



2005 NASA ASAP Science Meeting, Boulder, Colorado

Aviation Safety and Security Program

TAMDAR Turbulence and Icing Data Sets

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Overview

Aviation Safety and Security Program

- TAMDAR
- GLFE
- Initial Results
- Schedule
- Icing & Turbulence
- Data Sources



AirDat TAMDAR Sensor

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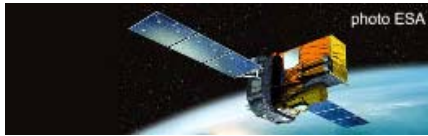


Ice Presence
Temperature
Pressure Altitude
GPS Altitude
Relative Humidity
Time
Lat / Long
Wind speed, direction
Turbulence (horiz. EDR)
Airspeed



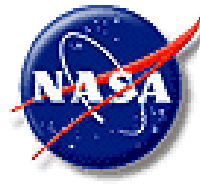
Great Lakes Flight Experiment

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AIRDAT

FORECAST
SYSTEMS
LABORATORY



MESABA AIRLINES
OPERATING AS NORTHWEST Airlink



NCAR



National Centers
for
Environmental Prediction

European Centre
for Medium-Range
Weather Forecasts



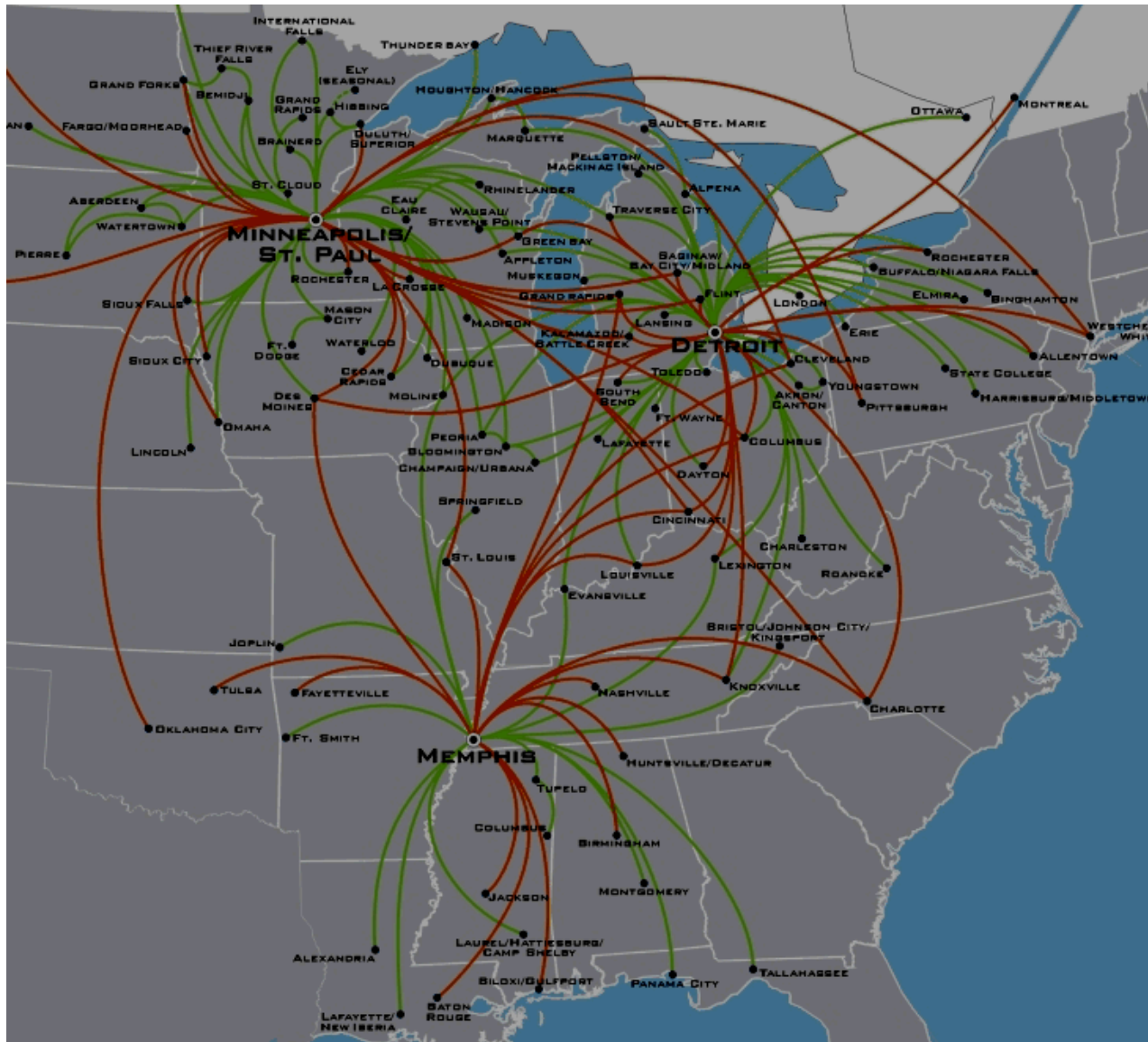
Environment
Canada

Environnement
Canada



GLFE Region

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60 Saab 340s
equipped

~15K obs/day

~800
soundings/day



TAMDAR Schedule

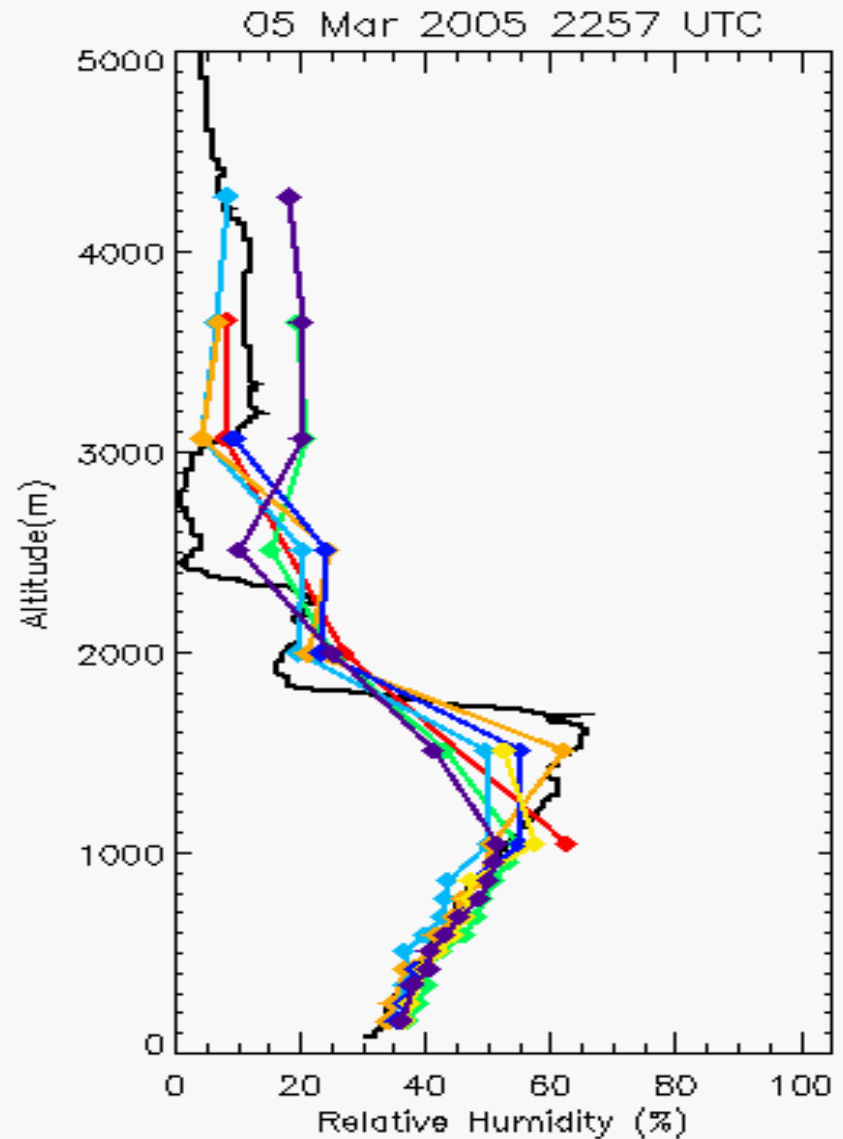
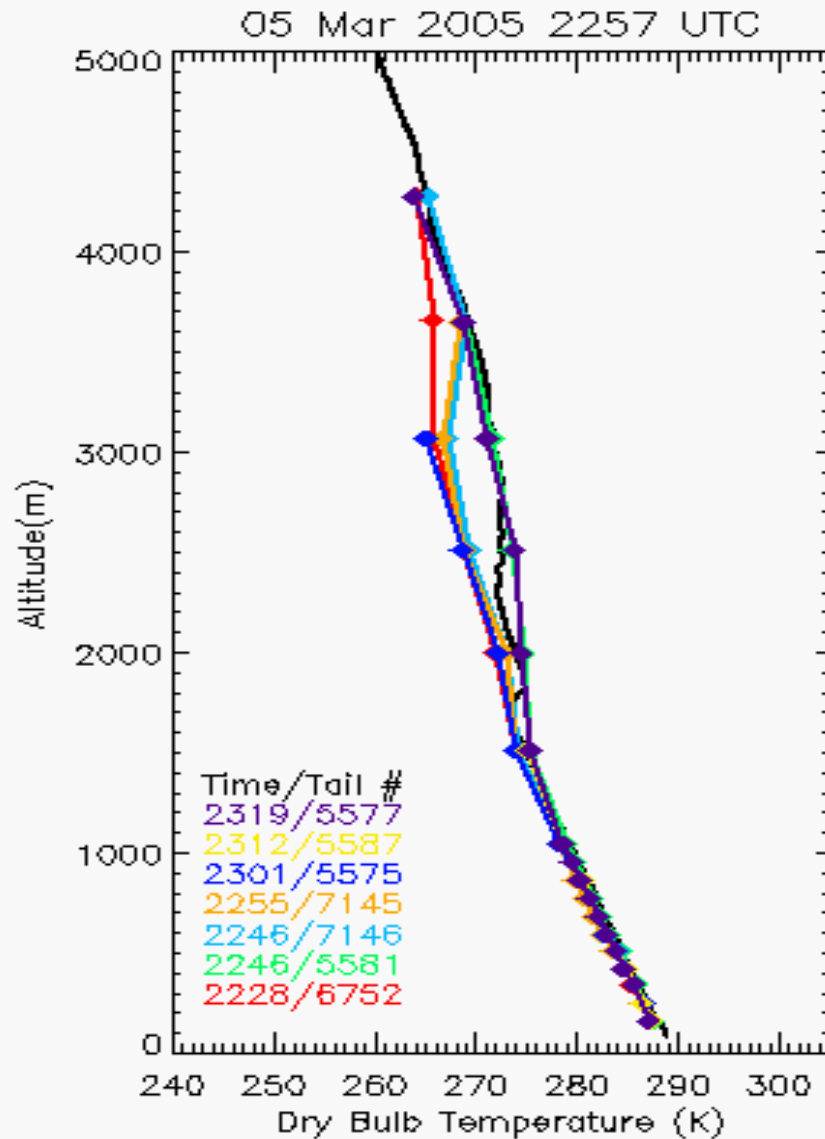
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- 01/05 – Initiate GLFE
- 03/05 – TAVE #1
- 04/05 – Status Meeting #1
- 05/05 – UND Turbulence flights
- 05/05 – TAVE #2
- 06/05 – CIMSS/SSEC deploy -Louisville
- 07/05 – GLFE ends
- 09/05 – TAMDAR Workshop



