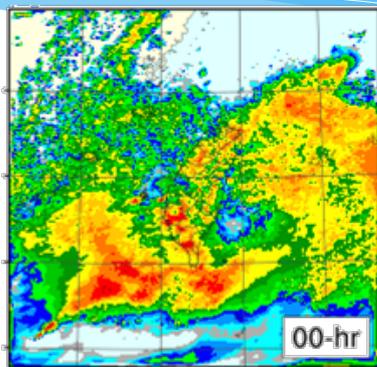
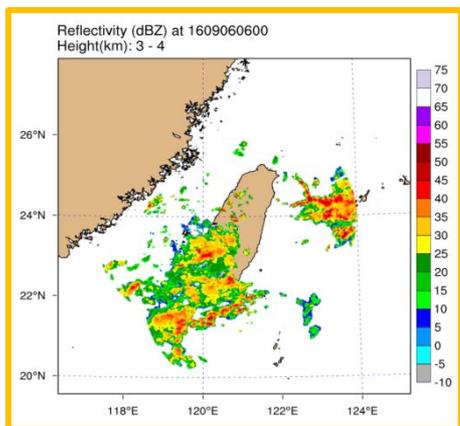




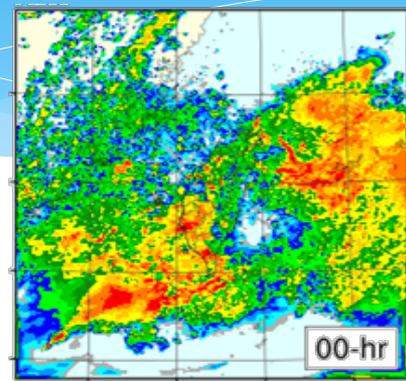
OBS

FG

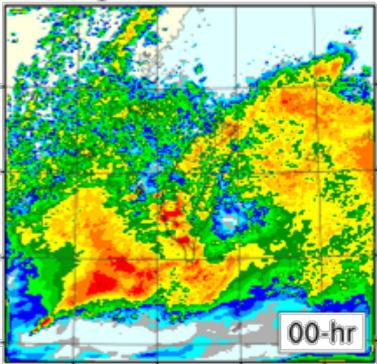
ANA



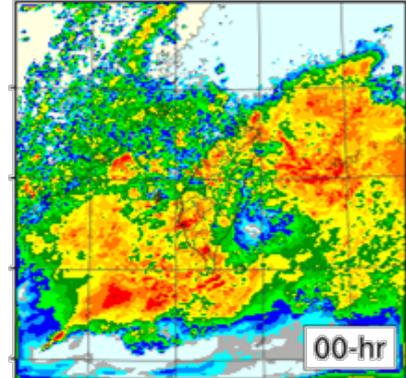
LETKF同化
No Rain+回
波觀測

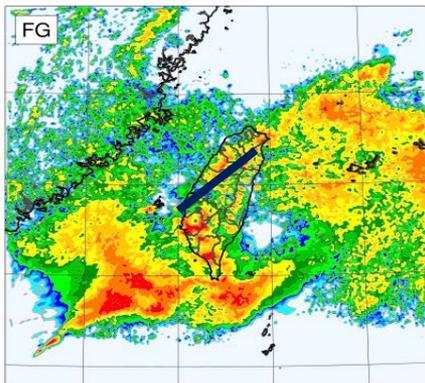


