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12 February - Beirut and Baghdad

Big Picture

The main feature in this forecast period is a cutoff low forming in the eastern Mediterranean Sea. An anomalously strong surface cyclone moving northeastward past Scandinavia will induce anticyclonic wave breaking downstream in eastern Europe and causing a PV streamer to fracture and form the -3 sigma cutoff on day 2. This vertically stacked cutoff will aid in forming a couple of surface cyclones that will impact Turkey, Syria, Lebanon, and northern Iraq. Because these cyclones will not have ample time to organize, much of the precipitation will be orographically driven in the mountains of these regions. However, with slight positive anomalies for precipitable water, the precipitation could be significant for favorable windward locations. Associated with the cutoff low will be anomalously cold air for much of the period with only a slight warmup at the very end of the period for western Turkey. The presence of an anomalously strong (+2 sigma) subtropical jet at 250 mb to the south of the region means much of the area is under the poleward jet entrance region which inhibits the growth of larger cyclones. Because of this, these shallower Mediterranean lows will be the main source of active weather in this region.

Day 7-10

With the polar jet far to the north and the subtropical jet both anomalously strong and essentially zonal, there is very little to affect the overall flow in this region. While far out, some models are suggesting a strong cyclone could drop down from the Arctic into western Russia. With this, the general blocking over eastern Iran and Afghanistan would diminish and allow the cutoff low to begin progressing eastward. If that were to occur, the flow would become relatively close to climatology as the cutoff low is the main contributor to the cold air and precipitation. Otherwise, conditions may last longer and favor a prolonged period of cold in the Middle East. It is also possible that large-scale blocking across central and eastern Europe shifts further south and brings above average temperatures to Greece and northern Turkey. As with the possible break in downstream ridging, the position of European blocking has a lot to do with the track and intensity of strong Atlantic cyclones, so predictability is difficult for this lead time.

Day 4-6 (Feb 16th-18th)

A cutoff cyclone centered over the Black Sea remains detached from the mid-latitude jet as depicted by low dynamic tropopause temperatures. Correspondingly, a new surface cyclone develops over the central Mediterranean by the beginning of the period, remains fairly stationary and becomes vertically stacked with the upper level cyclone. Similar to the Day 0-3, consecutive surface cyclones will act to advect low to mid-level moist air onshore and contribute to orographically driven precipitation on the windward side of the mountains in Lebanon. Elevated areas along the western region of the Arabian Peninsula will hinder most precipitation in Iraq given the westerly flow regime in the country and downsloping for most of the period.

Temperatures will remain above climatology for the region, particularly +1 sigma on average for much of the period.

Day 0-3 (Feb 12-15th)

The period begins with an amplified upstream ridge over western Europe that aids in the intrusion of polar PV air into the Mediterranean Sea. Consequently, the displacement of the mid-latitude jet eventually results in a cutoff circulation centered over the western Mediterranean by the end of the period. By the beginning of Day 1, induced circulation from the upper-level PV anomaly deforms the low-level temperature field to create low-level cyclonic circulation through mutual interaction. This surface low will slowly move eastward throughout the period as it becomes vertically stacked with the upper-level low, providing slight onshore flow over Lebanon and a southerly flow regime through most of Iraq. A sharp topographic gradient in Lebanon will favor orographically enhanced precipitation for onshore flow provided by the system and along the mountainous border of northern Iraq. With warm SSTs in the Mediterranean, onshore will favor near climatology for Lebanon whereas downsloping wind and warm air advection from the south later in the period will lead to above climatology temperatures for Iraq.

Probabilistic Forecasts for the period

Beirut, Lebanon

Day 0-3

High Temperature	10th: 56°F	50th: 58°F	90th: 60°F
Low Temperature	10th: 48°F	50th: 51°F	90th: 54°F
Precipitation	10th: 0.05"	50th: 0.25"	90th: 0.40"

Day 4-6

High Temperature	10th: 52°F	50th: 54°F	90th: 56°F
Low Temperature	10th: 47°F	50th: 49°F	90th: 51°F
Precipitation	10th: 0.45"	50th: 0.90"	90th: 1.30"

Day 7-10

High Temperature	10th: 53°F	50th: 55°F	90th: 57°F
Low Temperature	10th: 47°F	50th: 49°F	90th: 51°F
Precipitation	10th: 0.00"	50th: 0.05"	90th: 0.15"

Baghdad, Iraq

Day 0-3

High Temperature	10th: 66°F	50th: 68°F	90th: 70°F
Low Temperature	10th: 56°F	50th: 58°F	90th: 60°F
Precipitation	10th: 0.00"	50th: 0.02"	90th: 0.10"

Day 4-6

High Temperature	10th: 65°F	50th: 67°F	90th: 69°F
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Low Temperature	10th: 55°F	50th: 57°F	90th: 58°F
Precipitation	10th: 0.00"	50th: 0.00"	90th: 0.05"

Day 7-10

High Temperature	10th: 62°F	50th: 64°F	90th: 66°F
Low Temperature	10th: 54°F	50th: 57°F	90th: 60°F
Precipitation	10th: 0.10"	50th: 0.15"	90th: 0.25"