

# McIDAS-X Software Development and Demonstration

Dave Santek and Jay Heinzelman

16 October 2007

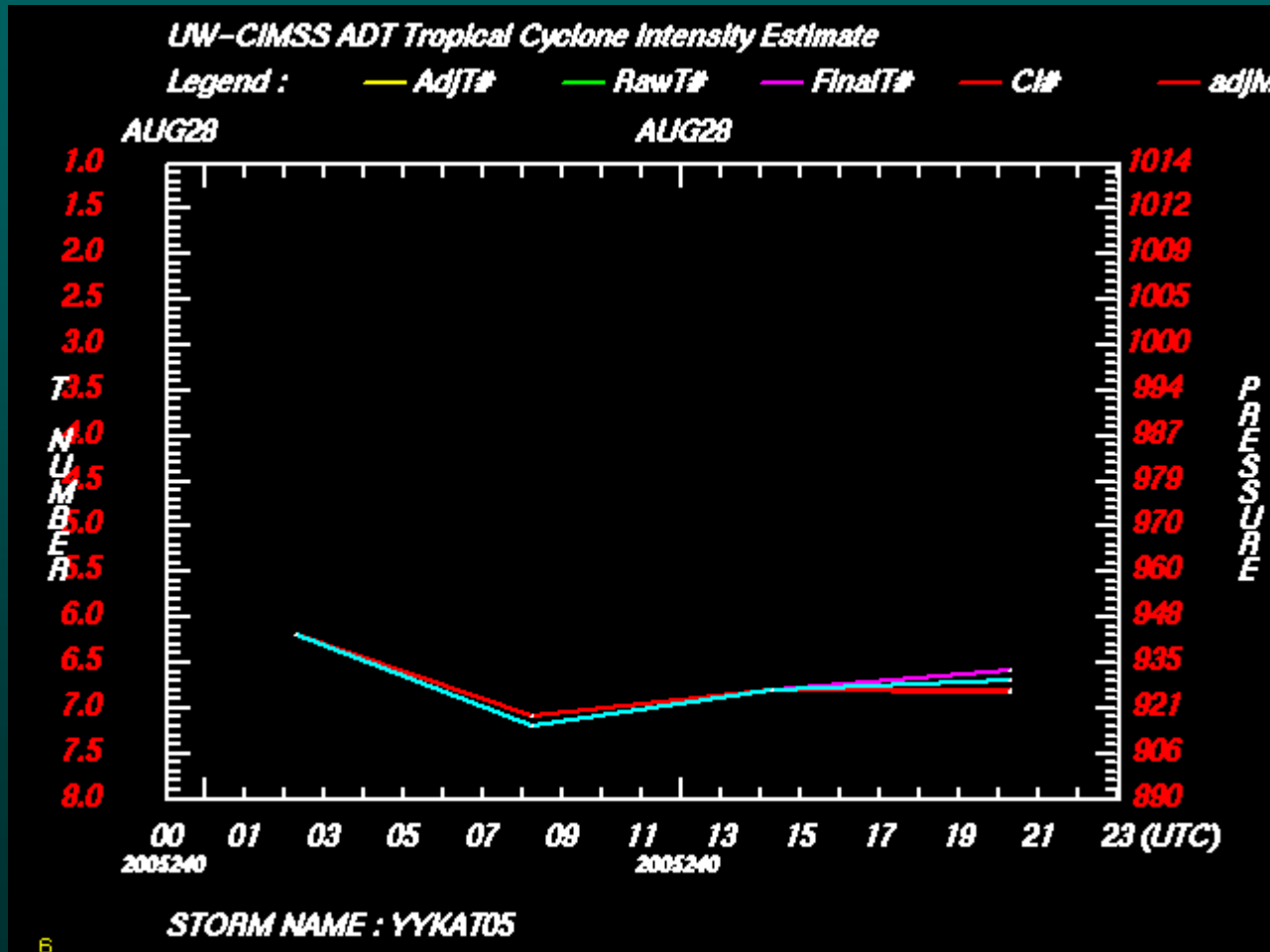
# Overview

- McIDAS-X 2006, 2007
- McIDAS-XRD 2006, 2007
- Software Development in 2007
- Software Plans for 2008
- McIDAS-X ADDE Port Changes
- McIDAS-Lite, OpenADDE, PAW Status
- McIDAS-V

# McIDAS-X 2006 and 2007

- ADT (Advanced Dvorak Technique)
- IMGCOPY CONTINUE=YES
- IMGDISP REPEAT= 0
- IMGREMAP
  - Fixed gaps in mosaics
  - PRO=DEST with lat/lon navigation

# ADT

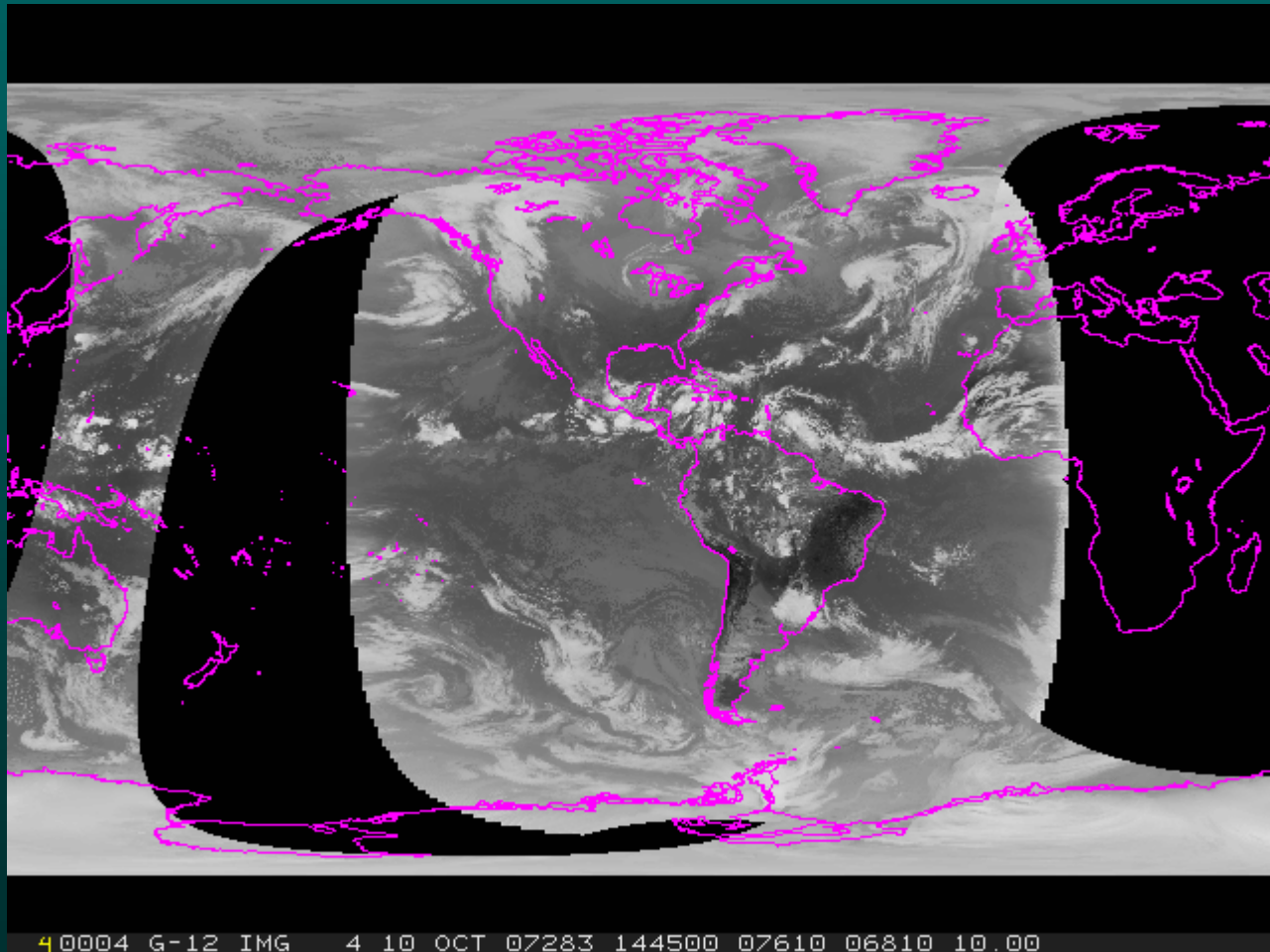


# IMGCOPY

- **IMGCOPY CONTINUE=YES**
  - Continues to copy images even if one or more of the source images is skipped because it does not contain the specified geographical region
- **IMGDISP REPEAT= 0**
  - Frame increment can be set to zero to load all images on a single frame

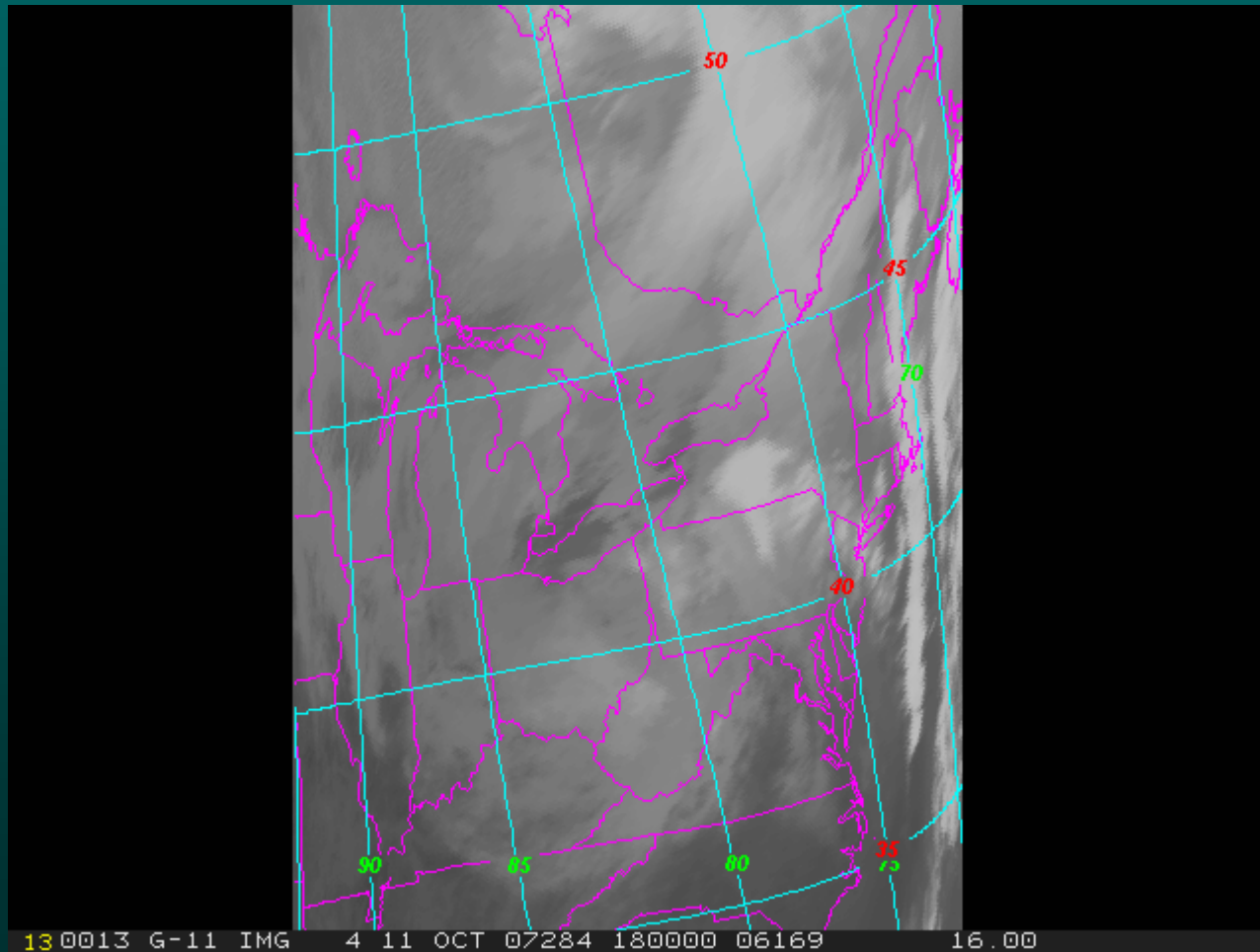
# IMGREMAP

(fixed gaps)



# IMGREMAP

(to lat/lon nav)

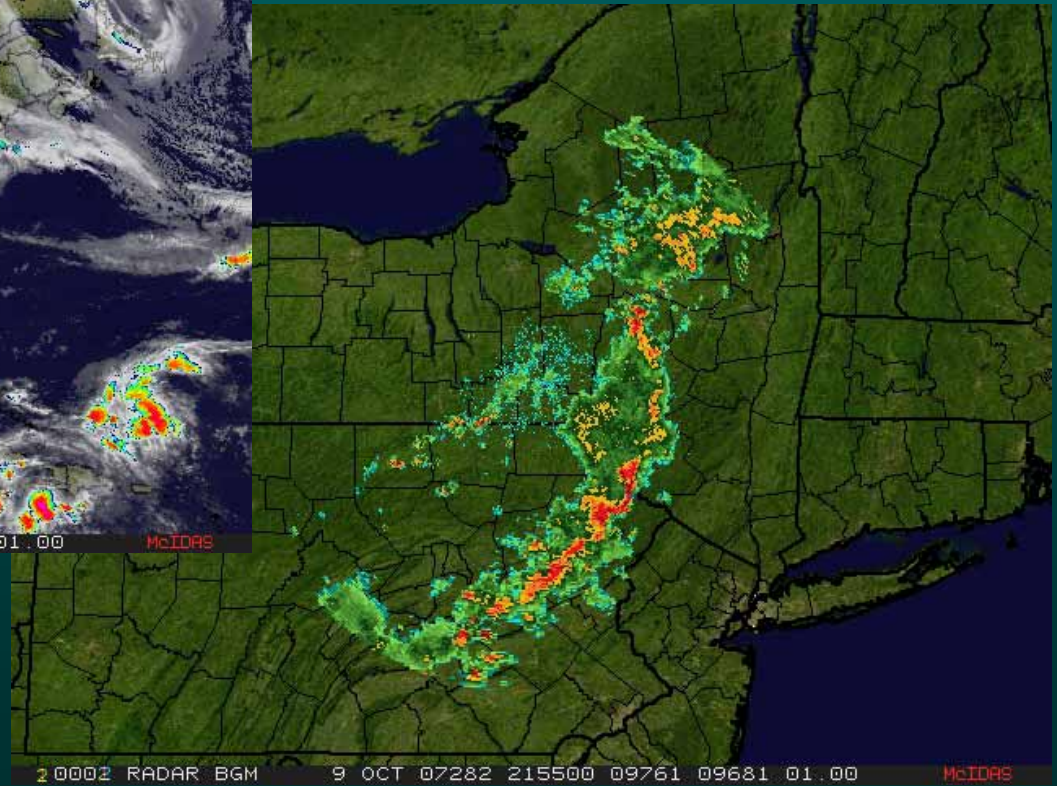
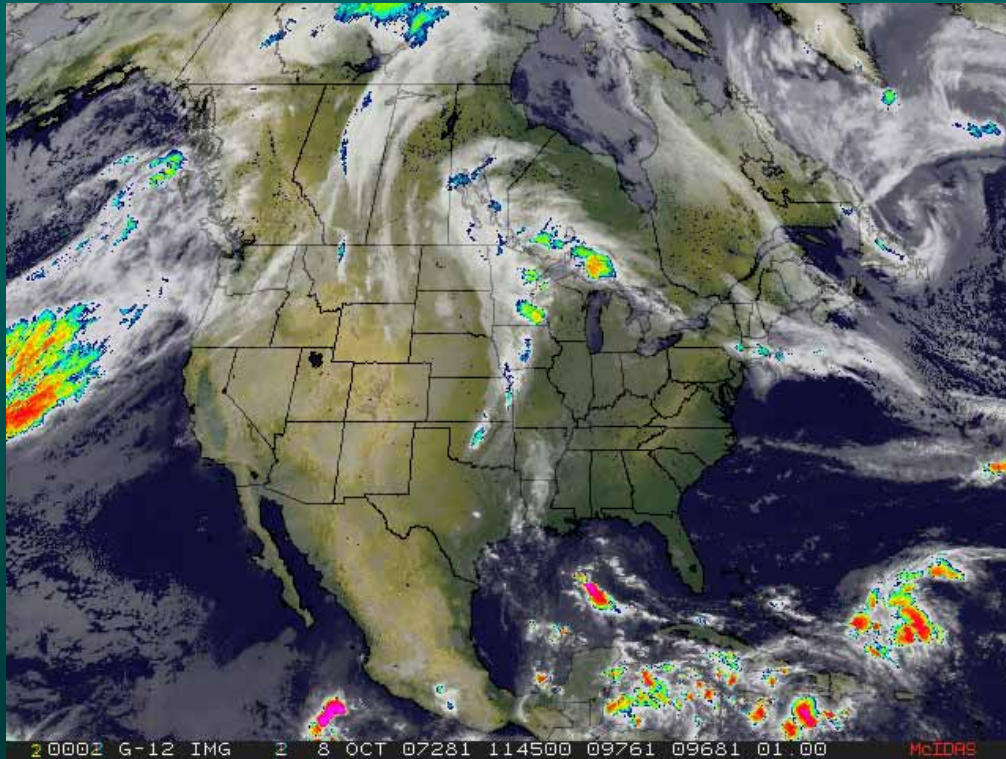