Recenter
No Rain



LETKF同化回
波觀測

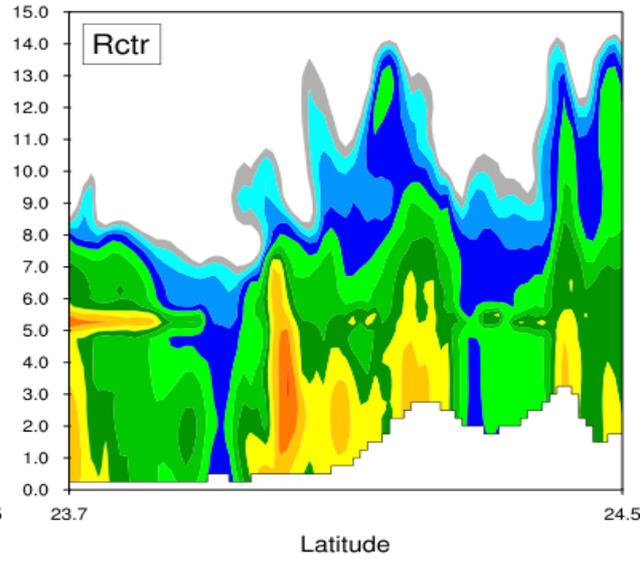
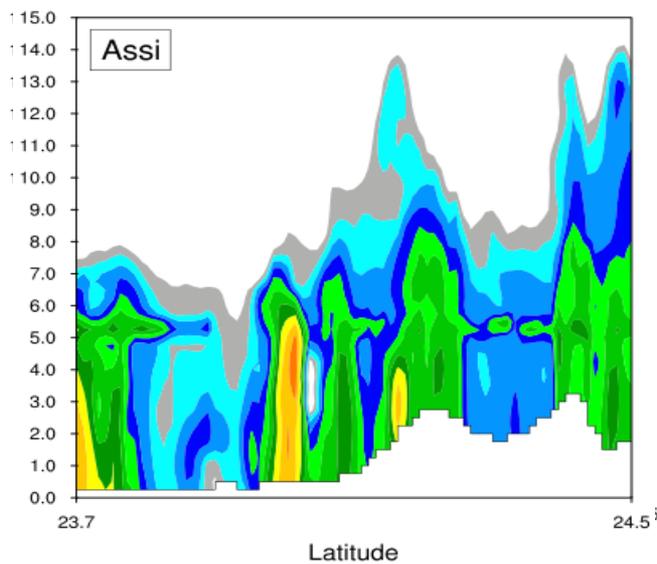
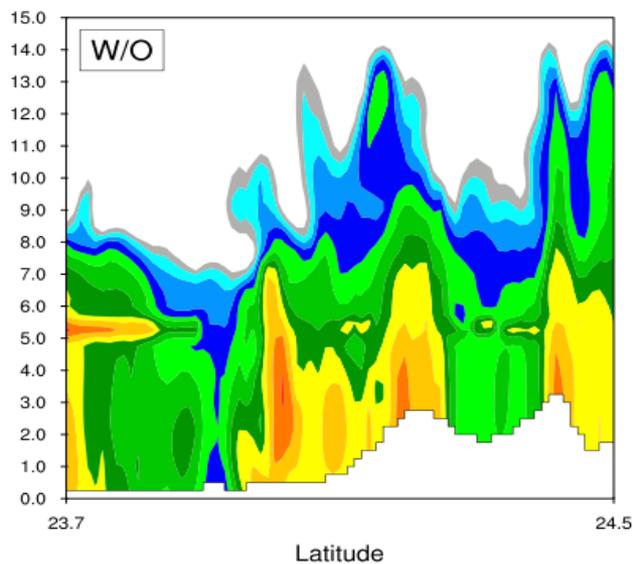




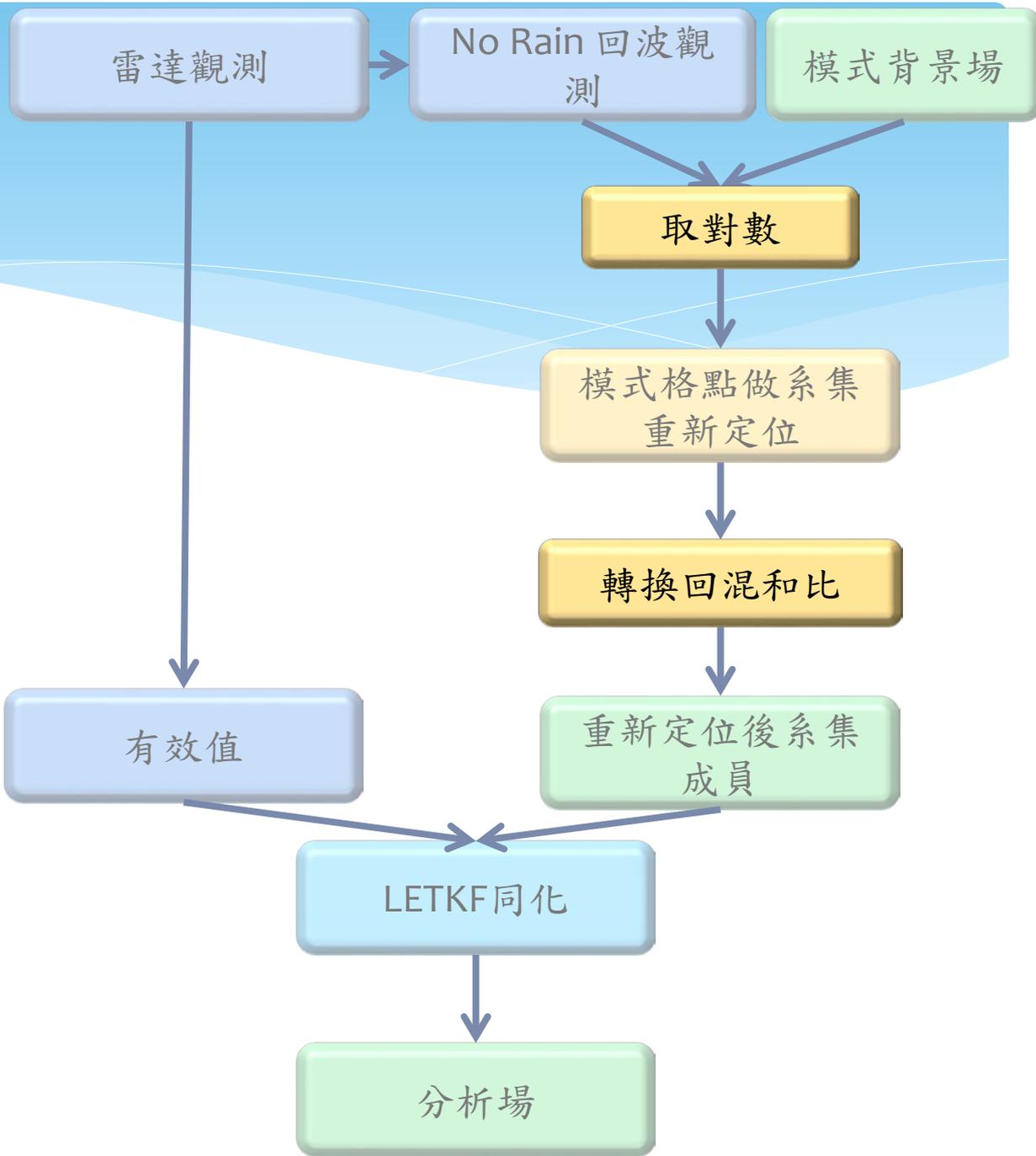
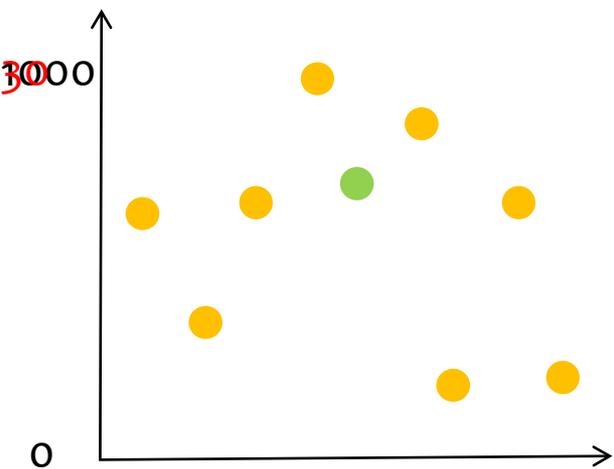
W/O No Rain

