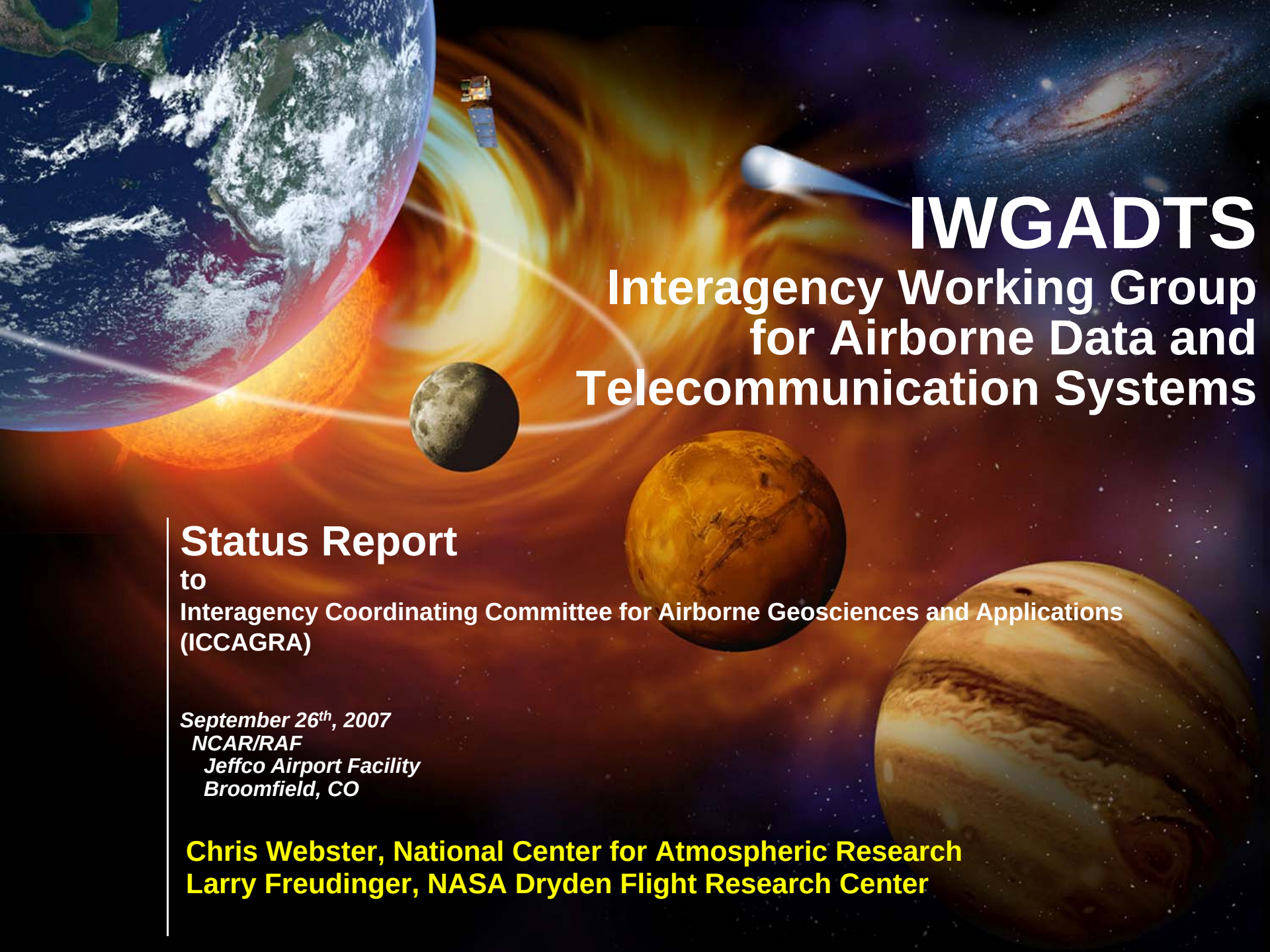


IWGADTS

Interagency Working Group for Airborne Data and Telecommunication Systems

Status Report

to

Interagency Coordinating Committee for Airborne Geosciences and Applications (ICCAGRA)

September 26th, 2007
NCAR/RAF
Jeffco Airport Facility
Broomfield, CO

Chris Webster, National Center for Atmospheric Research
Larry Freudinger, NASA Dryden Flight Research Center

Abstract

The Interagency Coordinating Committee for Airborne Geosciences Research and Applications (ICCAGRA) was established to improve cooperation, foster awareness, facilitate communication among sponsoring agencies having airborne platforms and instruments for research and applications, and serve as a resource to senior level management on airborne geosciences issues. The Interagency Working Group for Airborne Data and Telecommunications Systems (IWGADTS) is organized as a subgroup to ICCAGRA for the purpose of developing recommendations leading to increased interoperability amongst airborne platforms and instrument payloads, to produce increased synergy with DoD research programs with similar goals, and to enable the suborbital layer of the Global Earth Observing System of Systems.

