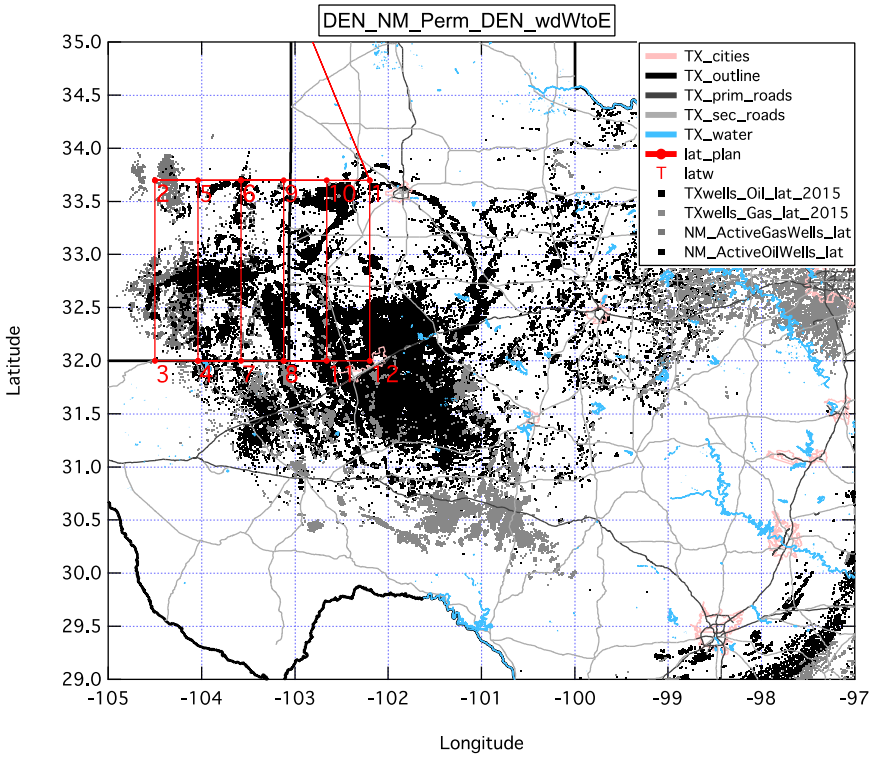
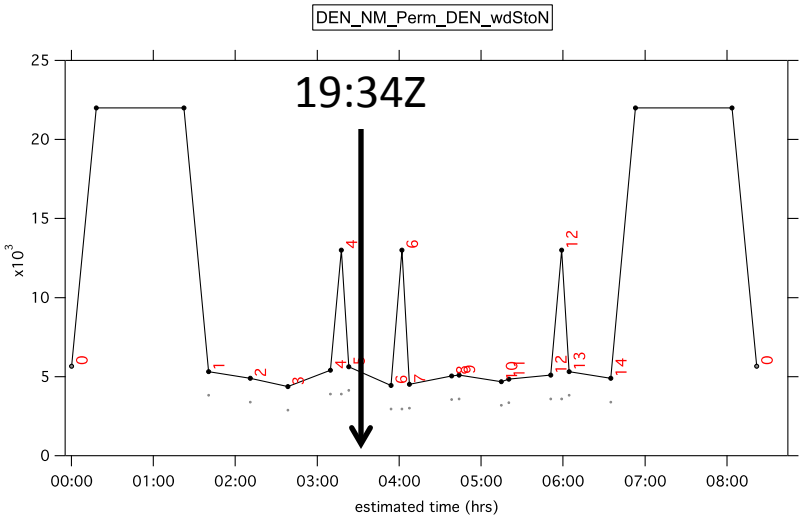
RAQMS 20150423 SONGNEX
30hr FX for 18Z April 23 (Permian Basin), 2015

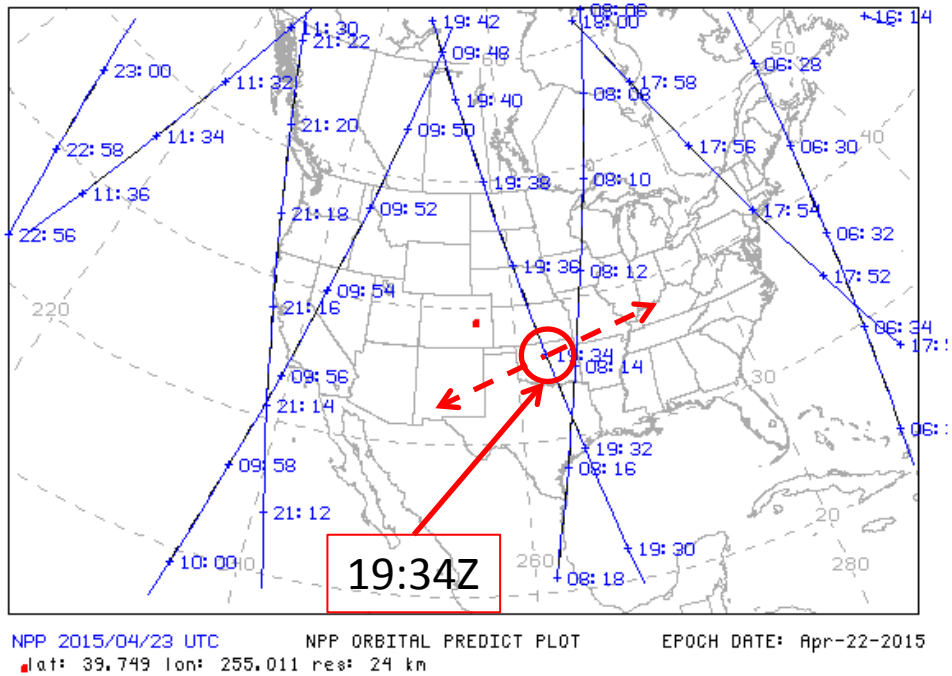




Assuming 10:00am Mountain Take-

grndspeed= 115m/s, 224 knts

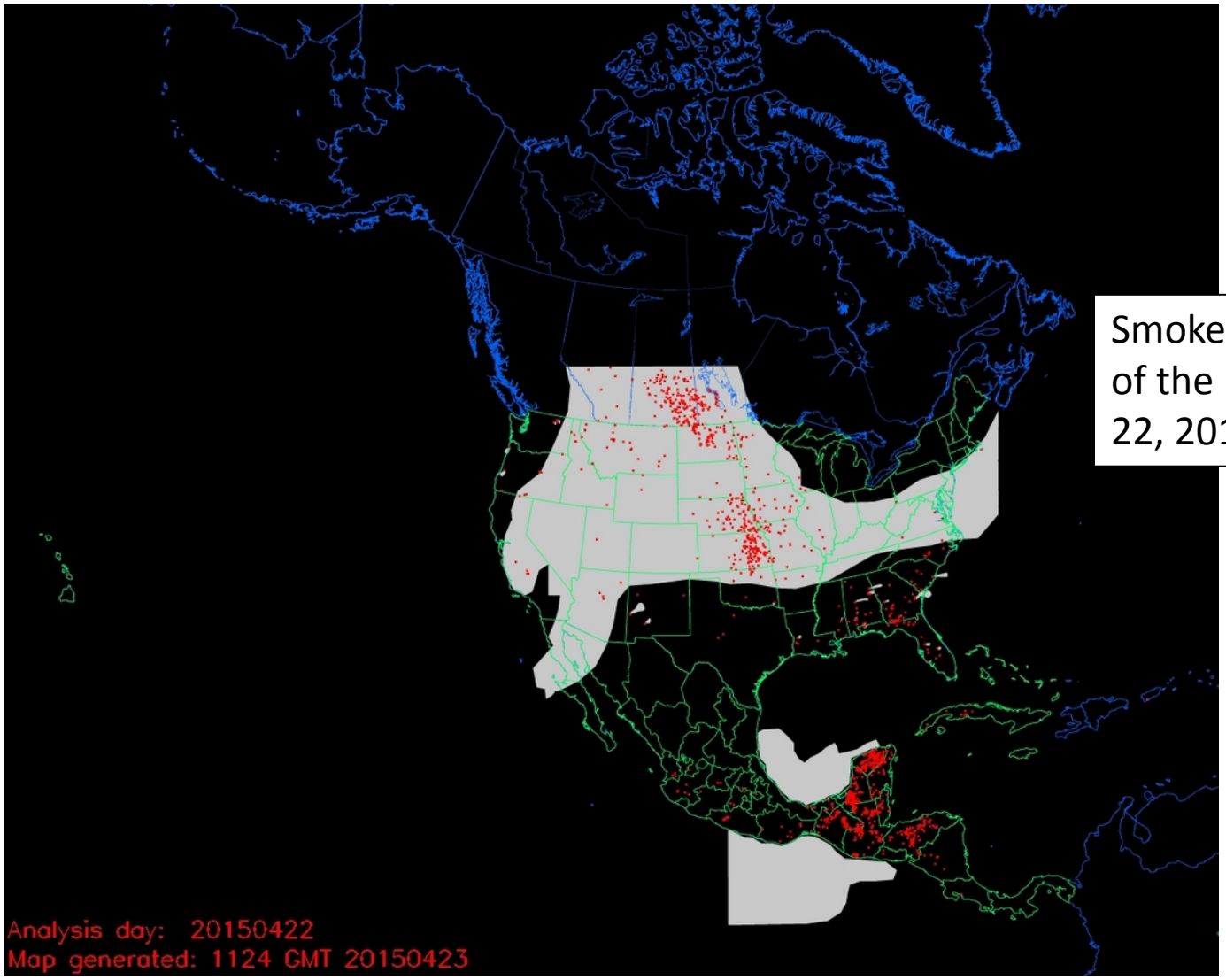
S-NPP (CrIS) overpass on 2015/04/23
NUCAPS CO2, O3, CO, CH4 Validation Opportunity
<u>Western swath</u>



