McIDAS-X Software Development and Demonstration

Dave Santek and Jay Heinzelman

25 October 2010

Overview

- McIDAS-X 2009.2, 2010.1
- McIDAS-XRD 2009.2, 2010.1
- Software development and plans for version 2010.2 and beyond…

McIDAS-X 2009.2 and 2010.1

- NetCDF compliancy
- MSG, MTSAT, and ABI updates
- MODIS bowtie correction
- Level 1b server and NOAA-19 updates
- IMGCOPY with DOC= changes
- McIDAS-XCD updates

NetCDF Files

- NetCDF ADDE write server conforms to the Climate and Forecast (CF) Metadata Convention
  - IMGCOPY with CF=YES is the default
  - Files can be used with McIDAS-V
- Negative values are written correctly

MSG

- Navigation module
  - Transform was not invertible
  - Upper-left coordinate for full disk IR is 3,3
 - Client and server change needed
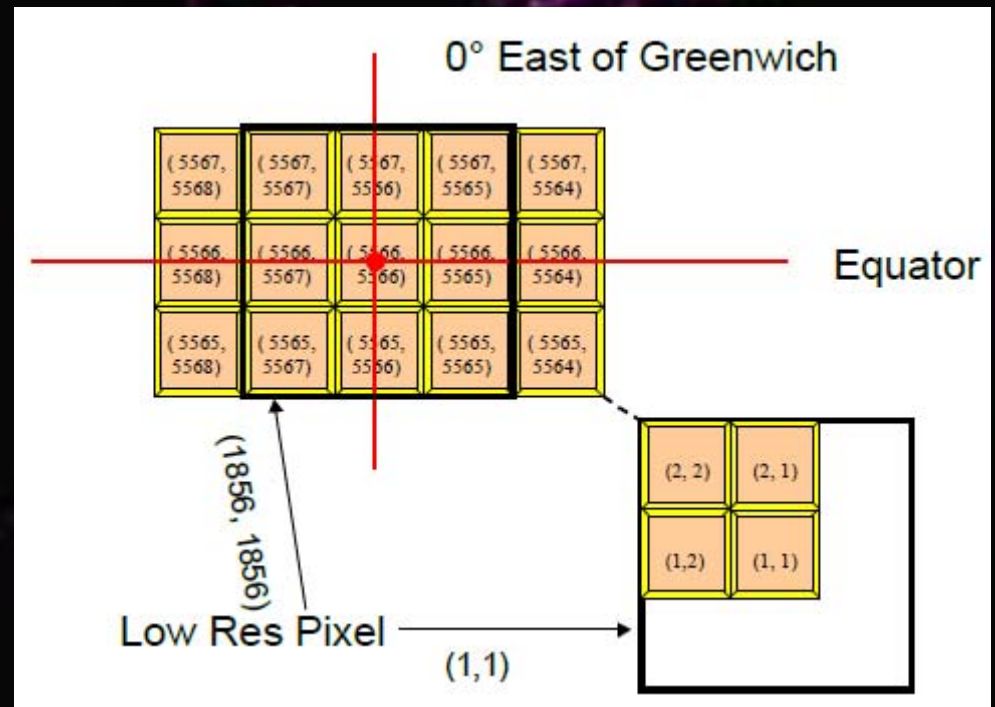
From EUMESAT:
pdf_ten_05105_msg_img_data.pdf

MTSAT

- Differentiate between MTSAT-1R and -2. It is not in the data stream!

- Server updated to handle rapid scan segments.

- Corrected equation that converts counts to albedo.

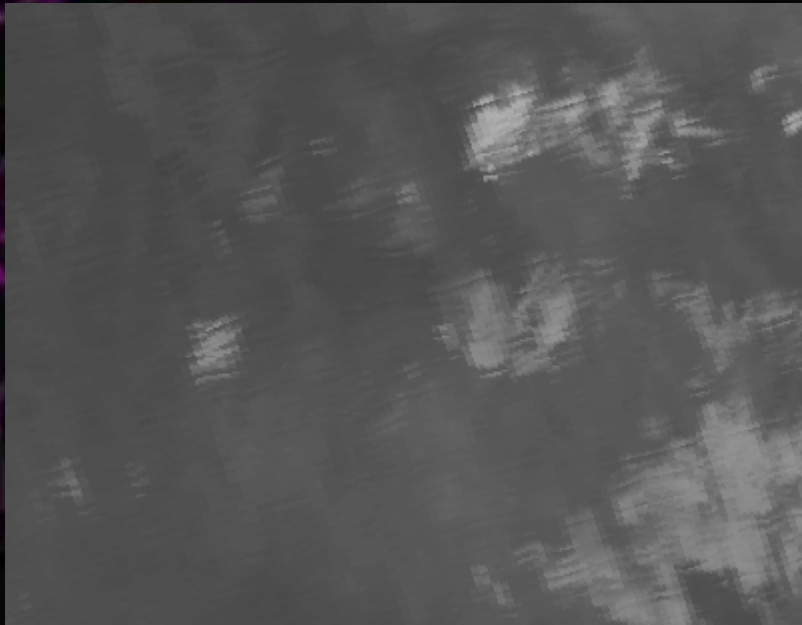- Now has ability to read HRIT files on AIX.

