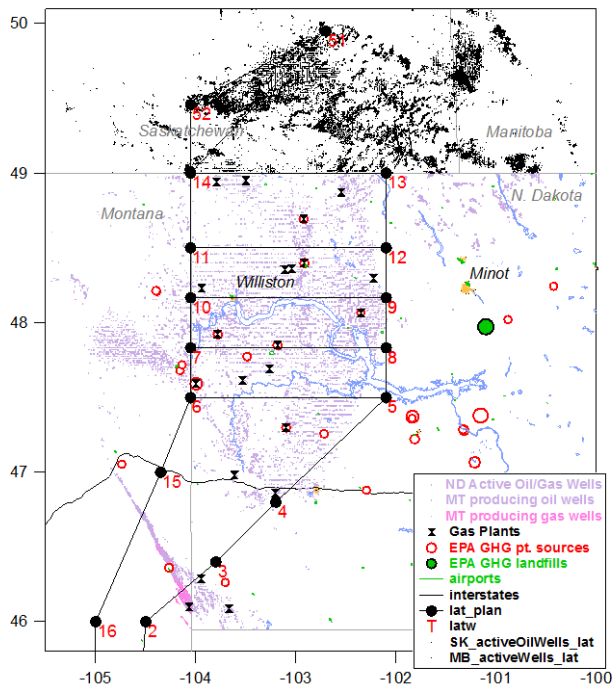
RAQMS 20150414 SONGNEX
30hr FX for 18Z April 14 (Bakken, ND), 2015



ND_O&G_MB_wdS_SE_Can

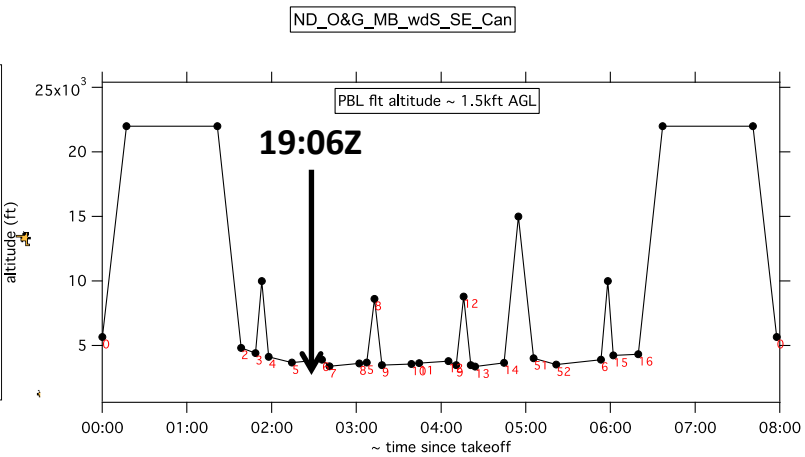
Survey & ?Mass Balance?
for mid Section of
US Bakken
Winds from NW, **N**, NE

The North Dakota Bakken
is a large field
2.2 deg lat * 2 deg lon
250 km * 150 km

S to N wind:
at wsp= 10 m/s ==>
3h across 1 deg lat

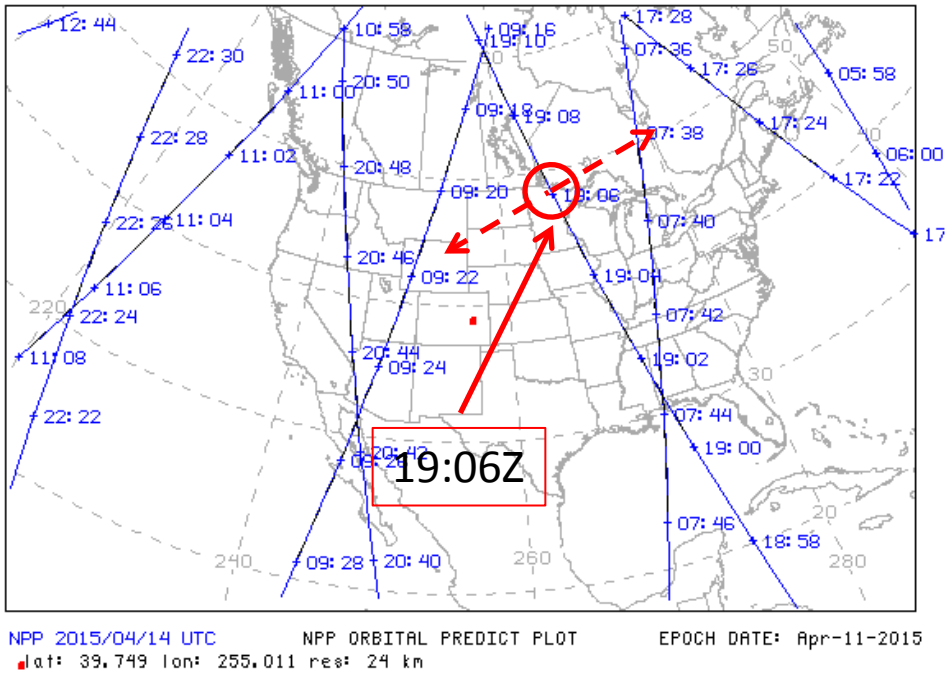
at wsp= 5 m/s ==>
6h across 1 deg lat

Critical Question:
What are the surface
wind speeds at night?