Approximate swath width

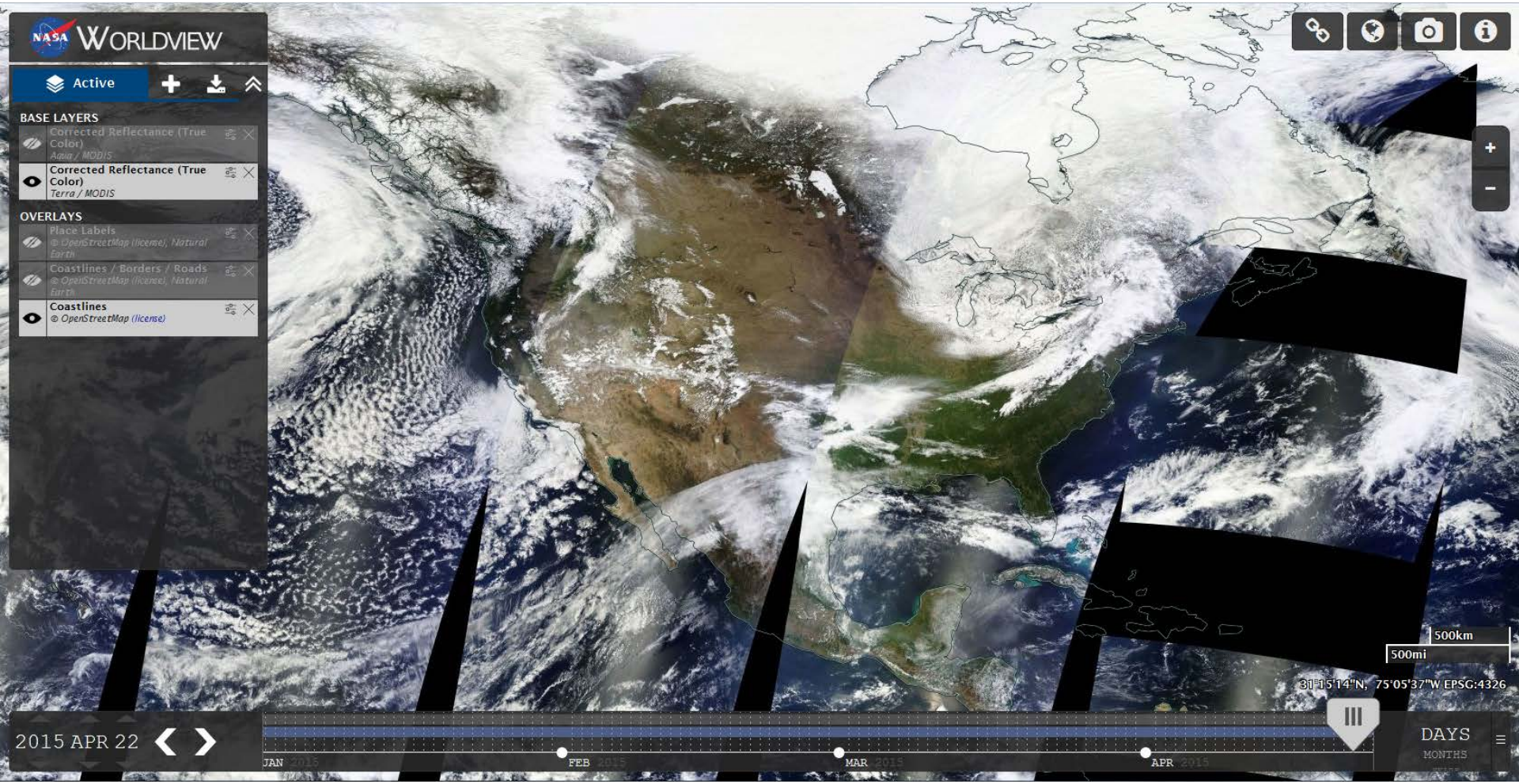
NESDIS Hazard Mapping System (HMS)