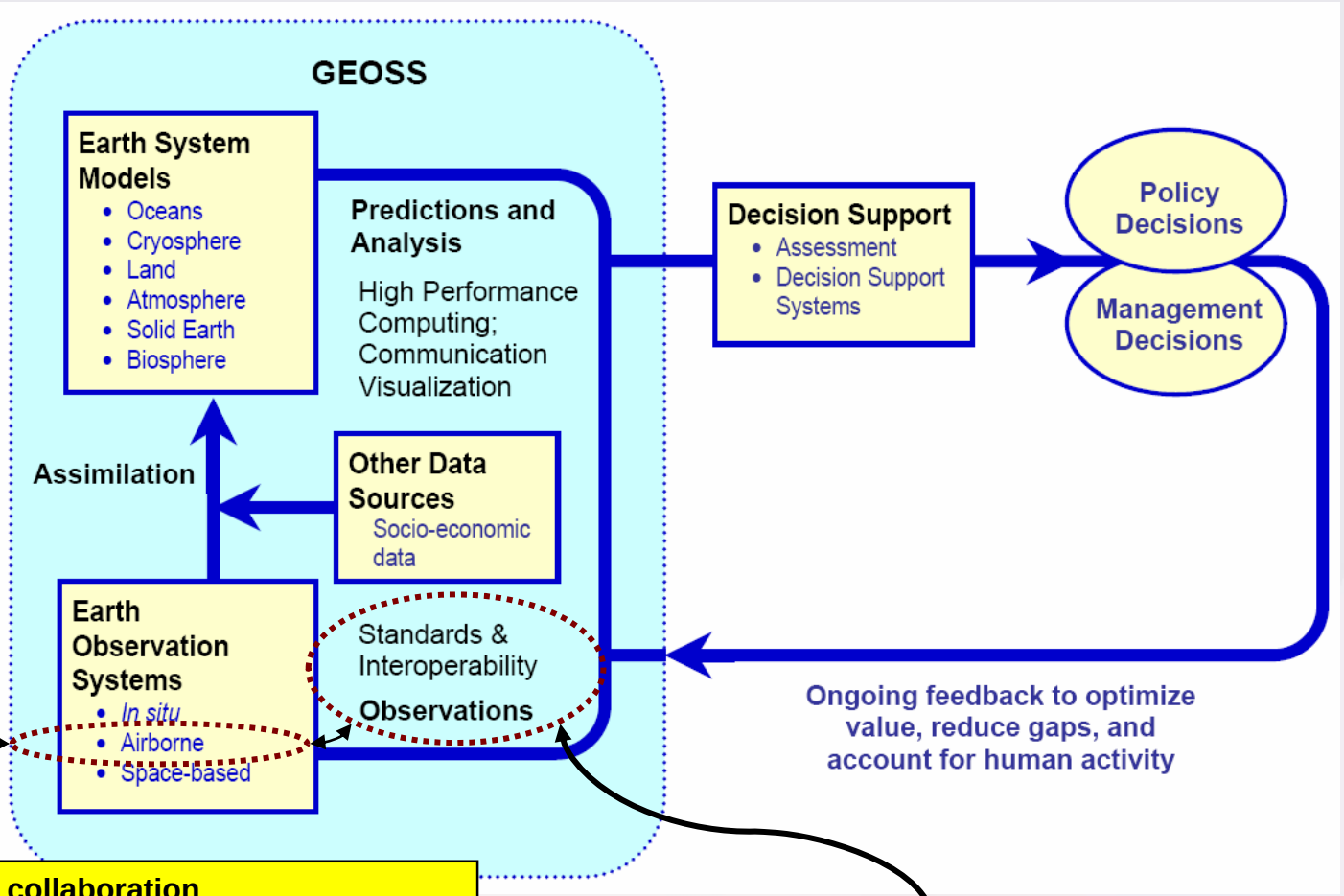
IWGADTS: Background

Background discussion

Future = Layered Sensor Webs

Vision:
Intelligent, Affordable Earth Observation System

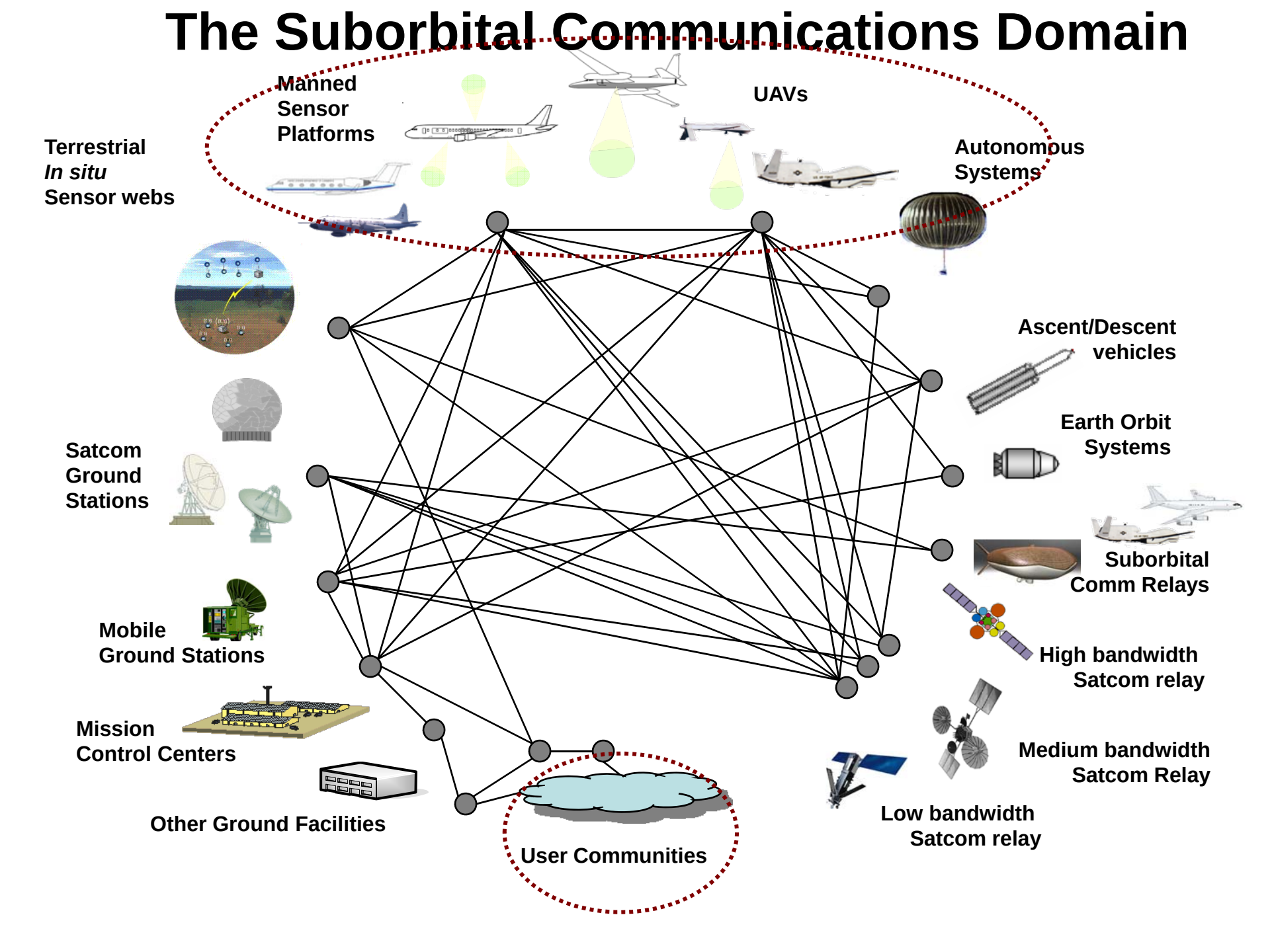
Global Earth Observing System of Systems



- **National/Int'l collaboration**
- **Time correlated global data collection**
- **Integrated metadata**
- **Integrated system analysis**
- **Reliable long term archival**
- **Easy access but secure archive**
- **Near realtime observation**