ABI

- Calibration
  - Bands 1-6 reflectance
  - Bands 7-16 infrared
- Navigation
  - Correct to make transform invertible
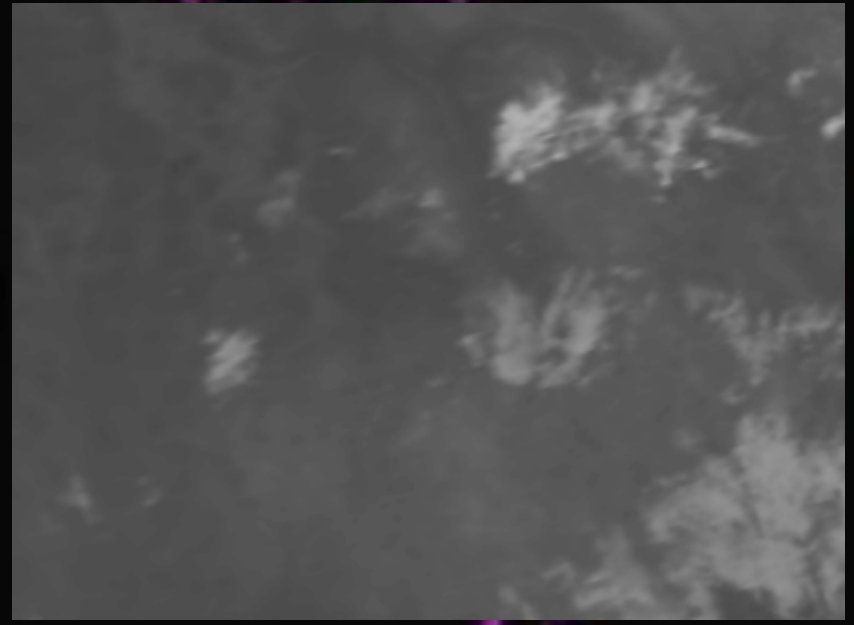 - Added solar and satellite zenith angles
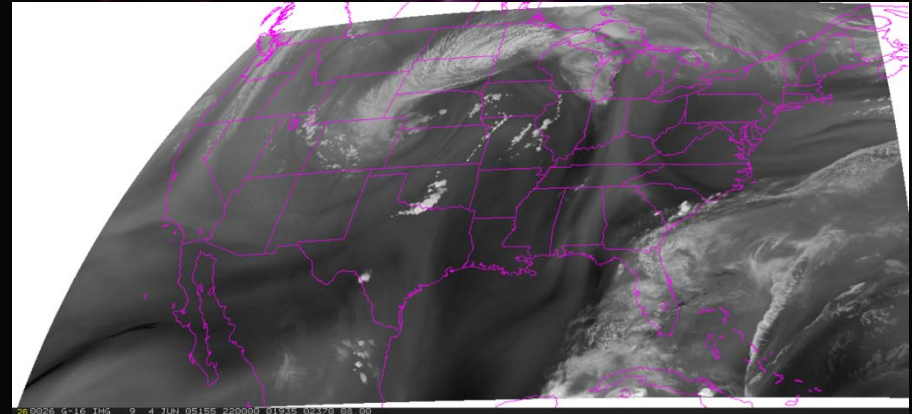
Bow Tie Correction

(correction for MODIS scanning using MRTswath)

IMGREMAP

Bow tie corrected

POES

- NOAA-19
  - Apply non-linear radiance correction
- Level 1b server
  - Correctly return raw values on 64-bit workstations
  - Updates for NOAA-19

IMGCOPY with DOC=

- DOC=NO and SIZE=SAME are no longer a valid keyword combination

- SIZE=SAME always includes image documentation

- STYPE=VISR includes the doc if DOC=YES or SIZE=SAME is specified

McIDAS-XCD

- Recognize FLDC and TRAN GRIB2 parameters
- Add oil platform locations
- Correct navigation for some GFS and ECMWF grids
- Correct filing of potential vorticity on sigma levels for 1 degree GFS grids

Software Plans for 2010.2 and beyond….

