

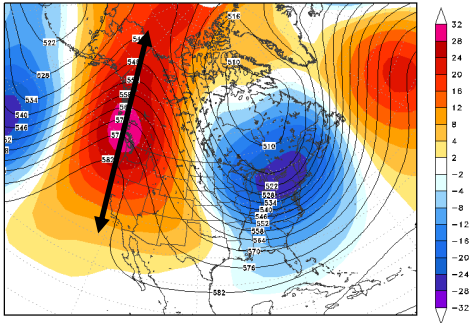


Cold Pattern Arriving on Schedule

315 pm EST Sunday December 3, 2017

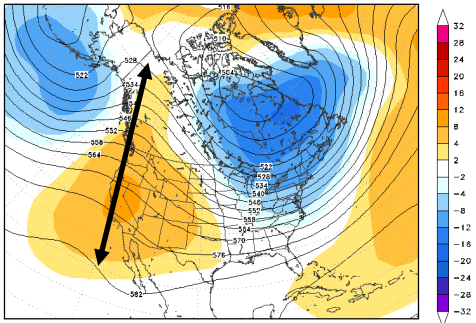
Cold Pattern Holding, but Big Questions on Overall Duration

500 mb Height Anomaly (dm)
Valid: 12z Wed 13 Dec 2017
ECMWF-EPS
Hour: 240



Dec 13 ridge pattern very impressive up along West Coast with colder risks for Eastern U.S.

500 mb Height Anomaly (dm)
Valid: 12z Mon 18 Dec 2017
ECMWF-EPS
Hour: 360



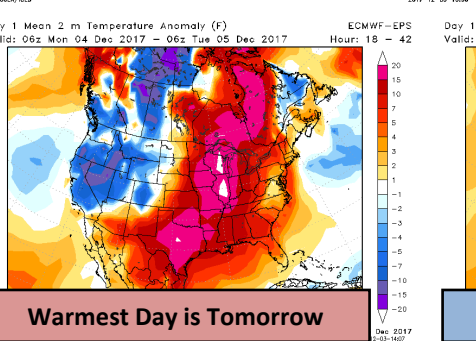
Day 16 ridge pattern weaker along West Coast but still there with lingering cold trough Eastern U.S.

- **Big picture:** Models steady state over weekend with cold blocking pattern dominating next two weeks
- **Timing:** Onset slightly faster with Day 3-4 (Tue-Wed) arrival time– first national cold day: Wed 12/6
- **Intensity:** Pattern analogs continue to show colder results than what models offer– especially from what European ensemble provides; Euro ensemble weakens pattern intensity slightly by late 11-15 day with warmer risks for Plains/Texas especially (cold East); Euro ensemble has very narrow ridge in Western Canada at end of run– pattern still there– just weaker
- **Durability:** 12/15 and 12/22 EIA weeks carry reasonably high confidence for colder than normal results; but weaker European ensemble pattern look at end triggers some questions regarding 12/29 week; given Niña, some risk pattern could get more variable again

Current Odds of Consecutive Cold EIA Weeks

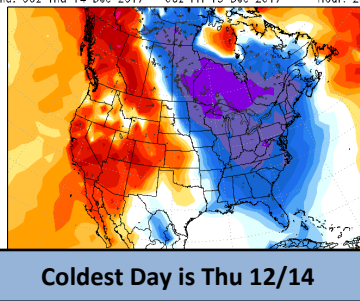
At Least Two: 80%
At Least Three: 51%
At Least Four: 45%

Day 1 Mean 2 m Temperature Anomaly (F)
Valid: 06z Mon 04 Dec 2017 – 06z Tue 05 Dec 2017
ECMWF-EPS
Hour: 18 – 42



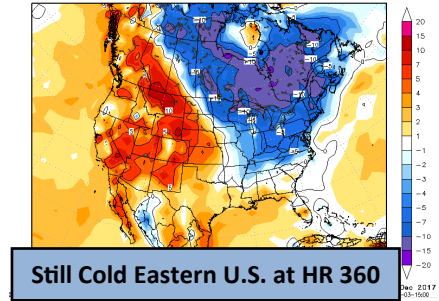
Warmest Day is Tomorrow

Day 11 Mean 2 m Temperature Anomaly (F)
Valid: 06z Thu 14 Dec 2017 – 06z Fri 15 Dec 2017
ECMWF-EPS
Hour: 258 – 282



Coldest Day is Thu 12/14

2 m Temperature Anomaly (F)
Valid: 12z Mon 18 Dec 2017
ECMWF-EPS
Hour: 360



Still Cold Eastern U.S. at HR 360

Major Pattern Flip Finally Reaches Near Term– Middle this Week

National Gas-Weighted Heating Degree Days by Model (12z Cycle Today)

Model	Day 1 2017-12-04	Day 2 2017-12-05	Day 3 2017-12-06	Day 4 2017-12-07	Day 5 2017-12-08	Day 6 2017-12-09	Day 7 2017-12-10	Day 8 2017-12-11	Day 9 2017-12-12	Day 10 2017-12-13	Day 11 2017-12-14	Day 12 2017-12-15	Day 13 2017-12-16	Day 14 2017-12-17	Day 15 2017-12-18
ECMWF-EPS	17.3	19.8	24.9	28.3	28.7	28.3	28.9	28.7	29.3	31.2	31.7	31.7	30.7	29.8	
GFS-ENS	17.3	20.4	25.4	28.2	28.6	29.5	31.2	31.1	30.7	31.5	32.6	33.7	33.7	33	32
GFS-ENS-BC	17	20.4	25.6	28.5	29.1	29.8	31.3	30.9	30.5	31.1	32.2	33.2	33.1	32.5	31.7
CMC-ENS	17.9	21.5	27.5	32.1	32	30.2	30.1	29	28	27.5	30.4	32.9	34.2	33.3	31.3
GFS	16.9	20	25.2	27.7	28.8	30.3	30.4	27.6	27.2	31.5	28.9	29.5	33.1	30.9	27.1
ECMWF	17.3	19.5	24.8	28.6	29	27.9	28.3	26.6	30						
Ensemble Mean	17.6	20.6	25.9	29.5	29.8	29.3	30	29.6	29.3	30.1	31.5	32.8	32.9	32	31.7
Operational Mean	17.1	19.8	25	28.2	28.9	29.1	29.4	27.1	28.6	31.5	28.9	29.5	33.1	30.9	27.1
Climo-10yr	24.7	25	25.3	25.5	25.7	25.9	26.2	26.4	26.6	26.7	26.9	27.1	27.3	27.4	27.6
Climo-30yr	25.2	25.5	25.9	26.2	26.5	26.8	27	27.3	27.6	27.8	28	28.2	28.4	28.6	28.8

Unusually Good Agreement– but Confidence to Build Once it Advances into 6-10 Day this Week