LETKF No Rain

Recenter No Rain



使水象粒子混和比較線性



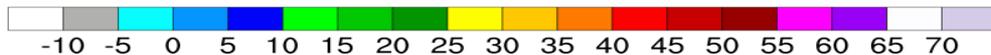
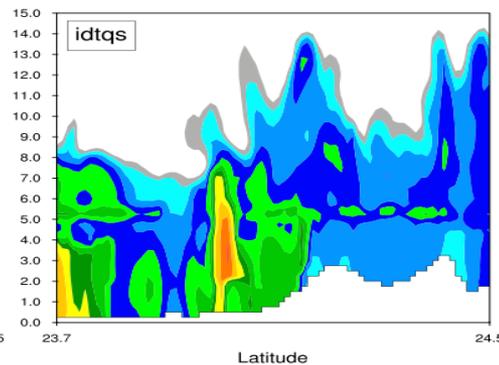
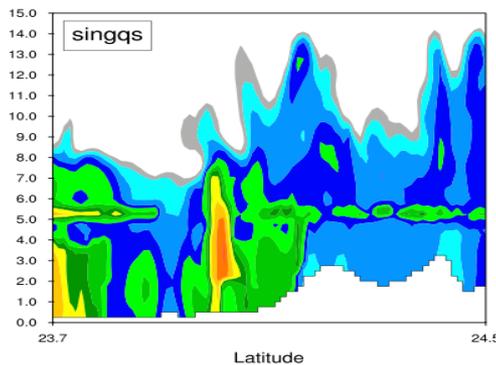
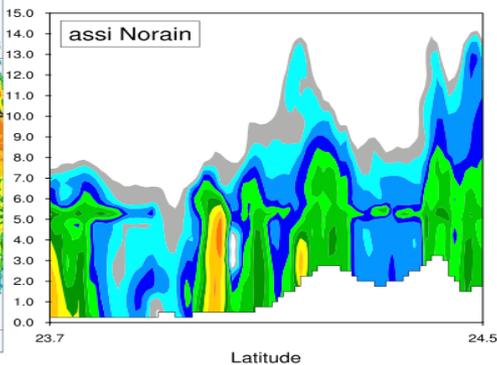
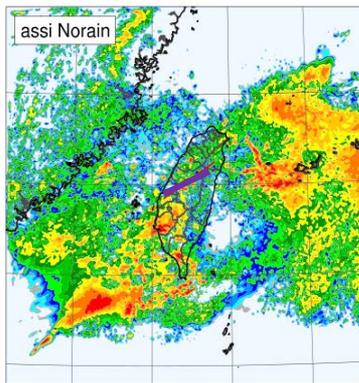