- Radar

- Kalpana updates

- IMGPROBE enhancements

- Real-time tracking

- Access pre-KLM AVHRR Level 1b

- EU TAB expanded listing

- Specify sigma levels with grids

Radar

- NEXRAD dataset going away in December 2010
- Being replaced by WSR and TDWR datasets
  - Higher bit depth and geographic resolution for some products
  - 45 new TDWR sites

Kalpana

- HDF5 ADDE server
- Uses grid of latitude/longitude for navigation
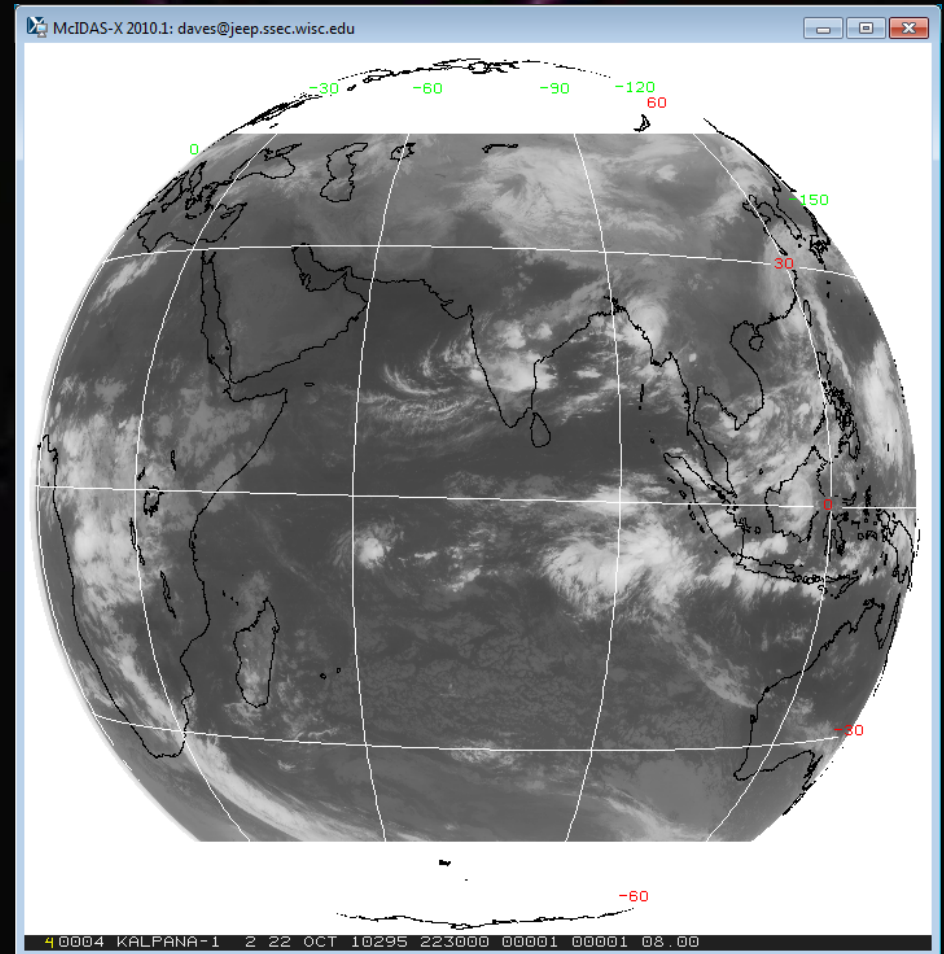
IMGPROBE

