

COPS Weather Summary

31 July 2007

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Synoptic overview

Between a mid-/upper-level long wave trough that initially stretches from Scandinavia over the eastern parts of central Europe into the central Mediterranean Sea region and a high pressure ridge located over western Europe a north-westerly flow is present over central Europe advecting rather cool air of polar origin. Under the ridge, a surface high lies with its center over the English Channel. Both the ridge as well as the surface high will shift eastwards so that latter one will find itself over central Germany on Wednesday, 00 UTC.

The axis of the high pressure ridge is expected over Germany on Wednesday noon, making its way further eastwards in the course of the day. In its wake a long-wave trough approaches from the west leading to a south-westerly flow over central Europe.

That flow increases on Thursday, forcing warm and moist air mainly into the southern half of Germany. A surface low, that has formed ahead of this trough over northern Spain/southern France on Wednesday, travels over northern France and Benelux towards northern Germany.

Shortening its wavelength the trough should move further eastwards on Friday, followed again by cooler air masses spreading into central Europe. One more time it is replaced by a quite intense high pressure ridge that builds up over the eastern North Atlantic and amplifies while extending to the northeast on the weekend.

Analysis and forecast of synoptic controls in the COPS region

Today (Tuesday), 31 July

Between a mid-/upper-level long wave trough that initially stretches from Scandinavia over the eastern parts of central Europe into the central Mediterranean Sea region and a high pressure ridge located over western Europe a north-westerly flow is present over central Europe advecting rather cool air of polar origin. As the ridge moves slowly towards the east, mid-level subsidence leads to an inversion at about 700 hPa.

Therefore dry and fair weather conditions will prevail in the COPS area with only few shallow cumulus clouds that are likely to form in the course of the today.

Tomorrow (Wednesday) 1 August

The ridge progresses further eastwards over Germany and reaches the Polish border in the evening hours. Only few and shallow Cu are likely to develop mainly over mountains. Ahead of a mid-/upper-level long-wave trough at the western edge of Europe, a south-westerly flow will establish over central Europe bringing significantly warmer air to the COPS region. A surface low pressure area is expected to form over northern Spain/southern France, travelling towards the northeast into the night to Thursday.

Thursday 2 August

As the surface low arrives to northern Germany the southwesterly flow increases, advecting even warmer and moister air into the COPS area. In the vicinity of that low, many clouds are expected throughout the day including some rain drops or even a brief shower or two before noon already. However, mainly short sunny intervals are also possible. Thunderstorms are most likely with the passing cold front that is expected to cross COPS area in the late evening.

Friday 3 August and Saturday 4 August

On Friday, the surface low as well as the associated long-wave trough progress eastwards. Models are not quite consistent yet about how fast COPS area gets under the influence of an approaching high-pressure ridge from the west. Most likely scenario from the current point of view is that remnants of the cold front are present with stratiform cloudiness possibly releasing a few rain drops mainly in the southeastern parts of COPS area in the morning hours. In the course of the day, sun should get greater portions of the sky, however a few showers are still possible any longer.

On Saturday, the strengthening high-pressure ridge extends to the northeast leading to dry, sunny and quite warm weather conditions.

Extended outlook

Models are somewhat uncertain concerning the movement of the aforementioned high pressure ridge to the east. However, it is supposed to remain over central Europe at least until Sunday.

Today, Tuesday 31 July

Time/location of first convective cloud development	Shallow cumulus clouds already present.
Time/location of convective storm initiation	-
Mode/coverage/evolution	-
Convective cloud base	Around 1500 m.
Storm motion	-
Maximum temperature	19-21 °C in the Rhine Valley.
Precipitation	-
Severe weather threat	-

Tomorrow, Wednesday 1 August

Time/location of first convective cloud development	Few shallow cumulus clouds in the afternoon.
Time/location of convective storm initiation	-
Mode/coverage/evolution	-
Convective cloud base	Around 2200 m.
Storm motion	-
Maximum temperature	Up to 27 °C in the Rhine Valley.
Precipitation	-
Severe weather threat	-

Thursday 2 August

Time/location of first convective cloud development	Mainly embedded Cu already before noon.
Time/location of convective storm initiation	First showers or even a thunderstorm possible before noon.
Mode/coverage/evolution	Remnants of nighttime MCS possible in the morning hours already; local thunderstorms of mainly embedded character in the course of the day; however, isolated cells in the afternoon cannot be excluded.
Convective cloud base	Around 1100 m.
Storm motion	About 15-20 m/s from the southwest.
Maximum temperature	24-28 °C depending on insolation.
Precipitation	Locally 30 mm with showers/thunderstorms.
Severe weather threat	Low to medium. Strong wind gusts/local flash floods possible.

Friday 3 August

Time/location of convective storm initiation, Mode/coverage, Evolution	Few weak showers possible in the morning already; widespread showers in the afternoon.
Convective cloud base	Rising to about 1200 m.
Storm motion	At about 10-15 m/s from the northwest.
Maximum temperature	Up to 24 °C in the Rhine Valley.
Precipitation	Up to 10 mm.
Severe weather threat	Low.

Suggestions for IOP's and down days

Tomorrow only few shallow cumulus clouds, mainly tied to the mountains, will form. An IOP is of lower interest. An upstream flight towards the sensitive region in southwestern Europe as well as flux measurements might be operated.

Convective activity and the potential for thunderstorms increase on Thursday, so that another IOP could take place. Also on Friday there are chances for some showers developing in the course of the day, whereas Saturday looks less promising.