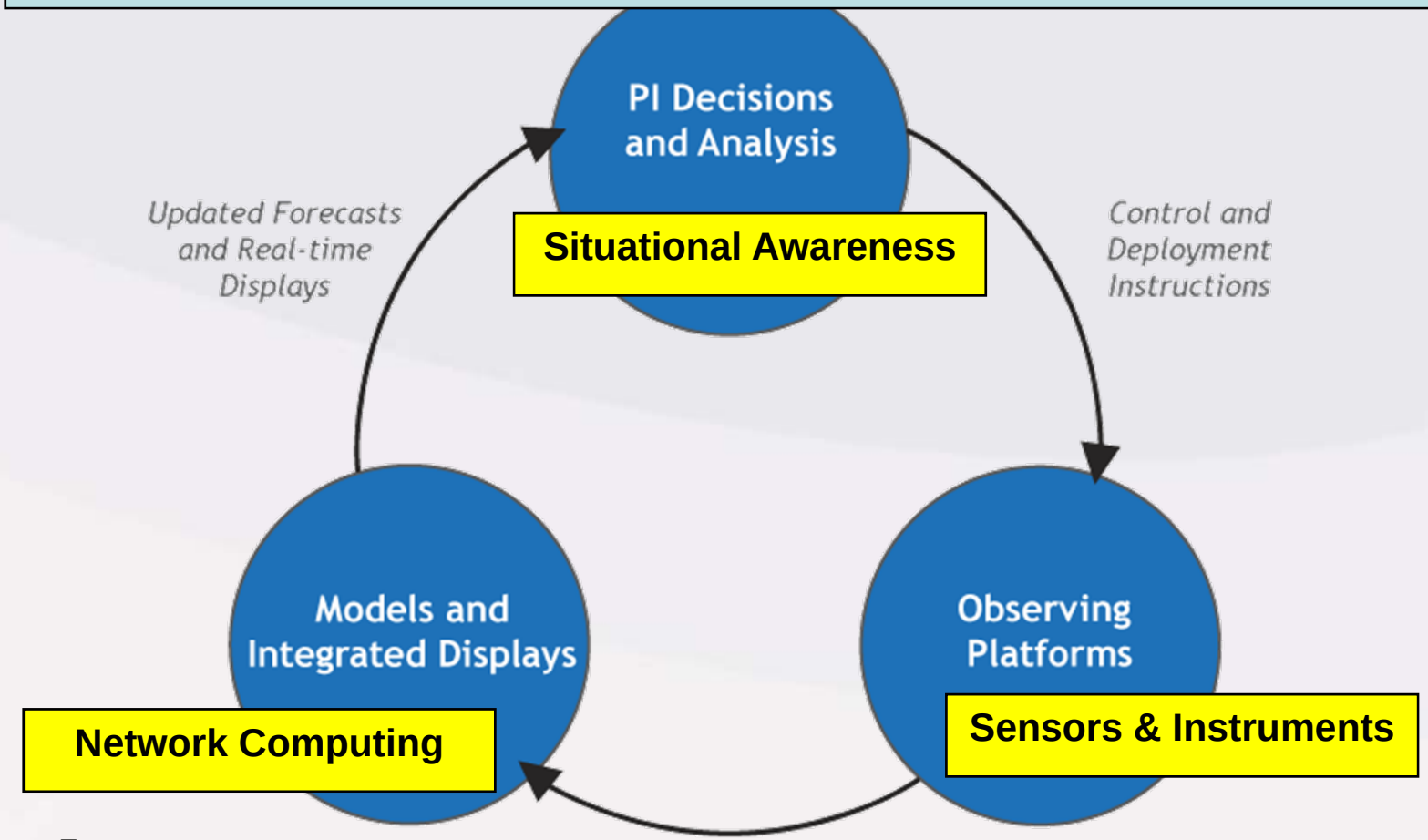
IWGADTS

The Suborbital Communications Domain



IWGADTS: Themes

Goal: make the best possible use of available time…
better capabilities… greater capacity



Credit: NCAR/EOL - Mike Daniels

IWGADTS: Themes

- Help build a suborbital platform fleet that is an effective and sustainable component of emerging Integrated Earth Observation System

- Interoperability occurs over networks; contributions emerge through software interfaces and protocols, not through the hardware systems that generate that information.

- Interactive connectivity between airborne and terrestrial networks. Instrument networks on suborbital platforms evolve toward being observation nodes on a suborbital “sensor web”.