# McIDAS-X 2006 and 2007

- IMGRGB
- MODIS Level 1b servers read compressed DAAC files
- Foreign Satellite Data servers for MSG LRIT data
- Updates to AVHRR Level 1b server
- Meteosat-8 HRV moving sector



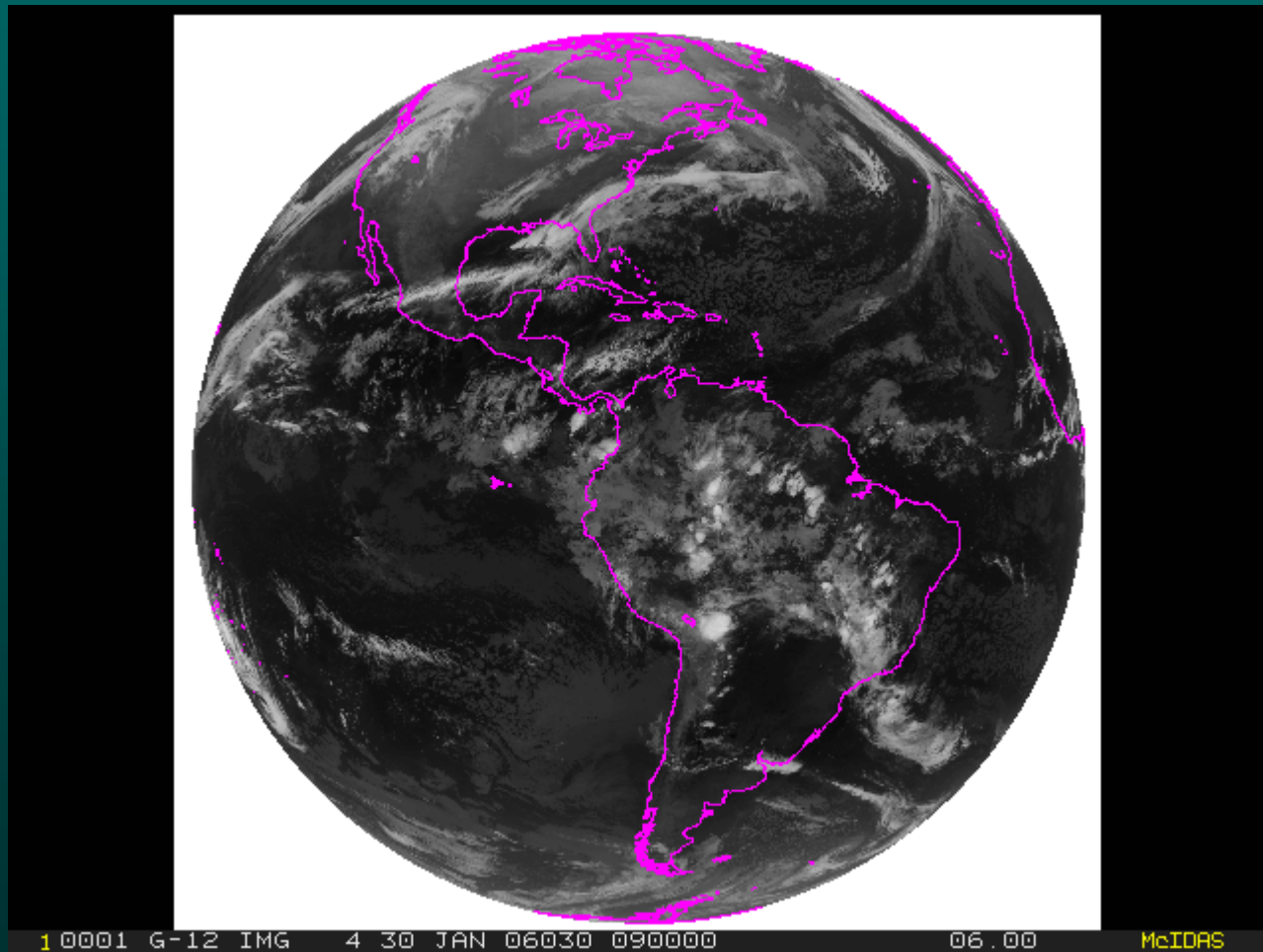
# IMGRGB



# MODIS Level 1b Server

- Modification to read compressed DAAC files
- HDF internally compressed SDSs

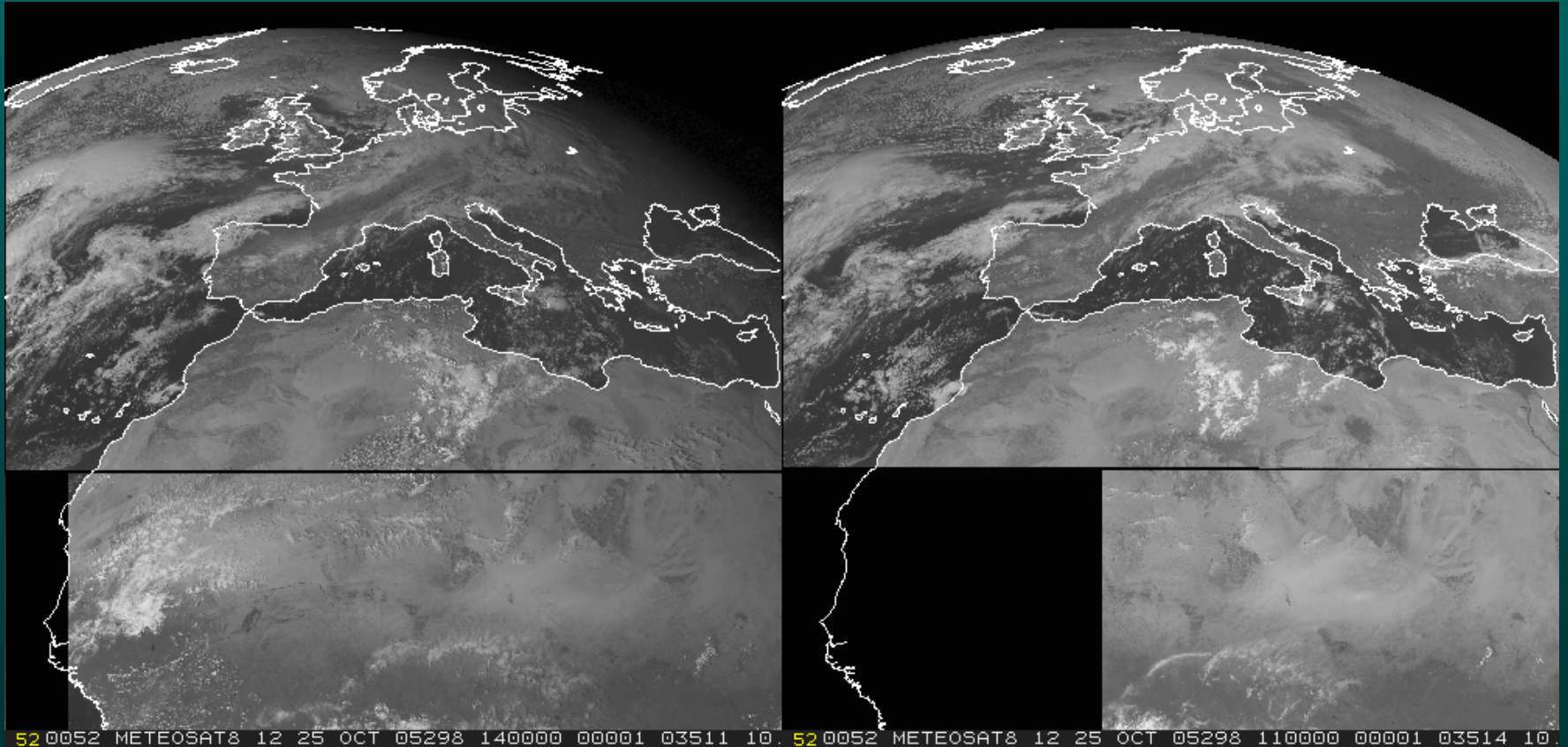
# MSG LRIT Data



# AVHRR Level 1b Server

- Update for NOAA-18
- Correct 1x1 pixel shift with IMGCOPY
- Handle bands 3a and 3b when both are present

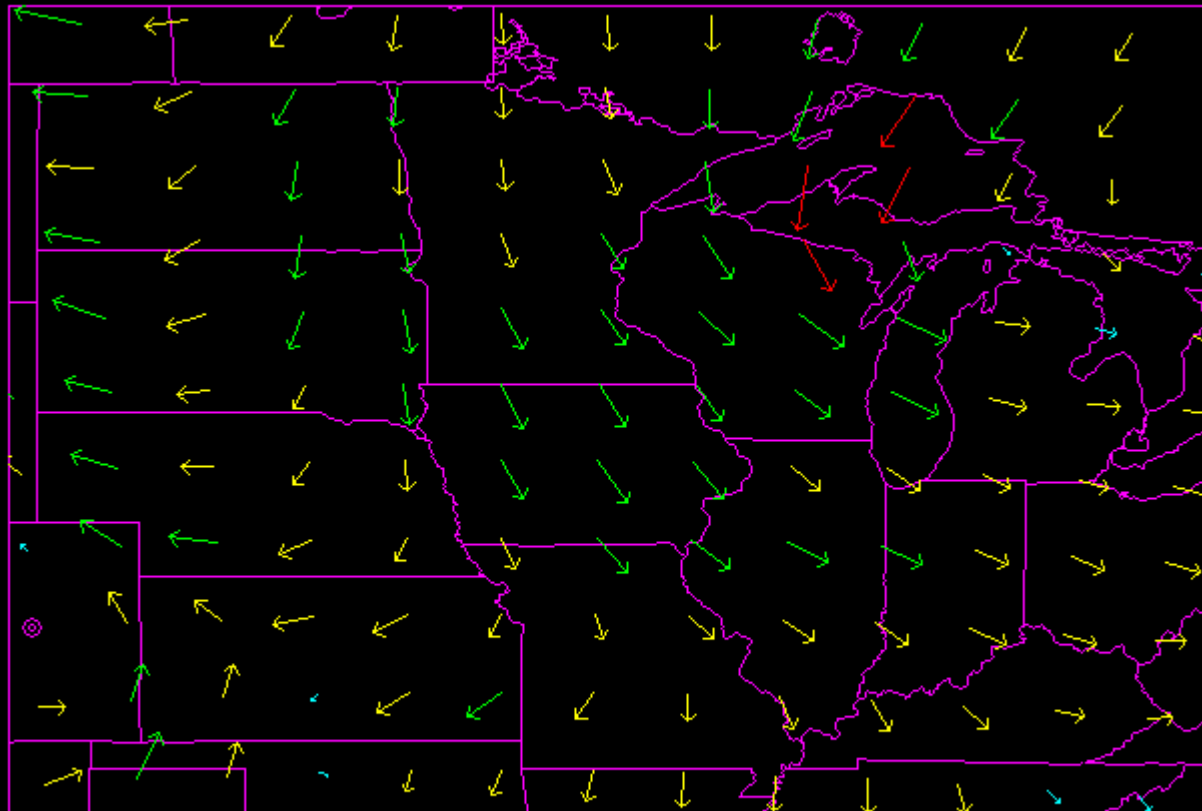
# Meteosat-8 Moving Sector



# McIDAS-X 2006 and 2007

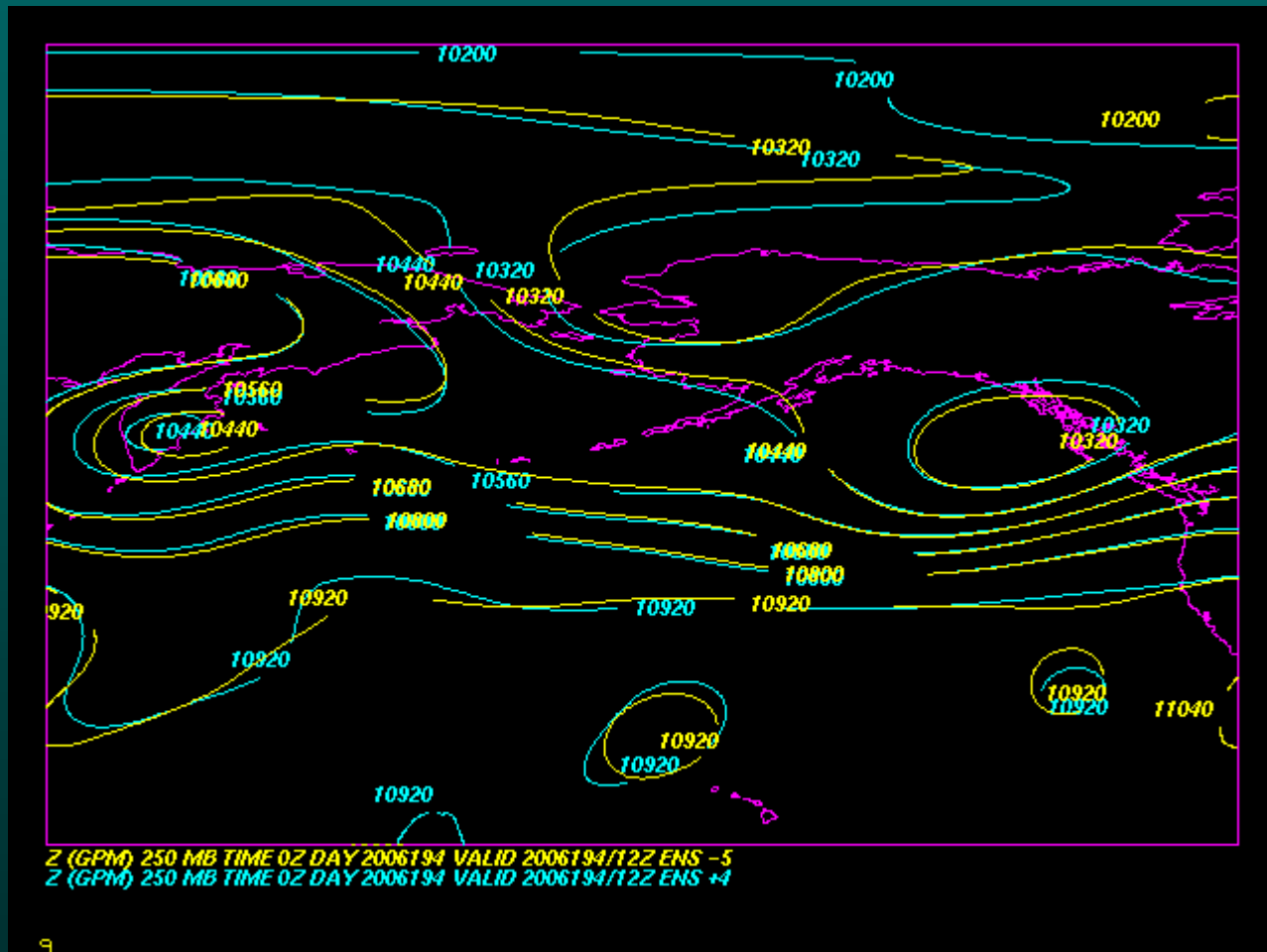
- GRDDISP
  - Wind vectors sized as in PTDISP and proportional to speed
- GRD\* commands
  - ENSEMBLE=
  - Can use GRID in  $Gn=$  keywords
  - Keywords passed correctly to  $Gn=$  keywords