Assuming 10:30am Mountain Take-off

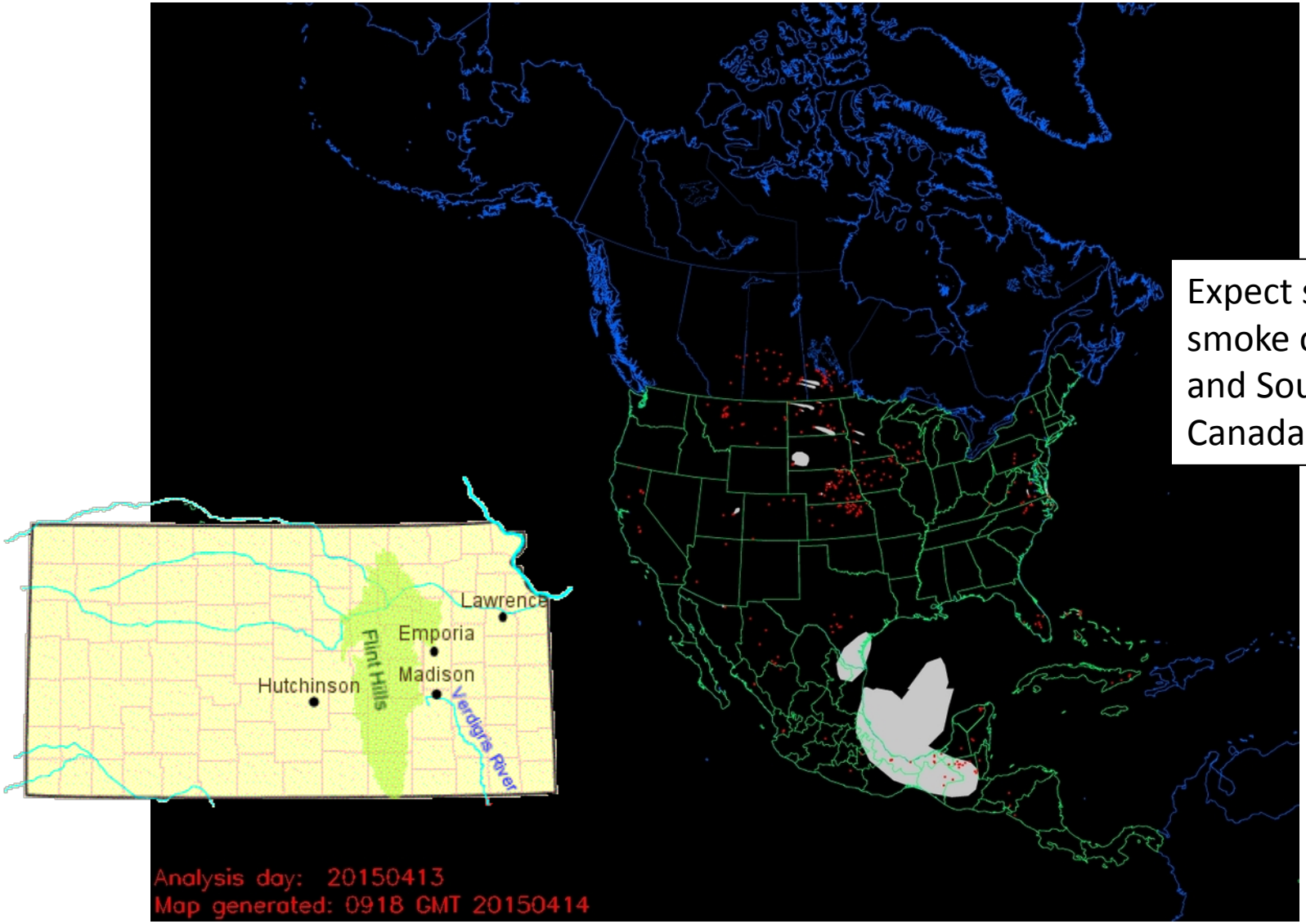
S-NPP (CrIS) overpass on 2015/04/14
NUCAPS CO2, O3, CO, CH4 Validation Opportunity
<u>Western swath edge</u>