CIMSS Memphis Deployment

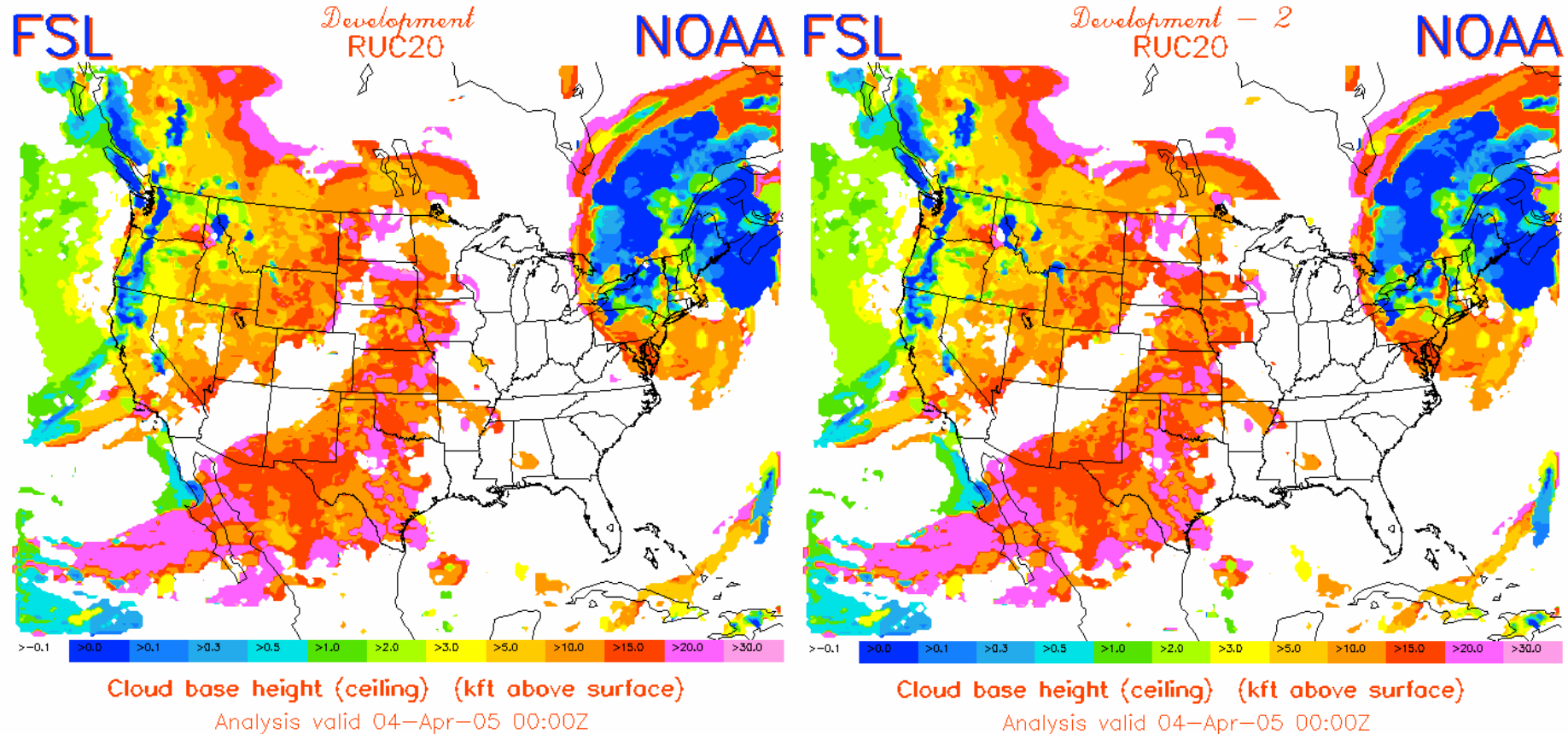
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RUC20 Preliminary Result

