Area Forecast Discussion: Beirut and Baghdad
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Big Picture Perspective

The dominant features in the early periods of the forecast is a large amplitude ridge and trough throughout Europe. Anomalously warm temperatures build throughout western and northern Europe while anomalously cold temperatures sit in Eastern Europe and the Mediterranean. This rossby wave pattern breaks up quickly due to the trough cutting off into and upper-level low and the ridge into an upper-level high creating a rex block that later develops into a classic omega blocking pattern over Europe. Precipitation over the Middle East remains low as the omega block traps the surface low over the Mediterranean. As the block starts to collapse the area becomes battered with low pressure systems bring precipitation all the way to Iran. The AO signal is currently positive and is expected to persist for the remainder of the period.

Extended Range: Day 7-10 (12z 27th - 12z 2nd)

The weaker polar jet is forecasted to stay in the same pattern of ridging in western Europe and troughing in eastern Europe by both the GFS and ECMWF, but the fate of an incoming shortwave trough and the deepness of the positively tilted trough are different depending on the model. A re-amplification of the positively tilted trough will bring more polar air southward to form a second weaker cyclone in the eastern Mediterranean. The cyclone will continue the onshore flow into Lebanon while Q-vector convergence and cyclonic vorticity advection will provide forcing heavy rain in Beirut towards the beginning of the period. Once the cyclone passes Lebanon, the northerly flow will cause slightly colder than normal temperatures and Q-vector divergence will cut off the precipitation in Beirut for the rest of the period. The southerly flow at the beginning of the period will bring slightly warmer than normal temperatures and high surface pressure to Baghdad. As the cyclone approaches to the northwest, the conditional instability will be tapped into because of Q-vector convergence, producing stronger precipitation to the North and light rain of Baghdad.

Medium Range: Day 4-6 (12z 24th - 12z 27th)

As western Europe continues to be dominated by ridging, producing a positive 3 sigma 500-hPa height anomaly, anticyclonic wave breaking on the downstream side of the ridge will bring negative 4 sigma 50-hPa height anomalies to the Mediterranean and

northern Africa. The deep trough into the Mediterranean cutting off will leave a large cyclone in northern Africa which will track northeast throughout the period due to ridging in the middle east. Another smaller PV streamer will slide southward on the upstream side of the trough, creating an inverted trough to the west of the main cyclone at the end of the period. Overrunning precip on the warm front will occur in Turkey but will stay to the north of Beirut. Light rain will move over Beirut at the end of the period resulting from the dry adiabatic lapse rates, onshore flow and cyclonic vorticity advection as the cyclone breaks up. Baghdad will have near climatological temperatures throughout the period with some rain possible at the end of the period from the remnants of the cyclone.

Short Range: Day 0-3

The beginning of the period starts off with a strengthening ridge and trough system over Europe. As the period progresses strong northerly wind coming out of the ridge acts to deepen the trough into the Mediterranean through CAA and positive f advection. Anticyclonic wave breaking occurs further building the trough but acts to cut off the trough in the region of southern Europe. The cut-off low over the region causes cold and rainy weather over the Mediterranean as it gets blocked by slight ridging through the Middle East keeping the region fairly dry. There is agreement with the set-up of the cut-off low as well as the ridging towards the end of the period between the GFS and ECMWF. In terms of precipitation, there is predominantly westerly flow through the Middle East advecting moisture from the Mediterranean creating possibilities for orographically induced ascent near the coast.

Probabilistic Forecast

Beirut, Lebanon:
Day 0-3:
Max Temp: 16ºC (10th), 17ºC (50th), 18ºC (90th)
Min Temp: 12ºC (10th), 14ºC (50th), 15ºC (90th)
Precip: 2 mm (10th), 4 mm (50th), 6 mm (90th)

Day 4-6:
Max Temp: 16ºC (10th), 18ºC (50th), 20ºC (90th)
Min Temp: 11ºC (10th), 14ºC (50th), 15ºC (90th)
Precip: 10 mm (10th), 13 mm (50th), 15 mm (90th)

Day 7-10:
Max Temp: 13ºC (10th), 14ºC (50th), 15ºC (90th)
Min Temp: 10ºC (10th), 11ºC (50th), 12ºC (90th)
Precip: 2 mm (10th), 5 mm (50th), 7 mm (90th)

Baghdad, Iraq:
Day 0-3:
Max Temp: 18ºC (10th), 19ºC (50th), 21ºC (90th)
Min Temp: 6ºC (10th), 7ºC (50th), 9ºC (90th)
Precip: 0 mm (10th), 1 mm (50th), 2 mm (90th)

Day 4-6:
Max Temp: 17ºC (10th), 19ºC (50th), 20ºC (90th)
Min Temp: 5ºC (10th), 8ºC (50th), 10ºC (90th)
Precip: 0 mm (10th), 1 mm (50th), 2 mm (90th)

Day 7-10:
Max Temp: 15ºC (10th), 16ºC (50th), 17ºC (90th)
Min Temp: 5ºC (10th), 6ºC (50th), 7ºC (90th)
Precip: 0 mm (10th), 1 mm (50th), 2 mm (90th)