# GRDDISP



VEC (MPS) SFC MBATIME 12Z DAY 2007283 VALID 2007283/12Z

# GRDDISP ENSEMBLE=





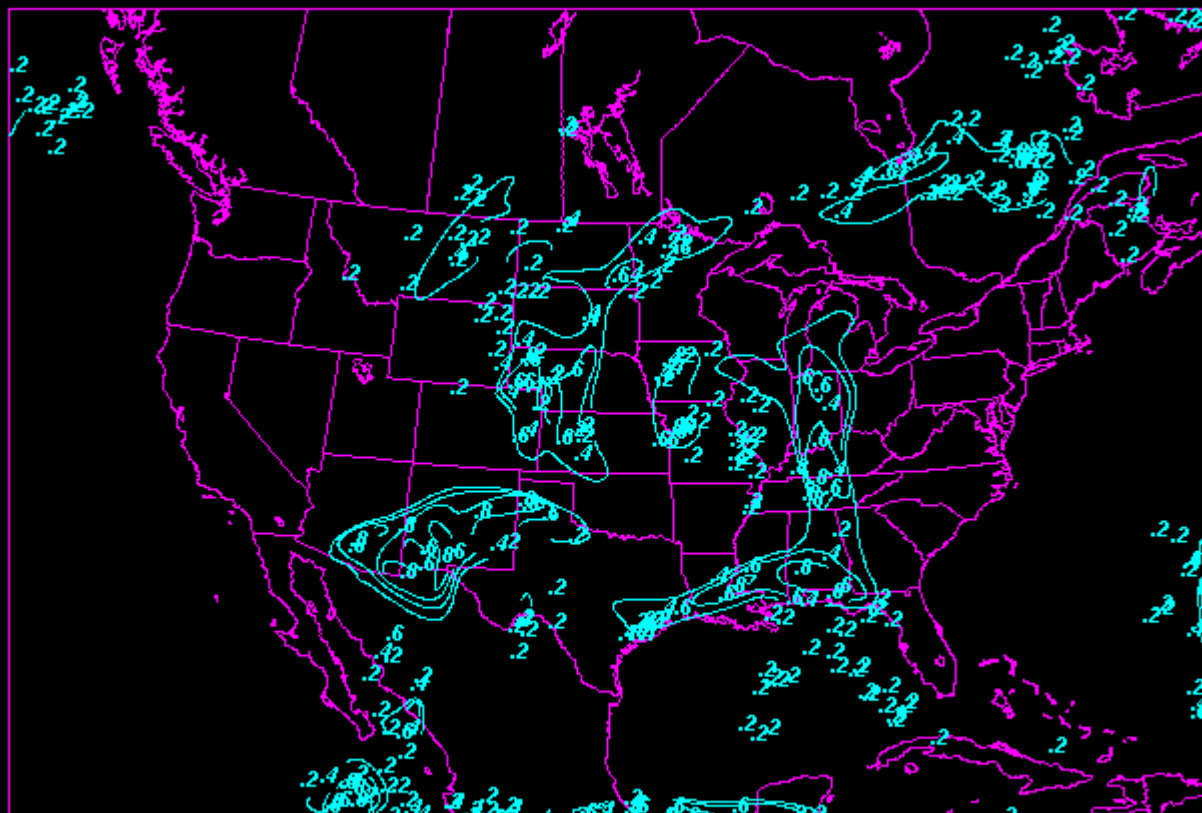
# GRD\* Commands

- Can use GRID in  $Gn=$  keywords
- ‘Global’ keywords passed correctly to  $Gn=$  keywords

# McIDAS-X 2006 and 2007

- GRIB servers
  - Local or remote data
  - With `-XCD`, database access is used for performance considerations
  - GRIB1 and GRIB2 formats
- Maximum number of grid points in a grid increased from 300,000 to 2,000,000.

# GRIB1

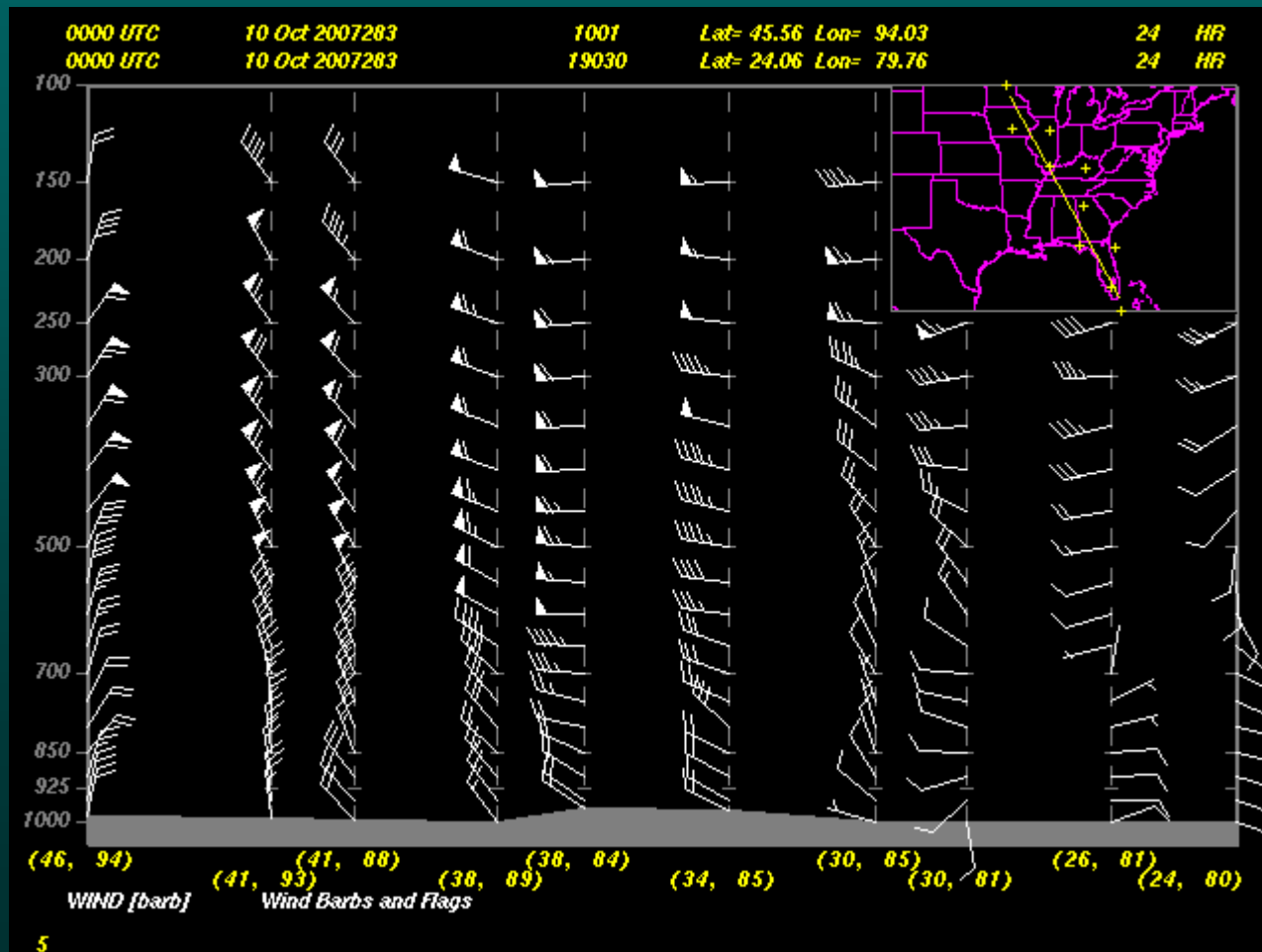


TIPD (x) 6401 M TIME 6Z DAY 2007249 VALID 2007249/18Z

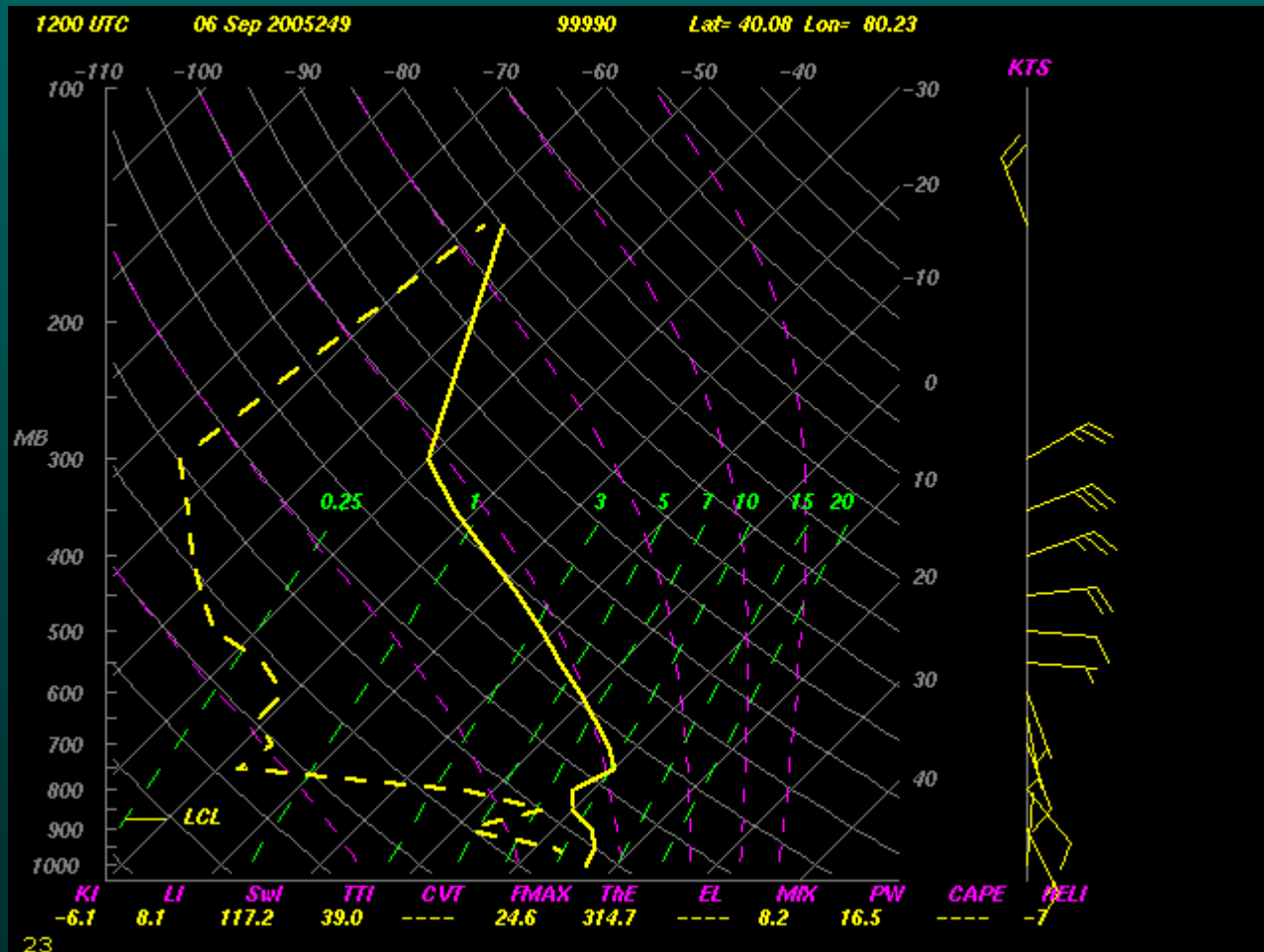
# McIDAS-X 2006 and 2007

- UACROSS bug fixes
  - Corrected wind direction
  - Southern hemisphere orientation corrected for winds flags
- UA\* commands with UPPR schema
- WWDISP/LIST areal flood statements