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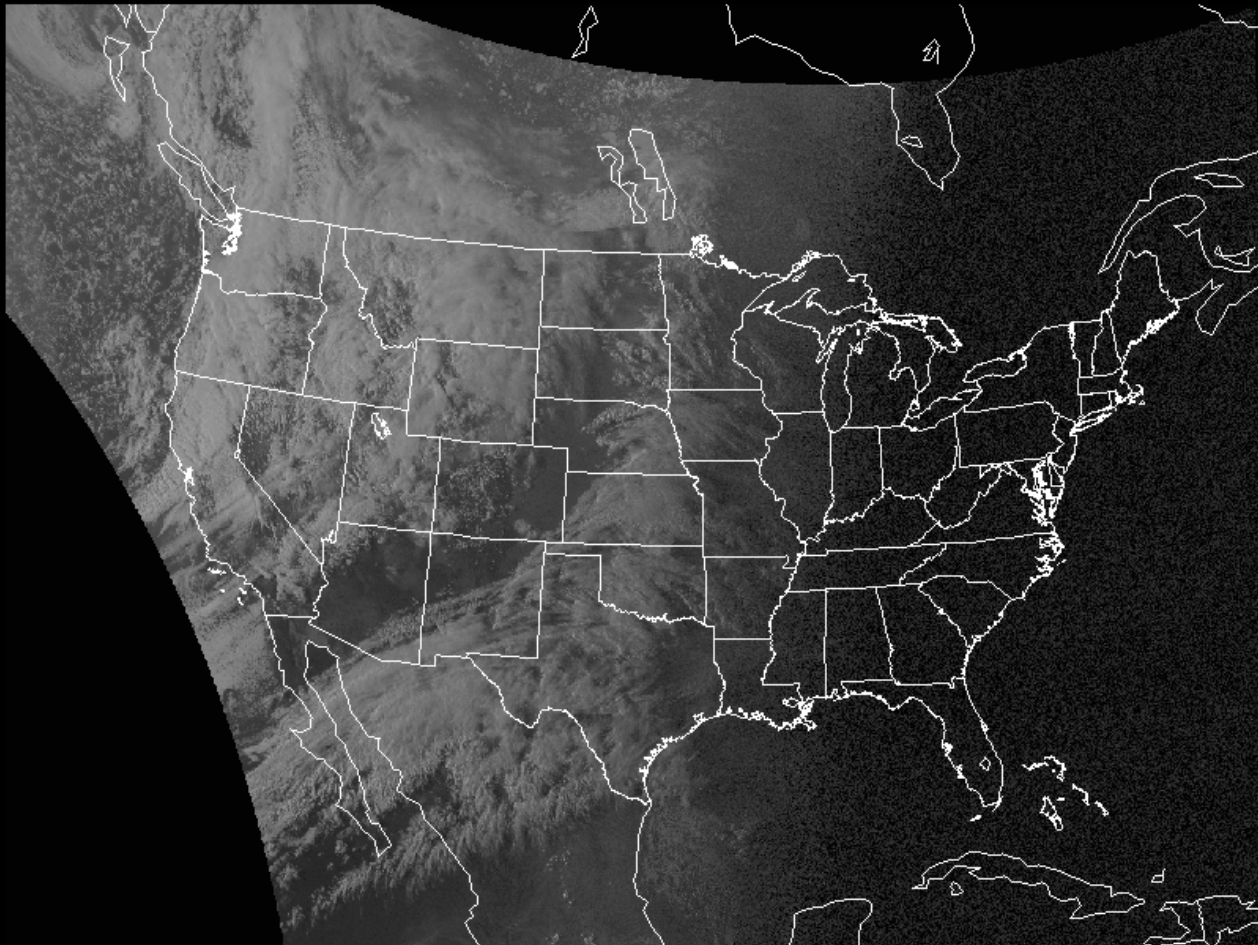
Dev and Dev2 Cloud base height analysis comparison
Bases between 5000ft-1000ft in central and northern MN are farther east in Dev than in Dev2
Also, bases are farther east in IA in Dev2 than in Dev



