COPS Weather Summary - UPDATE 11 August 2007

Issued: Saturday 11 August 12:30 UTC
Valid: Saturday 11 August 12:30 UTC to Wednesday 15 August 00:00 UTC
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Update

Saturday (today) ... The cloud deck is in the process of breaking slowly over the ops center, and given that the latest GFS keeps simulating positive CAPE and convective precipitation in the afternoon hours, it does not seem unlikely that isolated rain showers, maybe weakly electrified, will occur. After sunset, the clouds should gradually disappear.

Sunday's (tomorrow's) scenario seems to be confirmed, with developing deep convection during the day. First attempts of CI will probably occur as early as late morning.

Monday and Tuesday currently do not appear to require any adjustment.

Wednesday's GFS scenario has been confirmed by the latest run, except that the bulk of the stratiform warm-sector precip is now being shifted farther towards the north. CAPE is still simulated to be quite sparse (i.e., non-existent over the COPS area), which is a result of cloudiness/precip in the warm sector. Temperatures of up to 30°C are simulated over parts of France, which is where the CAPE is simulated. This implies that as soon as insolation is stronger over the COPS area than assumed in the current GFS runs, CAPE will likely develop. However, the mid-level lapse rates will likely be quite weak, so that large CAPEs should not develop (even in the most optimistic scenario). Still, convection should not be excluded along and ahead of the cold front on Wednesday and Wednesday night. Frontal passage is currently simulated to occur around 09 UTC on Thursday.

On Thursday, mostly stratiform rain in the ascending branch of the cold-frontal circulation will likely affect the COPS area. Thereafter, and on the days to follow, the chance of deep convection will be strongly reduced. Some showers in the comparatively shallow modified polar air will likely occur, however.

Original Discussion from 11 August 10:30 UTC

Synoptic Overview

Between an upper cut-off low over the northern Adriatic that moves slowly eastward and a large trough with its axis near Ireland, a mobile ridge is located over western France. This ridge should move eastward passing the COPS region on Sunday morning. As a result of the associated subsidence, skies should start to clear on Saturday evening. A shortwave trough is expected to round the base of a larger trough to the west of the European continent and pass the COPS region in the night of Sunday to Monday. A surface cold front associated with this trough is expected to cross the COPS area during the first half of Monday. At the same time a mid/upper-low should cut off from the trough and move eastward into the Mediterranean region. On Tuesday, an increasing south-westerly flow is expected, as a rather intense shortwave trough rounds the base of the large trough over the eastern Atlantic, generating strong warm air advection over western Europe. Potential for high CAPE within this air-mass is rather small because of the lapse rates being not very steep. A cold front ahead of the large/scale trough is expected to progress slowly eastward and pass the COPS area late on Wednesday or early Thursday.

Analysis and Forecast of Synoptic Controls in the COPS Region

Today, Saturday 11 August
It appears that the sky will remain overcast during most of the day, with temporary, embedded rain showers. Models indicate that there will be some clearing, but not until late evening.

Sunday 12 August
Models agree in having the day begin with mostly clear skies with subsequent diurnally-driven convective development. The ECMWF is not as enthusiastic about the evolution of afternoon showers and thunderstorms as the GFS, but confidence is rather high that at least isolated storms will develop along the

orographic features. With the approach of an upper trough during the late evening and night, large scale ascent will increase, reducing mid-level temperatures as well as the capping, thus maintaining the CAPE despite the loss of diurnal heating. At the surface, an airstream boundary will approach the region in the evening hours, along which storms should exist (which will likely have developed earlier over France) and overspread the COPS region. Models indicate that convective precip will persist through much of the night, which could be associated with nocturnal thunderstorms, though a slight chance also exists that the precipitation will attain largely stratiform character later in the night.