- Provide more information from STAT and HIST options

- Corrected scan line time for MTSAT and added for MSG

Real-time Tracking

- Ability to turn off real-time tracking of GVAR and Area files

- At this time, only from McIDAS-V ADDE requests

Pre-KLM AVHRR Level 1b

NOAA-11
3 January 1989

23   NOAA-11 11.0 UM 3 JAN 89 08:10:07 UTC

EU TAB expanded listing

Sigma Levels with Grids

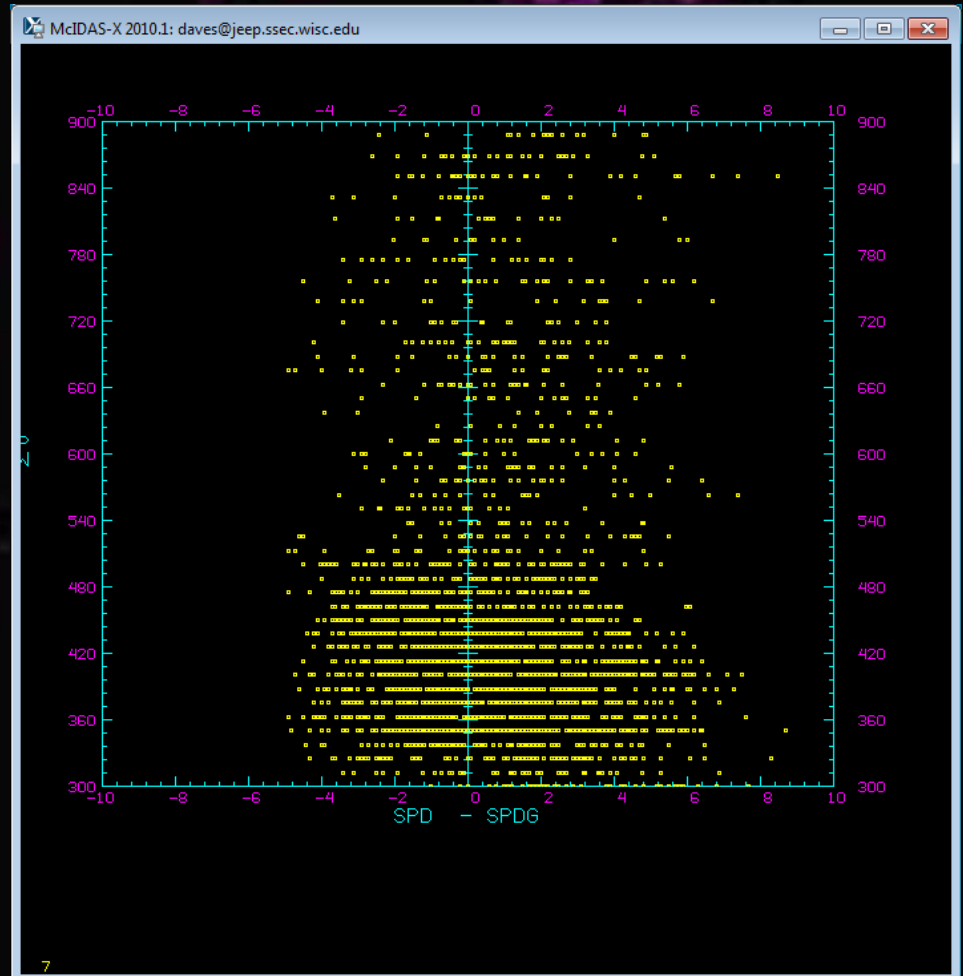# McIDAS-XRD
Current and Future

- IMGCOMBO
- MDSCAT
- IMGPARM
- COMP_ALLBAND
- Canada radar decoder
- TAFLIST
- WWDUMP
- SPOT

IMGCOMBO

- Combine single banded Area files into one multi-banded file
- This has only been tested with a limited number of cases