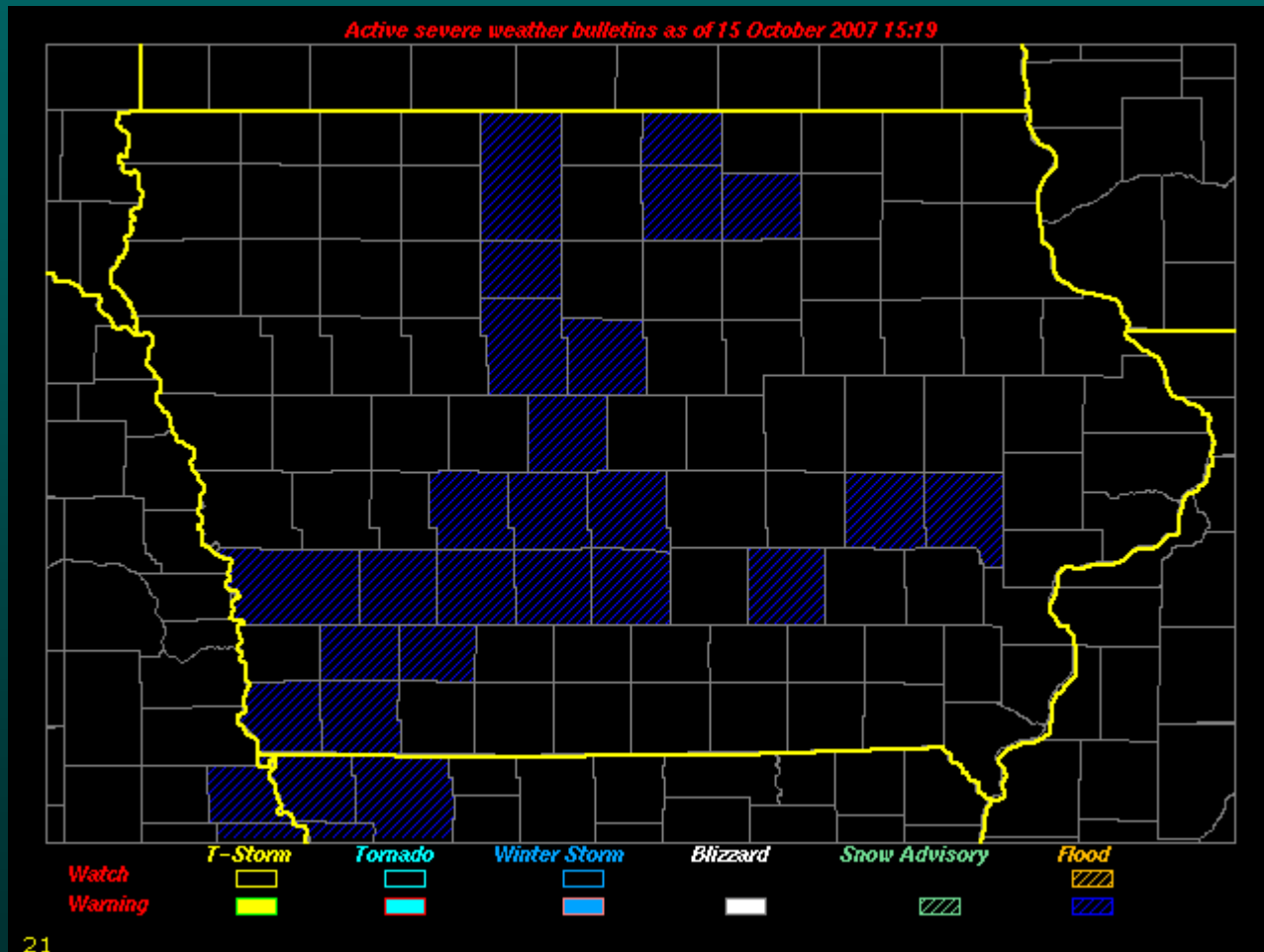
# UACROSS



# UAPLOT with UPPR schema



# WWDISP/LIST



# McIDAS-X 2006 and 2007

- Windows XP
  - ADDE remote servers no longer work on XP
  - Physical Address Extension (PAE) must be disabled
- Cutting and pasting improved in text window



# McIDAS-X 2007 GUI

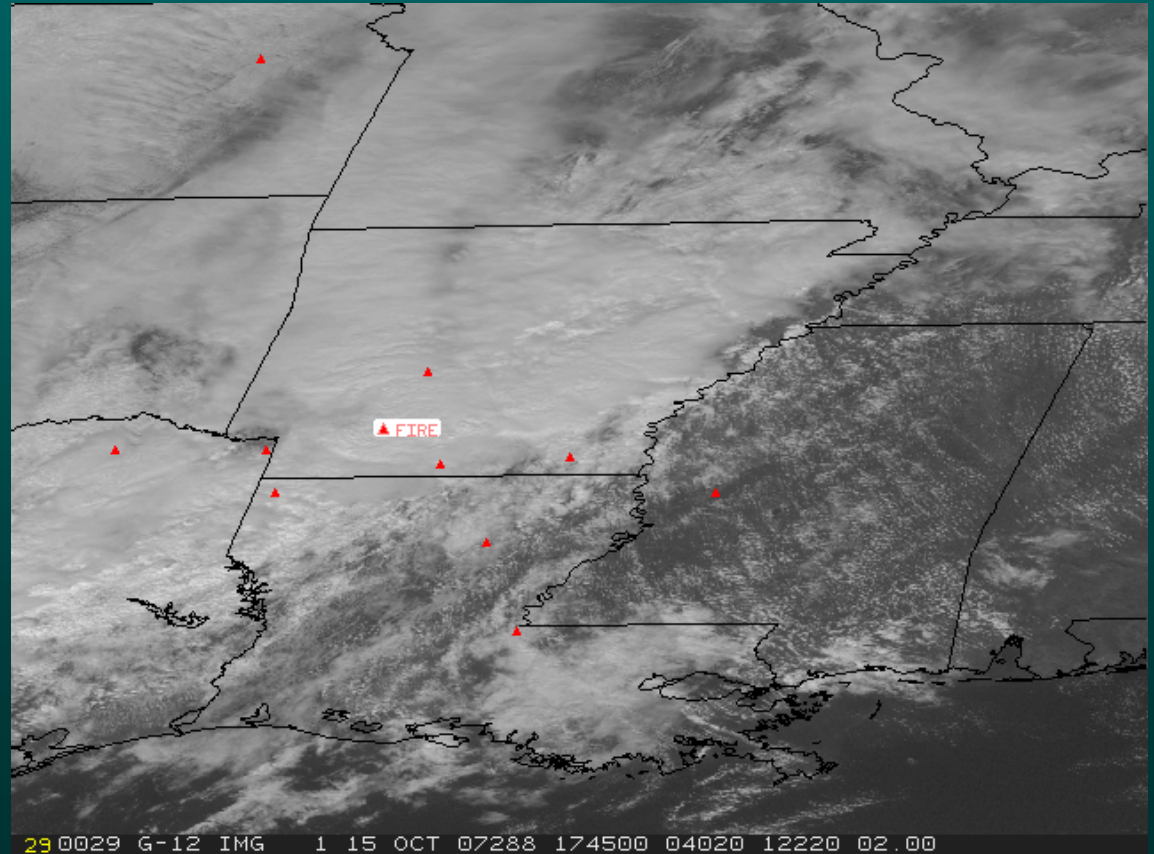
- Access to online satellite archive
- GRIB file access
- GRD\* selection

# McIDAS-XRD 2006

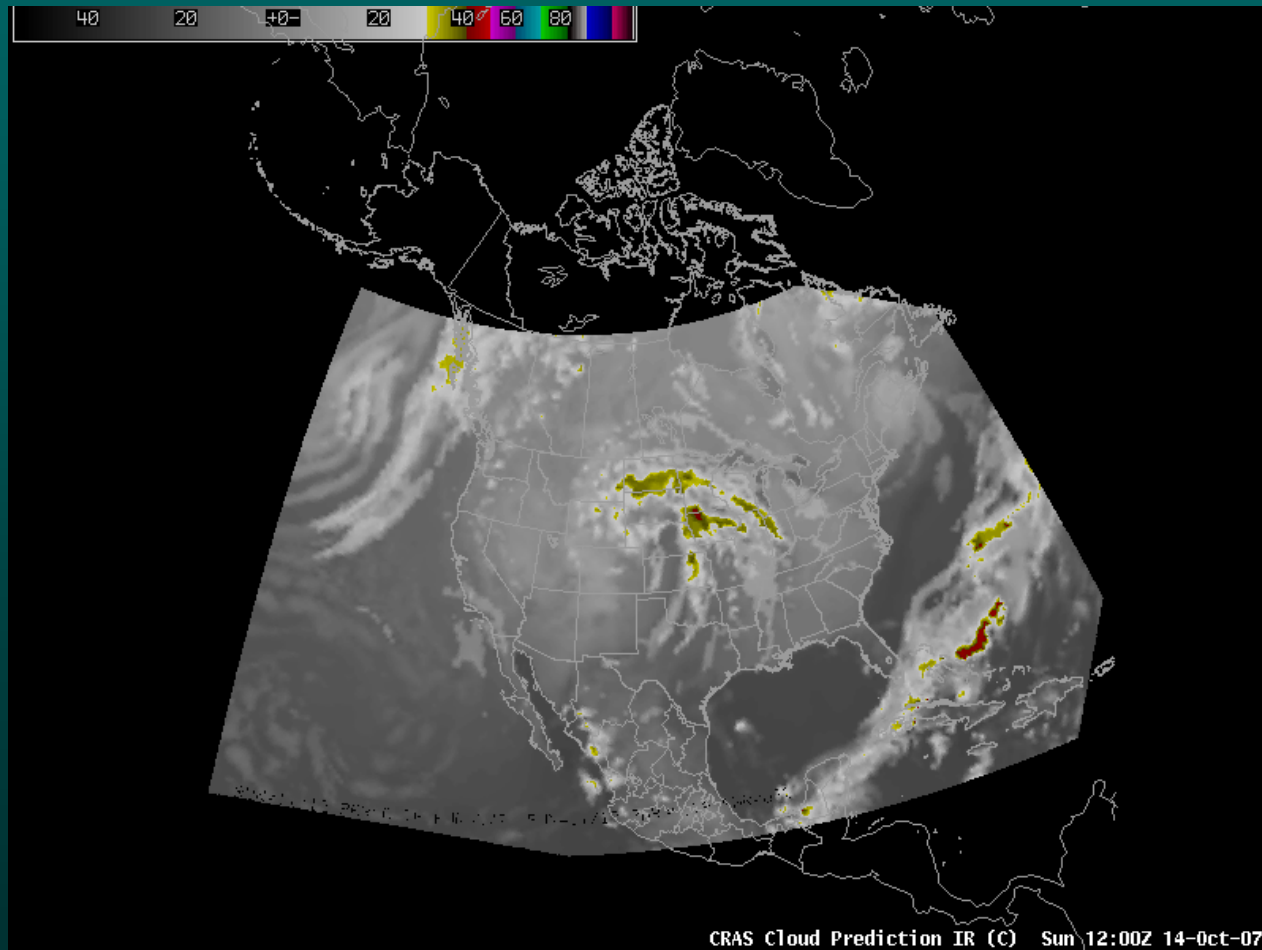
- ABBA
- CRASIMG
- IFR
- LIMBFIT
- LLBOX
- MAKE\_MULTIB (NASA/Langley)
- MERGE\_GEO (NASA/Langley)

# ABBA

- ABBA: Automated Biomass Burning Algorithm
- Retrieve wildfire text file from ftp site
- Plot locations on graphics