Approximate swath width

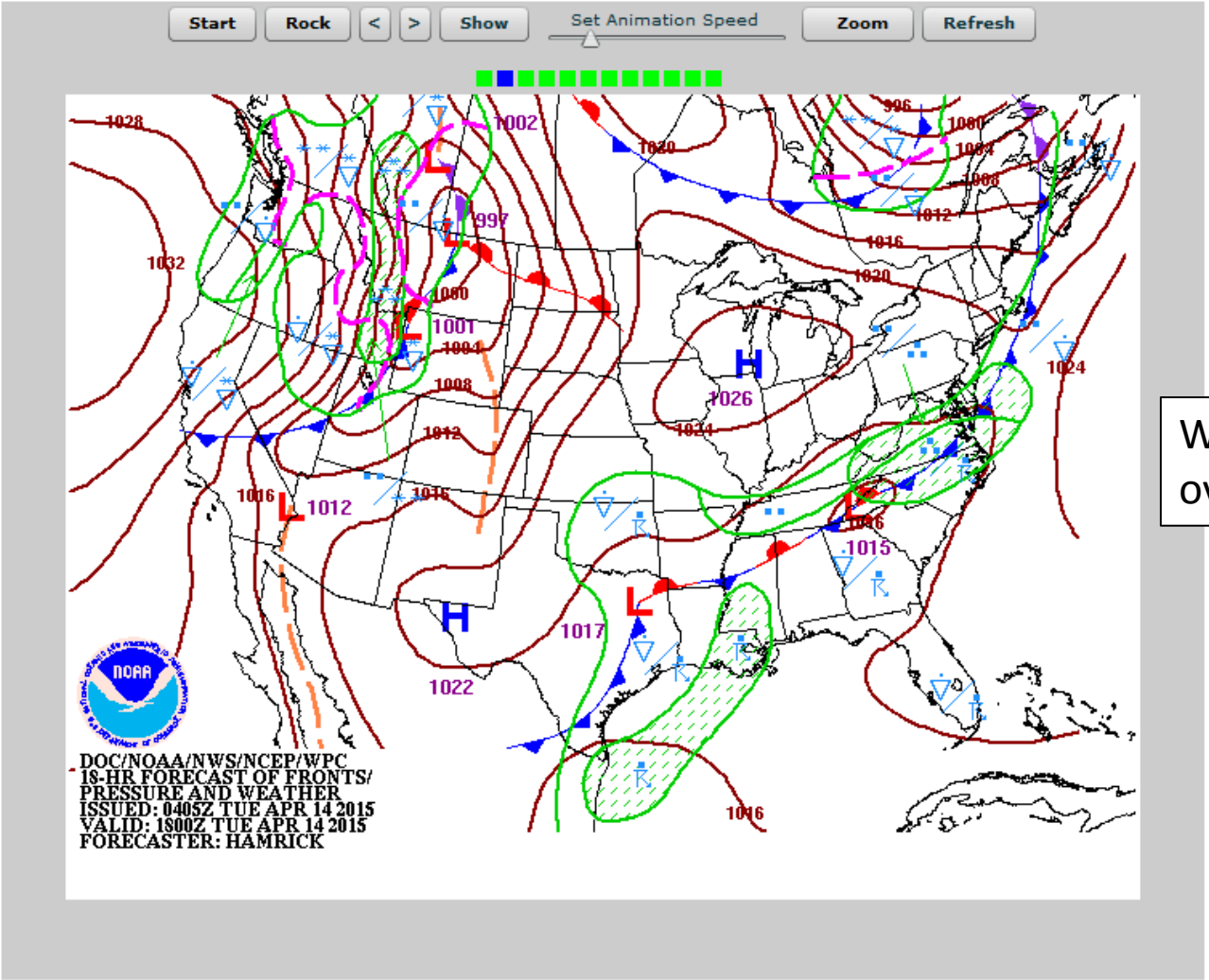
NESDIS Hazard Mapping System (HMS)