Visible Imagery

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0015Z 04 Apr 2005 VIS



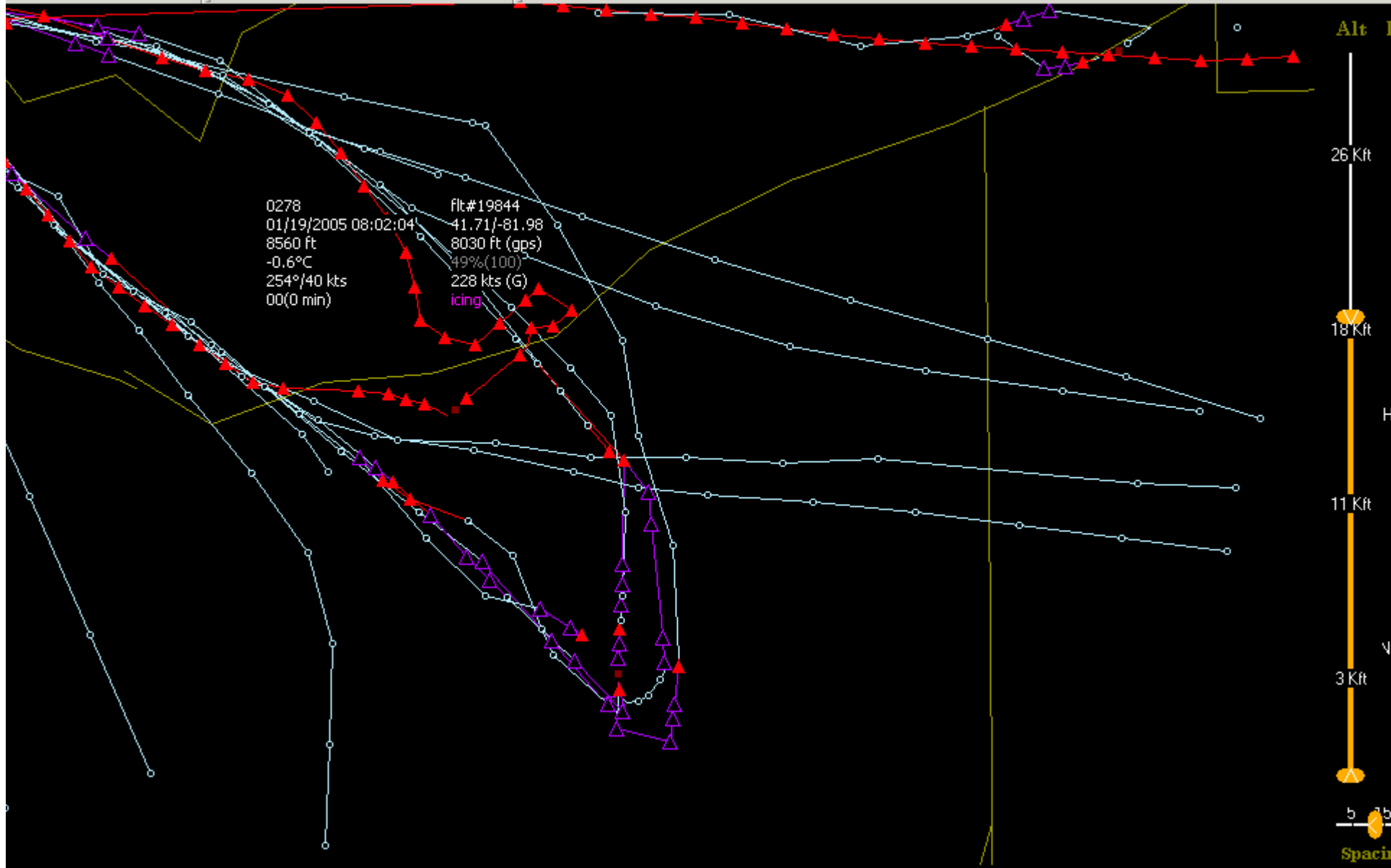
00:15Z Image
more closely
resembles the
cloud analysis
for Dev2 than
Dev in
northern MN
and in IA



Lon: 41.77/-81.98

Time: 01/19/2005 08:02:04

Alt: -1000.0 ft to 18700.0 ft



0278
01/19/2005 08:02:04
8560 ft
-0.6°C
254°/40 kts
00(0 min)

flt#19844
41.77/-81.98
8030 ft (gps)
49%(100)
228 kts (G)
icing



01/19/2005 00:00:45 -> 01/19/2005 22:59:52

Aircraft: 34 (0 showing)