MDSCAT

- Scatter plot of two MD file variables

- Simple math operations

- Any of the parameters can be used as selection criteria

IMGPARM

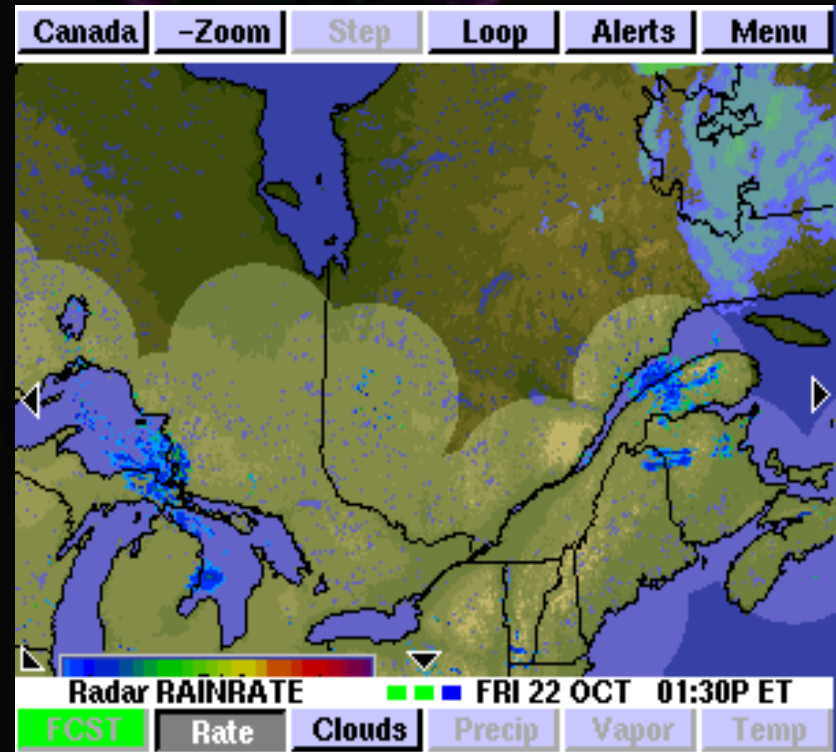Multi-banded file containing quantities at each pixel:

1. Gray scale values
2. Time difference from a nominal time (sec)
3. Distance from satellite subpoint (km)
4. Pixel area (km*km)
5. Satellite Sensor (SS)
6. Wavelength
7. Parallax distance (km*10)
8. Parallax direction (degrees)

COMP_ALLBAND

- Composite satellite image of the highest resolution pixels
- Retains all eight bands from IMGPARM

Canada Radar Decoder

- Decode text data on the ldm

- Converted to McIDAS Area format served via ADDE

TAFLIST

- Decodes Terminal Aerodrome Forecast (TAF)

- Graphical depiction of expected conditions

WWDUMP

- Decode severe weather watches and warnings

- Text output converted to shape files

l: Thunderstorm Warning
t: 2
c: -999
j: 2010295
d: 2010/10/22 13:52:00
d: 2010/10/22 14:30:00
a: 2010/10/22 13:52:00
h: 38
s: 13
{
o: 34.9600 -98.0700
}
{
p: 34.9200 -98.2000
p: 35.3300 -97.9700
p: 35.1400 -97.6700
p: 34.8400 -98.0800
p: 34.9200 -98.2000
}
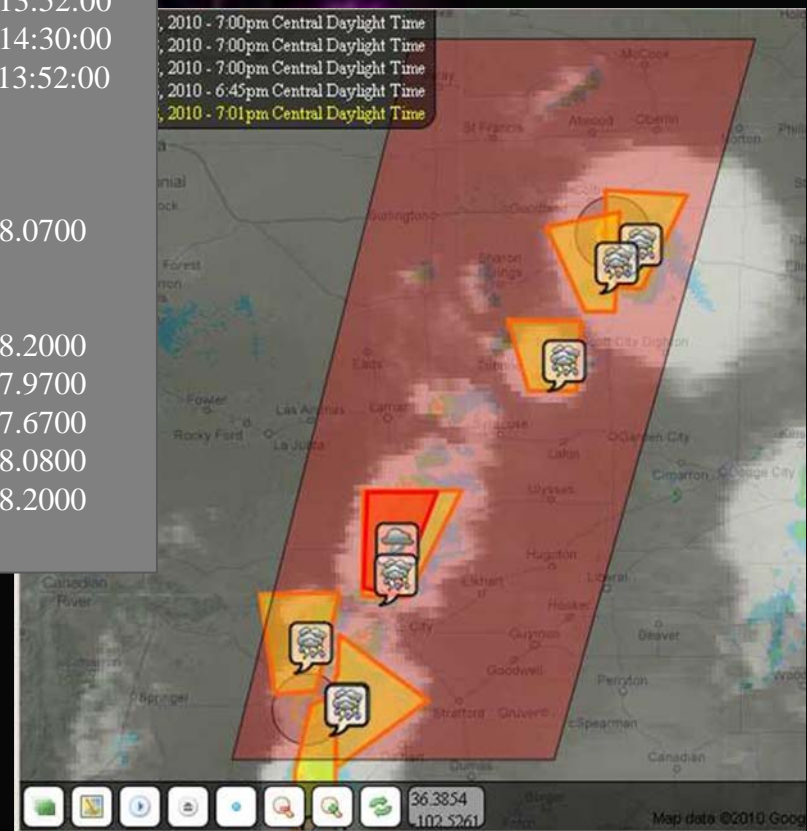
SPOT
Automatically locate and circle sparse pixels values