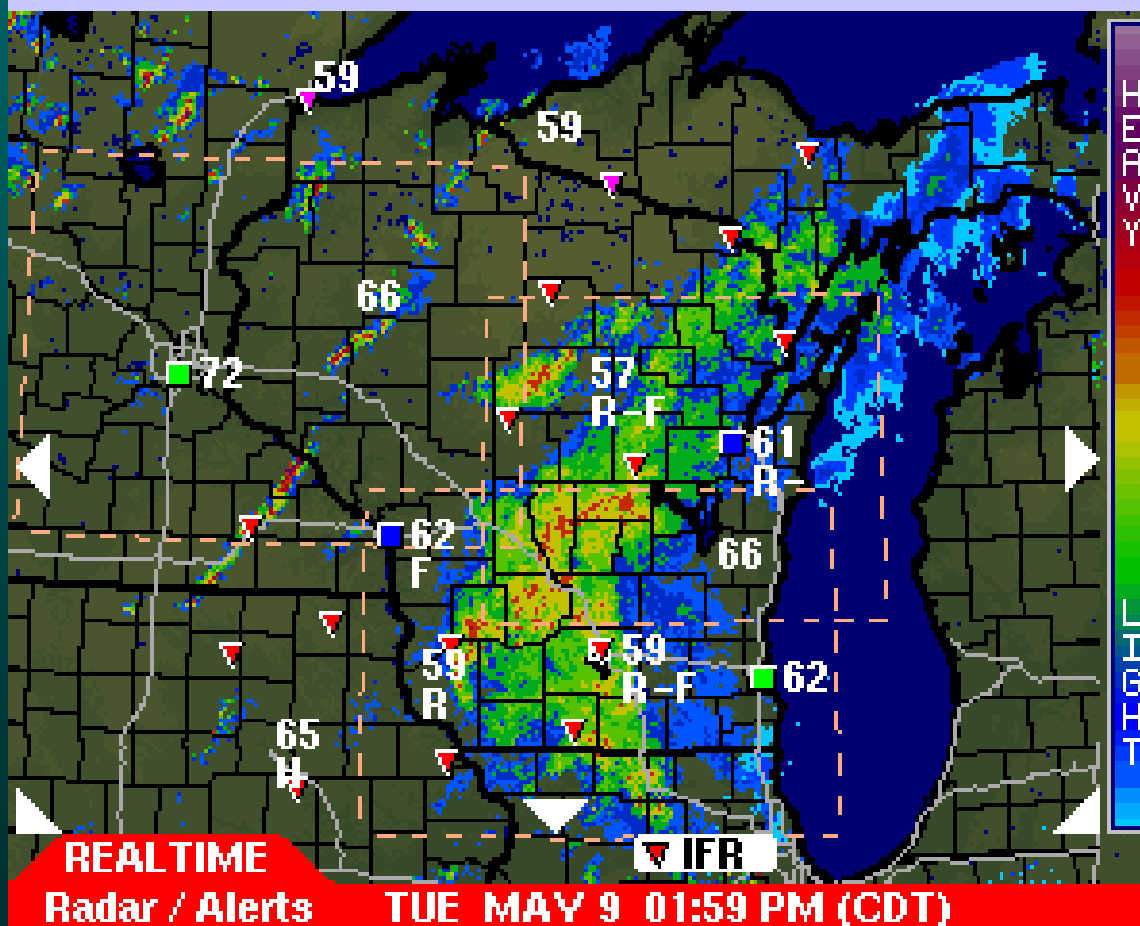


# CRASIMG

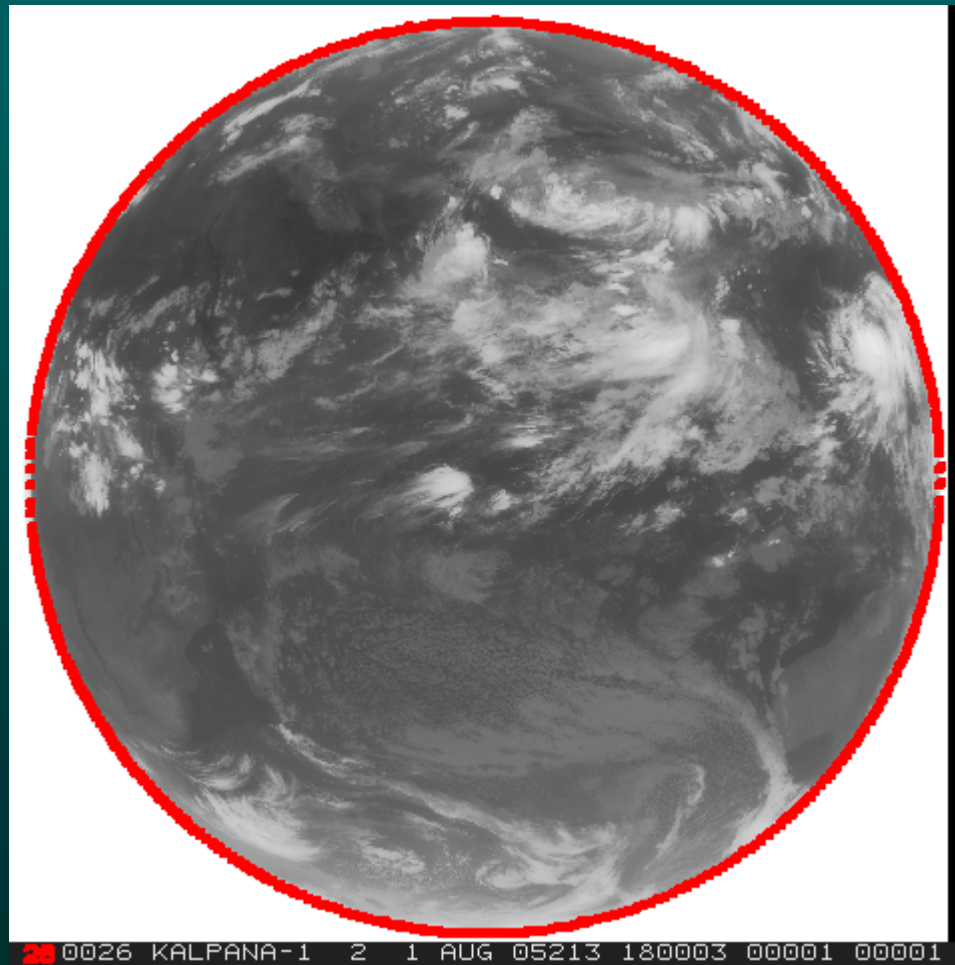


# IFR

ConUS> -Zoom Clouds> Latest Alerts> OFF Menu

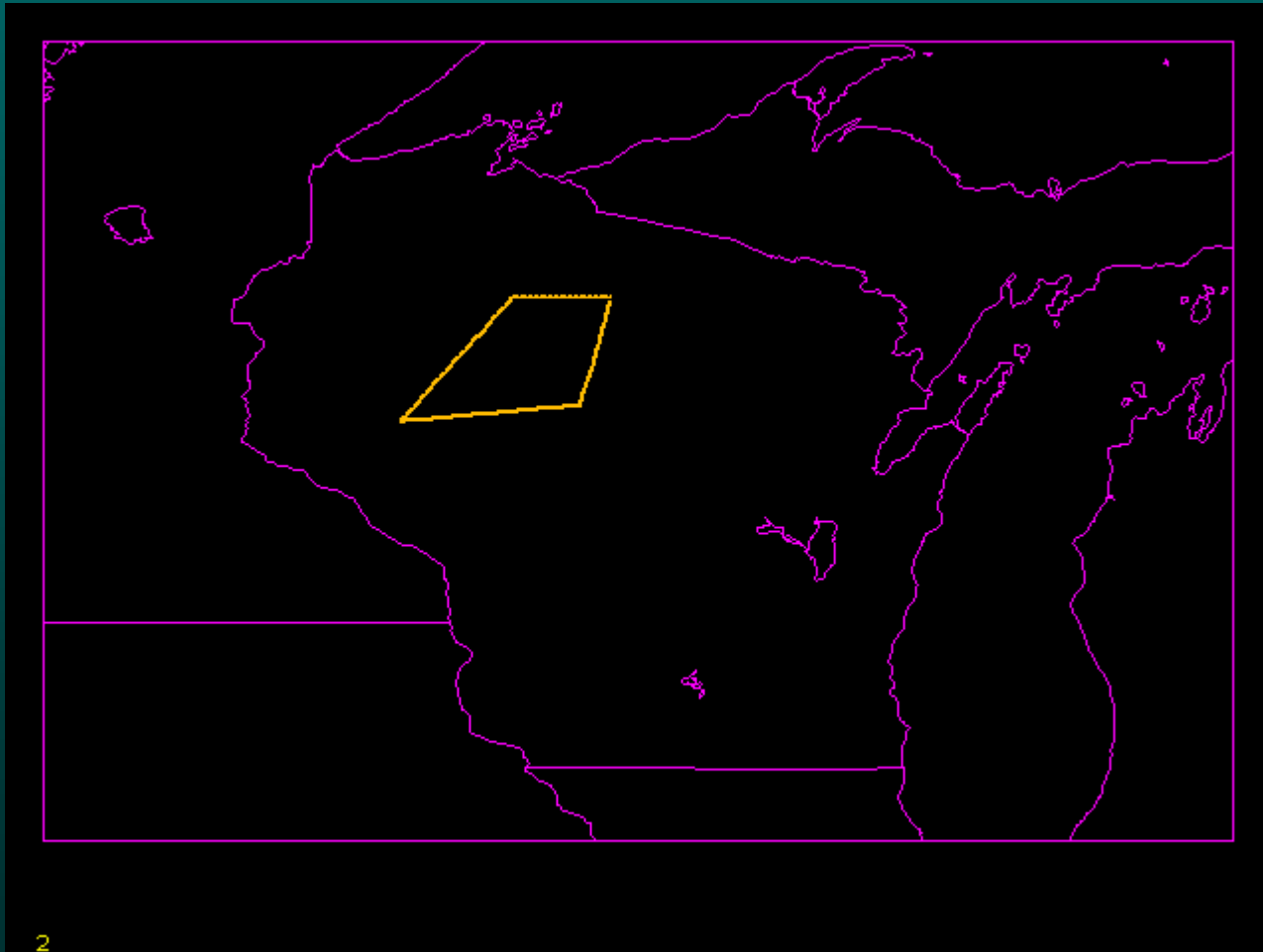


# LIMBFIT



28 0026 KALPANA-1 2 1 AUG 05213 180003 00001 00001

# LLBOX

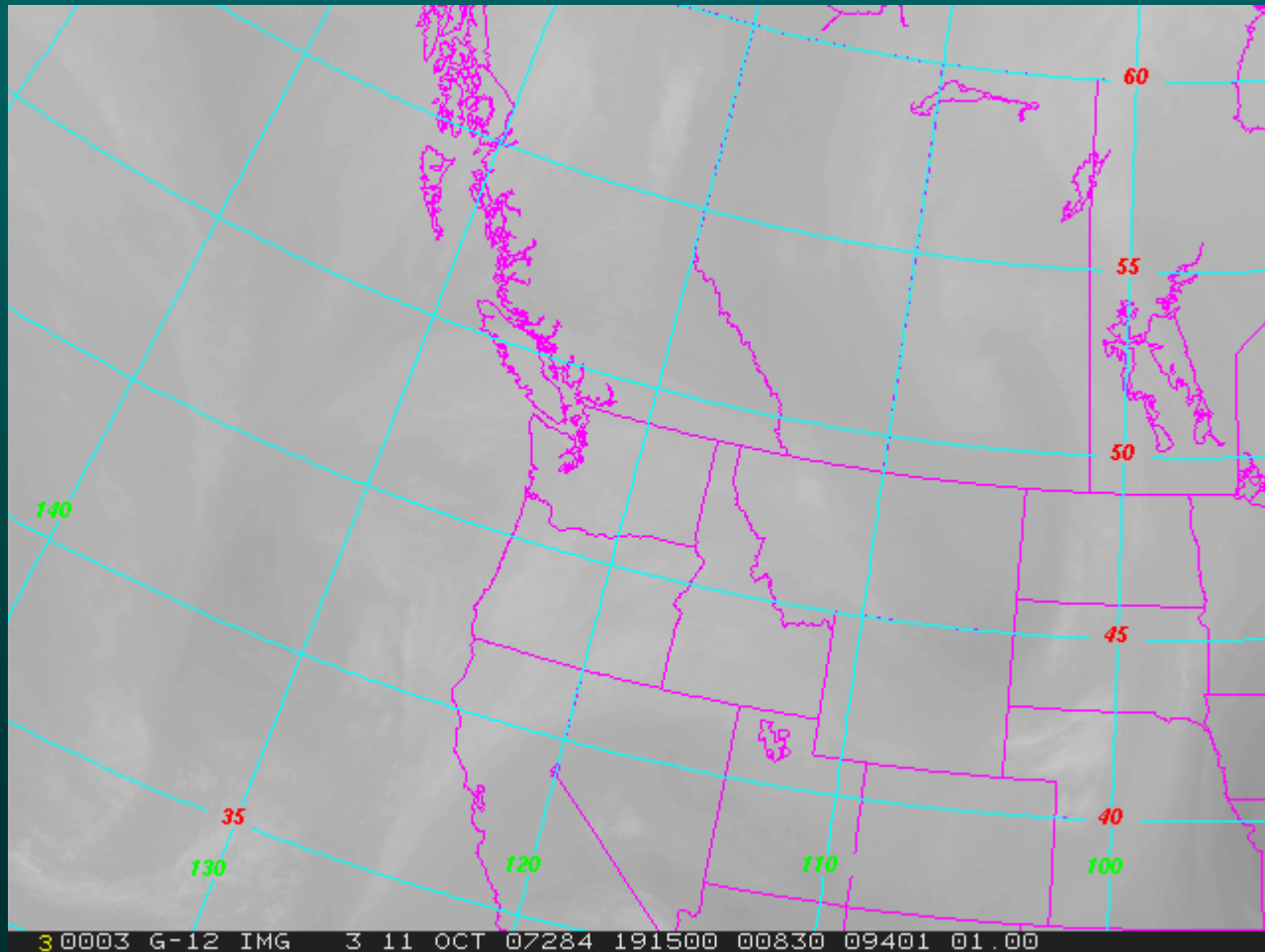


# MAKE\_MULTIB

- Intended for use with GOES, MET-8, FY-2C, MTSAT-1R
- Single-banded files to combine must have the same size, res, projection, and center Lat/Lon
- Has not been tested with MTSAT HRIT format