LETKF

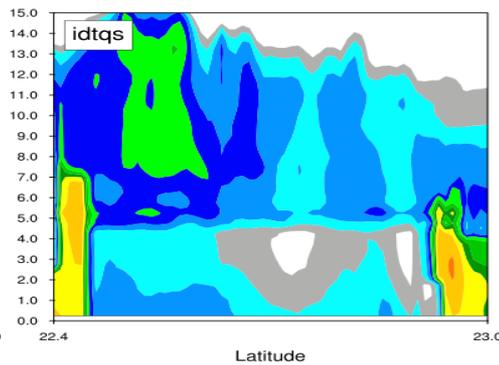
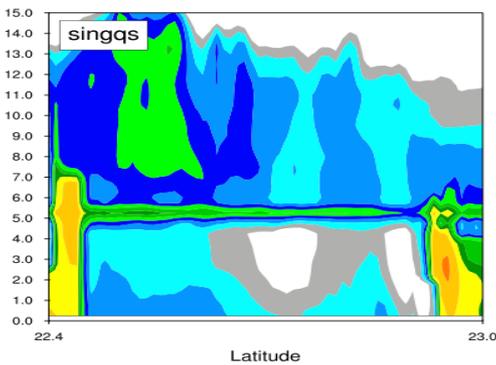
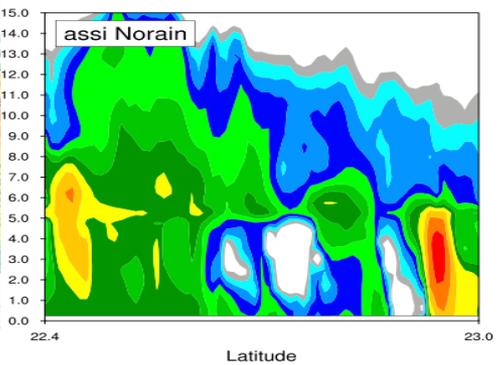
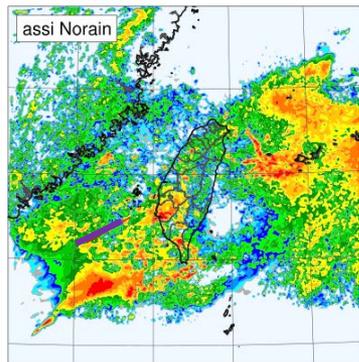
乾雪

判斷乾溼雪

Reflectivity [dBZ]: Initial at 16090606



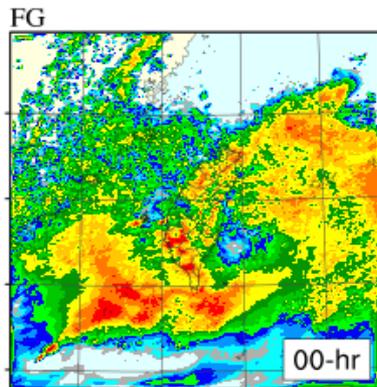
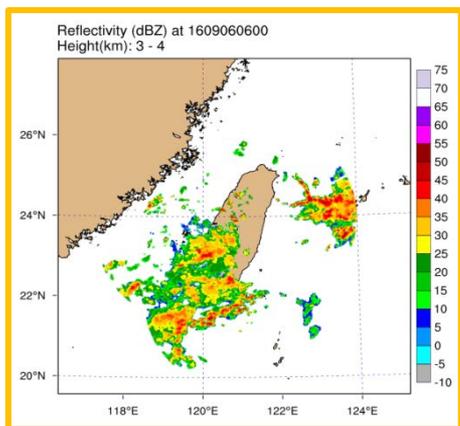
Reflectivity [dBZ]: Initial at 16090606