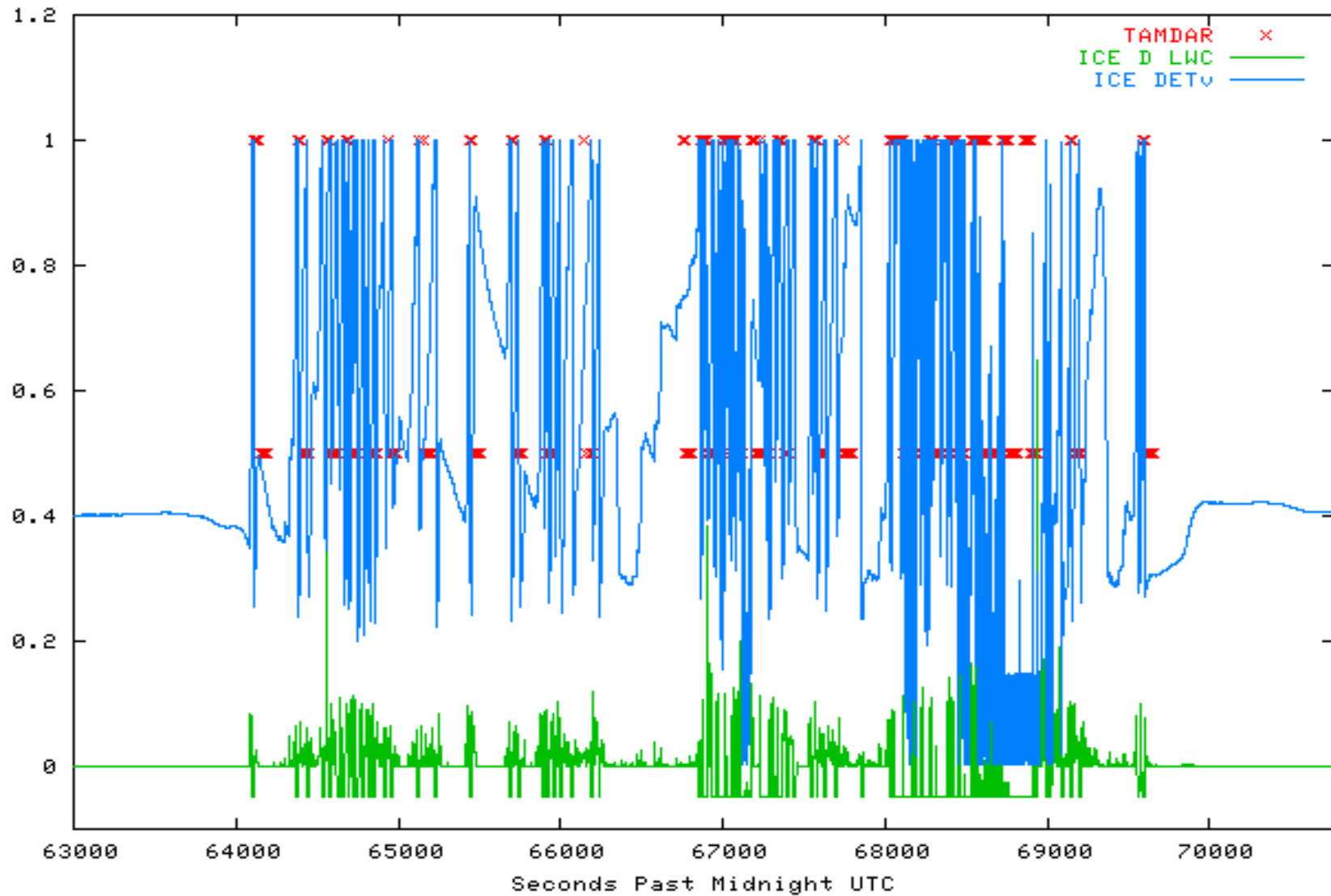
Flights: 262 (0 showing)

Obs: 9211 (231 show)



AIRS II - THORPEX

Period of TAMDAR Icing with UNC Citation Data 11/30/03 starting 16:13:50
17:48:27 19:20:59