http://www.ospo.noaa.gov/data/land/fire/currenthms.jpg

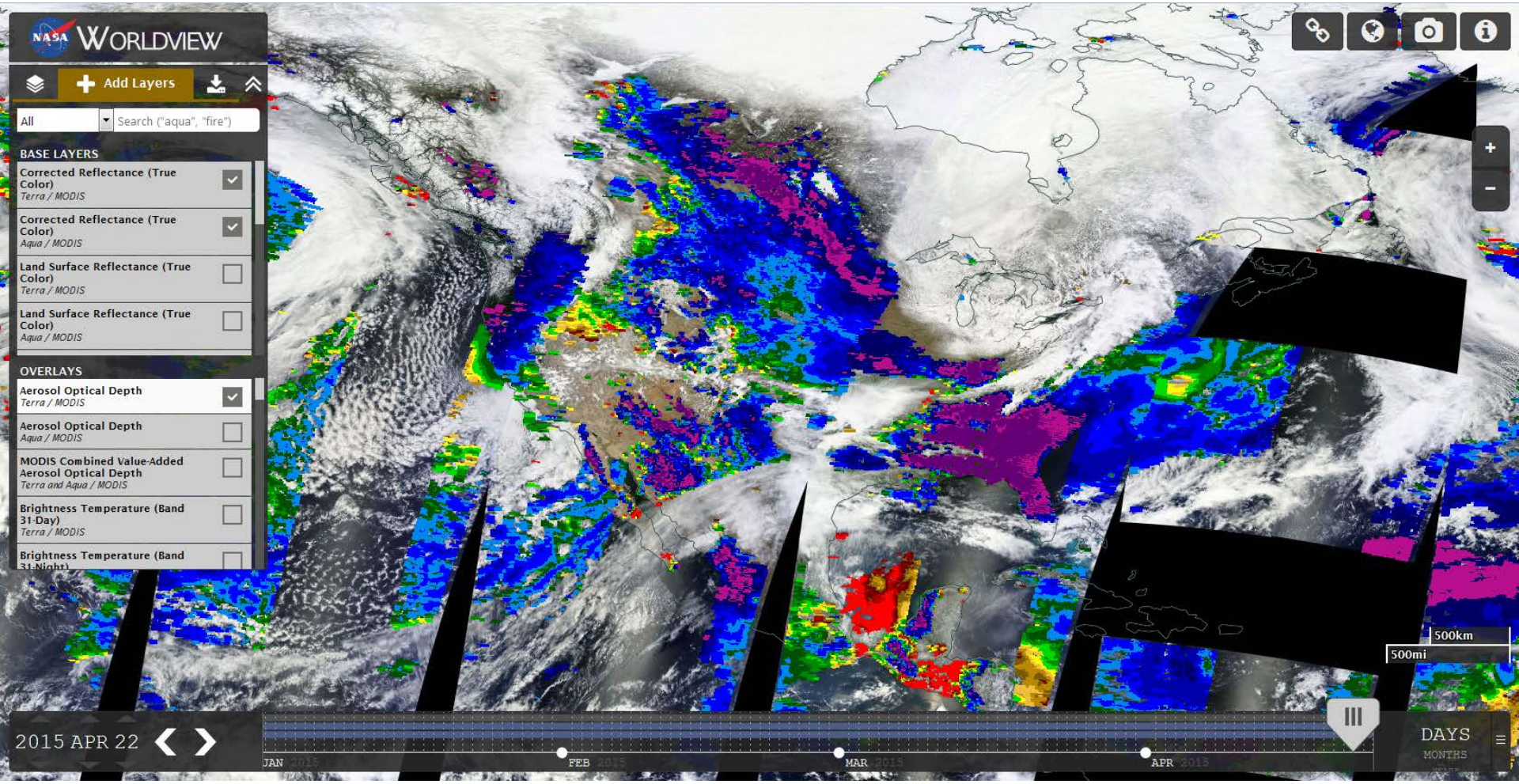


Smoke over much of the US on April 22, 2015

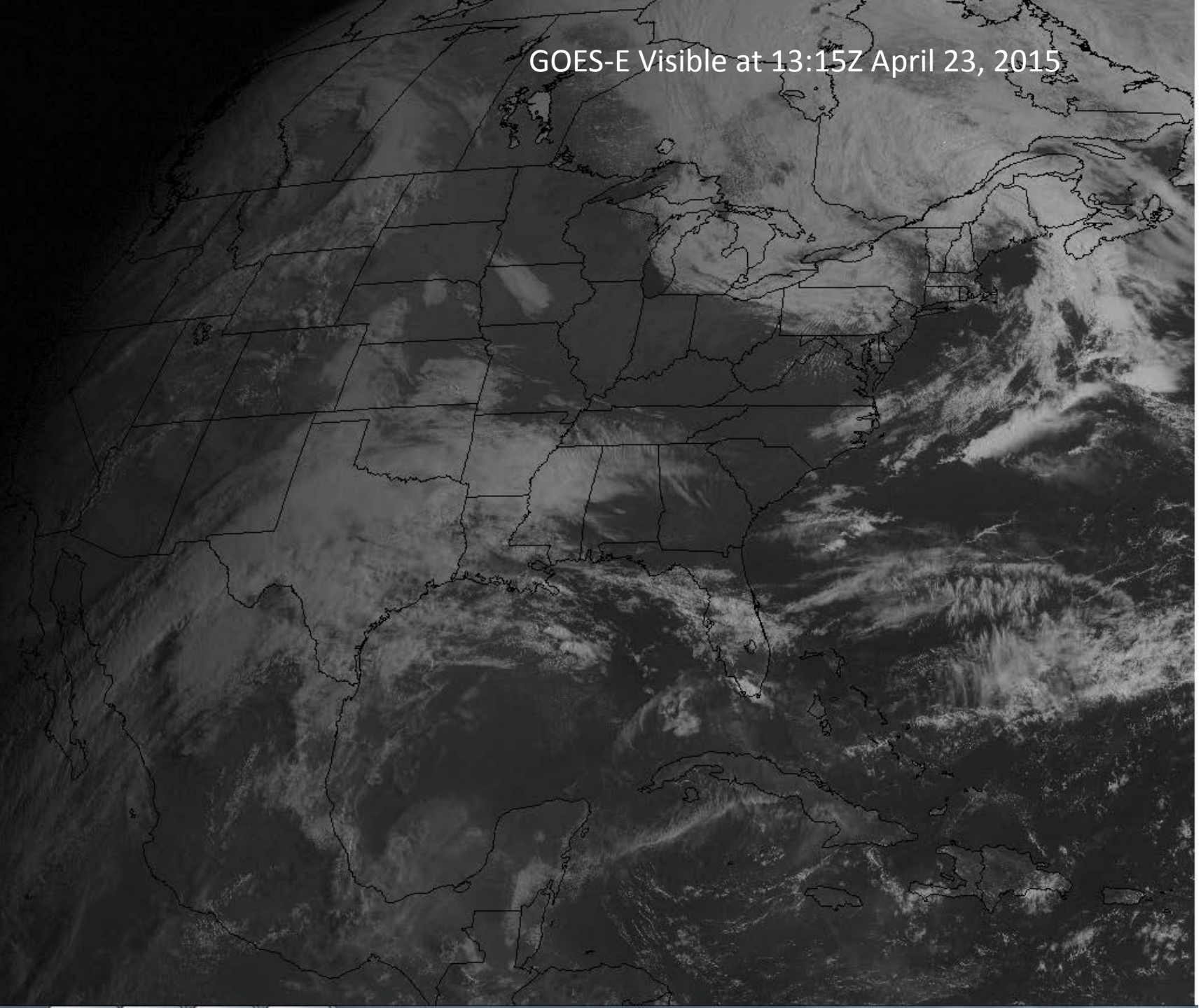
NASA Worldview MODIS True Color image

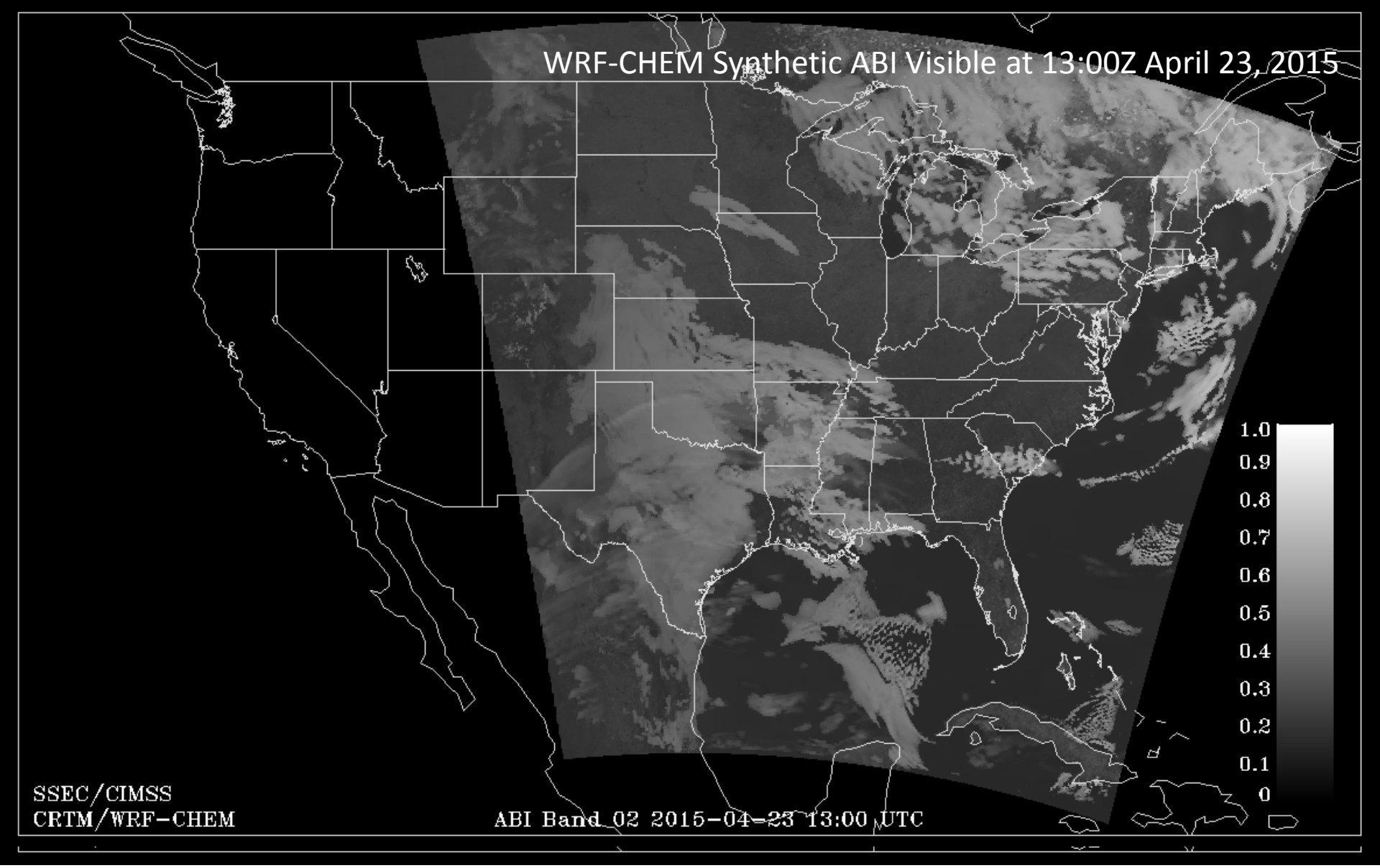


NASA Worldview MODIS AOD

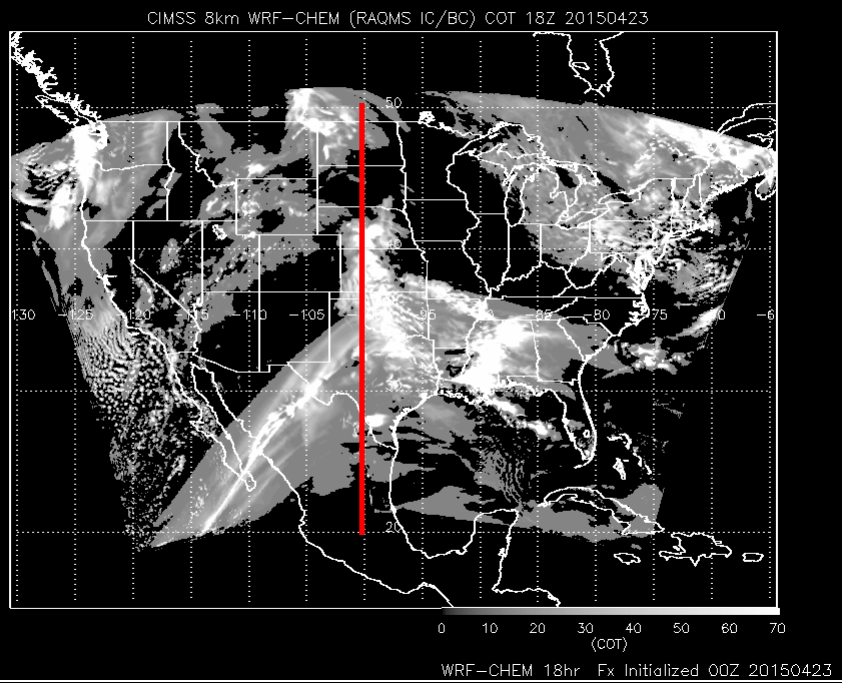


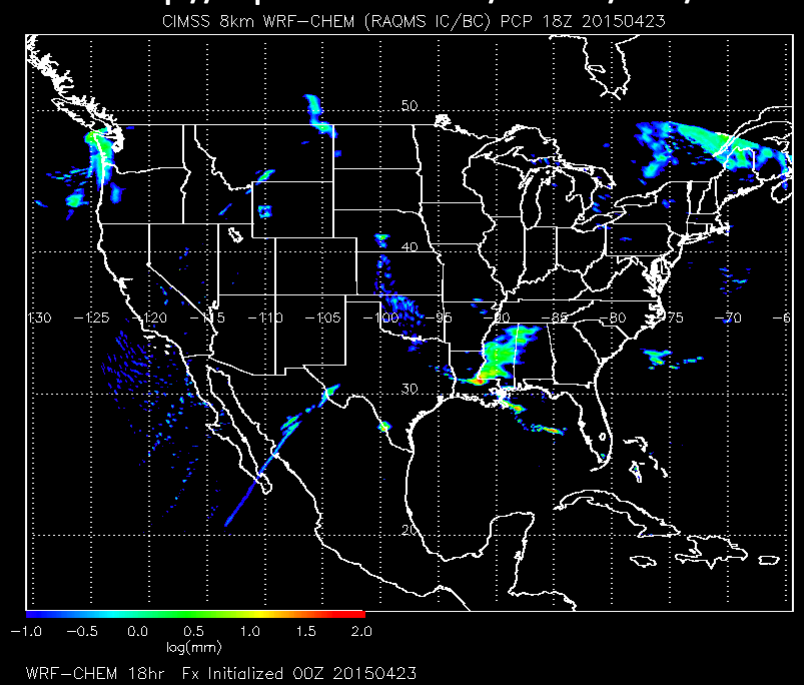
Smoke most pronounced over Intermountain West and Gulf