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



Expect some smoke over ND and Southern Canada

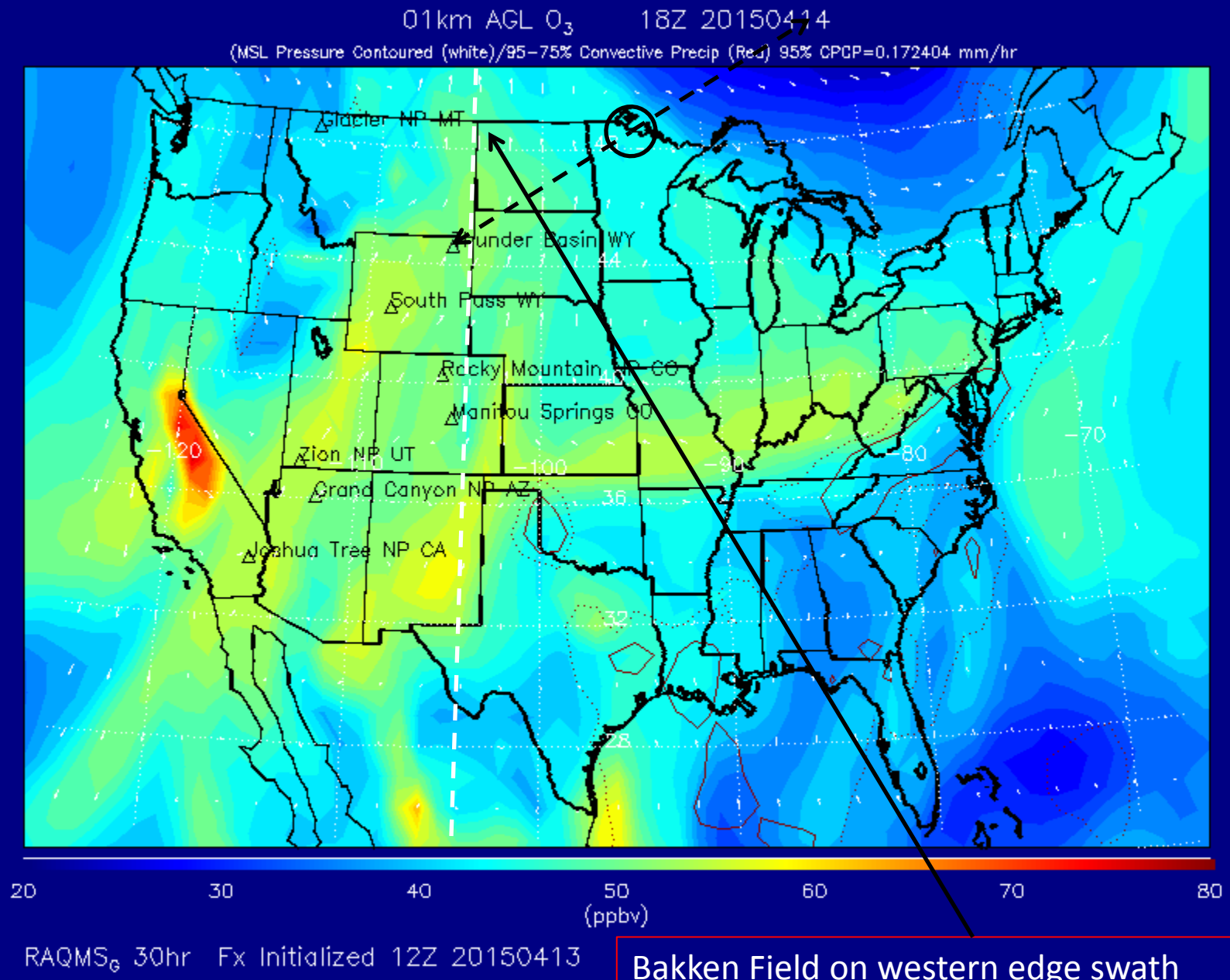
18hr NCEP/WPC forecast valid 18Z 04/14/2015