Monday 13 August
Convective scenario is not quite certain ... most likely scenario appears to be that convective debris will linger over the region early in the day, which subsequenmtly mix out and allow insolation to initiate further storms. The diminishing of the debris could be aided by large-scale descending motion advertised by the GFS in the early morning hours. There will be a cold front passing the region around midday, but it seems that it will undergo substantial frontolysis, reducing the amount of favorable low-level mesoscale ascent along it. This implies that the bulk of convective activity will occur across the warm sector, rather than along the surface cold front.

Tuesday 14 August
The upper level flow will back in response to an amplification of the Atlantic upper trough. A vorticity maximum imbedded at its eastern periphery and an intense surface low attendant to it, will move towards the British Isles late on Tuesday and boost the warm advection over the COPS area late on Tuesday. It seems that all that happens on Tuesday will be an increase of cloudiness, especially late in the day, and onsetting rain late in the night.

Wednesday 15 August
Warm air advection is expected to maintain warm-sector rainbands, which may partly be of convective nature. However, deep CAPE is currently not expected.

Extended Outlook

In the wake of the cold front, which should cross the region late Wednesday/early Thursday, no deep instability, and no significant precipitation are simulated, so the threat for deep moist convection should be quite low for the days to follow the cold frontal passage.

Today, Saturday 11 August

Time/location of first convective cloud development	Widespread stratiform cloudiness. Some rain. Clearing skies in the evening.
Time/location of convective storm initiation	-
Mode/coverage/evolution	-
Cloud base	Below 500 m.
Storm motion	-
Maximum temperature	Around 25 °C in the Rhine Valley.
Precipitation	1 – 5 mm, locally up to 10 mm.
Severe weather threat	Low.

Tomorrow, Sunday 12 August

Time/location of first convective cloud development	Initially, little cloudiness. Shallow convective clouds developing a few hours after sunrise.
Time/location of convective storm initiation	Isolated convective storms developing during the late morning or early afternoon, most likely over the mountains.
Mode/coverage/evolution	Mostly slow-moving single cells. A few small convective clusters possible in the evening as coverage increases a little.
Cloud base	Rising to 1500 m.
Storm motion	Slow.
Maximum temperature	Around 28 °C in the Rhine Valley.
Precipitation	0 – 10 mm, very locally up to 25 mm under slow-moving storms.
Severe weather threat	Low.

Monday 13 August

Time/location of first convective cloud development	Convective clouds forming in clearings during the morning.
Time/location of convective storm initiation	Rapid development of a few small convective storms.
Mode/coverage/evolution	Single cells and small poorly-organized clusters.
Convective cloud base	Around 750 m rising to 1000 – 1250 m.
Storm motion	From the west at about 10 m/s.
Maximum temperature	Up to 25 °C.
Precipitation	0 – 10 mm.
Severe weather threat	Low.

Tuesday 14 August

Time/location of convective storm initiation, Mode/coverage, Evolution	Initially, little cloudiness. Increasing high and mid-level clouds during the afternoon, followed by some rain in the evening. The mid-level clouds have a partly convective character.
Maximum temperature	Up to 27 °C in the Rhine Valley.
Precipitation	5-10 mm.
Severe weather threat	Low.

Wednesday 15 August

Time/location of convective storm initiation, Mode/coverage, Evolution	Widespread stratiform cloudiness and rain. Convective storm development ahead of the front that passes in the evening or night is not ruled out.
Maximum temperature	Up to 26 °C in the Rhine Valley.
Precipitation	10-40 mm.
Severe weather threat	Low.

Suggestions for IOP's and down days

Diurnal/orographic convective development on Sunday clearly calls for an IOP. Storms may continue during the night and redevelop early on Monday, so an IOP is advised for Monday, as well. Tuesday does not look too interesting in terms of COPS goals. Currently, Wednesday seems to be dominated by stratiform rain, so that an IOP currently does not appear to be very advisable. However, the scenario is somewhat uncertain and if positive CAPE should develop, a potent convective scenario could unfold.