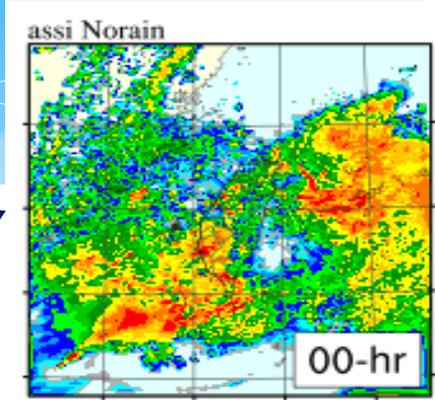
OBS

FG

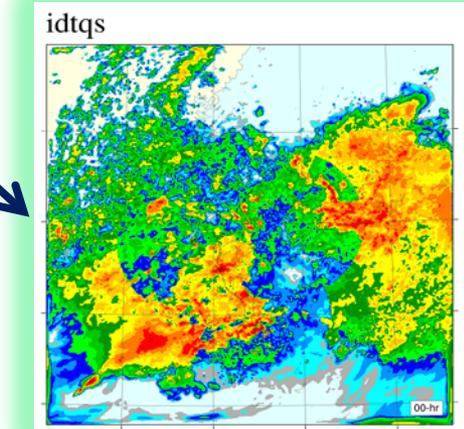
ANA



LETKF同化
No rain

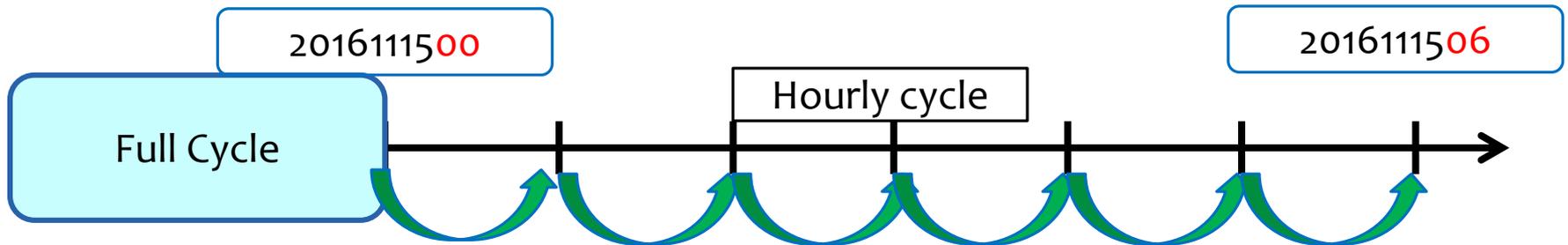


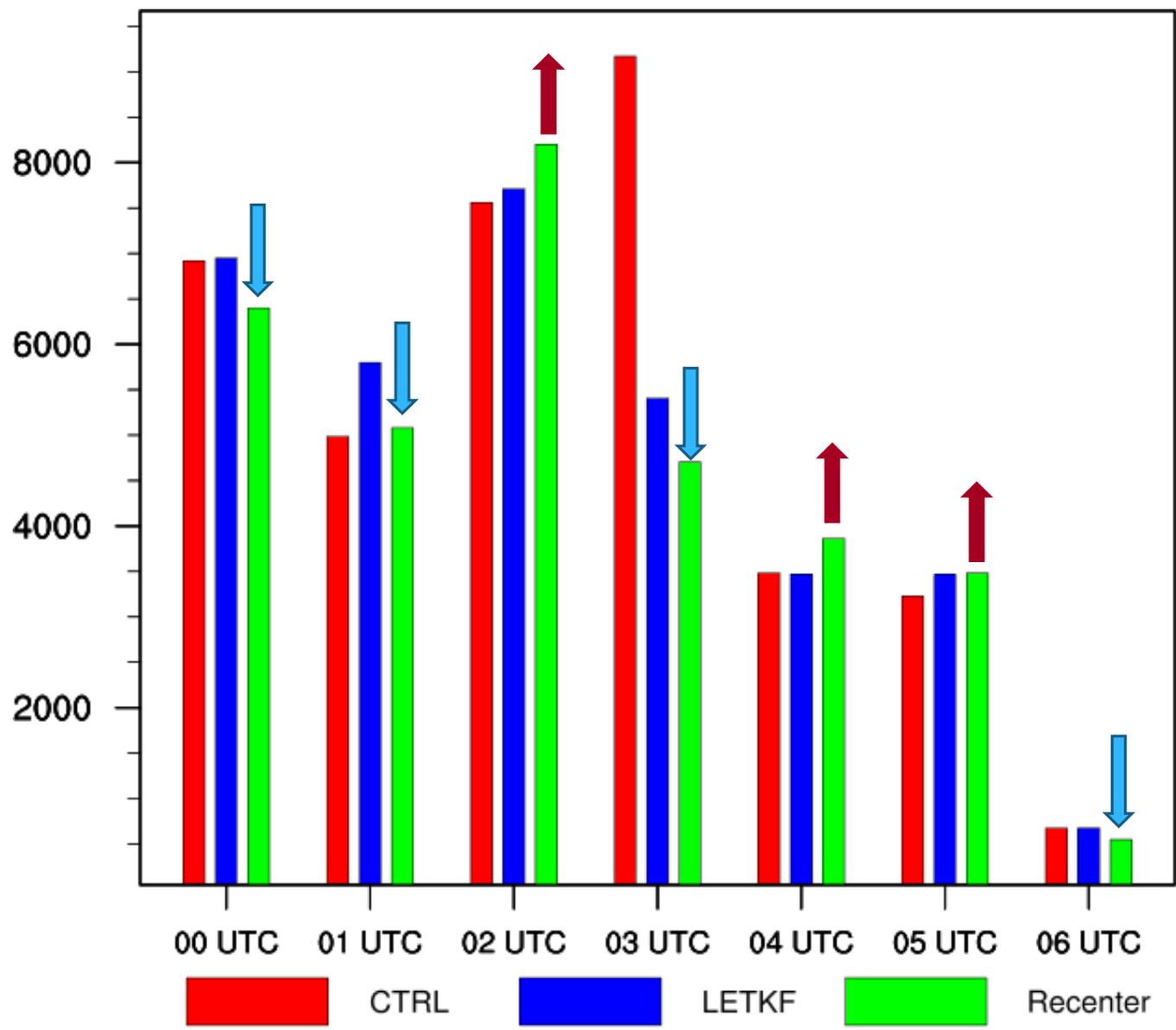
Recenter
No rain

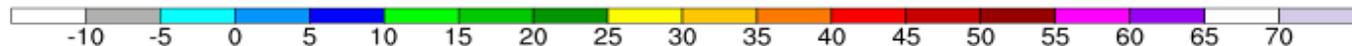