IWGADTS: Charter

Charter Review

IWGADTS: Charter (Purpose)

- **Identify interagency needs** for data and networked systems
- **Improve interoperability** of airborne platforms between agencies
- **Enhance opportunities for interagency sharing** of aircraft resources, airborne instrumentation and data to minimize duplication, and to expand science investigators' access to interagency assets
- **Provide recommendations** to senior level decision makers regarding technical standards
- **Evaluate the current state of interoperability** and recommend, as appropriate, interagency standards to facilitate the development of common data and networking systems leading to a fully interoperable global observing system which includes suborbital and space-based components

IWGADTS: Charter (Administrative)

Membership

- Principal geosciences research aircraft sponsoring agencies (NSF, NOAA, NASA, ONR, DOE, DOI,…)
- Academia & other platform representatives
- Leadership via elected chairman & executive secretary

Meetings & correspondence

- Twice per year
- Inter-meeting communication via *iwgadts@eol.ucar.edu*
- Collaborative ‘Wiki” website

Review the charter every three years (2008)

Participation is voluntary (no direct funding source)

IWGADTS: Progress

Status & Progress discussion

Brief Look @ IWGADTS

2004 – Informal conversation establishes need

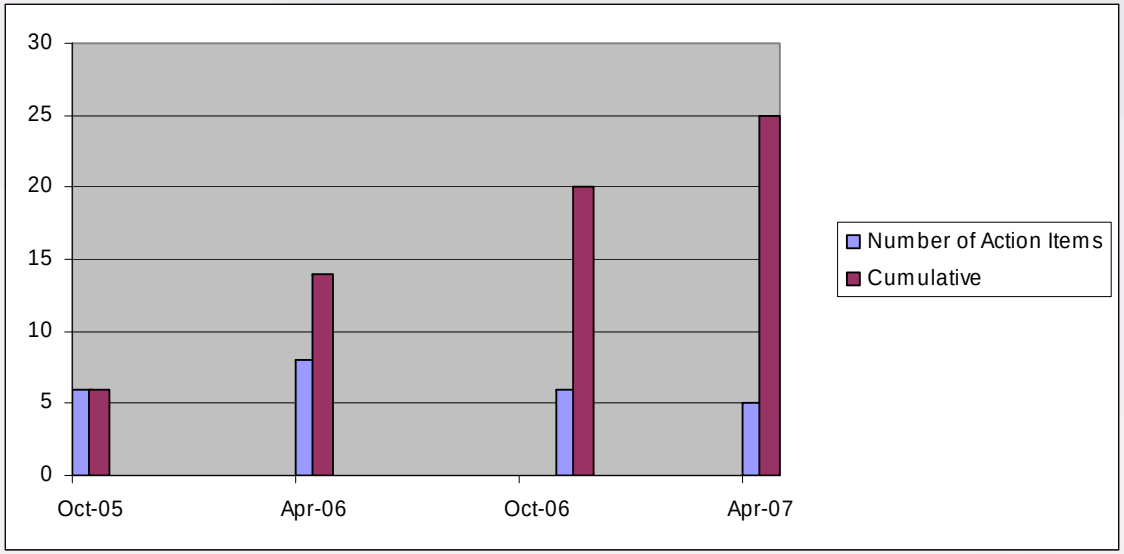
2005 – First meeting; charter; Wiki/Web Presence

2006 – Vision paper; Poster@UNOLS; IWG1 format; Outreach Plan (!); metadata Interoperability discussions

2007 – timing discussions (IRIG-B; IEEE-1588; PPS); NexGenNavRec discussion; updated IWG1 definition

