

COPS Weather Summary

28 July 2007

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Synoptic overview

A strong westerly upper flow has been established and stretches from Ireland into Poland between an area of low pressure covering Scandinavia and a belt of high pressure over southern Europe.

In this flow, two disturbances are quickly travelling eastwards.

The first one is leaving central Europe already. It still affects northeastern Germany and Poland.

The second one will be of greater intensity. It is currently deepening in a large scale forcing context west of Ireland. Its center is expected over Belgium on Sunday 6 UTC and will quickly enter Germany in the course of Sunday. The associated rain will be most intense over central Germany. Since the upper flow veers to a northwesterly direction on the western edge of a sharp upper long wave trough, the cold front will be pushed southeastwards.

On Monday, the trough moves eastwards into Poland, the tied cold front leaves southern Germany in the morning hours, though somewhat stalling along the Alps. Polar air will spread over central and northwestern Europe. During the first half of the next week a strong high pressure ridge is expected to build over western Europe. It should slowly move eastwards, found over central Europe on Wednesday.

Analysis and forecast of synoptic controls in the COPS region

Today (Saturday), 28 July

In the strong westerly flow aloft, an embedded surface frontal wave currently moves eastward over Germany and is expected near the Polish border on Saturday afternoon. Low/mid level mostly stratiform clouds prevail throughout the day, becoming more convective with the approach of the cold front in the afternoon. There might be some gaps in the cloud cover, preferably in the lee of the Vosges mountains and the Black Forest. A few rain drops are possible at first, followed by scattered showers during the afternoon. As slightly unstable air is present, a thunderstorm or two may not be excluded to form over central Germany but are unlikely in the COPS area.

Tomorrow (Sunday) 29 July

A second and stronger frontal wave will be initiated west of Ireland on Saturday. Quickly travelling eastwards, it will pass over central Germany on Sunday. According to the models the track is still somewhat uncertain – there could be a shift of 100 to 200 km to the north or south. Remnants of the frontal zone, that passed COPS area in the night before, are likely to be present in the early morning hours associated with stratiform clouds as well as a very local embedded shower, especially in the southern parts. The cloudiness should temporarily decrease before noon allowing some insolation. The southwesterly flow of an unstable air mass increases; however, only small amounts of CAPE will develop. Starting from around noon, mostly embedded towering cumulus clouds appear, a shower or even a thunderstorm cannot be excluded. The cold front is expected to cross the COPS area around 18 UTC, with its passage being quite pronounced with heavy rain, a possible thunderstorm and storm force gusts.

Monday 30 July

In the wake of the frontal wave a strong northwesterly flow pushes cold air of polar origin into central Europe. Although being under the influence of a long-wave trough, forcings should be weak in the COPS area on Monday. Therefore fair conditions are to be expected. However, widespread cumulus clouds of Cu hum and Cu med type should occur, a few showers might develop.

Tuesday 31 July and Wednesday 1 August

An upper-level short wave trough could cross the COPS area in the night to Tuesday, generating clouds and weak showers. However, ECMWF does not display this scenario. As a slowly eastward moving high pressure ridge builds up over France, mid-level subsidence in the southwestern parts of Germany becomes evident. If the subsidence leads to a pronounced inversion, cumulus clouds might partly spread into Stratocumulus in the afternoon hours. Apart from the morning hours, showers are not to be expected in the course of the day.

On Wednesday, the ridge is expected over Germany. Strong mid-level subsidence creates fair, dry and warmer conditions in the COPS area.

Extended outlook

The ridge is expected to cross Germany on Wednesday. Another west European long-wave trough will cause an increasing southwesterly flow over central Europe. With warm air advection and the large-scale forcing, a frontal wave might enter central Europe in the course of Thursday. In its wake, the westerly flow of cooler air will be renewed. However, this scenario still remains uncertain.

Today, Saturday 28 July

Time/location of first convective cloud development	Embedded convective clouds already present.
Time/location of convective storm initiation	Widespread showers in the late afternoon/evening.
Mode/coverage/evolution	Embedded/widespread.
Convective cloud base	About 1200 m.
Storm motion	From westerly directions at about 15 m/s.
Maximum temperature	Up to 25 °C in the Rhine Valley.
Precipitation	Up to 5 mm.
Severe weather threat	-

Tomorrow, Sunday 29 July

Time/location of first convective cloud development	Towering Cu in the very south of COPS area from around noon possible.
Time/location of convective storm initiation	Very few showers/thunderstorms over the mountains in the southern parts of COPS area not to be excluded in the afternoon; with passage of the cold front showers become more scattered with embedded thunderstorms.
Mode/coverage/evolution	If they will develop, single cells ahead of the cold front; embedded and widespread showers/thunderstorms towards the evening/night, might organize into lines.
Convective cloud base	About 1000 m.
Storm motion	At about 15-20 m/s from westerly directions.
Maximum temperature	21-24 °C in the Rhine Valley.
Precipitation	Up to 15 mm.
Severe weather threat	Low to medium. Storm force gusts with passage of the cold front in the afternoon/evening.

Monday 30 July

Time/location of first convective cloud development	Cu hum to Cu con from around noon.
Time/location of convective storm initiation	Weak showers in the afternoon.
Mode/coverage/evolution	Few to scattered.
Convective cloud base	About 1200 m, decreasing towards evening.
Storm motion	About 10 m/s from westerly directions.
Maximum temperature	20-22 °C.
Precipitation	Up to 5 mm.
Severe weather threat	Low.

Tuesday 31 July

Time/location of convective storm initiation, Mode/coverage, Evolution	Brief morning shower cannot be excluded.
Convective cloud base	Rising to about 1800 m.
Storm motion	About 5-10 m/s from the northwest.
Maximum temperature	17-20 °C.
Precipitation	Up to 5 mm.
Severe weather threat	-

Suggestions for IOP's and down days

As very few showers are of mainly embedded character today, an IOP is of low interest. Sunday looks a bit more promising. Although, according to cloudiness, little insolation and heating, and only small amounts of CAPE, showers/thunderstorms are not very likely or at least not isolated ahead of the cold front. The front passage itself is associated with embedded convective activity. Monday and Tuesday are dominated by cold polar air, only shallow cumulus clouds (less frequent on Tuesday) and mainly dry conditions will prevail; IOPs are not recommended.