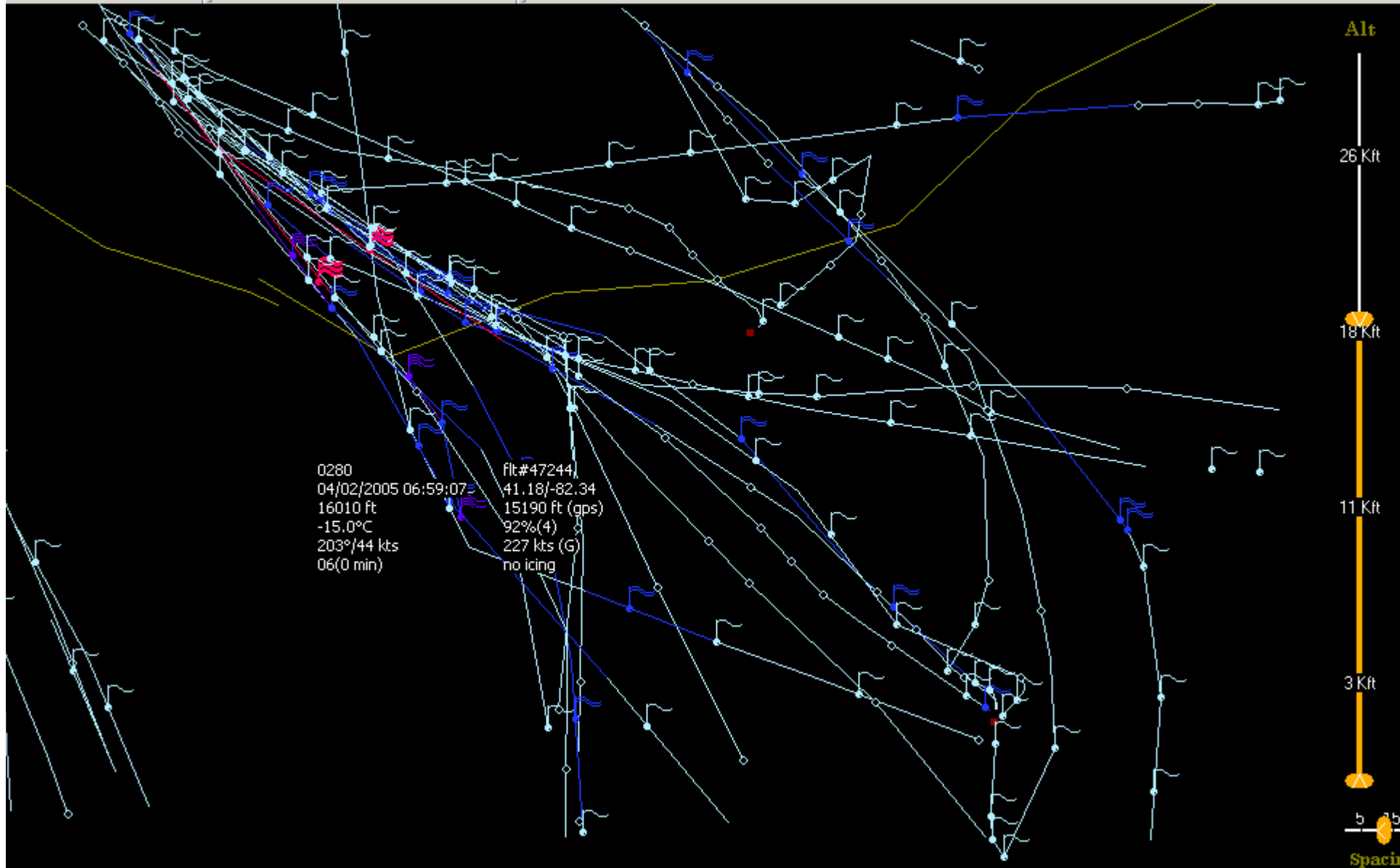




Lon: 41.18/-82.33

Time: 04/02/2005 06:59:07

Alt: -1000.0 ft to 18700.0 ft



0280	flt#47244
04/02/2005 06:59:07	41.18/-82.34
16010 ft	15190 ft (gps)
-15.0°C	92%(4)
203°/44 kts	227 kts (G)
06(0 min)	no icing



04/01/2005 00:01:05 -> 04/02/2005 22:59:54
Aircraft: 46 (0 showing)

Flights: 606 (0 showing)

Obs: 22671 (214 show)



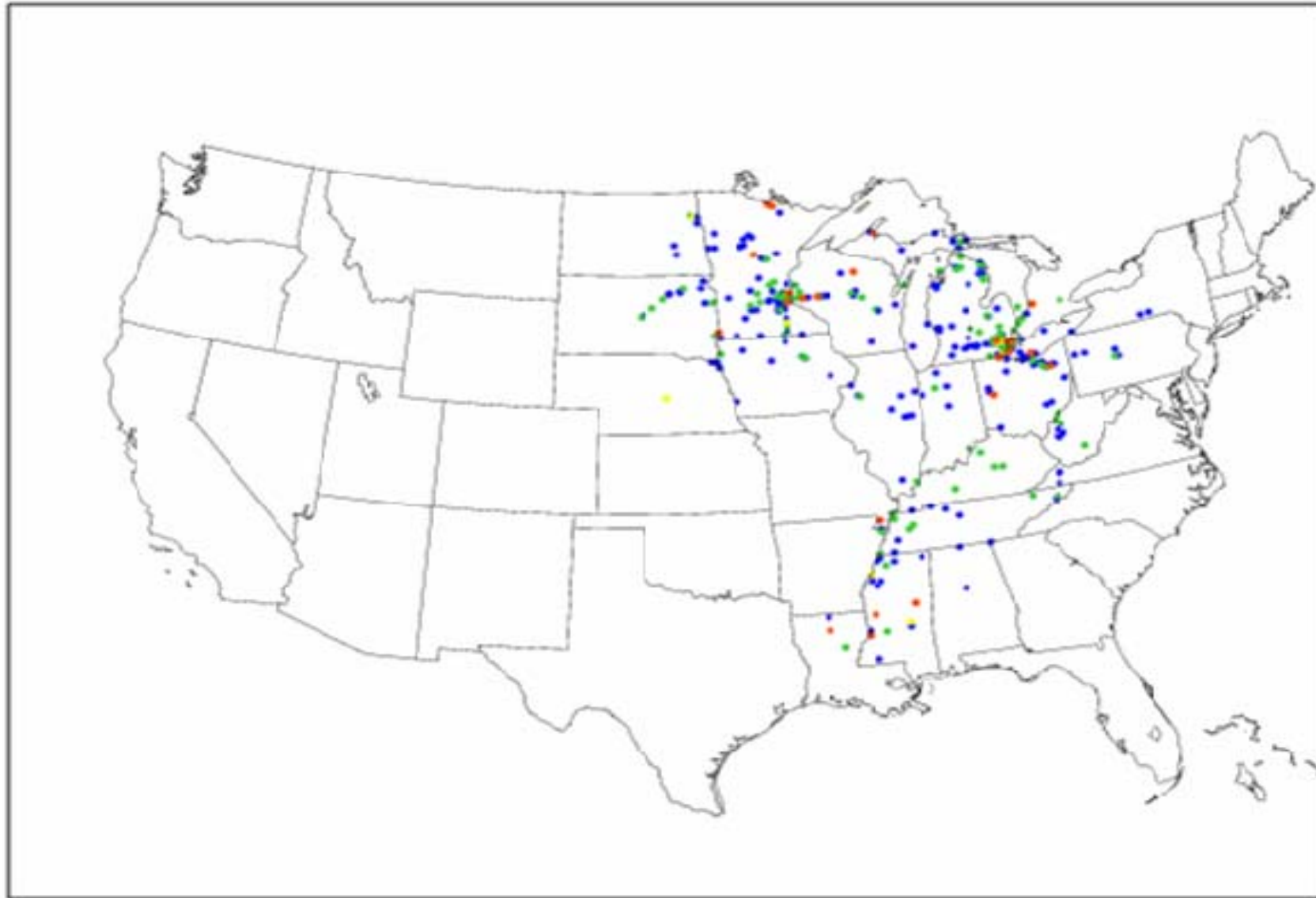
QA PDT PIREPS

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- 2322 PIREPs Collected (thru 4/5)
- 32 Moderate or Greater Turbulence Cases
- 25 Moderate or Greater Icing Cases
- Information on precipitation, cloud top altitude, and whether the aircraft was in cloud is also available
- Many very useful remarks from the pilots are also included
- Data available in tab delimited ASCII files.
- No QC on the data (yet)