– [planned] 3D models; Web Services discussions; satcom user inputs

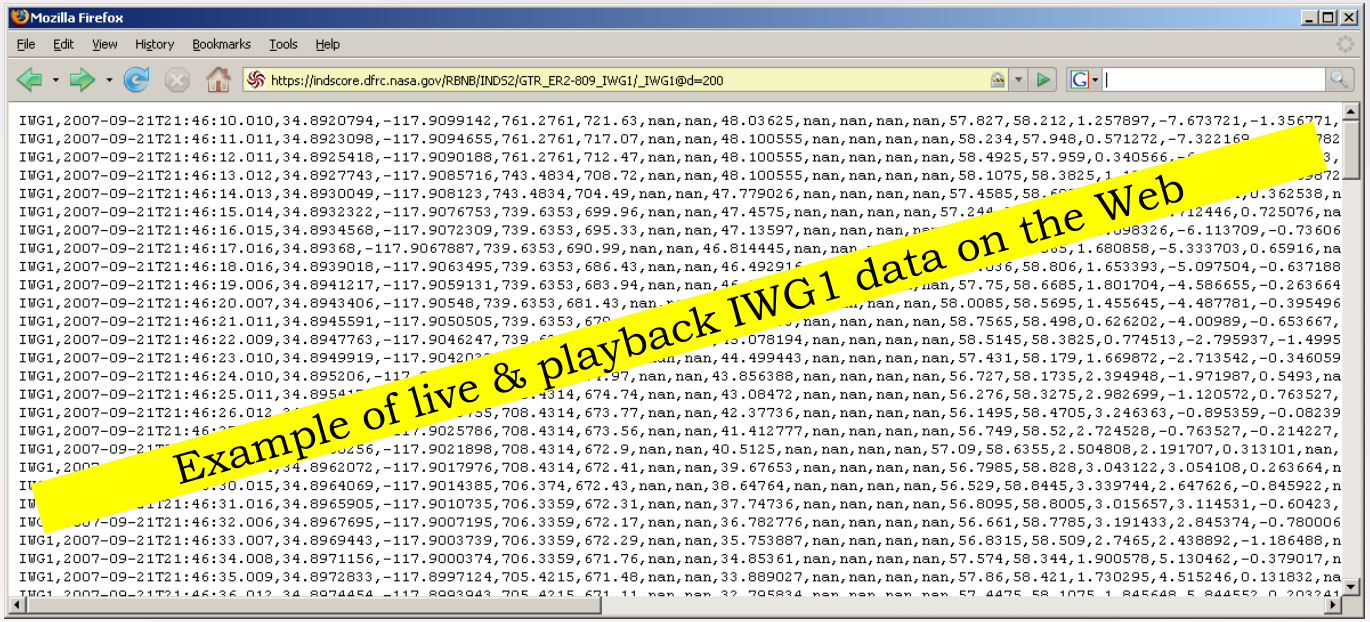
2008 – [planned] First Charter review



Details available at the IWGADTS Wiki site

IWG1 Packet Definition

IWG1,yyyy-mm-ddThh:mm:ss,value,value,……,value,,value\r\n
IWG1,yyyy-mm-ddThh:mm:ss,value,value,……,value,,value\r\n
IWG1,yyyy-mm-ddThh:mm:ss,value,value,……,value,,value\r\n
…
…



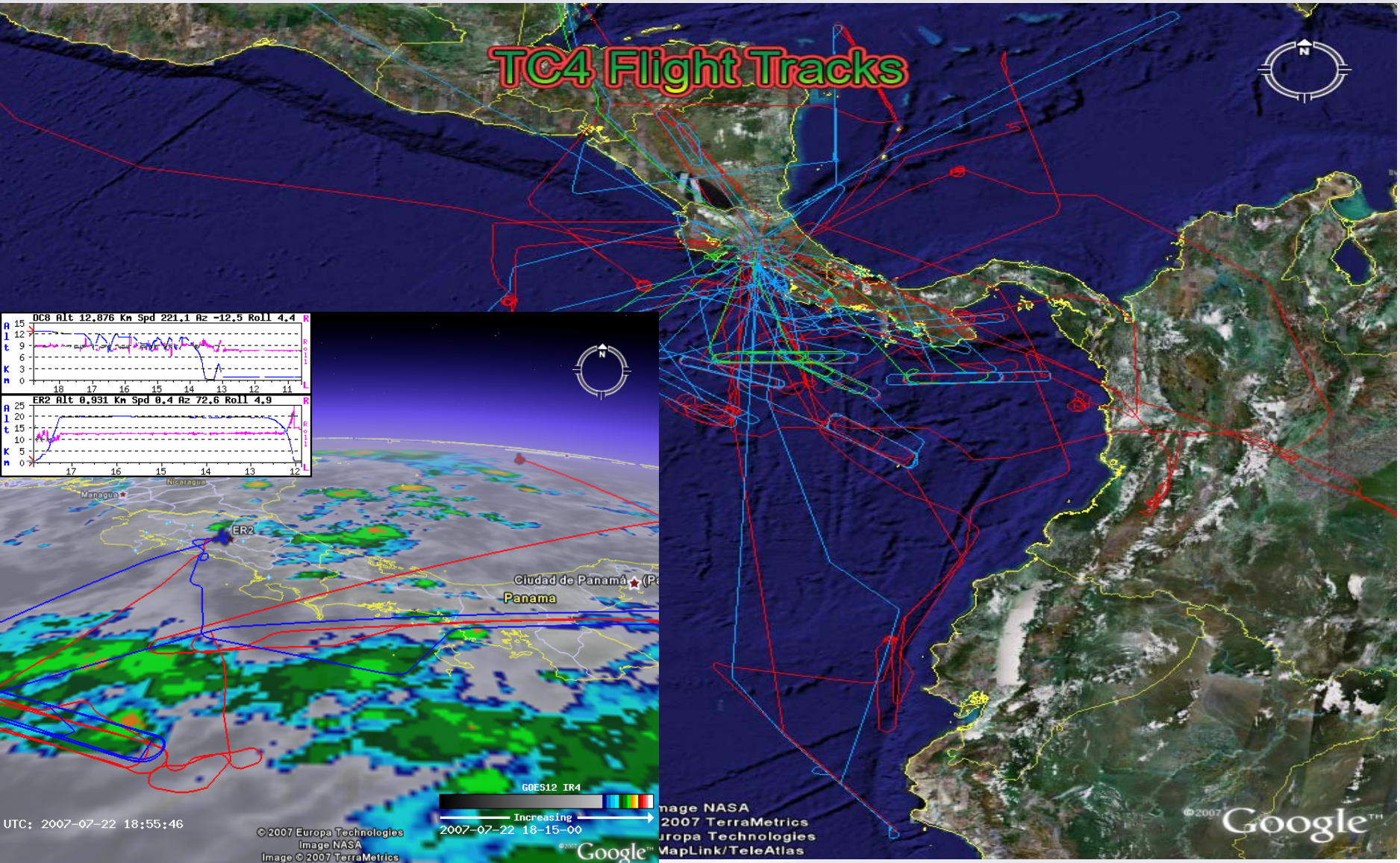
IWG1
Date/Time
Lat (dec deg)
Lon (dec deg)
GPS_MSL_Alt (m)
WGS_84_Altitide (m)
Press_Alt (feet)
Radar_Alt (feet)