New smoke plume just off shore of Northern CA


GOES-E Visible at 13:15Z April 23, 2015

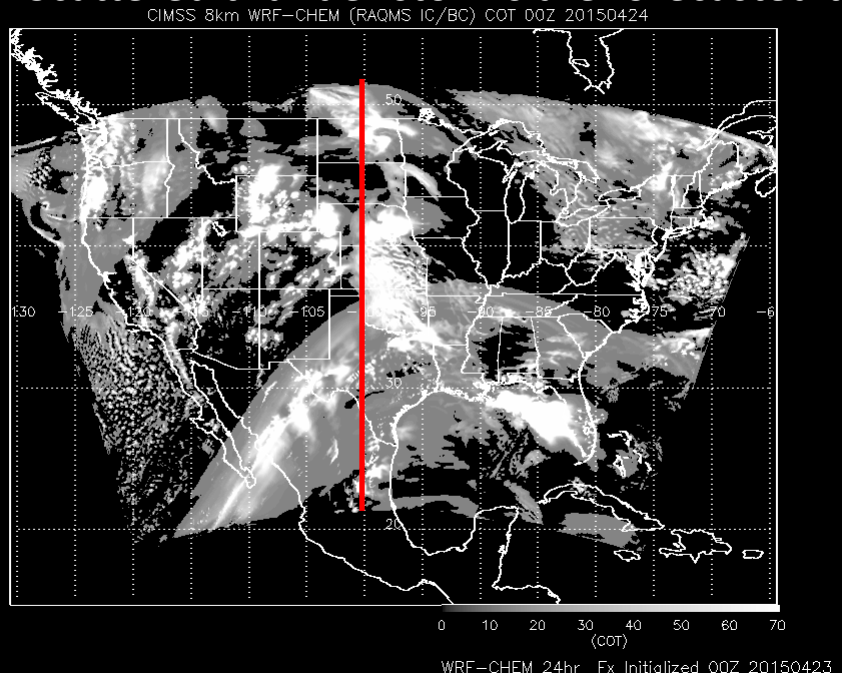

WRF-CHEM Synthetic ABI Visible at 13:00Z April 23, 2015
1.0
0.9
0.8
0.7
0.6
0.5
0.4
0.3
0.2
0.1
0
SSEC/CIMSS
CRTM/WRF-CHEM
ABI Band 02 2015-04-23 13:00 UTC

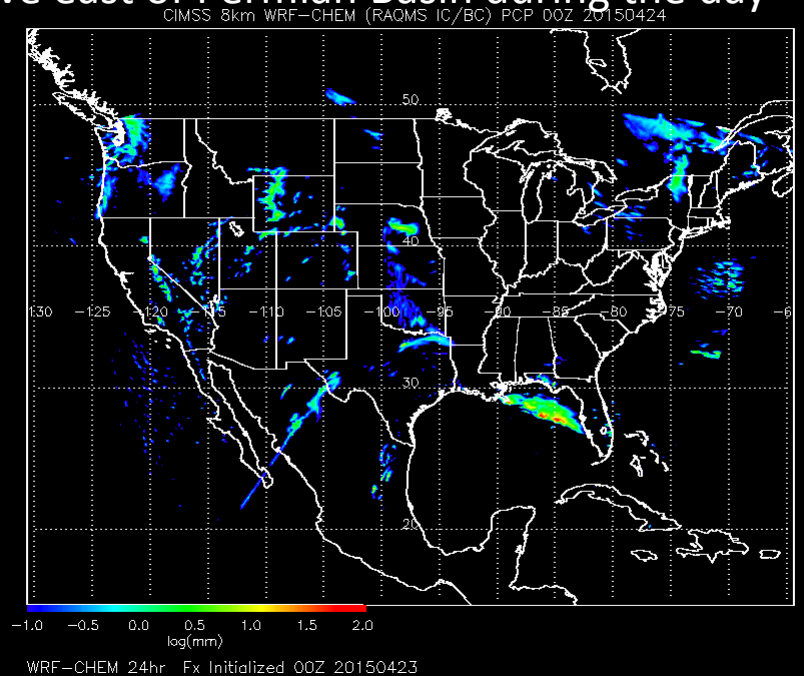
http://raqms.ssec.wisc.edu/forecast/view/20150423