Warm front over ND

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

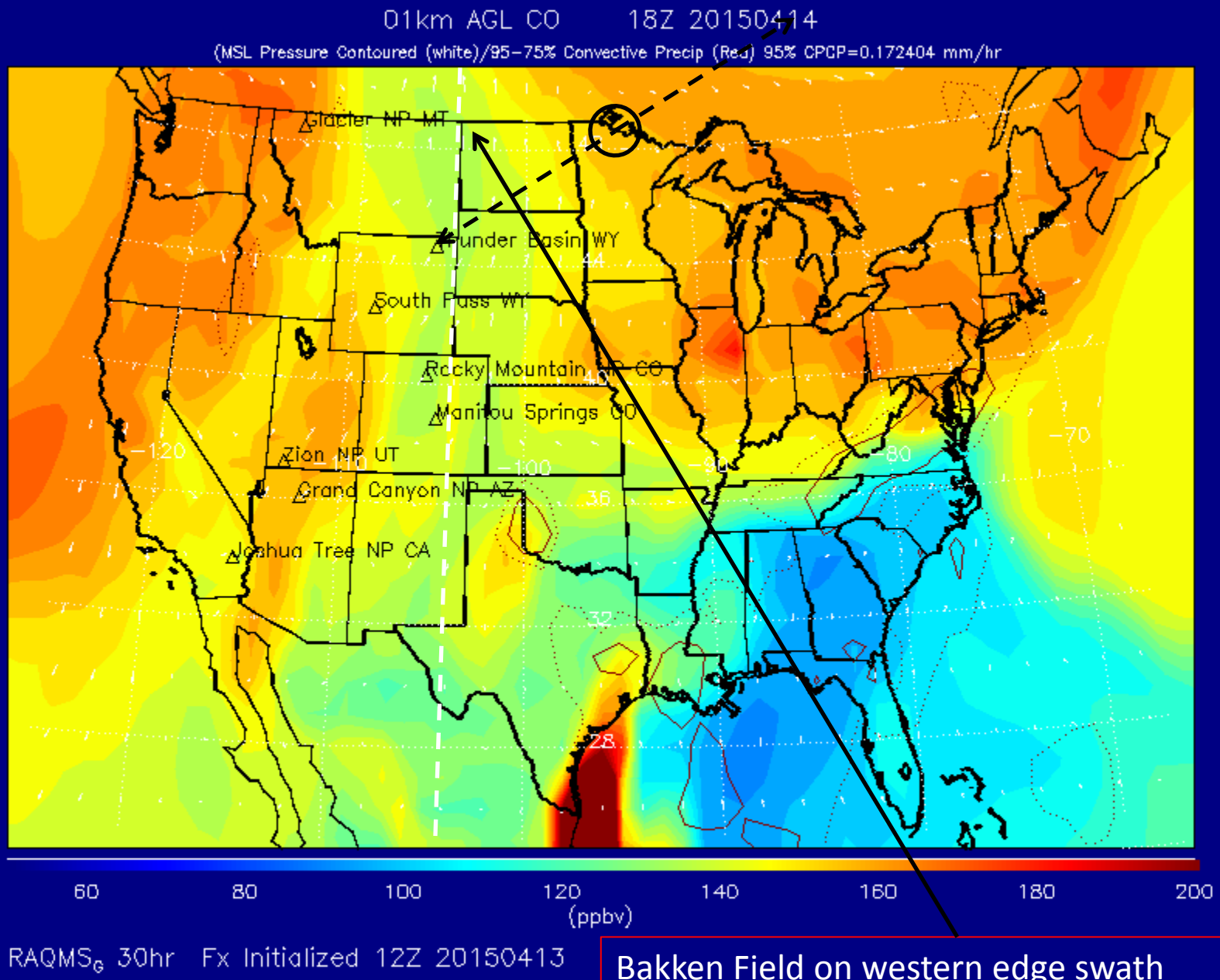
http://raqms.ssec.wisc.edu/forecast/view/20150413