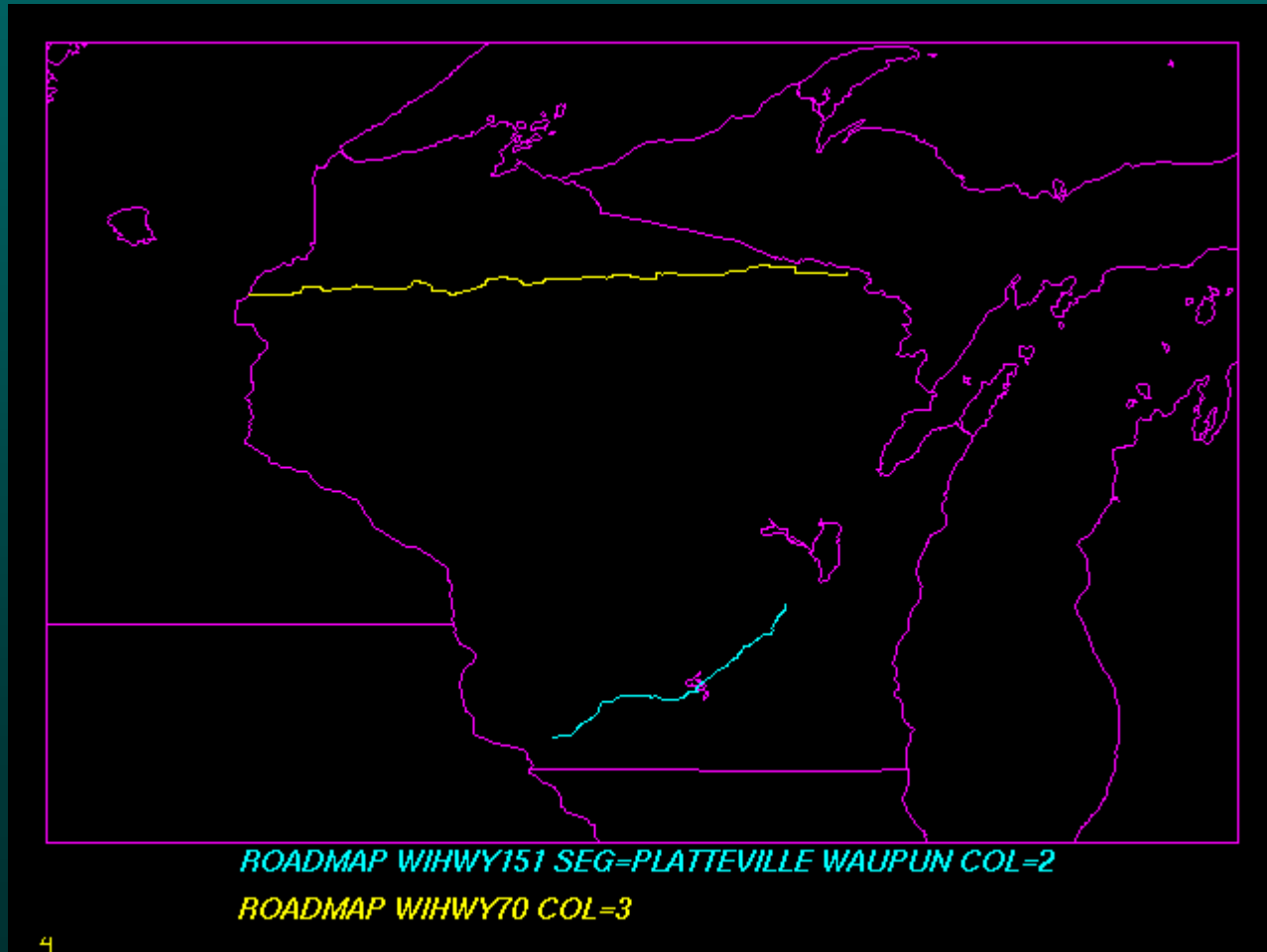
# MERGE\_GEO



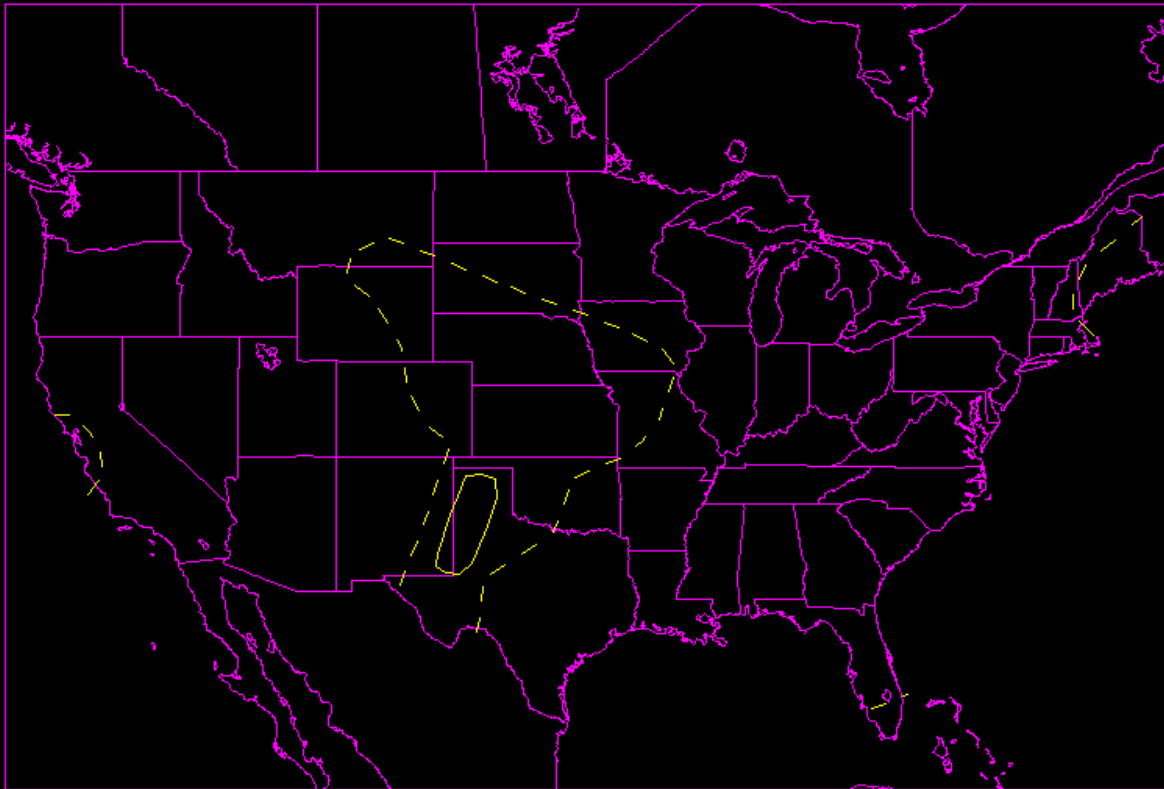
# McIDAS-XRD 2006

- ROADMAP
- WUUS

# ROADMAP



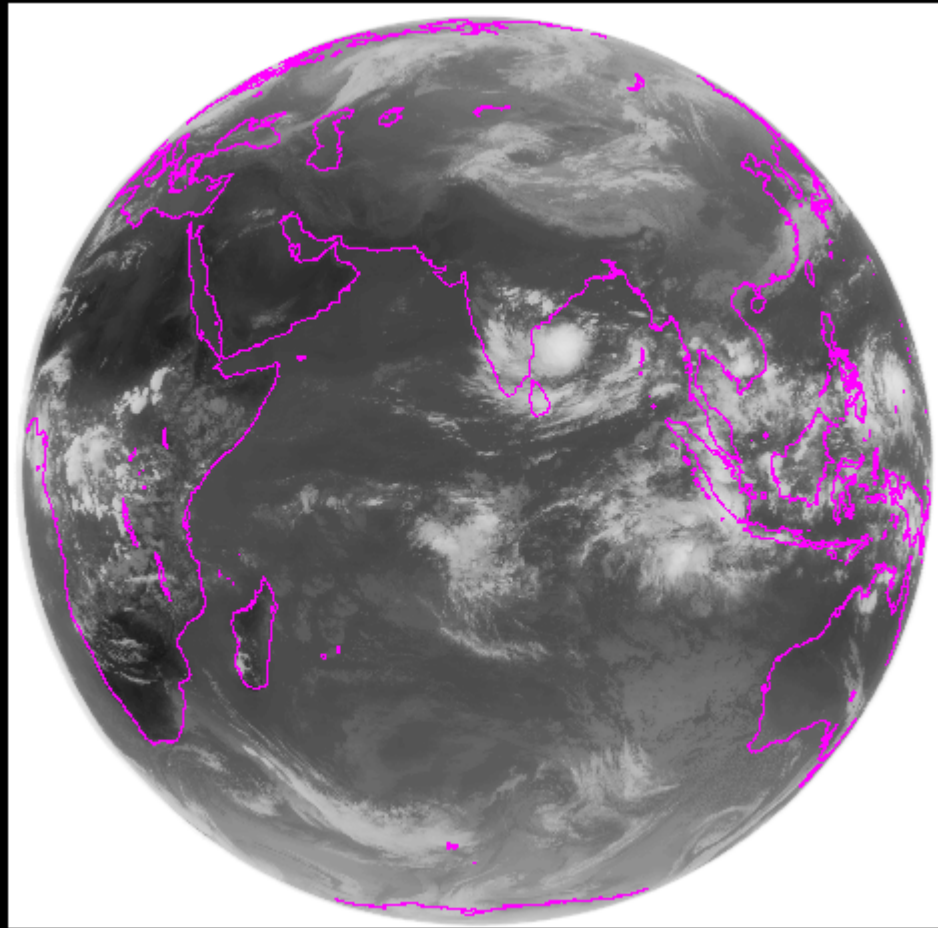
# WUUS



# McIDAS-XRD 2006

- Kalpana navigation and calibration
- MODIS MOD03 server
- Hurricane plot utilities

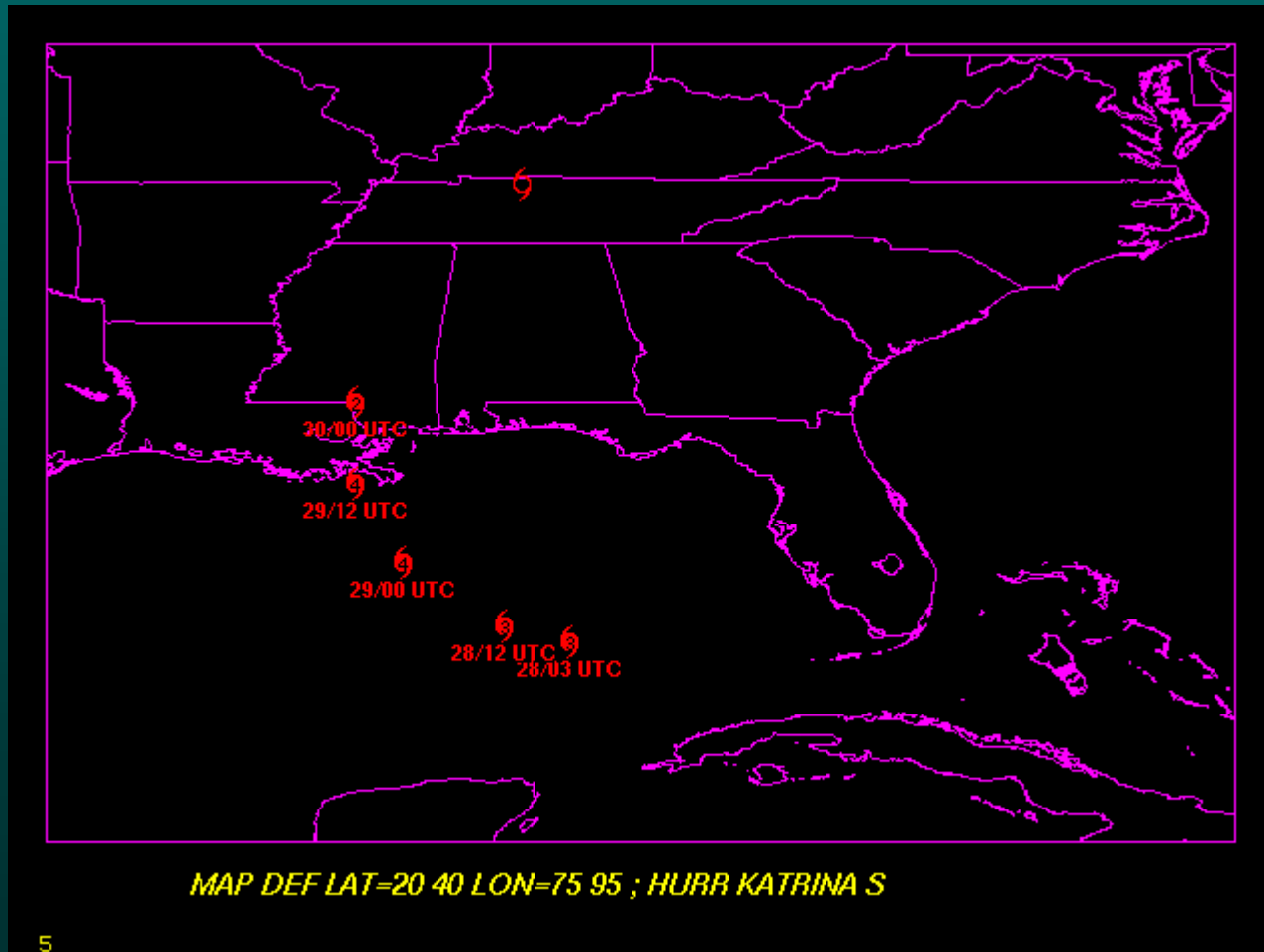
# Kalpana



# MODIS MOD03 Server

- MOD03 contains geolocation information:
  - Latitude and longitude for every 1km pixel
  - Sensor zenith and azimuth angles
  - Solar zenith and azimuth angles
  - Land/sea mask
  - Used with IMGBOWTIE command

# Hurricane Plots

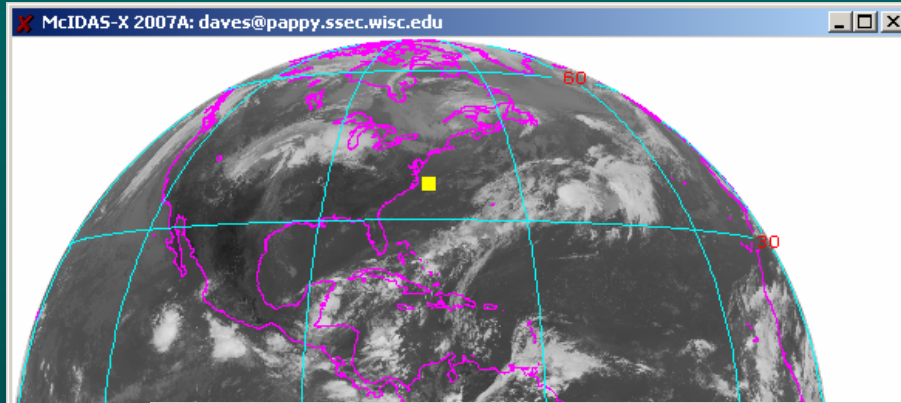




# McIDAS-XRD 2007

- Angles
- Servers
  - AIRS
  - MODIS NDVI
- US railroads and highways; others

# Angles



McIDAS-X 2007A: daves@pappy.ssec.wisc.edu

```
25 0025 G-
```

```
IMGDISP EASTL/CONUS.-1 TIME=17:45 MAG=-5 -9 BAND=4
Beginning Image Data transfer, bytes= 316016
IMGDISP: loaded frame 25
IMGDISP: done
MAP X X LALO
MAP: Completed frame 25
ANGLES
```

Frame	Latitude	Longitude	Tvline	Tvelem	Line	Elem	SatAngle	SolarAngle	RelAngle
25	35:31:17	074:08:27	95	270	4325	15561	41.05	45.13	20.23

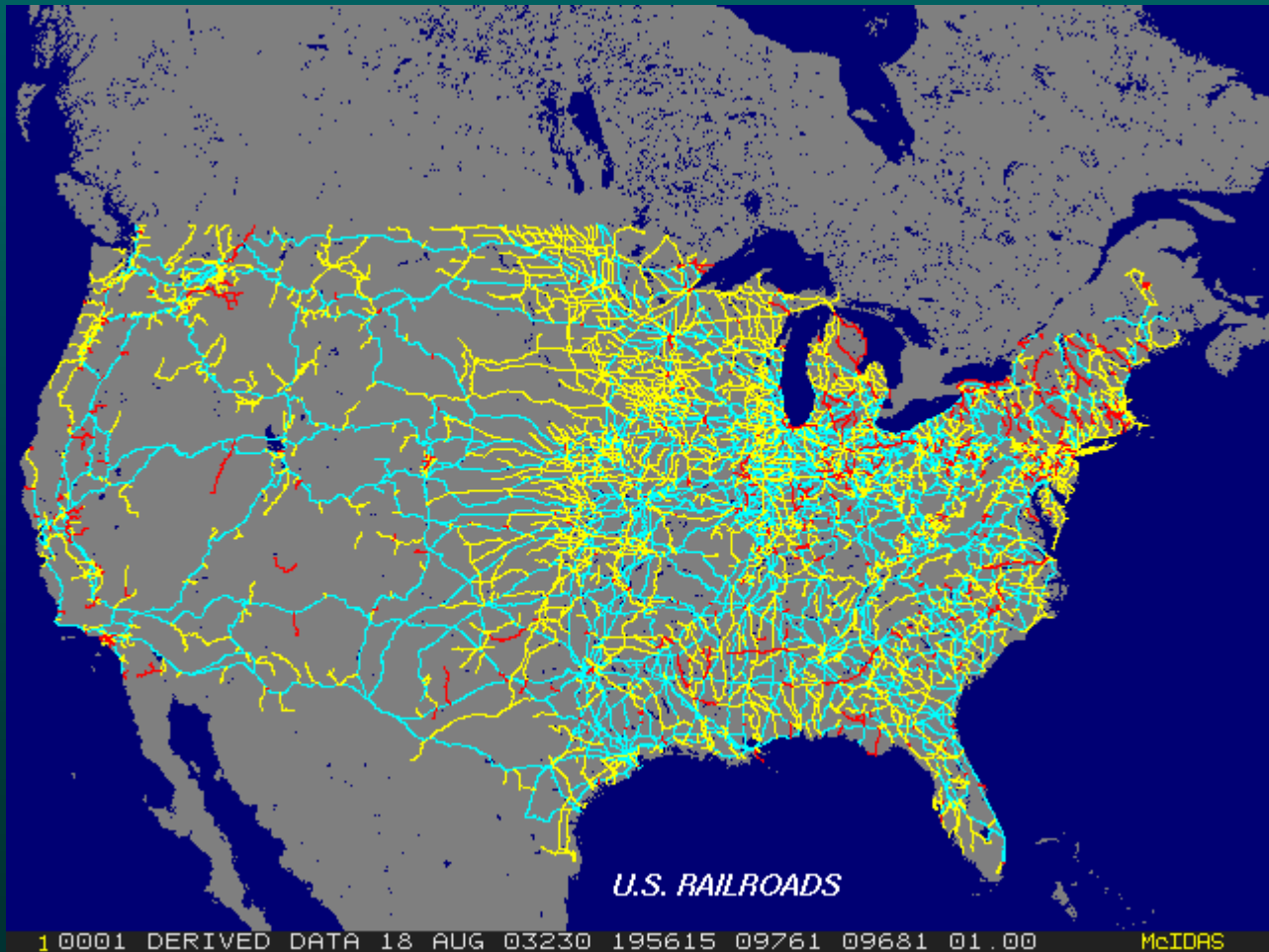
```
IMA GRA Bounds Switches
25 25 random
```

Date	Time	T
15 Oct 2007	288 19:21:24	0

# Servers

- AIRS: 2378 channel IR sounder on Aqua
- Normalized Difference Vegetation Index (NDVI) product from MODIS