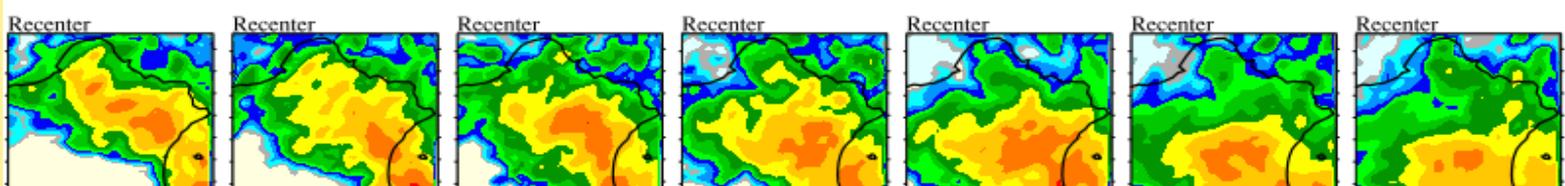
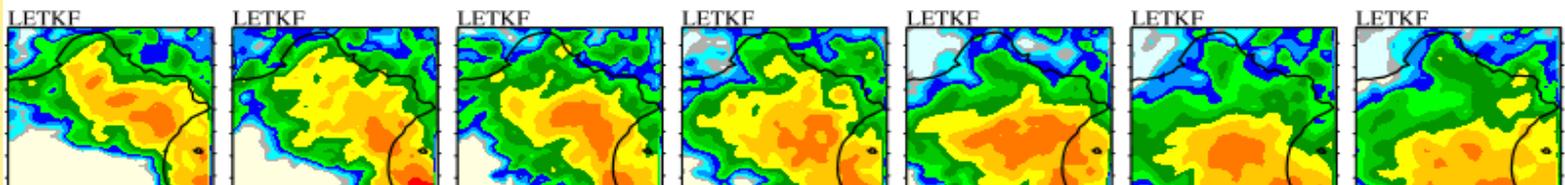
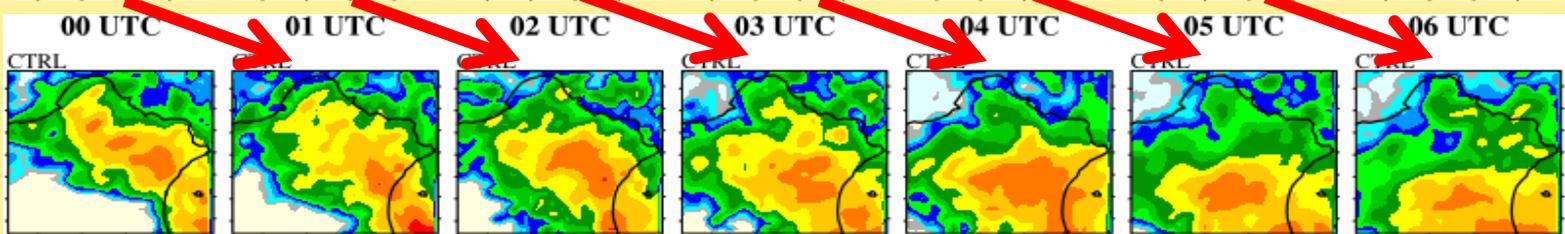
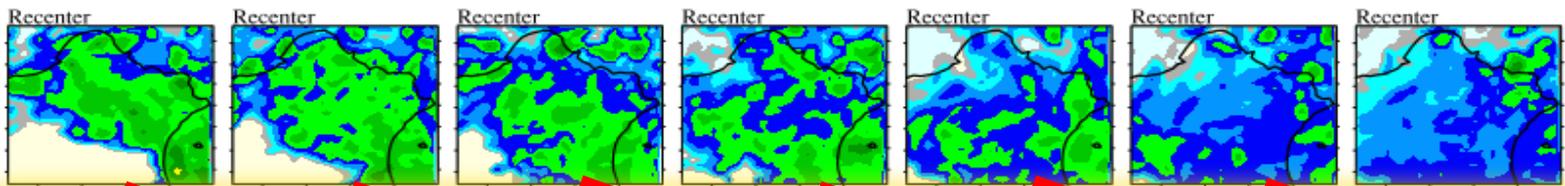
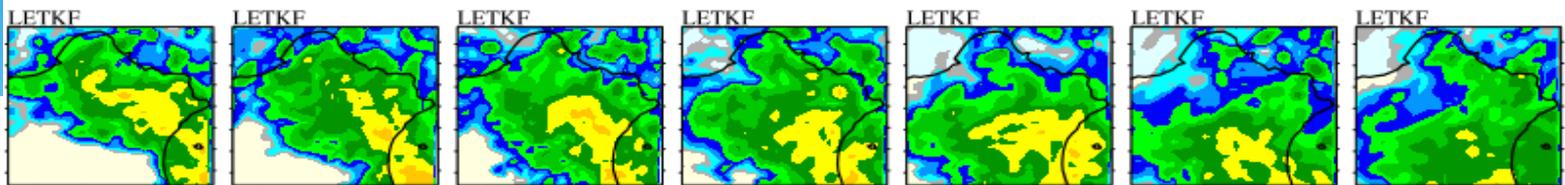
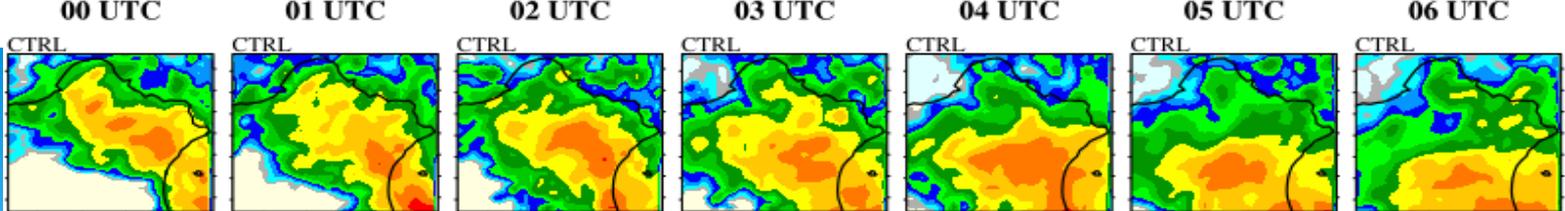