Bakken Field on western edge swath

Approximate swath width

http://raqms.ssec.wisc.edu/forecast/view/20150413



Bakken Field on western edge swath

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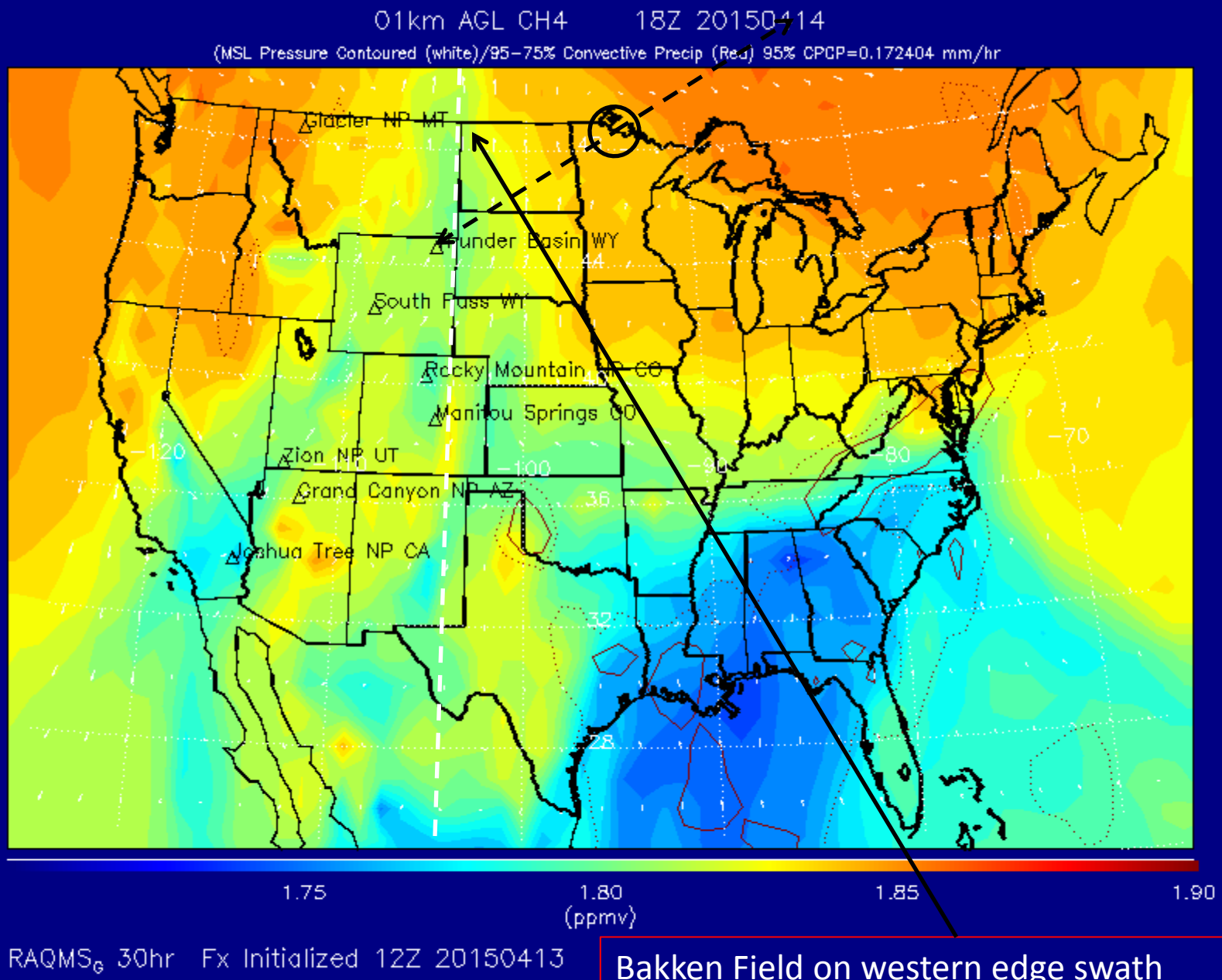
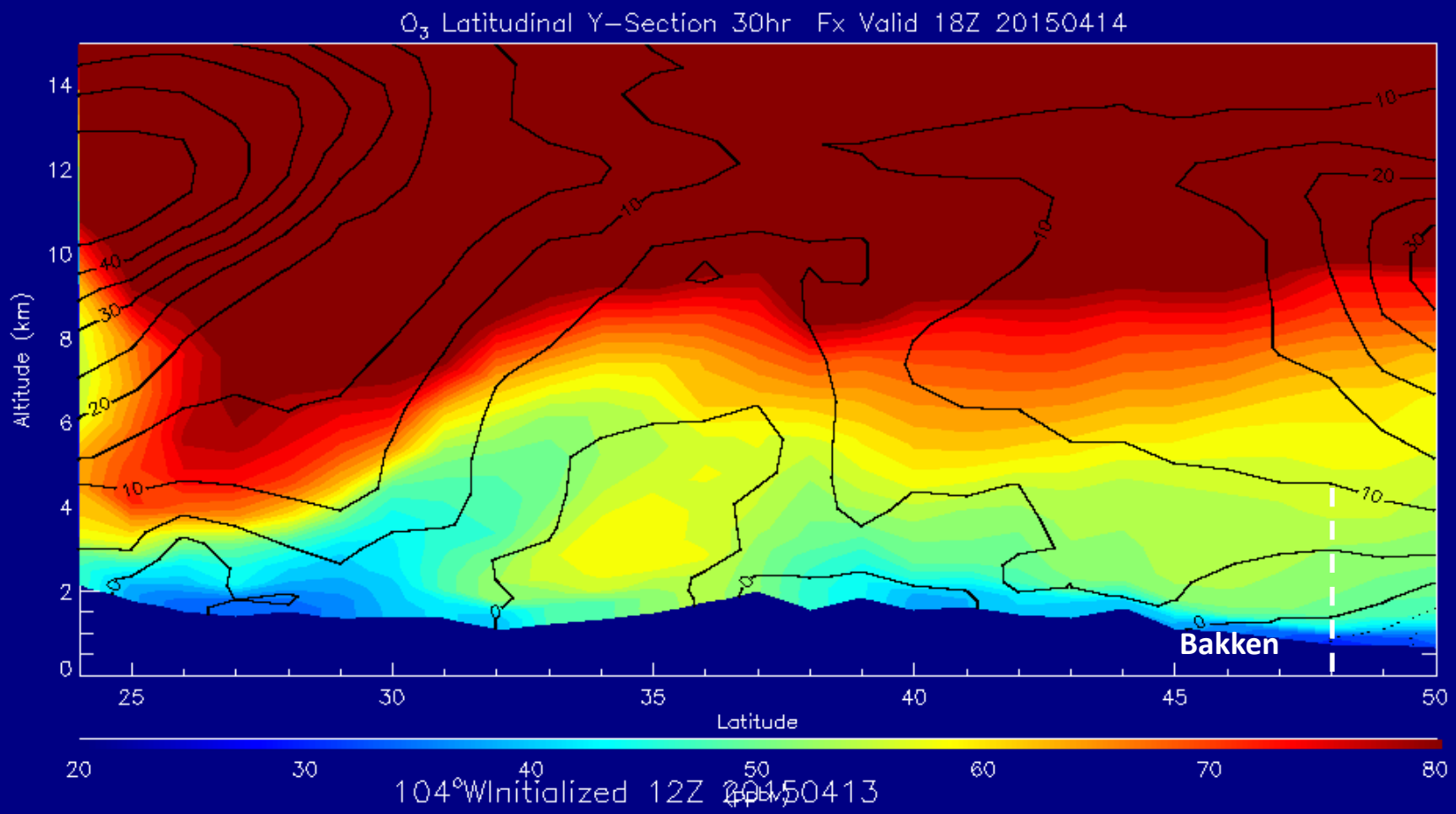