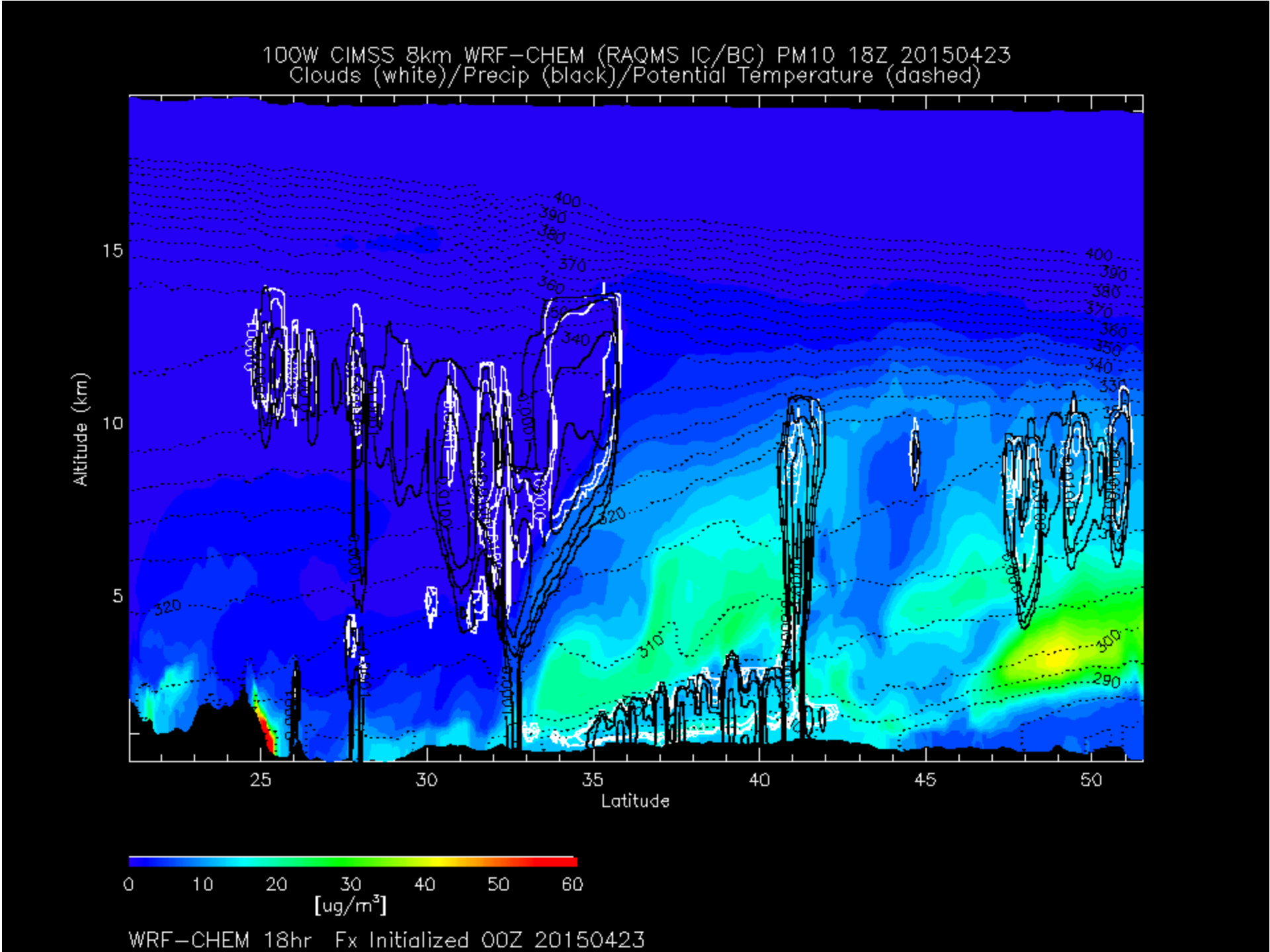


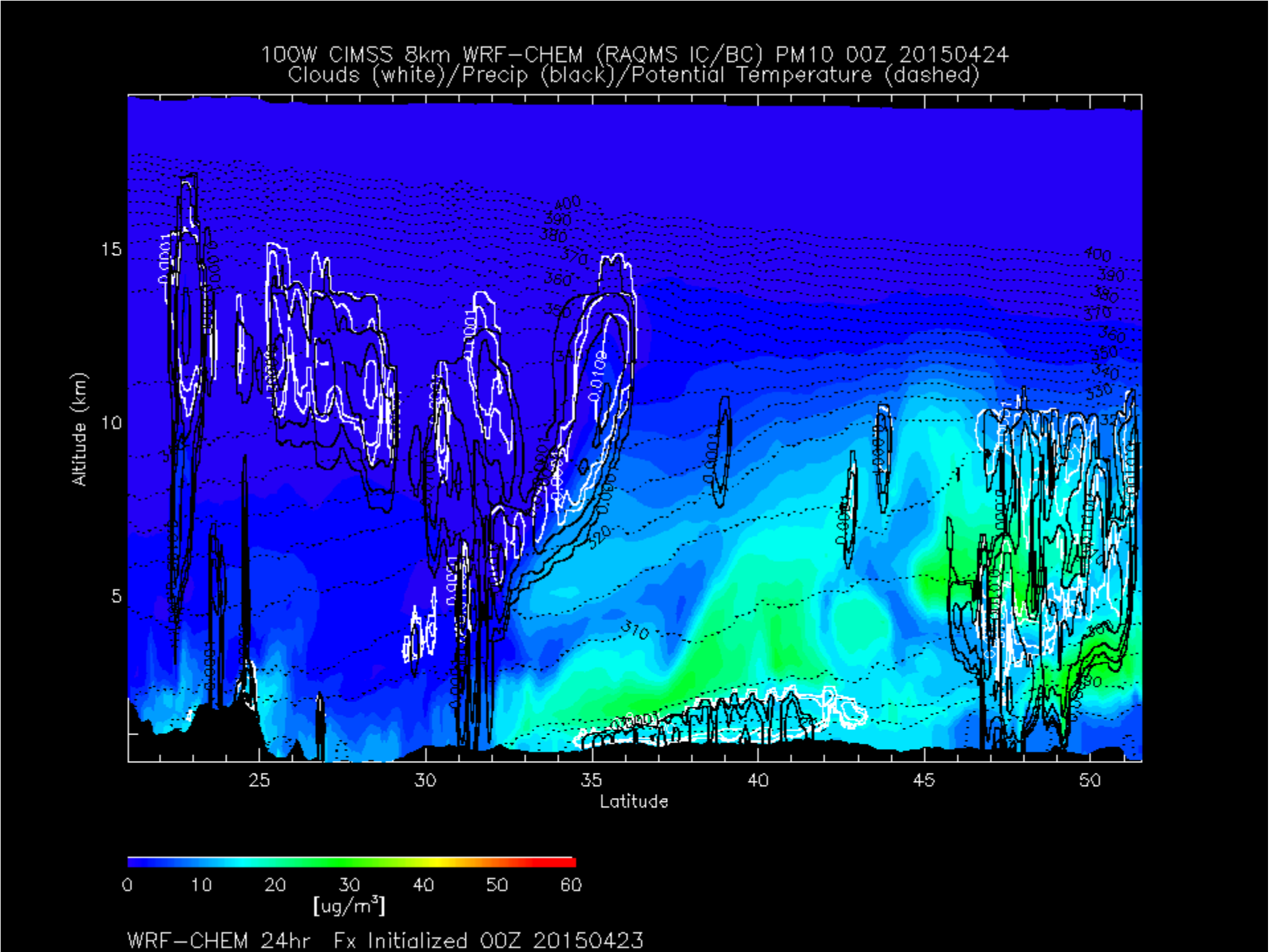


Scattered thunder storms are forecasted to move east of Permian Basin during the day

