PRODUCT NAME: **OBS1v1.5 (H01)**		
CASE STUDY PERIOD: 04 May 2012	METEOROLOGICAL EVENT: Thunderstorms	
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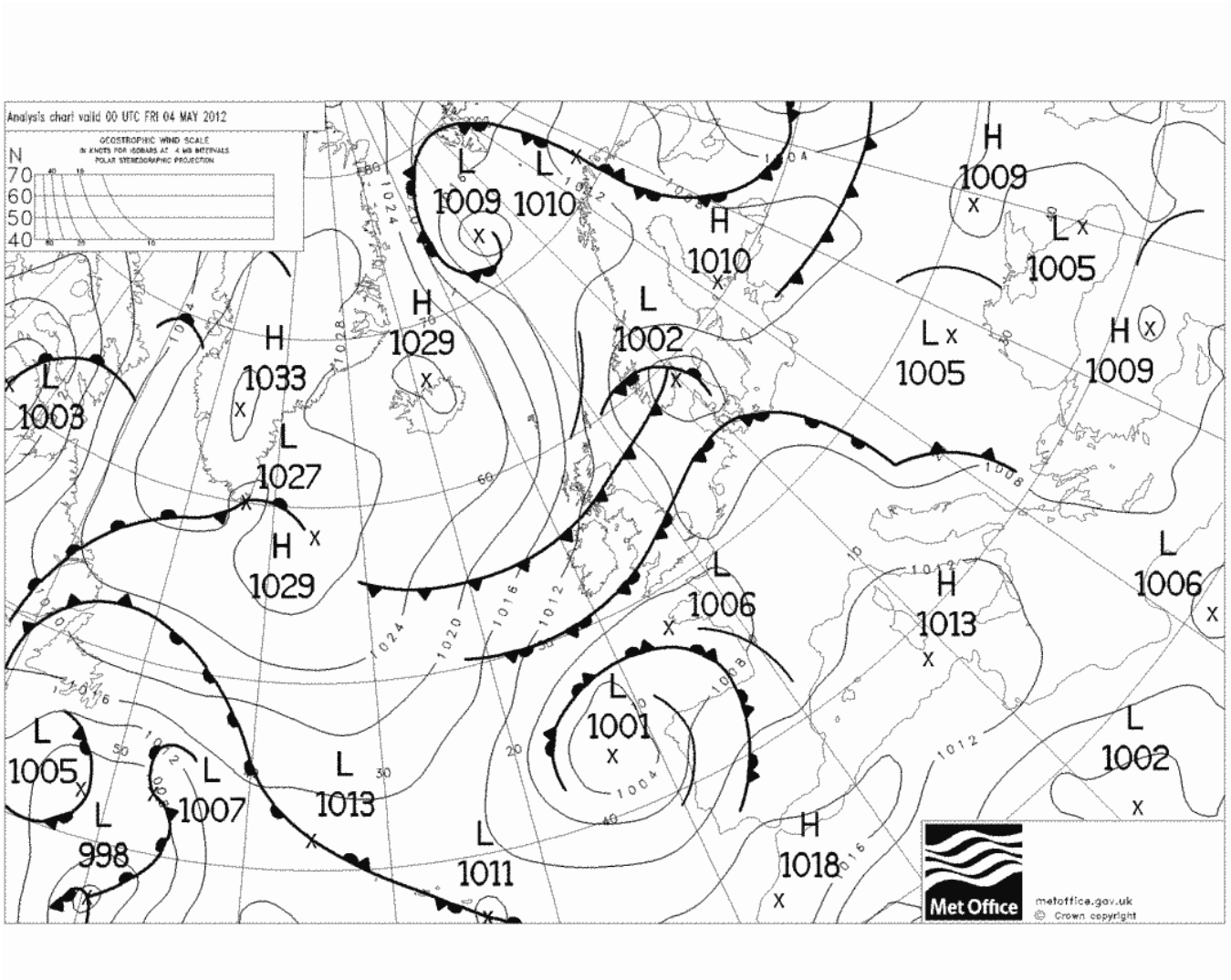
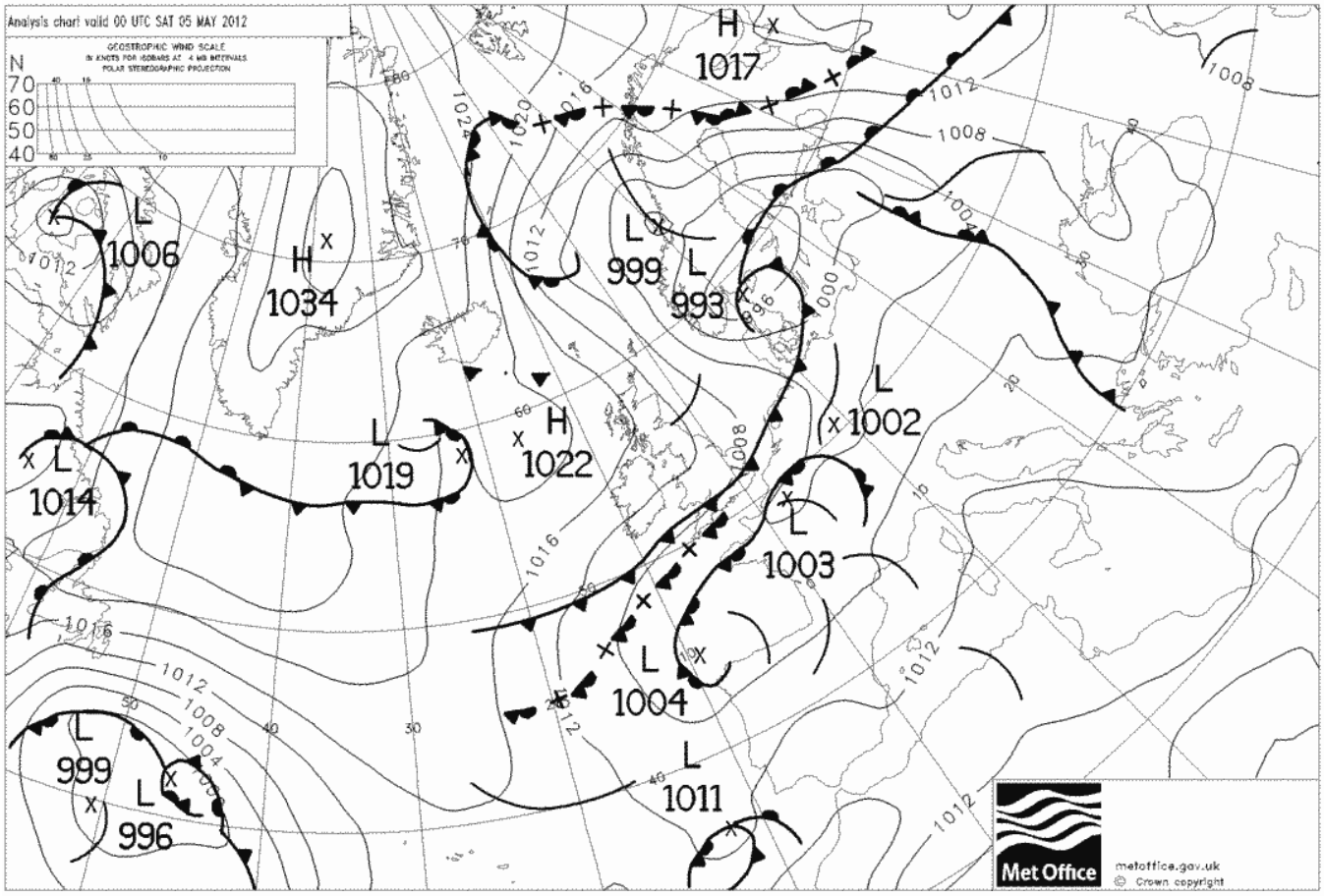
METEOROLOGICAL EVENT DESCRIPTION

