McIDAS at Johnson Space Center – a 25-Year Evolution or How We Rebuilt the Engine While Driving 60mph

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McIDAS History at JSC

• 1984 – Site survey for JSC MIDDS by UW SSEC
• 1985 – remote McIDAS workstation at JSC to CCAFS
• 1986 – Challenger accident (Rogers Commission recommends increased weather support)
• 1987 – Installation of JSC MIDDS – development of custom applications for Shuttle operations on McIDAS foundation
• 1988 – STS-26 Return to Flight – first operational release of JSC MIDDS (two weeks before launch!)
• 1995 – First Evolution – rehost from IBM 4381 mainframe to distributed HPUX workstations
• 2007 – Second Evolution – rehost from HPUX to RedHat Linux on HP ‘PC’
• 2011 – End of the Shuttle Era – JSC MIDDS?
• 2013 – NEXT Evolution – RHEL 6 and a new network architecture
Spaceflight Meteorology Group – the EARLY Years
McIDAS Emerges at JSC (circa 1985)
McIDAS Emerges at JSC - MIDDS (circa 1987)
McIDAS Emerges at JSC
Spaceflight Meteorology Group – the early 90's
McIDAS at JSC - MIDDSS (circa 1990's)

HPUX Workstation

HPUX W/S Ingestors

HPUX Workstation

HPUX Workstation

Cape Canaveral Air Force Station MIDDSS

Numerous Other External Data Sources

Meteosat

GOES-E

GOES-W

Satellite dish

Satellite dish

Satellite dish
The HPUX Years
McIDAS at JSC - MIDDS (circa 2000's)
The Linux Era
McIDAS at JSC – What did we accomplish?

• Supported 109 Space Shuttle missions with 100% availability

• Supported numerous Soyuz landings from ISS and other NASA programs as requested (MSFC GRIP, UAV lightning, Dryden flight tests, etc)

• Two major ‘evolutions’ – IBM mainframe to distributed HPUX-based network, HPUX to Linux
  – Evolved while maintaining continuous flight support – “rebuilding the engine while driving 60 mph” (and sometimes much faster)

• MANY McIDAS updates – including evolution to McIDAS-X and –XCD

• Supplied McIDAS custom code to all three NASA centers
The End of an ERA
McIDAS at JSC – What’s Next?

- MIDDS into the next generation control center – the MCC21 Project
- EFT-1/EM-1 support
- Commercial Crew support
- Continued support to MSFC and CCAFS MIDDS
JSC MIDDs in the 21st Century
Control Center

Forecaster Workstations –
Windows PC with EOD Client

Mission Control Center

Rack-mount servers

Display Session Server –
EOD server

Data Acquisition Server

Rack-mount GVAR ingestors
Last, but not least!

Our thanks to SSEC.

Without your support the engine would have dropped out a long time ago…