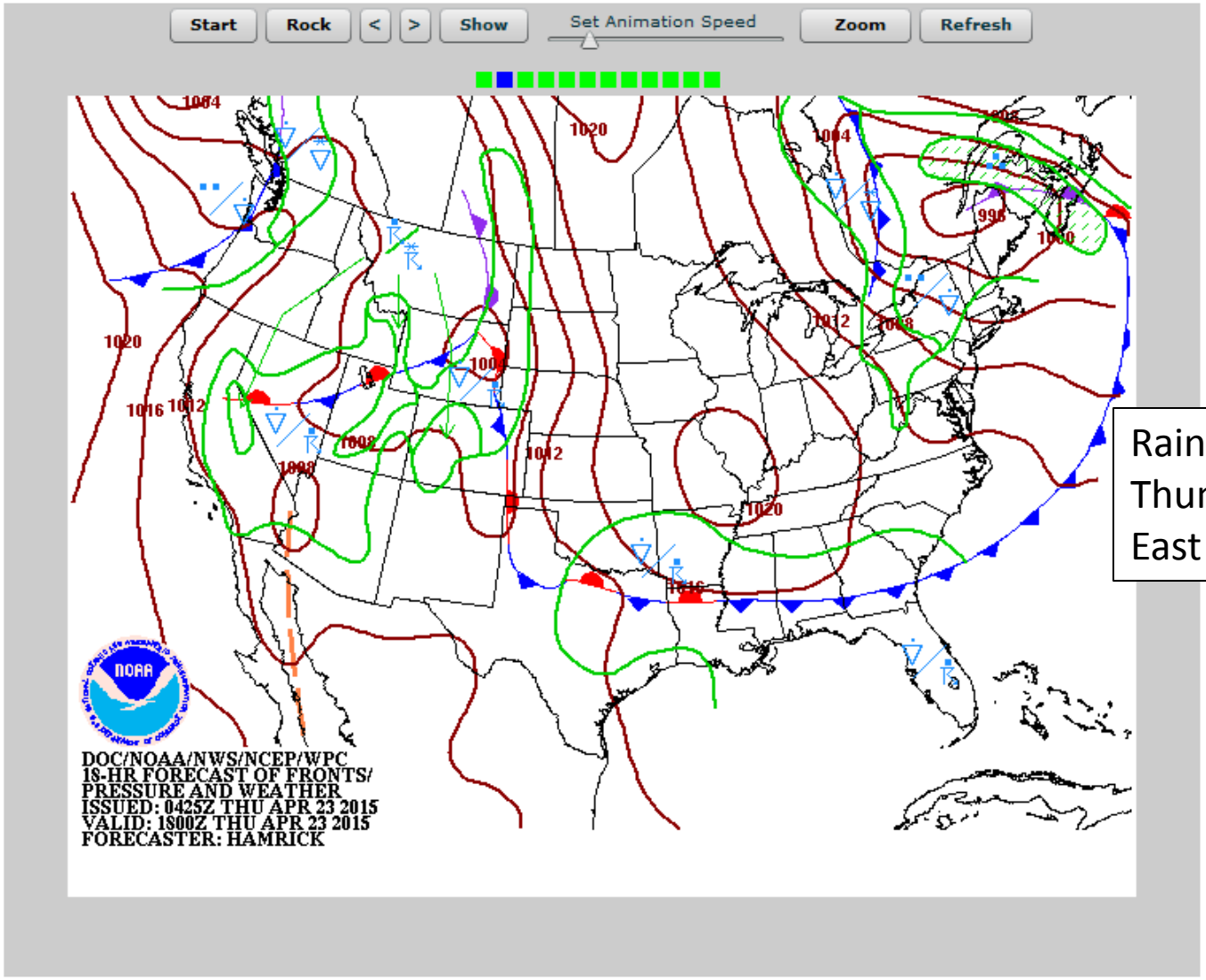





100W CIMSS 8km WRF-CHEM (RAQMS IC/BC) PM10 18Z 20150423
Clouds (white)/Precip (black)/Potential Temperature (dashed)
Altitude (km)
Latitude
[ug/m3]
WRF-CHEM 18hr Fx Initialized 00Z 20150423


100W CIMSS 8km WRF-CHEM (RAQMS IC/BC) PM10 00Z 20150424
Clouds (white)/Precip (black)/Potential Temperature (dashed)
Altitude (km)
Latitude
0
10
20
30
40
50
60
[ug/m3]
WRF-CHEM 24hr Fx Initialized 00Z 20150423

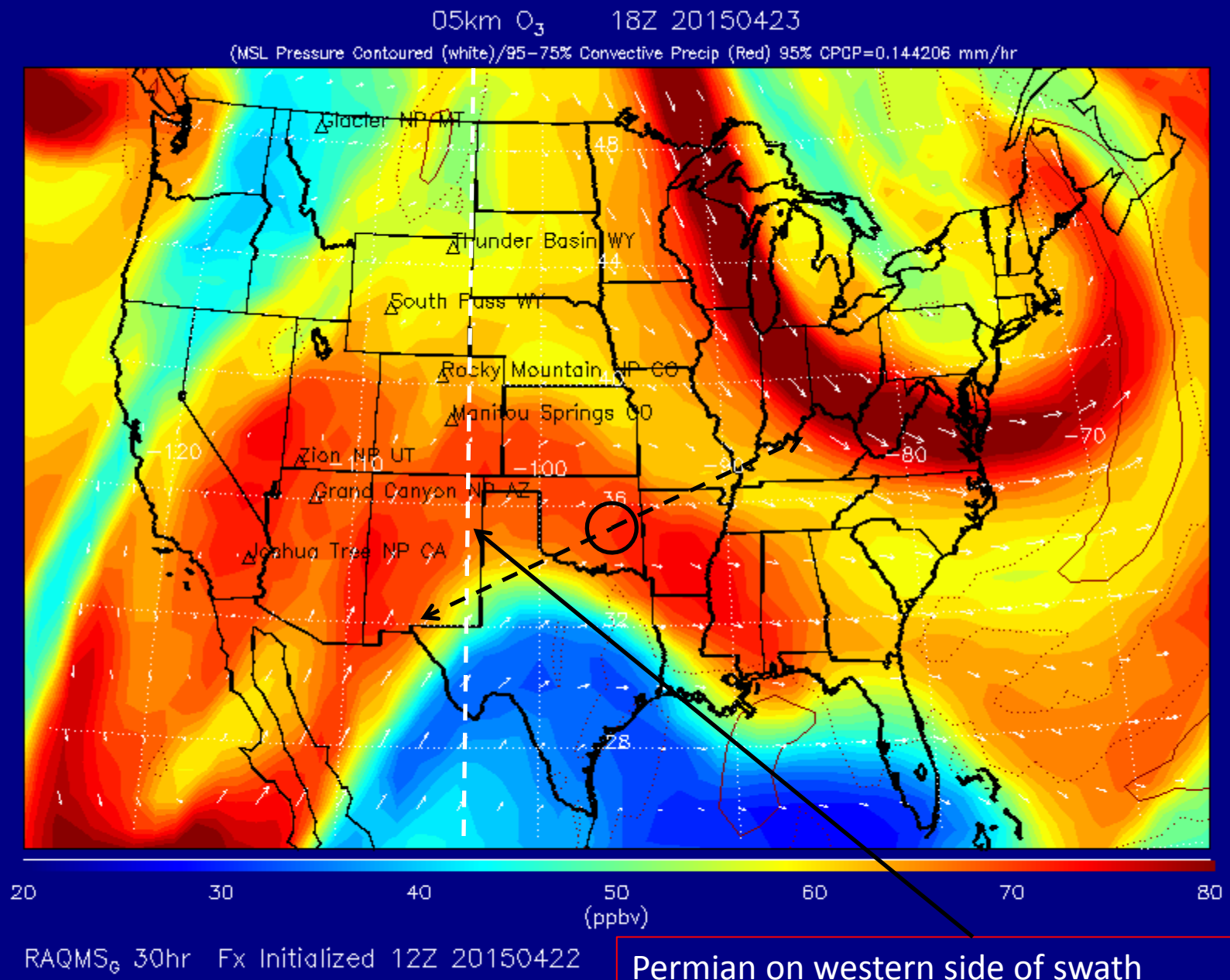
18hr NCEP/WPC forecast valid 18Z 04/23/2015



Rain and Thunderstorms East of Permian

http://www.hpc.ncep.noaa.gov/basicwx/day0-7loop.html

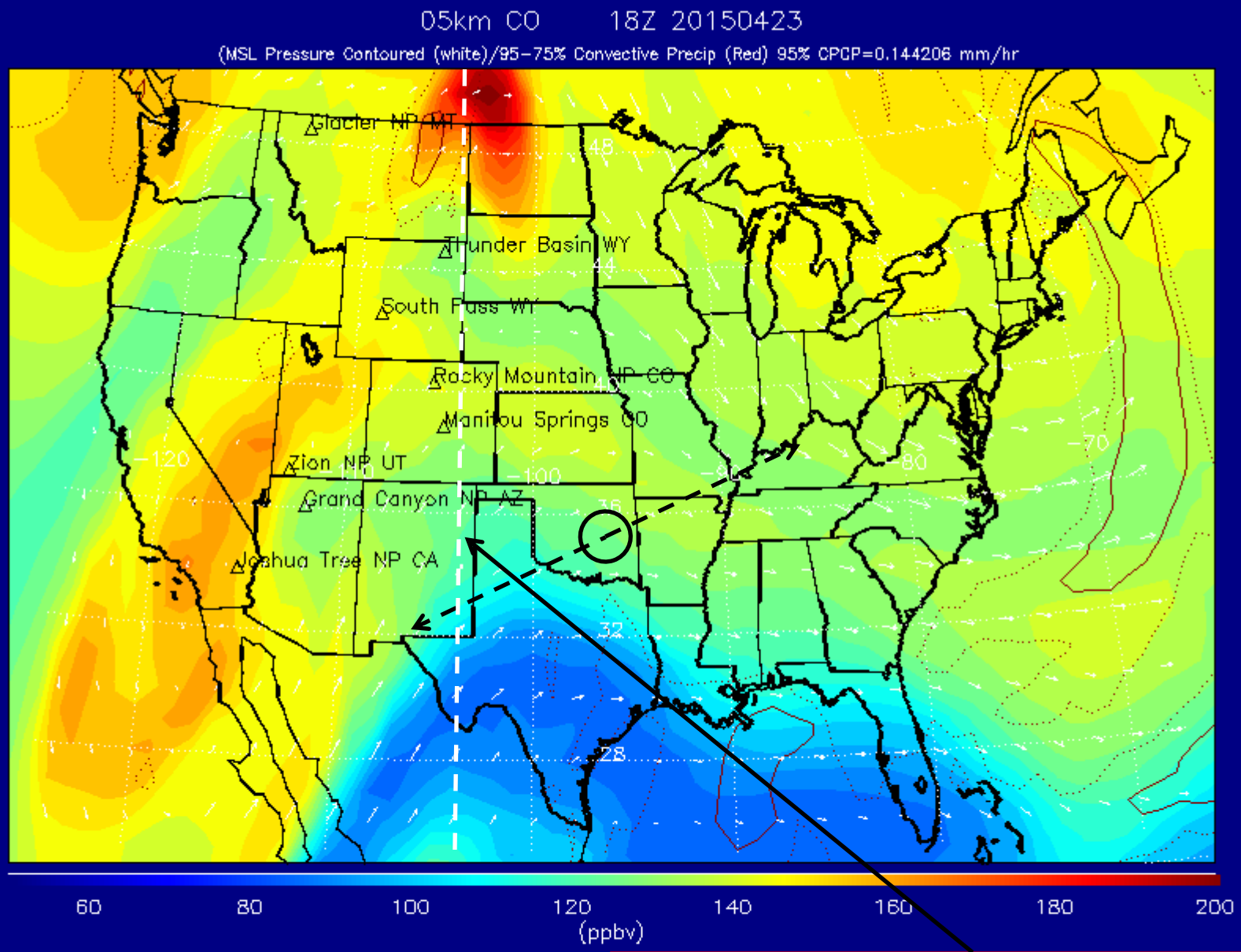
http://raqms.ssec.wisc.edu/forecast/view/20150422