# Railroads



# Tectonic Plates

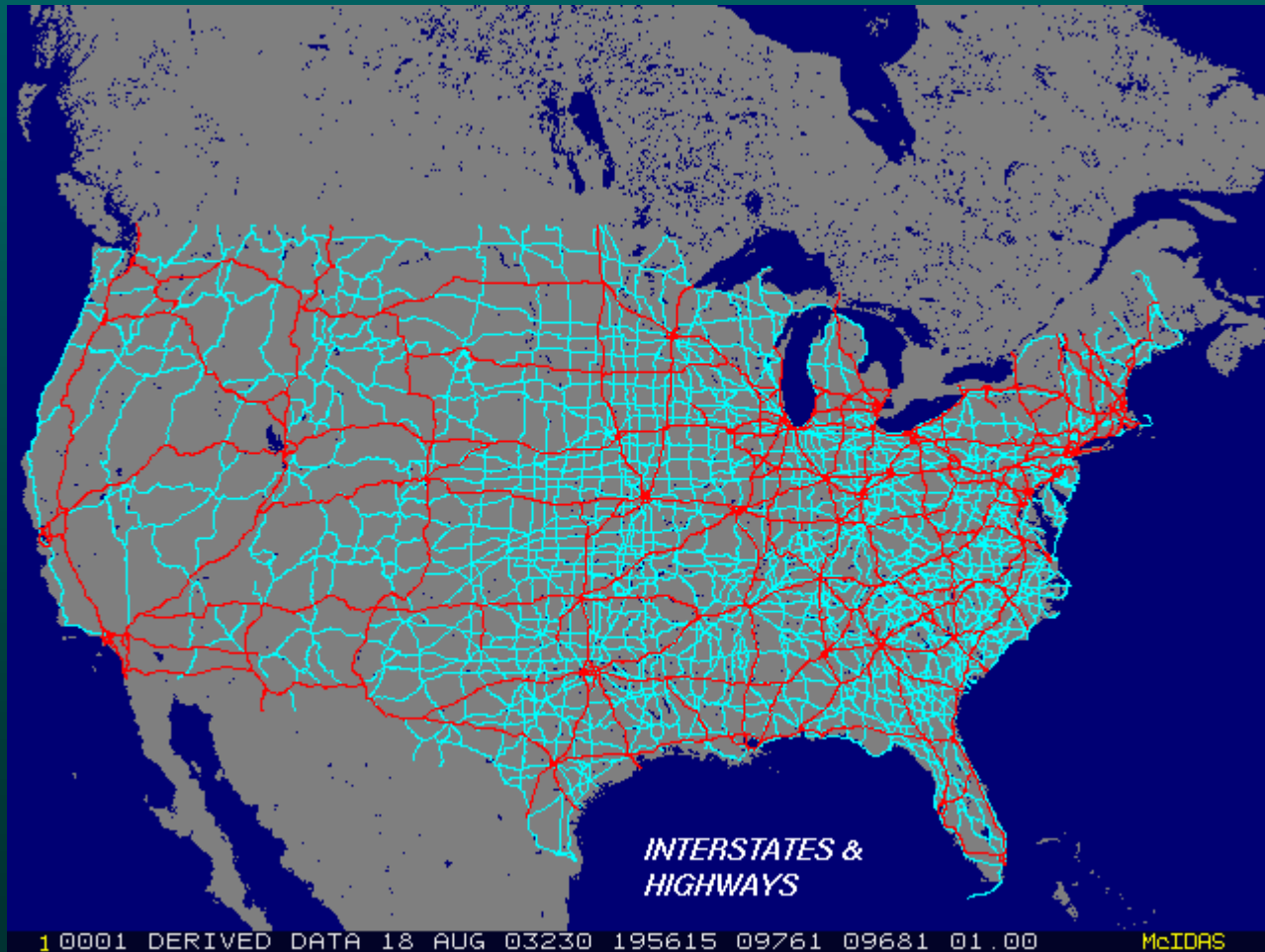


*TECTONIC PLATES*

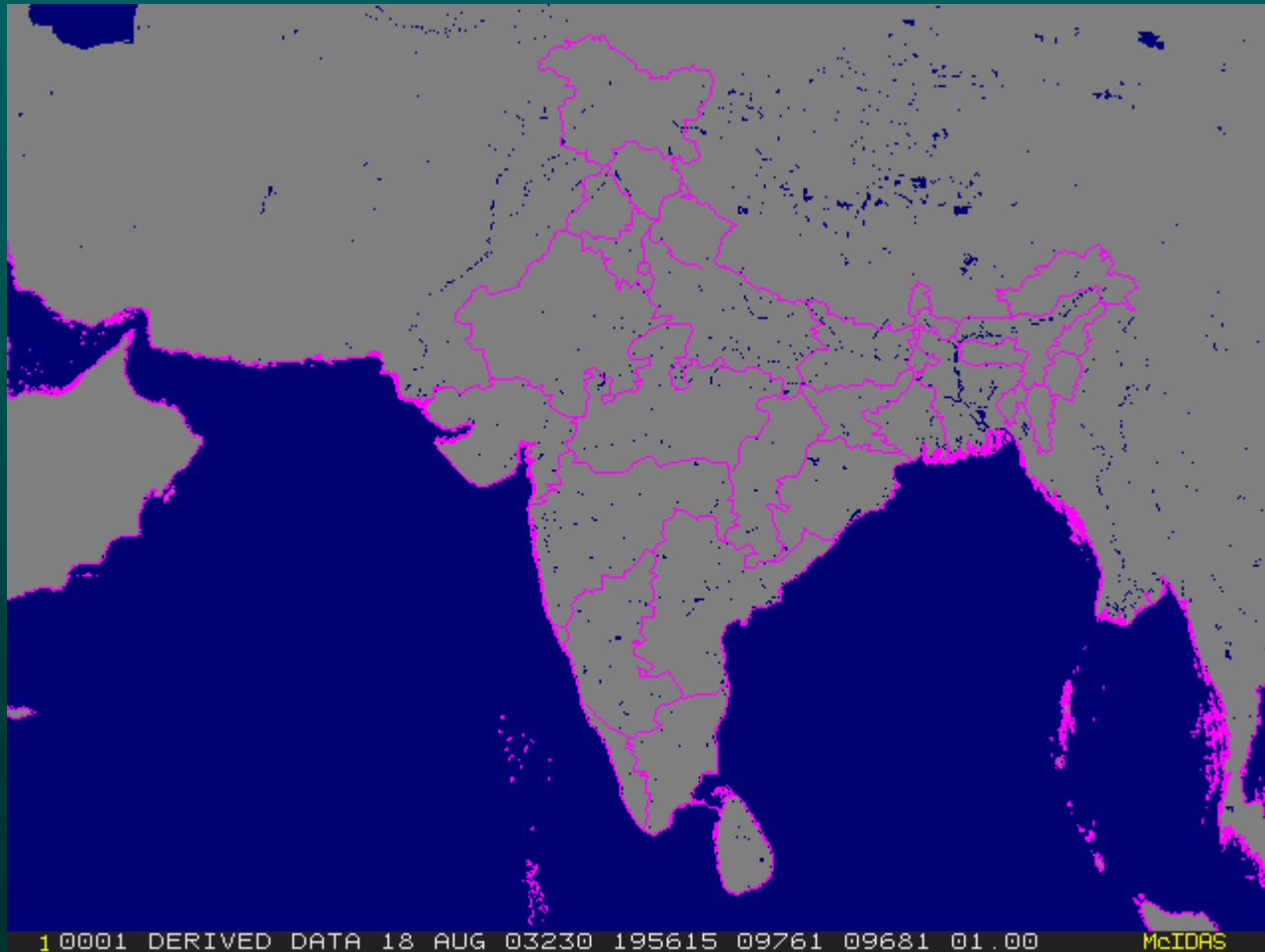
# Rivers



# Interstates and Highways



# India Political Boundaries

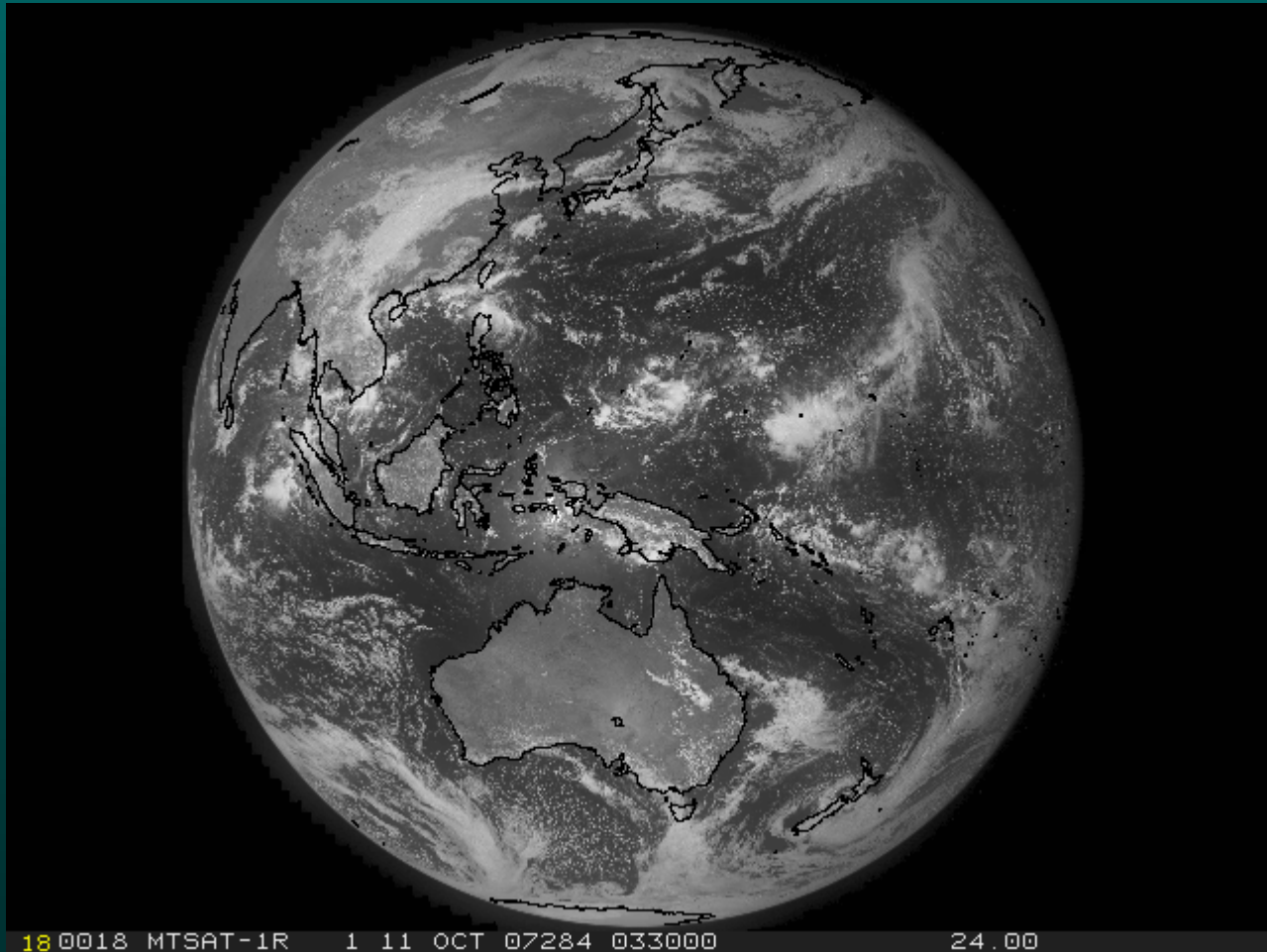




# Software Plans for 2008

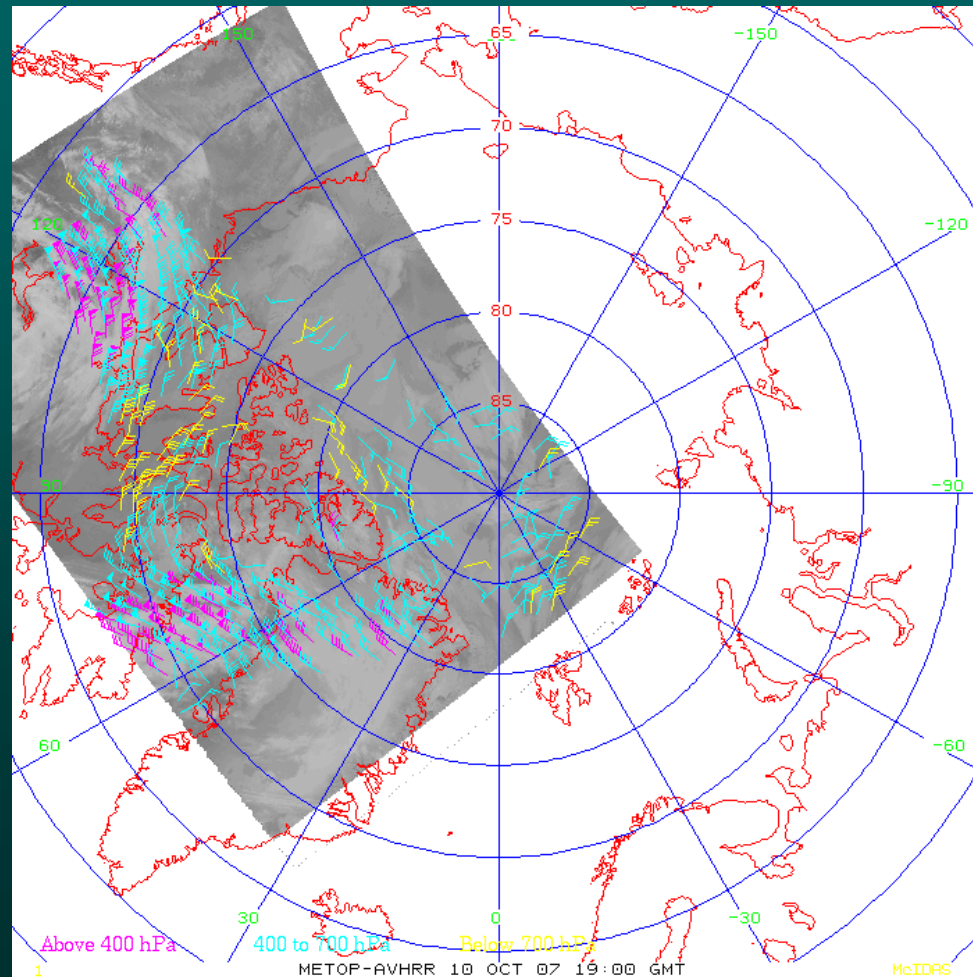
- MTSAT HRIT (Fastrack)
- MetOp Level 1b AVHRR FRAC
- IMGBOWTIE
- BUFR server
- AWIPS server
- GeoTIFF updates
- GOES-R (ABI navigation and calibration)

# MTSAT HRIT



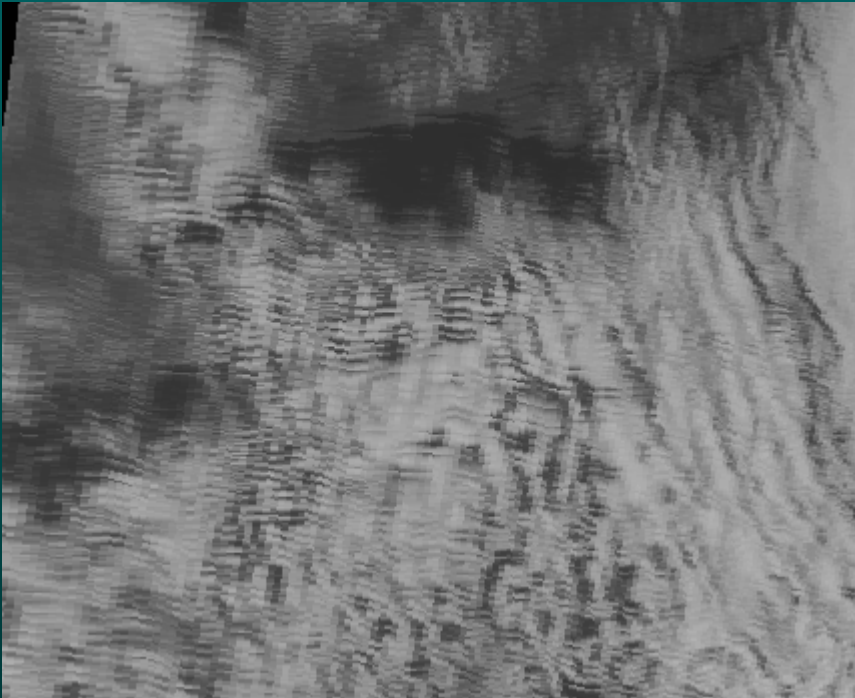
# MetOp FRAC

(with satellite winds)