實驗設計

| 實驗名稱 | 策略 |
|----------|---|
| CTRL | 使用 LETKF 同化回波觀測 |
| LETKF | 使用 LETKF 同化回波觀測 + No Rain 觀測 |
| Recenter | 使用 LETKF 同化回波觀測，No Rain 觀測 使用上述所選擇之重新定位法 |





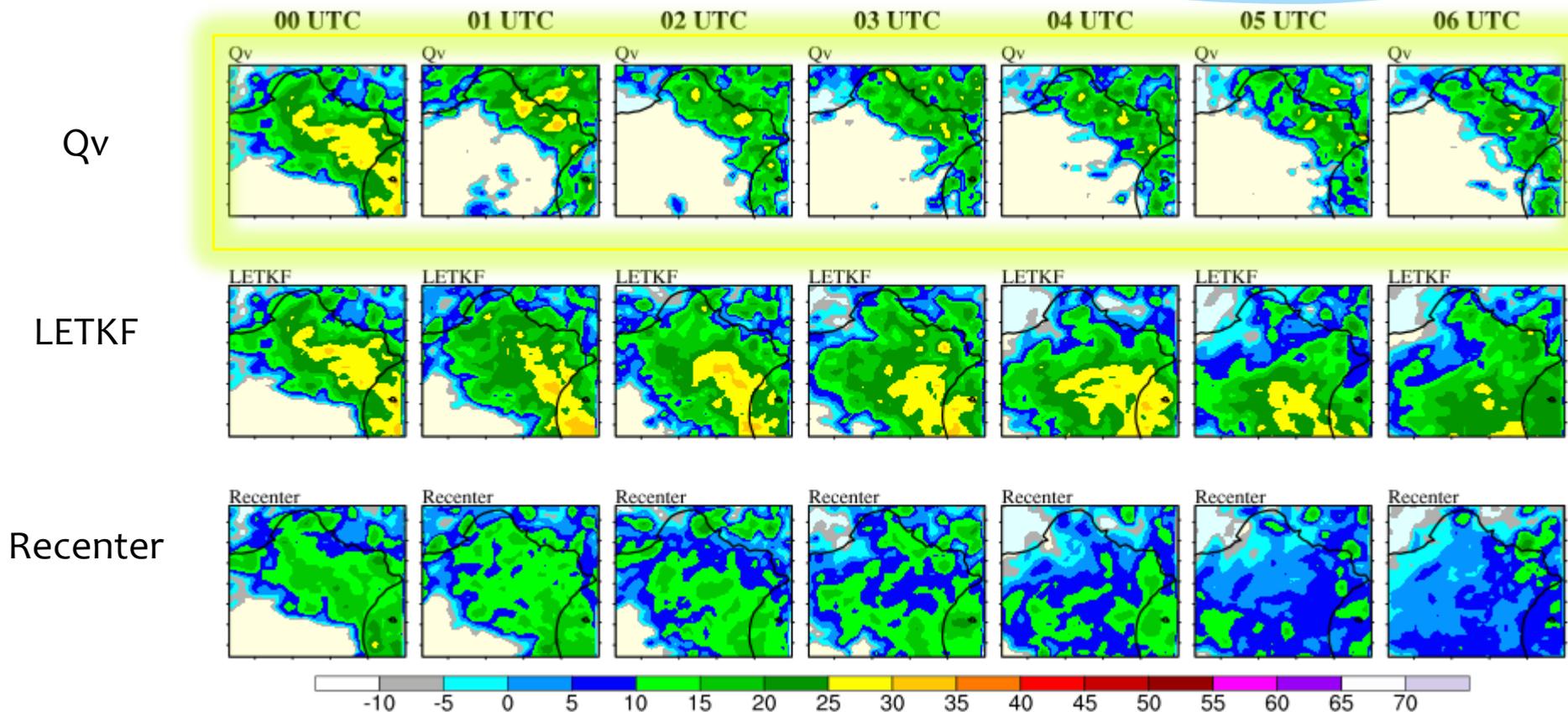


分析場

背景場

水氣同化No Rain 對DA spin up的影響

分析場



00 UTC

01 UTC

02 UTC

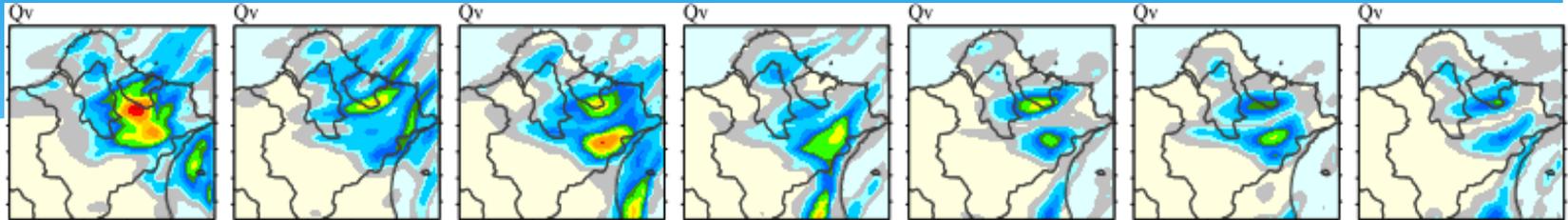
03 UTC

04 UTC

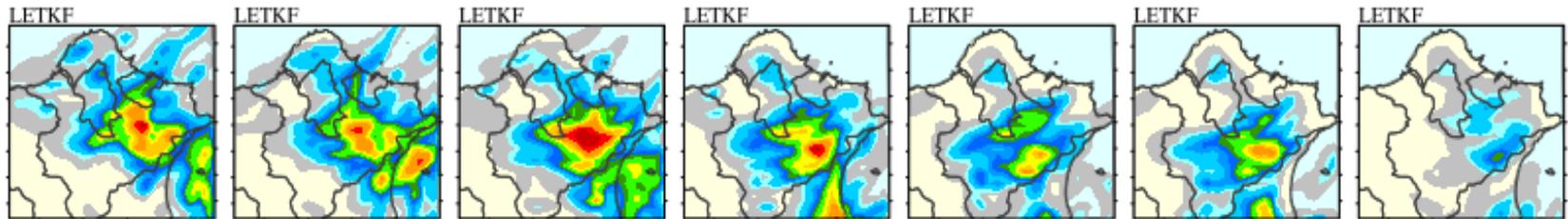
