Why you need McIDAS-V

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Introduction

• What is McIDAS-V?
• Why I want it?
• Why you will want it!
What is McIDAS-V

McIDAS-X → VisAD + IDV + HYDRA = McIDAS-V
VisAD
Developer: Bill Hibbard, UW SSEC

- Open-source, Java library for building interactive and collaborative visualization and analysis tools
- **Features include:**
  - Powerful mathematical data model that embraces virtually any numerical data set
  - General display model that supports 2- and 3-D displays, multiple data views, direct manipulation
  - Adapters for multiple data formats (netCDF, HDF-5, FITS, HDF-EOS, McIDAS, Vis5D, etc.) and access to remote data servers through HTTP, FTP, DODS/OPeNDAP, and OpenADDE protocols
  - Metadata can be integrated into each data object
What is the IDV?

- Unidata developed, VisAD-based, scientific analysis and visualization library and toolkit
- Open Source, Java™ framework and reference application
- Provides 2- and 3-D displays of geo-scientific data (plus, of course, animations)
- Stand-alone or networked application

http://www.unidata.ucar.edu/idv
What is the HYDRA?

- HYperspectral-view for Development of Research Applications
- Open Source, Java™ framework
- Used in research to visualize, analyze and combine satellite data and products
- Stand-alone or networked application
- Used as an international satellite remote sensing training tool

http://www.ssec.wisc.edu/hydra/
HYDRA enables interrogation of multispectral and hyperspectral fields of data

- Individual pixel location and spectral band measurements can be easily displayed
- Spectral channels can be combined in linear functions and the resulting images displayed
- False color images can be constructed from multiple channel combinations
- Scatter plots of spectral channel combinations can be viewed
- Pixels in images can be found in scatter plots and vice versa
- Transects of measurements can be displayed
- L2 products; e.g. soundings of temperature and moisture as well as spectra from selected pixels can be compared
- Integrated data exploration and analysis between GEO and POLAR observing platforms
McIDAS-V will be a collection of software tools, and networked services and data designed to take advantage of a scalable distributed computing environment to meet user needs

- McIDAS-X
- OPeNDAP / OpenADDE
- Open GIS Consortium
- Database archives
- Cluster computing
Why I want McIDAS-V

• Education
• Research
• Presentations
Why I want McIDAS-V

• Education
  – Ease of use
  – 3-D interaction and overlays
  – Batch processing
  – Free software

• Research

• Presentations
AIRS Cirrus vs Clear Sky Spectra
Why I want McIDAS-V

• Education
• Research
  – New data sets easy to handle
  – Quick data analysis and visualization
  – Batch processing
  – Programming capability
• Presentations
AIDS
MODIS
CALIOP
Cirrus
study
Mt Etna viewed by AIRS
28 Oct 2002

SO2 signal 1284-1345 cm⁻¹
Why I want McIDAS-V

• Education
• Research
• Presentations
  – Publication quality images
Live Presentation
Why you want McIDAS-V

• Training (Education)
• Weather System Analysis (Research)
• Presentations (Presentation)
All McIDAS Functionality
Gartner’s Hype Cycle for McIDAS…

- GARP
- Satellites
- HIS?
- McIDAS-X
Gartner’s Hype Cycle
McIDAS-V…

Visible Now:
- High spectral instruments
- 3-D visualization and interaction

GOES-R
Project Requirements

• Create a powerful and versatile software system for environmental data processing, analysis and visualization
• Support existing and evolving needs of scientific research and algorithm/applications development for new programs
• Support data fusion and algorithm interoperability from existing and future sources
• Continue to fully support McIDAS Users’ Group (MUG) and McIDAS-X functionality as users transition to McIDAS-V
• Support operational users by providing frameworks in McIDAS-V, enabling a natural transition path for research results into operations
• Use system to educate students in remote sensing and physical sciences; involve students in its development, evolution and use
SUMMARY

• I’ll want it....
• You’ll want it...
• Take the workshop on McIDAS-V
  – First hand experience
  – Provide feedback