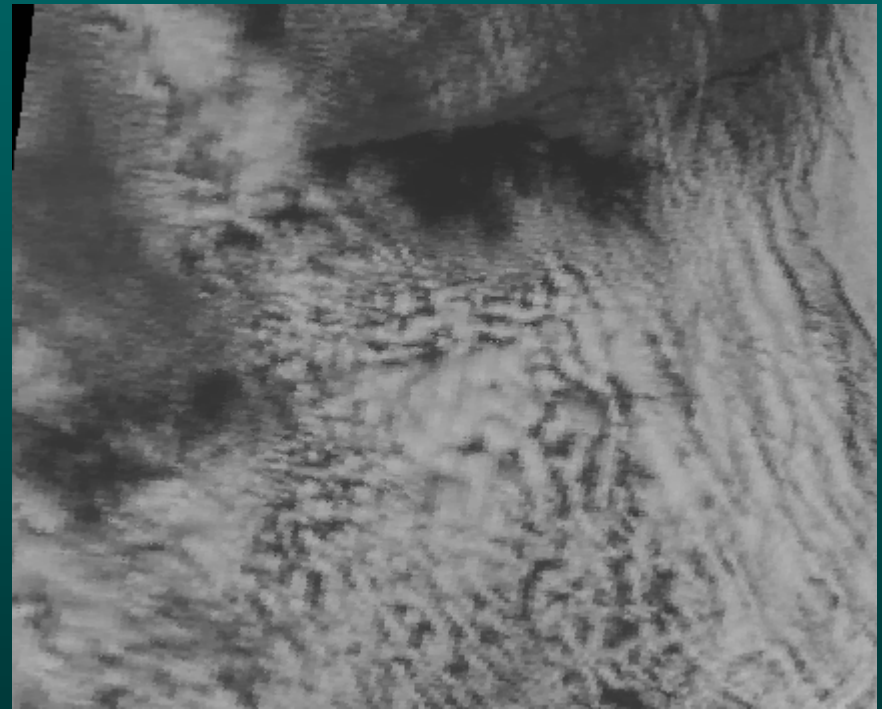


# IMGBOWTIE

(correction for MODIS scanning)

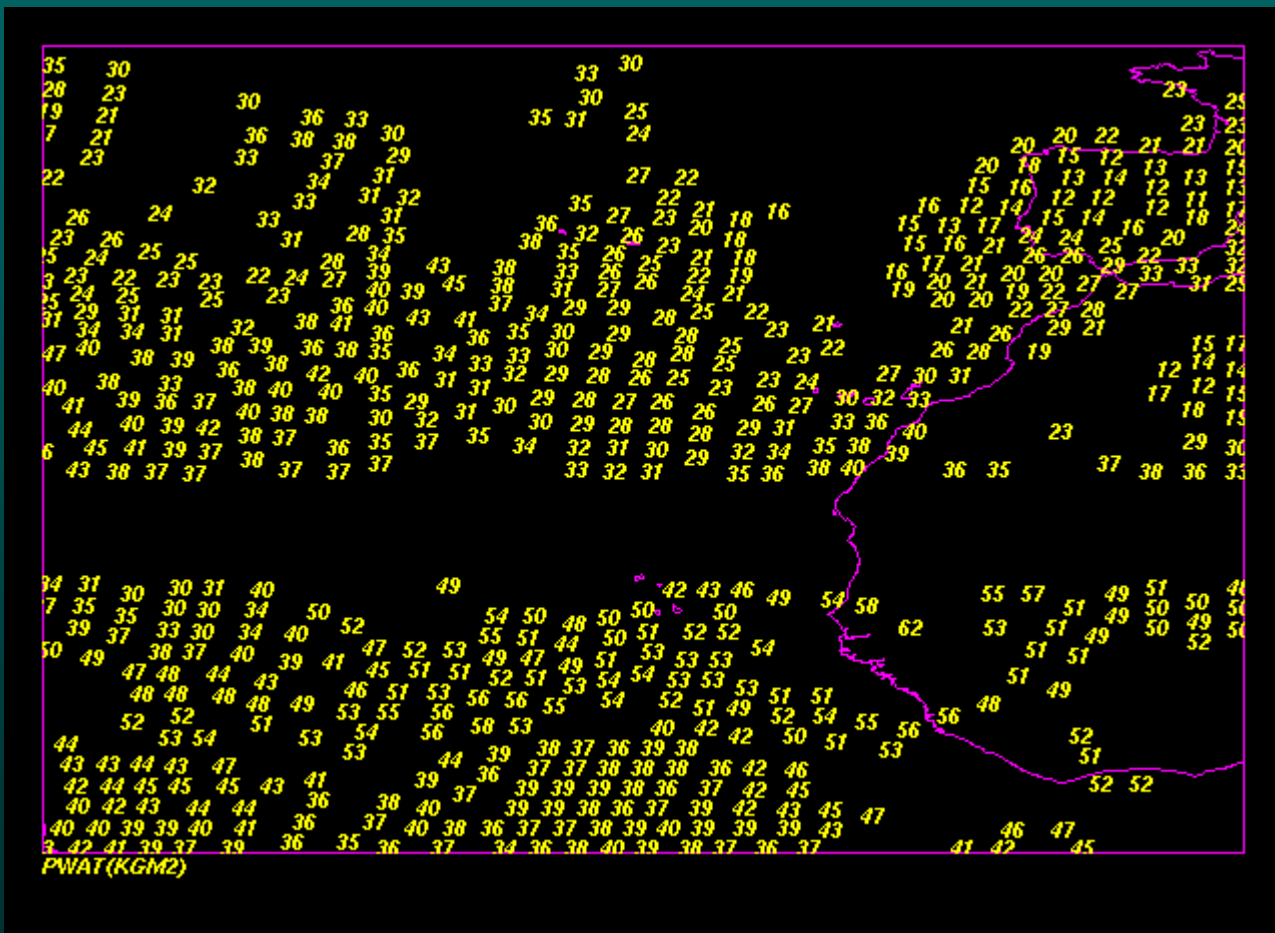


IMGREMAP



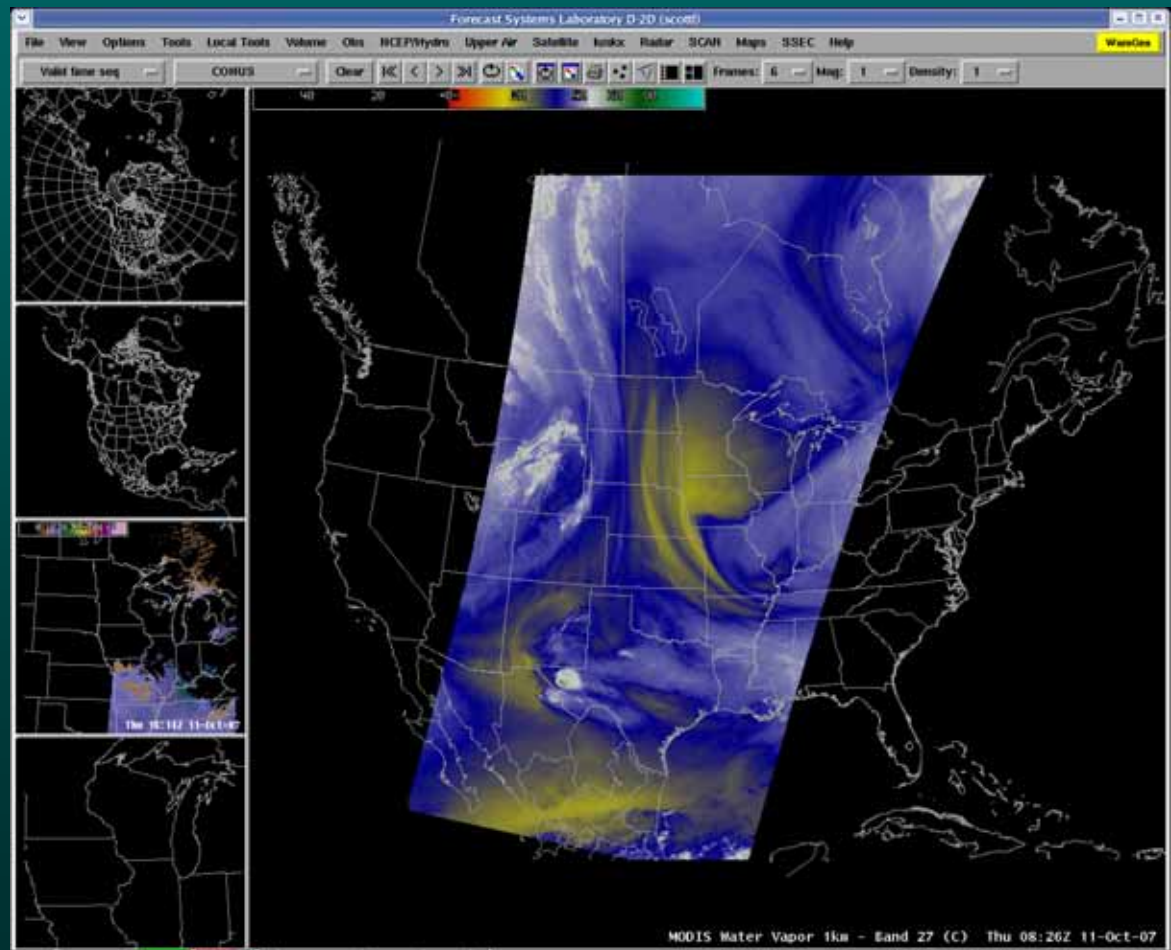
Bow tie corrected

# BUFR Server



# AWIPS Server

- ADDE server writes out AWIPS-compatible netCDF files
- Products used throughout the NWS regions
- Capability first developed at MSFC



# GeoTIFF update (Web Map Service)

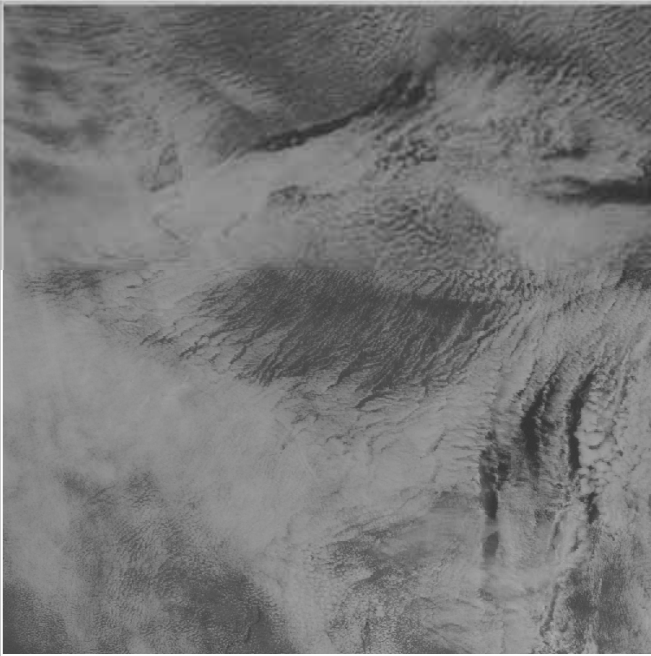
Wisconsin GOES-12 Oct 11, 2007 - Mozilla Firefox

http://speedy.arsc.wisc.edu/cgi-bin/mapserver/?map=%2Fvar%2Fwww%2Ffiles%2FSEC\_test%2Ftest\_goes.map&layer=023\_CHANNEL\_1&zoom=11

Wisconsin GOES-12 Oct 11, 2007

### Wisconsin GOES Satellite Image

GOES-12 Oct 11, 2007 [web\_wms\_test]



Counties  
 Visible Band 1  
 IR Band 2  
 IR Band 3  
 IR Band 4  
 IR Band 6  
Update  
Reset

Zoom In | Re-Center | Zoom Out

Information about the displayed Bands:  
Visible Channel 1 from GOES-12. 0.65 micron Central Wavelength, ~1 KM Native Resolution. Primary Uses: Visible cloud and surface features.

Done

# GOES-R

- Advanced Baseline Imager (ABI) navigation and calibration modules
- Being used with simulated data



# McIDAS-Lite and OpenADDE Status

- Added support for Mac OS X Intel
- A version of McIDAS-Lite is included with the International MODIS/AIRS Processing Package (IMAPP) for visualizing MODIS products at Direct Broadcast reception sites.

# PDA Animated Weather (PAW) Status

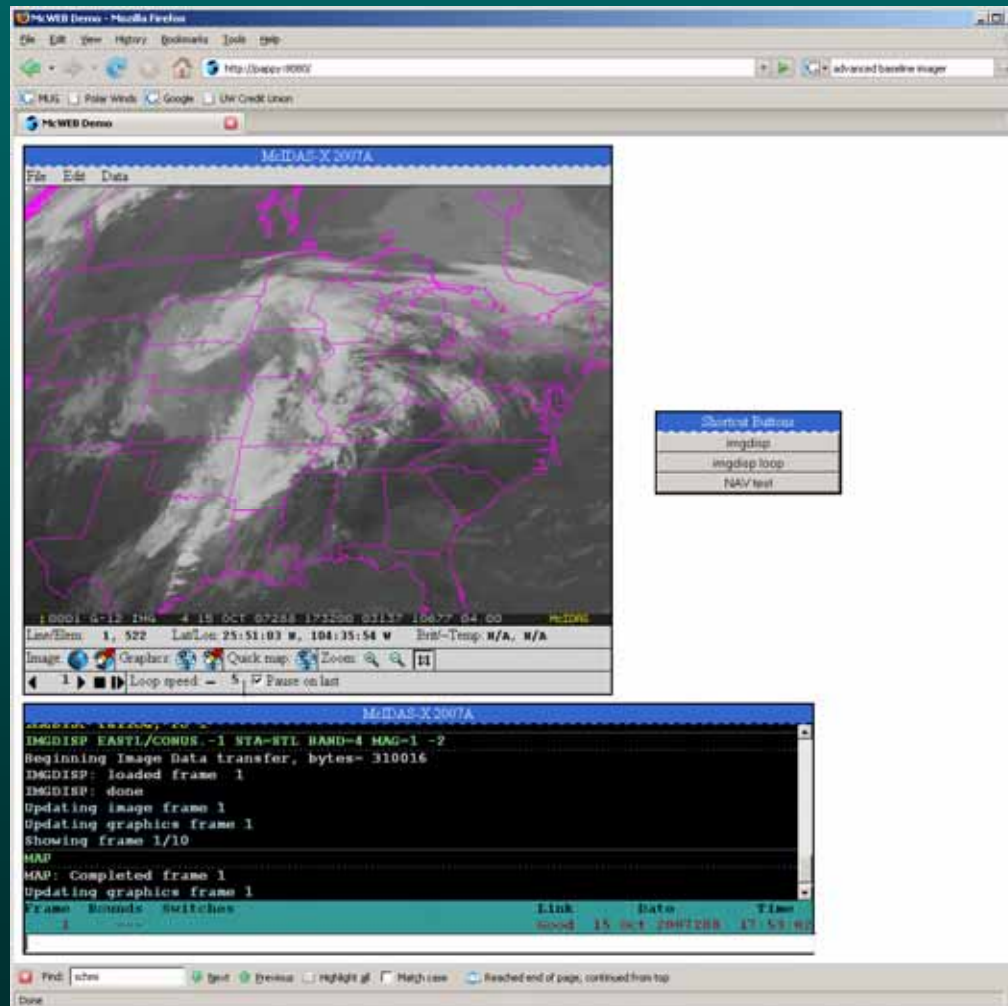
- 5,000,000 hits per month
- Google gadget available



# McIDAS-V Update

- McWeb (via mclisten)
- ADDE Port Number (via mcserv1)

# McWeb



# ADDE Port Number

- `mcservl`
  - Remove requirement for `inetd/xinetd`
  - Remove requirement for root access (to modify configuration files)
  - Allow serving on any port, not just 112
  - Currently limit of 5 concurrent connections