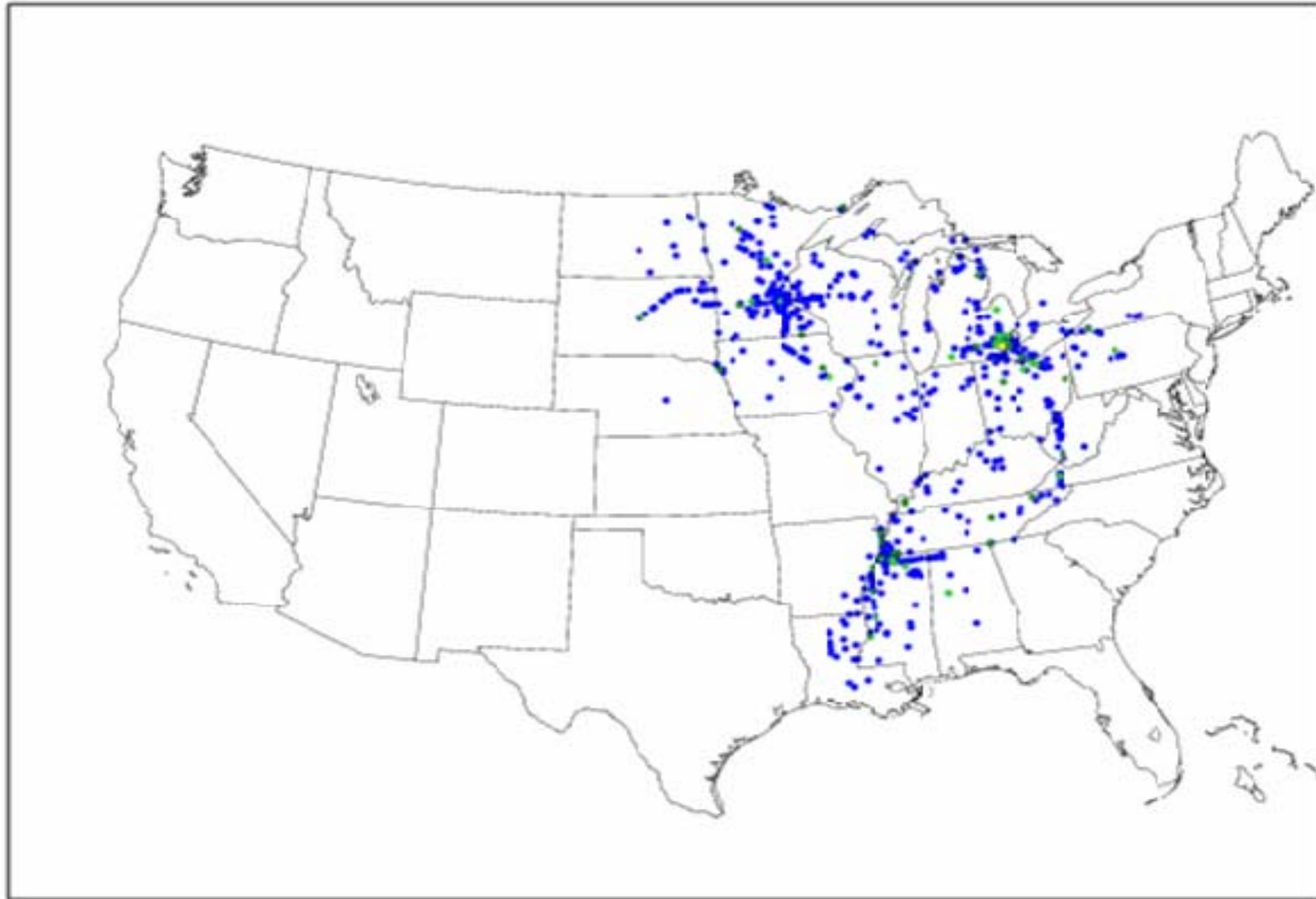


QA PDT Icing Data





QA PDT Turbulence Data





Data Sources

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- NASA Langley Atmospheric Sciences website
<http://www-angler.larc.nasa.gov/bangor>
- AirDat website and ftp site:
<http://www.airdat.com/tamdar/glfe.php>
<ftp.airdat.com>
- NOAA FSL website:
<http://acweb.fsl.noaa.gov/java/>
- NOAA FSL MADIS:
 - AWIPS netCDF format to NWS WFOs, NCO, and interested parties
- Quality Assessment PDT PIREP data
Contact Jamie Braid: braid@rap.ucar.edu
- CIMSS/SSEC website:
<http://cimss.ssec.wisc.edu/tamdar/>
- NWS Marquette
http://www.crh.noaa.gov/mqt/data/wrf_html/wrf.php



Questions?

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