05 UTC

06 UTC

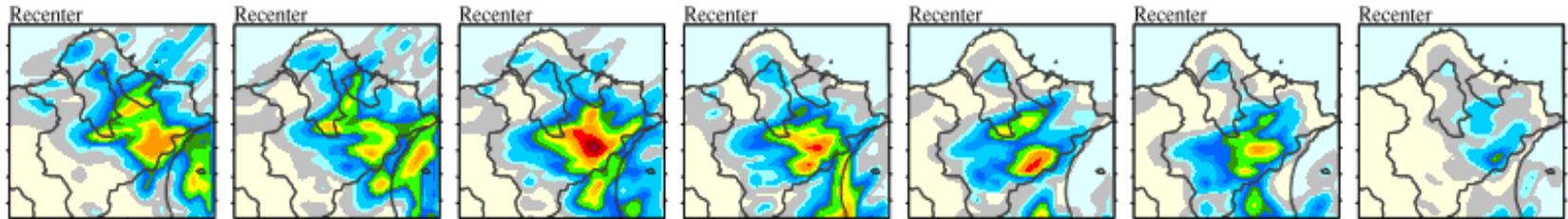
Qv



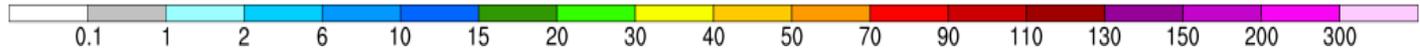
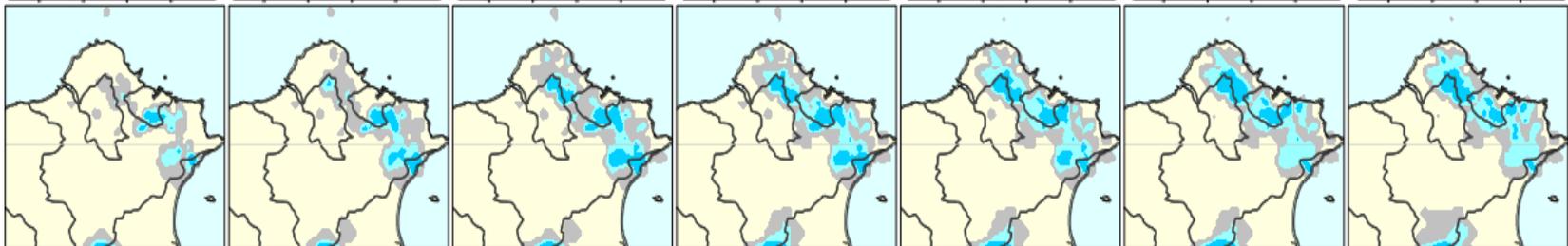
LETKF



Recenter



Obs



結論

- * 使用系集重新定位法能夠更有效率的利用No Rain觀測以降低高估之回波。
- * 即使模式初始場之回波較佳，也未必能有效抑制模式中假的對流的生成。
- * 只將水象粒子同化No Rain回波觀測對抑制初始場回波之需求的同化起轉效益有限。
- * Qv同化No Rain回波觀測對於DA spin up的效益較佳。