Permian on western side of swath

Approximate swath width

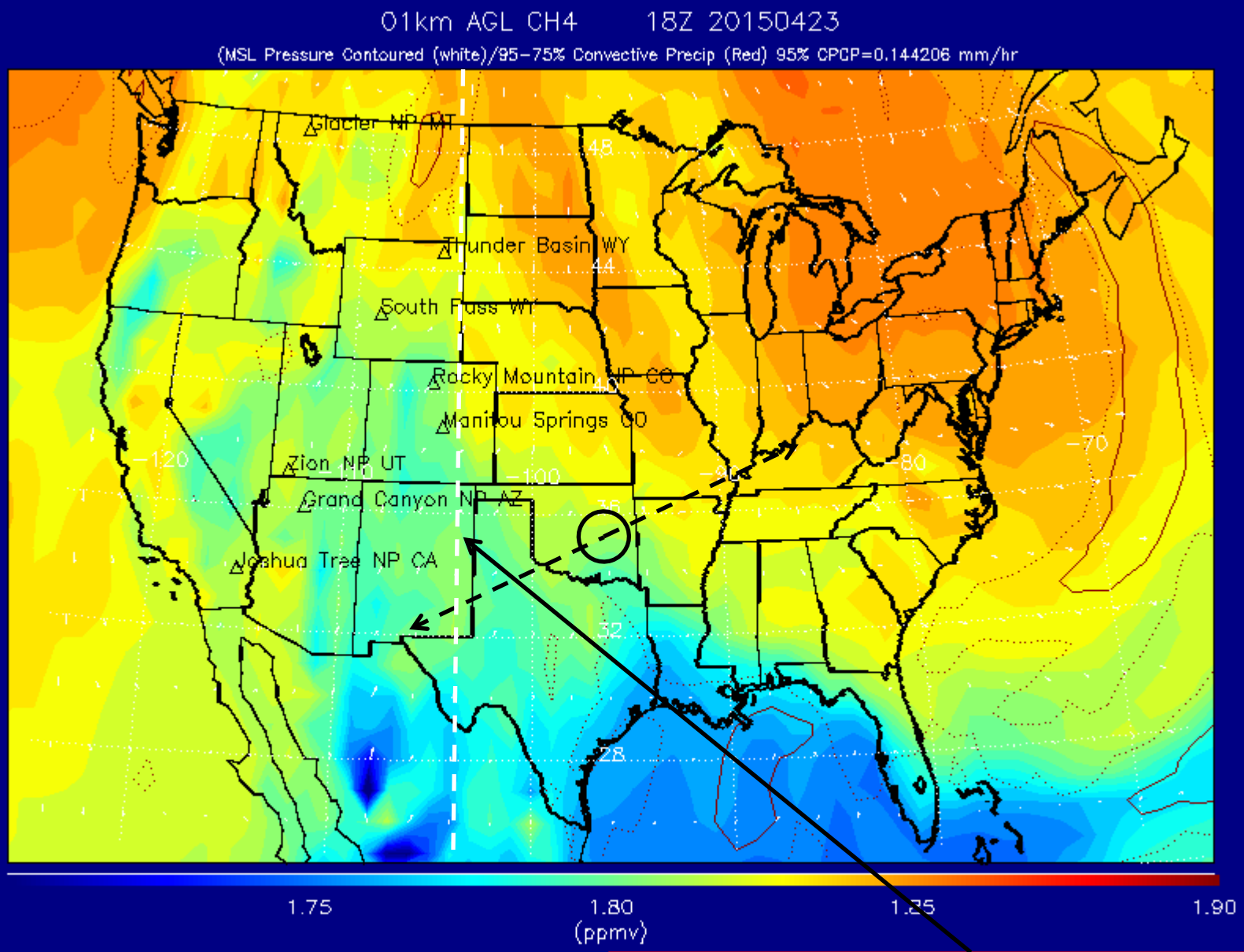
http://raqms.ssec.wisc.edu/forecast/view/20150422



Permian on western side of swath

Approximate swath width

http://raqms.ssec.wisc.edu/forecast/view/20150422

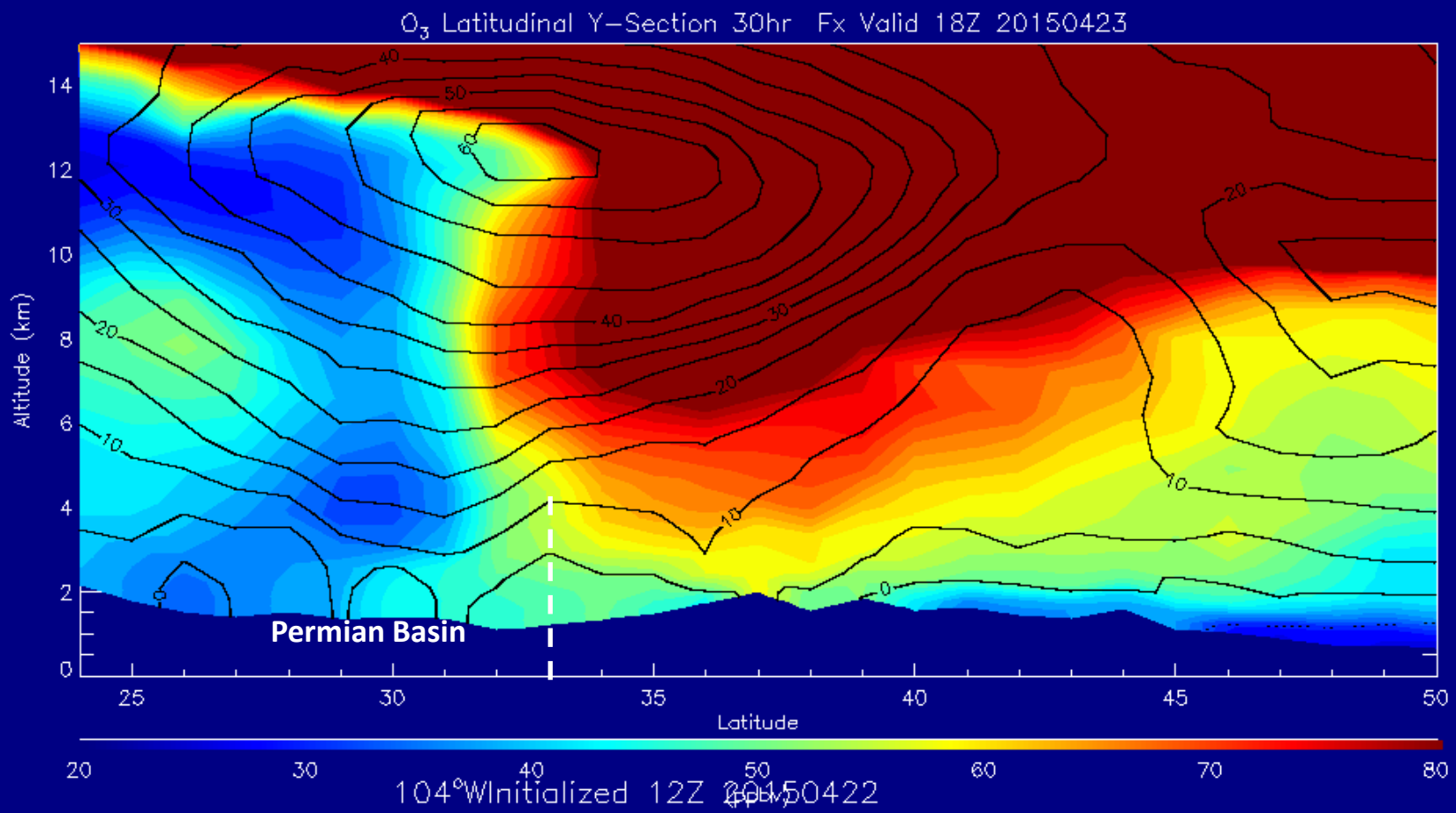


Permian on western side of swath

RAQMS surface CH4 constrained with 1990 mixing ratio – introduces ~0.1ppmv low bias