We consider here the case of thunderstorms resulting from the development of extended low pressure systems with active fronts over northwester Europe and the North Sea.

The synoptic weather situation at 00:00 UTC May 04 and 05, 2012, is shown in the following maps.

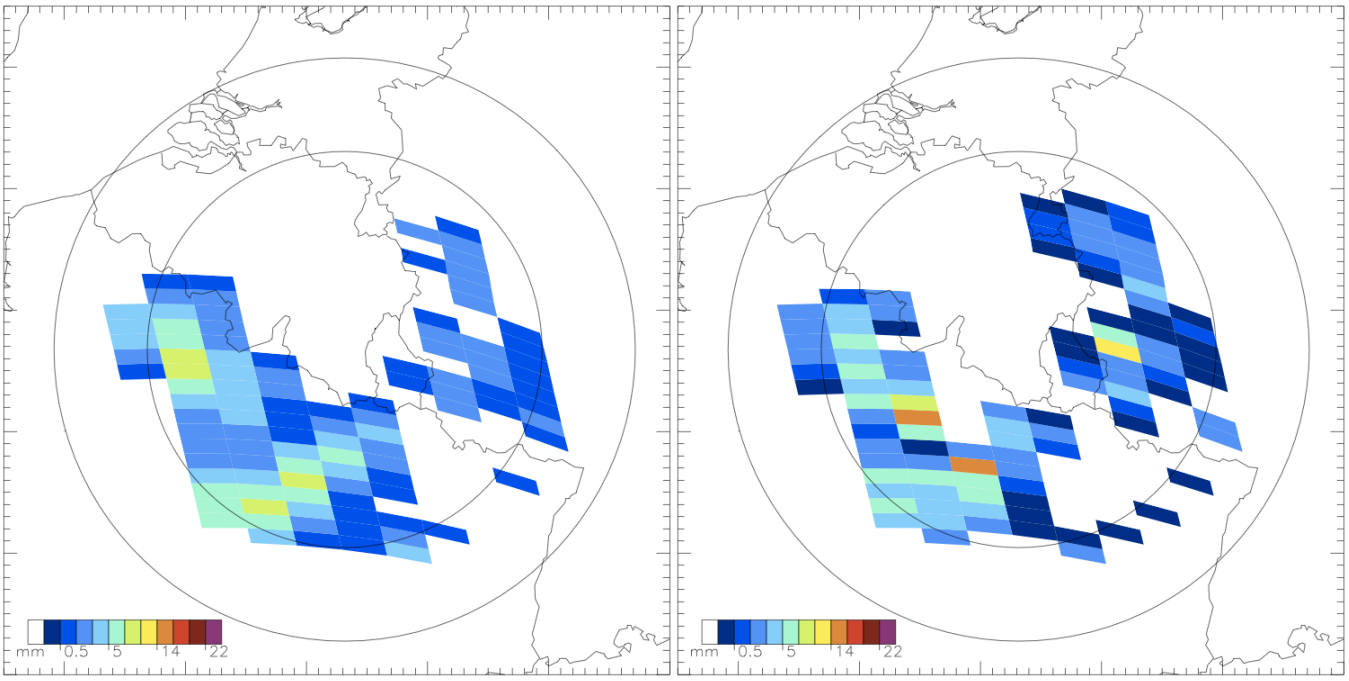




The proximity of active occluded and cold fronts to Belgium, resulted in locally intense precipitation that lasted for many hours starting on the afternoon of May 4.

DATA/PRODUCTS USED

We compare here the rain rate from OBS1v1.5 (H01) to the radar-observed rain rate. There is a small difference between the product and radar observation times.



Satellite (OBS1v1.5 on the left, at 17:03 UTC) and radar (on the right, at 17:05 UTC) on May 04, 2012.

The radar image on the right is the result of the up-scaling of the Wideumont radar data in the H01 grid at the moment of observation. We observe here that the satellite image is very close to the radar one. With the exception of small areal differences, the most important difference is that the satellite never records the level of rain rate intensity we see in the radar image.

RESULTS OF COMPARISON

In order to compare quantitatively the two images, satellite and radar presented previously, we calculate a series of statistical measures. These are, for both radar and satellite observation: (1) percentages of pixels inside the radar range with precipitation rate equal or greater than 1.0 mm/h (P1Rad, P1Sat), 2.0 mm/h (P2Rad, P2Sat) and 5.0 mm/h (P5Rad, P5Sat); (2) maximum precipitation rate value (in mm/h) inside the radar range (MaxRad, MaxSat). Also, mean error (ME) and root mean square error (RMSE) are calculated.

Product	**Time**	**P1Rad**	**P2Rad**	**P5Rad**	**P1Sat**	**P2Sat**	**P5Sat**
OBS1v1.5	17:03	27.04%	18.02%	6.00%	30.47%	18.88%	6.44%

Product	**Time**	**MaxRad**	**MaxSat**	**ME**	**RMSE**
OBS1v1.5	17:03	16.30	10.22	0.057	1.54

The tables confirm that indeed, in this particular case, the rainfall detection by H01 is quite similar to the radar picture for all the thresholds chosen. A consequence of this is the very low mean error calculated

from the two (H01 and radar) precipitation images.

COMMENTS

The thunderstorms of May 4 2012 were well detected by the product OBS1v1.5. Precipitation rates and affected area were satisfactorily recorded. The main difference between the satellite and radar detection in this case is the maximum rain rate which appears lower in the satellite image.

Indications to Developers