

COPS Weather Summary

14 August 2007

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Valid: Tuesday 14 August 09:45 UTC to Sunday 18 August 00:00 UTC

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Synoptic Overview

An intense quasi-stationary large-scale upper low is centered between the north British Isles and Iceland. A strong short-wave trough is present at its southern periphery, maintaining a vigorous surface low at its eastern flank. This low will travel across the British Isles today and into the Norwegian Sea on Wednesday, thereby supporting strong warm advection over western Europe. The cold front associated with this low pressure system is expected to stretch from southern Norway across the northwest of the Benelux States and northwest France into northwest Iberia by Wednesday 12 UTC (per GFS 00 UTC). This front will make only slow eastward progress and extend from the Baltic States southwards across western Poland into the Alpine region on Friday midday.

Analysis and Forecast of Synoptic Controls in the COPS Region

Tuesday 14 August

Cirrus and Altocumulus clouds should persist, and gradually increase, during the day in response to warm advection. Chance of isolated showers and thunderstorms exists especially in the southeast of the COPS domain.

Wednesday 15 August

Ahead of the cold front, models seem to converge towards some CAPE developing late in the day, with the stratiform precip related to warm advection being placed farther to the north. Cold-frontal passage is expected late Wednesday night or early on Thursday, and the main issue will be whether or not convection develops ahead of the front late on Wednesday, and how intense the convection will be along the front early on Thursday.

At the moment, there seems to be a small chance that deep pre-frontal surface-based convection will initiate before 18 UTC. Thereafter, the chances increase, and it is considered to be rather unlikely that no pre-frontal convection will develop at all – only the timing is uncertain.

Convection along the front will likely be surface-based as well, though shallow cold pool laid out by previous convection plus a developing surface inversion may render the convection along the front slightly elevated. Also, most of the activity may have weakened before the front passes the COPS domain in the night of Wednesday to Thursday. However, strong upward motion and strong shear will be in place to sustain the storms despite the unfavorable timing.

The pre-frontal thunderstorms in the evening hours will have fair chances of becoming supercellular given 12+ m/s 0-1 km shear and about 20 m/s deep-layer shear. This will likely increase as time progresses. Given this kinematic setup coupled with expected weak capping and low LCL heights, supercells may occur and develop strong low-level rotation, so that a tornado or two cannot be excluded. Also, damaging winds and large hail may occur.

Thunderstorms along the front, if they can be sustained until the front reaches the COPS domain, will likely attain more of a linear character, with the main threat being strong/severe wind gusts.

Thursday 16 August

After an initial cessation of the rain, it will likely set in during the day again, possibly with embedded elevated convection, which will augment local precipitation amounts. The rain should gradually weaken late Thursday or early Friday morning.

Friday 17 August

Though some mid/upper level cloudiness will likely persist over the area, some insolation will likely occur, initiating scattered and comparatively shallow rain showers (equilibrium levels probably being around, or just below 500 hPa). This activity should diminish after sundown.

Extended Outlook

Comparatively shallow polar air will remain in place, with a chance of showers during the day. These may also occur on Saturday, though some mid-level ridging may limit the depth of the convection, somewhat reducing the chance of showers. A return of warmer, and possibly more unstable air is possible ahead of a developing deep Atlantic upper trough towards the beginning of next week.

Today, Tuesday 14 August

Time/location of first convective cloud development	Shallow convective clouds are already present throughout the COPS area.
Time/location of convective storm initiation	During the late morning and early afternoon, chance of a few showers and weak thunderstorms in the south-eastern half of the COPS area.
Mode/coverage/evolution	Mostly isolated cells.
Cloud base	Rising to about 1000 m.
Storm motion	To the NE at 5-10 m/s.
Maximum temperature	Up to 28 °C in the Rhine Valley.
Precipitation	Up to 5 mm locally in the east. Otherwise, dry.
Severe weather threat	Low.

Tomorrow, Wednesday 15 August

Time/location of first convective cloud development	Scattered fields of altocumulus during the day. Isolated to scattered cumulus from the mid-morning onward.
Time/location of convective storm initiation	Model consensus has isolated convective development between 18-21 UTC, most likely in the northwest of the COPS area, spreading southeastward.
Mode/coverage/evolution	Rapid development into organized multicells, including the possibility of a few supercells.
Convective cloud base	1000 – 1500 m.
Storm motion	To the NE at 15-20 m/s.
Maximum temperature	Up to 31°C
Precipitation	Dry in many places, under storms up to 30 mm locally.
Severe weather threat	Moderate. Some large hail, and especially strong winds are likely with the storms. An isolated tornado cannot be excluded.

Thursday 16 August

Time/location of first convective cloud development	Some stratiform precipitation with embedded convection ongoing. During the day partly clear skies coming in from the west, with shallow convective clouds.
Time/location of convective storm initiation	
Mode/coverage/evolution	
Cloud base	Around 500 m.
Storm motion	-
Maximum temperature	Up to 22°C
Precipitation	Up to 20-30 mm.
Severe weather threat	Low

Friday 17 August

Time/location of convective storm initiation, Mode/coverage, Evolution	Stratiform cloudiness may prevent convective development especially over the east of the COPS area early in the day. A few relatively shallow, mostly scattered showers will likely develop from late morning onward.
Maximum temperature	Up to 23°C
Precipitation	5-10 mm in places.
Severe weather threat	Low

Saturday 18 August

Time/location of convective storm initiation, Mode/coverage, Evolution	Shallow and moderately deep convective clouds, possibly an isolated shower.
Maximum temperature	Up to 23°C
Precipitation	Mostly dry.
Severe weather threat	Low

Suggestions for IOP's and down days

Late Wednesday rather strong storms could develop in the northwestern half of the COPS area and spread further east. If the scenario that initiation occurs around 18 UTC is confirmed tomorrow morning, an IOP is advised that continues into Thursday morning. Otherwise, it may be cancelled. For Friday showers up to the mid-troposphere are forecast. Given that the BAe aircraft will be available for operations, this could be a good day for fulfilling the mission of probing towering cumulus clouds. Saturday will see less convective activity so that an IOP is not recommended.