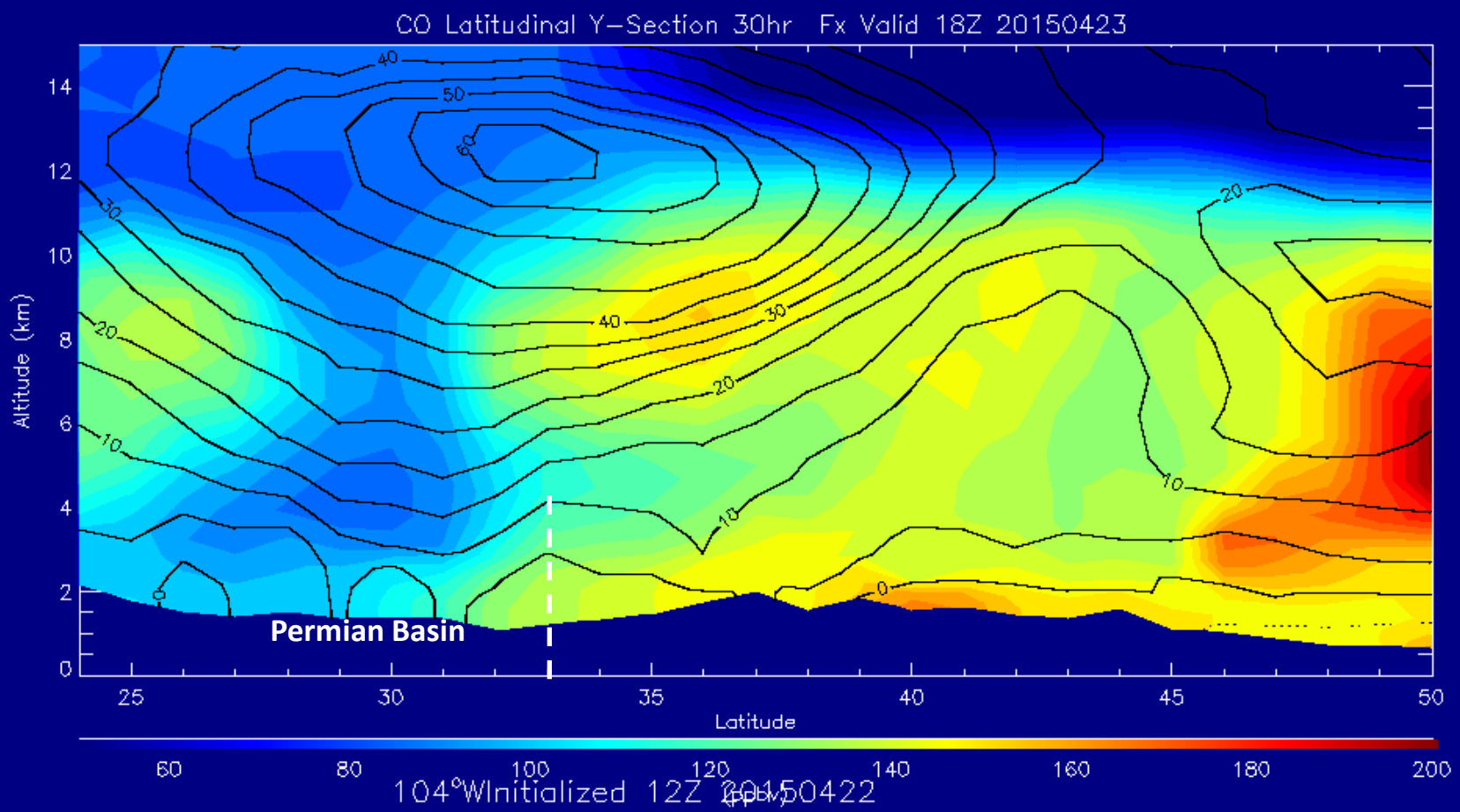
http://raqms.ssec.wisc.edu/forecast/view/20150422

RAQMS 30hr FX O3 Cross-section at 104W (Permian Basin)



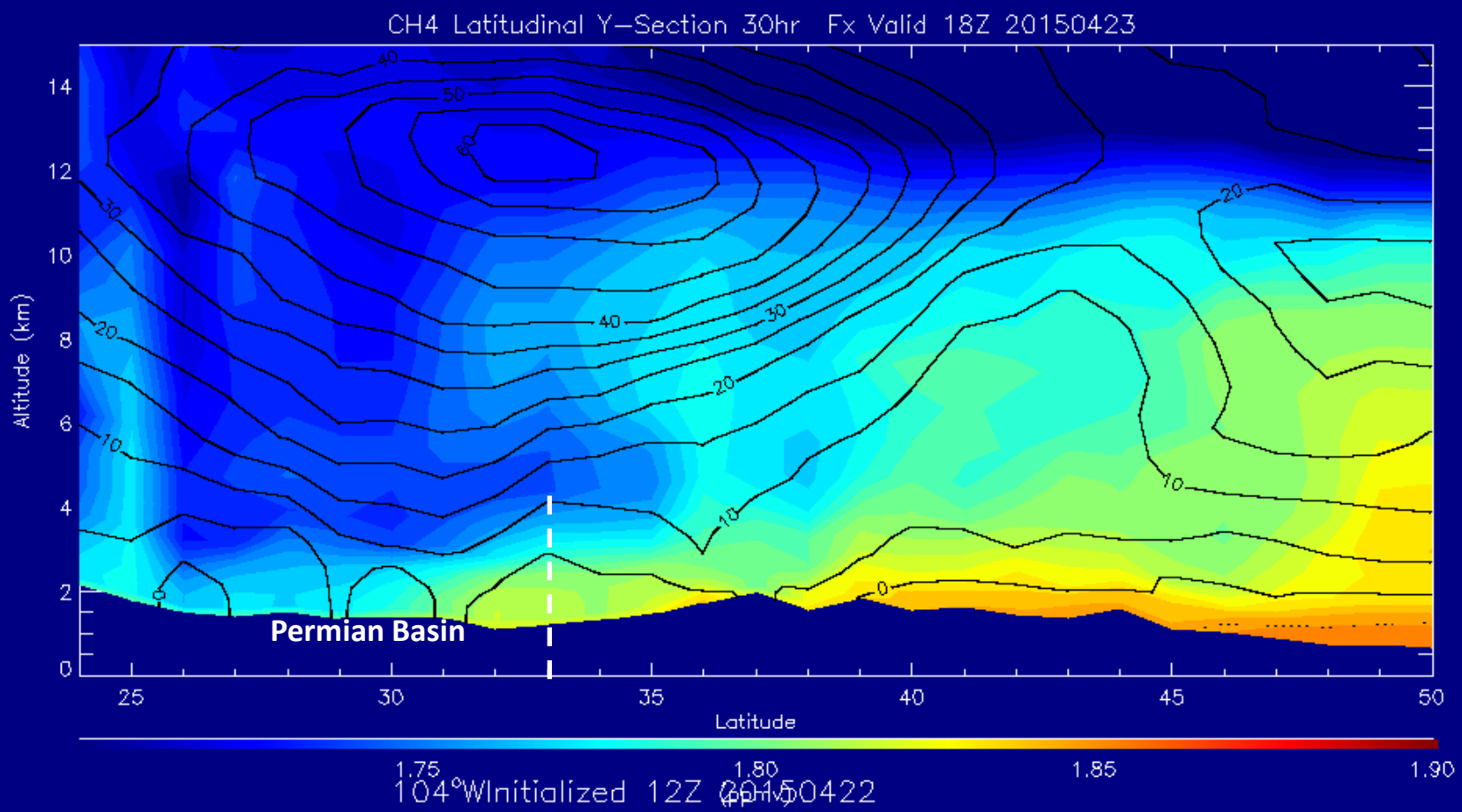
http://raqms.ssec.wisc.edu/forecast/view/20150422

RAQMS 30hr FX CO Cross-section at 104W (Permian Basin)



http://raqms.ssec.wisc.edu/forecast/view/20150422

RAQMS 30hr FX CH4 Cross-section at 104W (Permian Basin)



RAQMS surface CH4 constrained with 1990 mixing ratio – introduces ~0.1ppmv low bias