Bakken Field on western edge swath

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

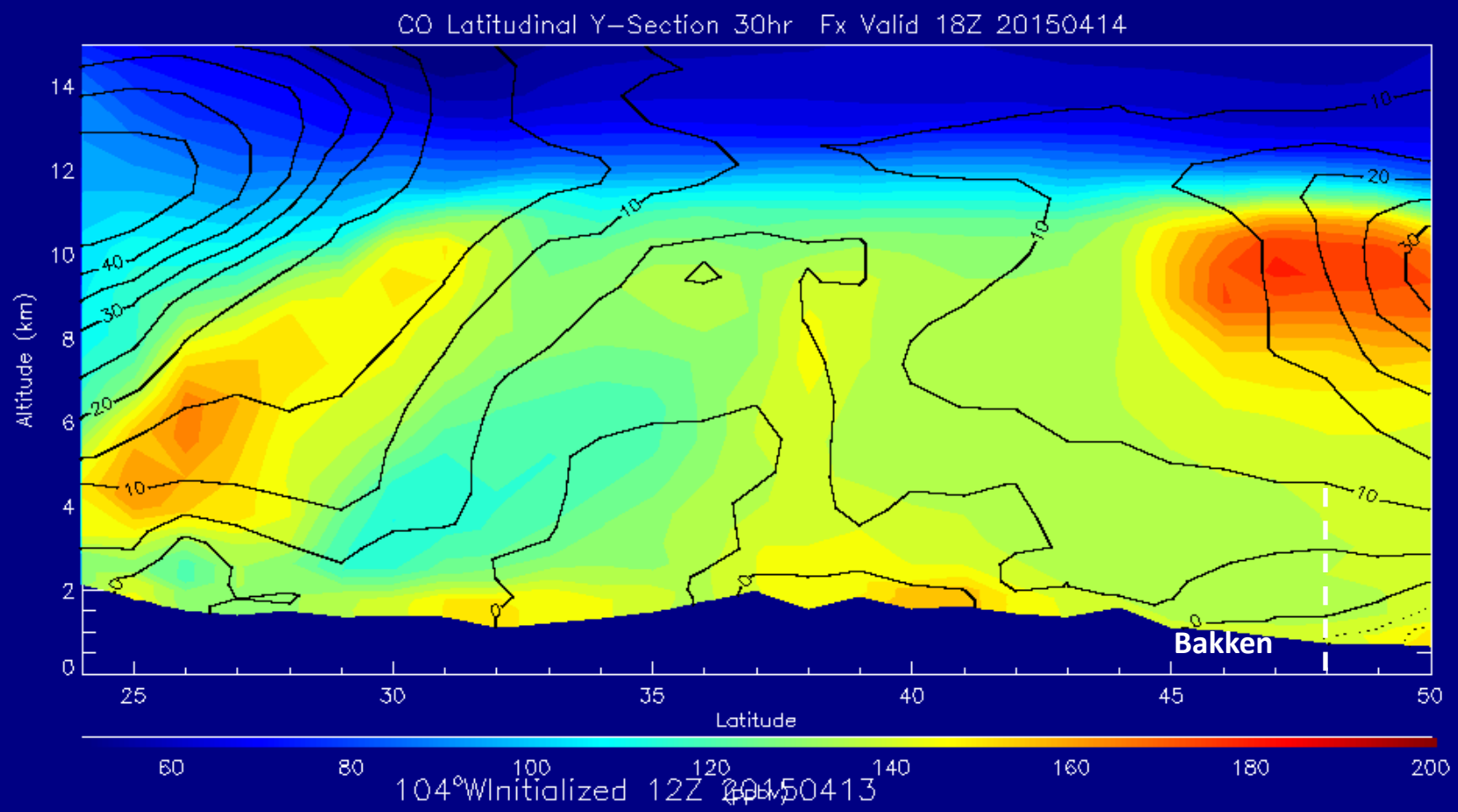
http://raqms.ssec.wisc.edu/forecast/view/20150413