Grnd_Spd (m/s)
True_Airspeed (m/s)
Indicated_Airspeed (knots)
Mach_Number
Vert_Velocity (m/s)
True_Hdg (degrees_true)
Track (degrees_true)
Drift (degrees)
Pitch (degrees)
Roll (degrees)
Side_slip(degrees)
Angle_of_Attack (degrees)
Ambient_Temp (degrees_C)
Dew_Point (degrees_C)
Total_Temp (degrees_C)
Static_Press (mbar)
Dynamic_Press (mbar)
Cabin_Pressure (mbar)
Wind_Speed (m/s)
Wind_Dir (degrees_true)
Vert_Wind_Spd (m/s)
Solar_Zenith_Angle (degrees)
Sun_Elev_AC (degrees)
Sun_Az_Grd (degrees_true)
Sun_Az_AC (degrees_true)

IWGADTS

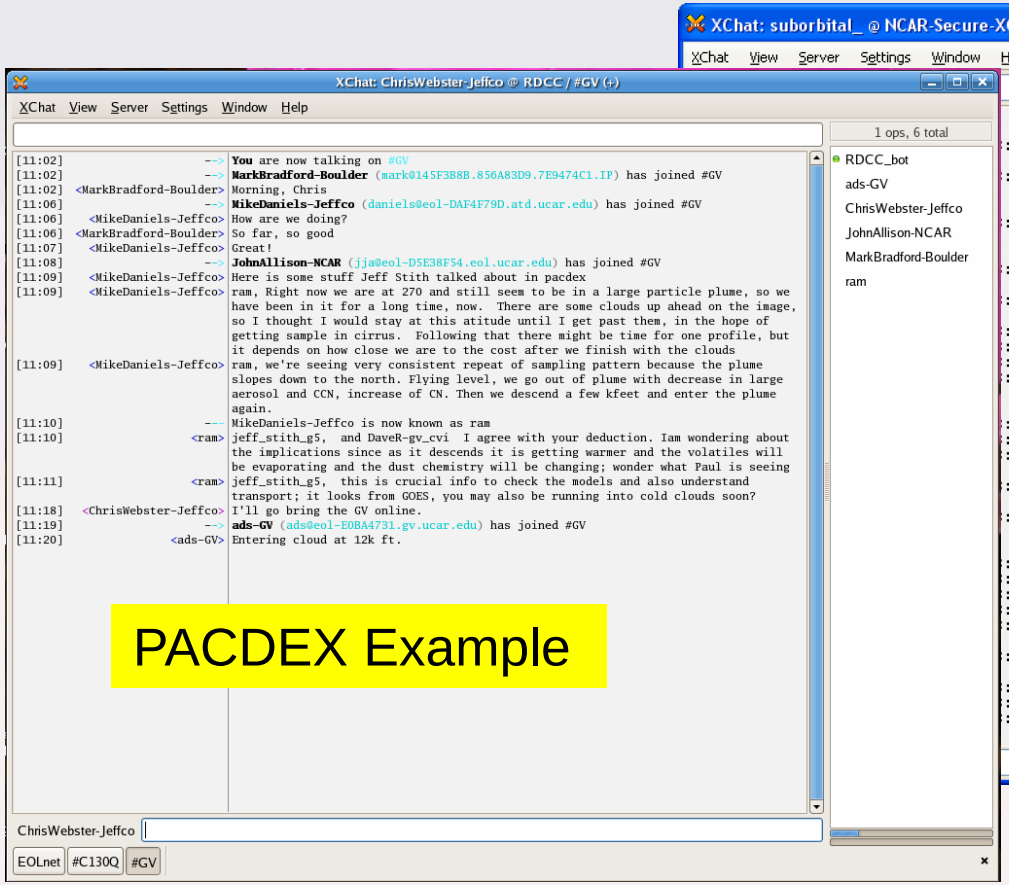
…

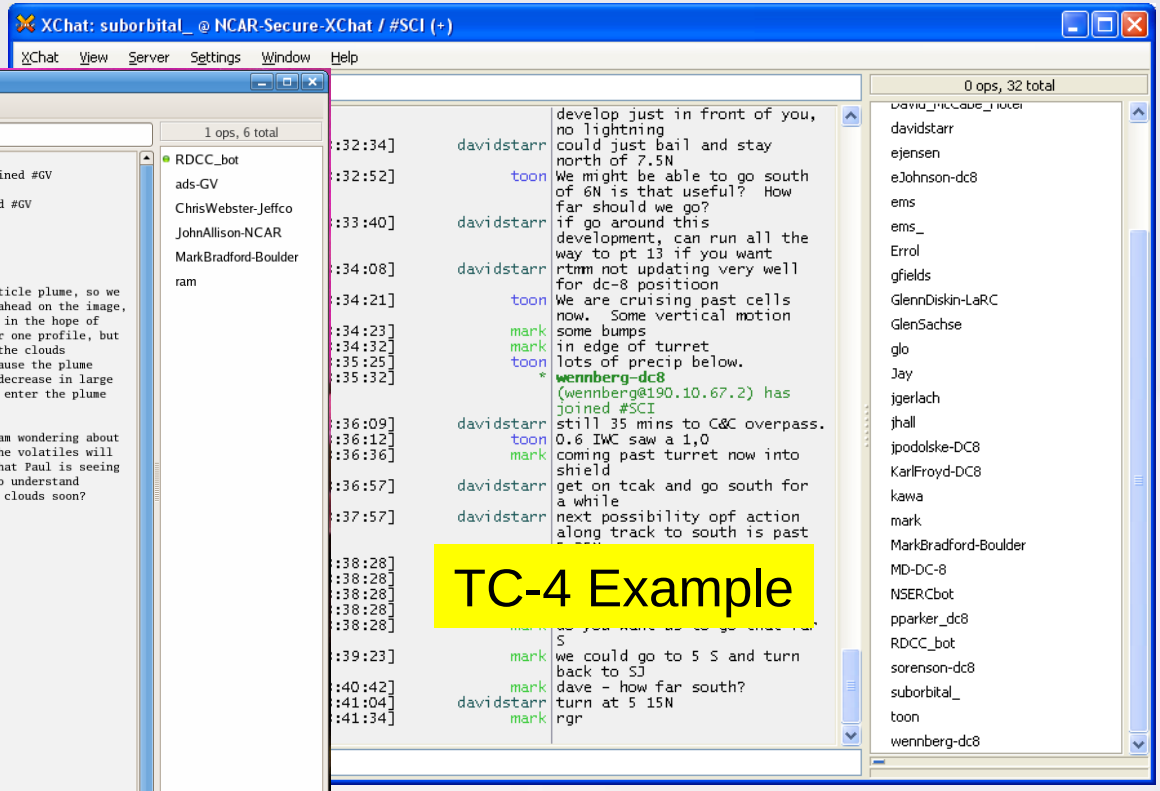
Progress: Multi-Aircraft Displays



Progress: Network Chat Works Great

IRC Chat Server at rdcc.guest.ucar.edu is *de facto* service for airborne science





Special Note: Kudos & thanks from TC-4 team to Mark Bradford, NCAR/EOL/CDS/CTM

Where are we?

IWGADTS still getting traction

- Monitoring technology landscape
- Working to clarify airborne science needs

The IWG1 packet is clearly useful

- Being used to feed multiple applications, realtime monitoring
- Being used postflight

Text messaging (XChat) is clearly useful to community

2006 was a good IWGADTS year; 2007 a slow year (workloads)

Concluding Comments

- IWGADTS assembled in Jan 2005
- Met 4 times since accepted under ICCAGRA
- Demonstrating interagency cooperation for mutual benefit
- Demonstrating consensus approach to joint innovation
- More to come!
- Email us at *iwgadts@eol.ucar.edu*