RAQMS 30hr FX O3 Cross-section at 104W (Bakken Field)



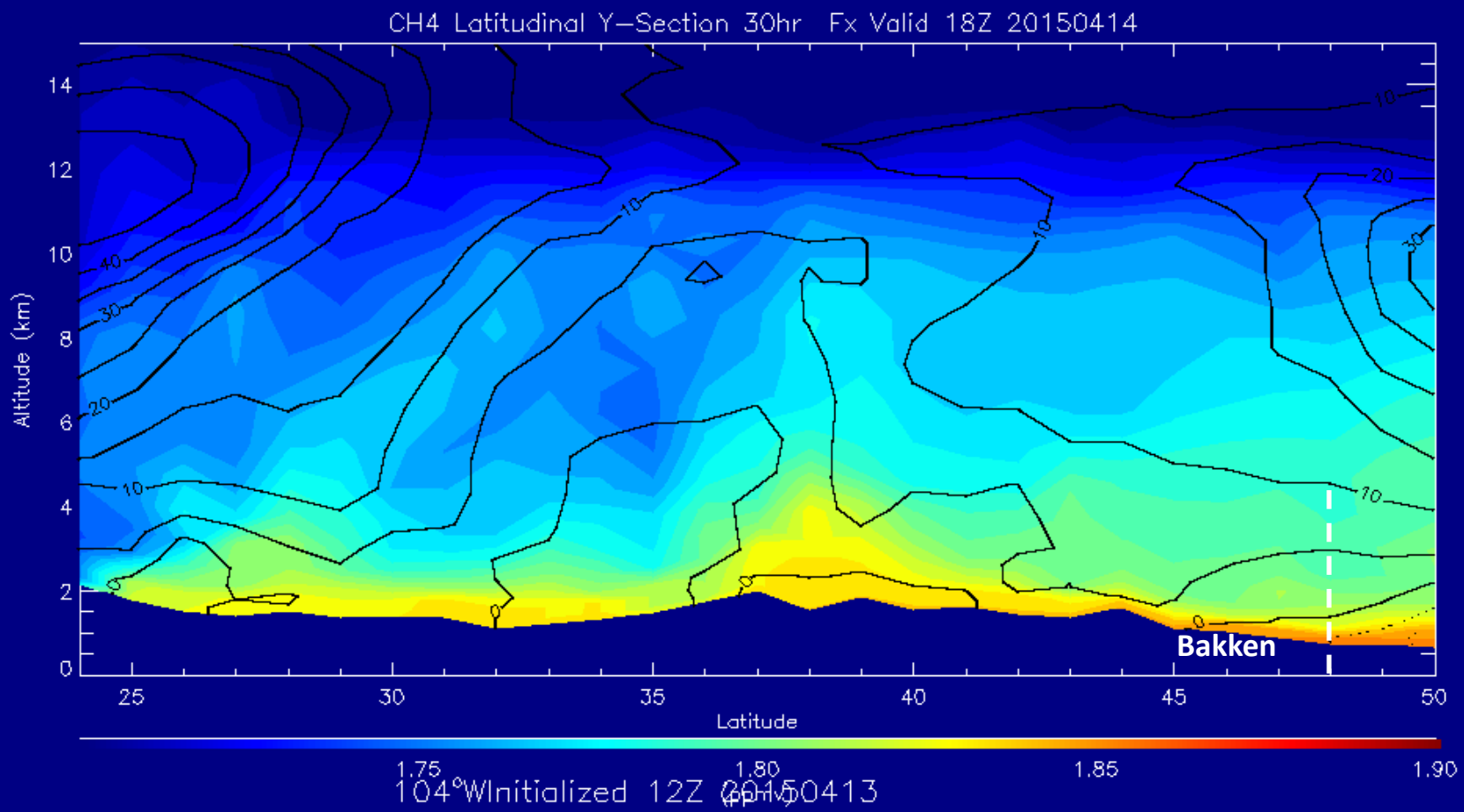
http://raqms.ssec.wisc.edu/forecast/view/20150413

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



http://raqms.ssec.wisc.edu/forecast/view/20150413

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



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