



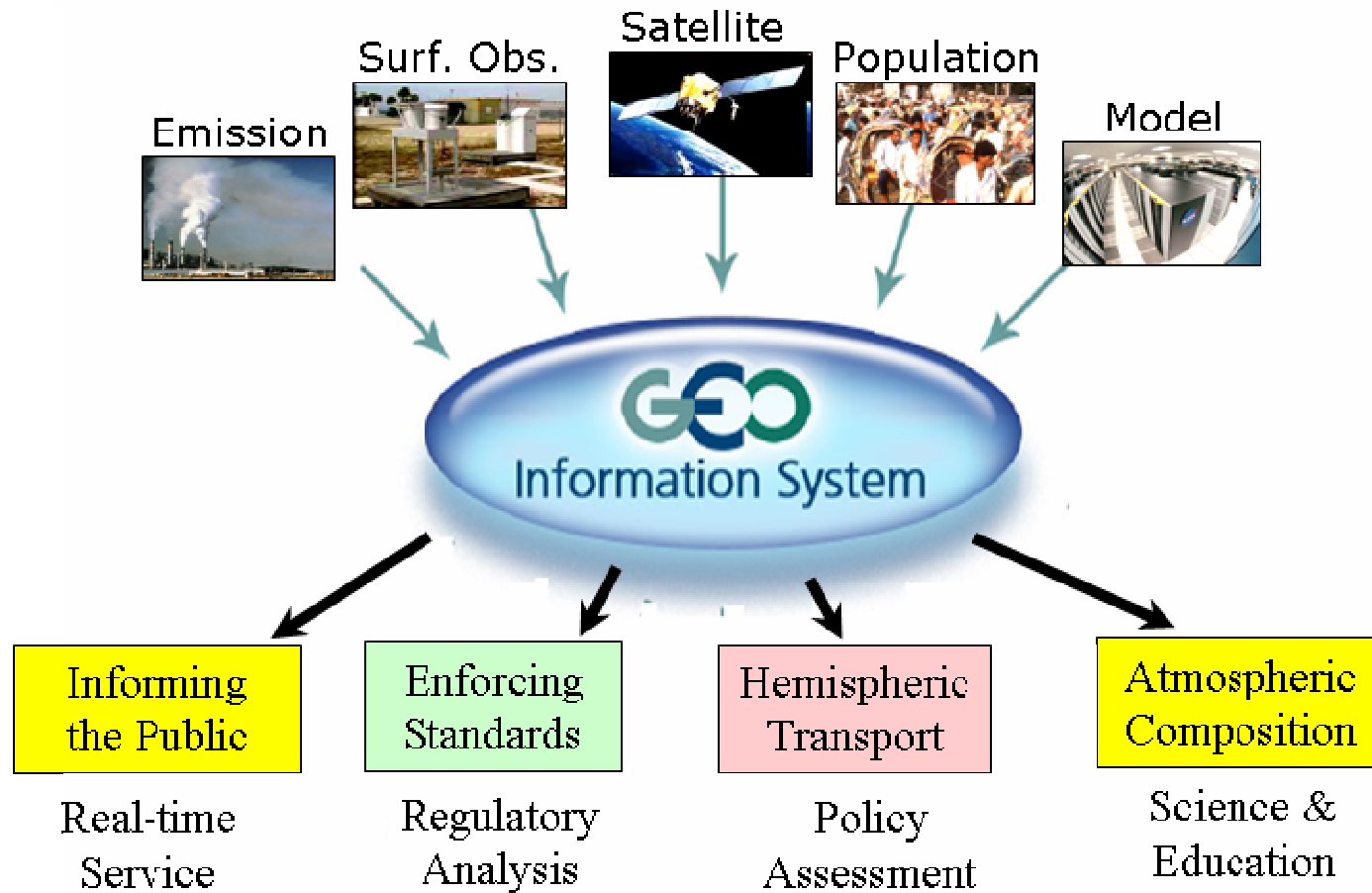
2009 Progress Report to UIC:
GEOSS Air Quality Community of Practice
(AQ CoP)

Rudolf Husar (Point of Contact, rhusar@wustl.edu)
Washington University in St. Louis

14th GEOSS User Interface Committee Meeting
London , March 3, 2010

Air quality: Many Observations, Many Applications

Observing Systems



The CoP aims to
**connect and enable
air quality**

data providers

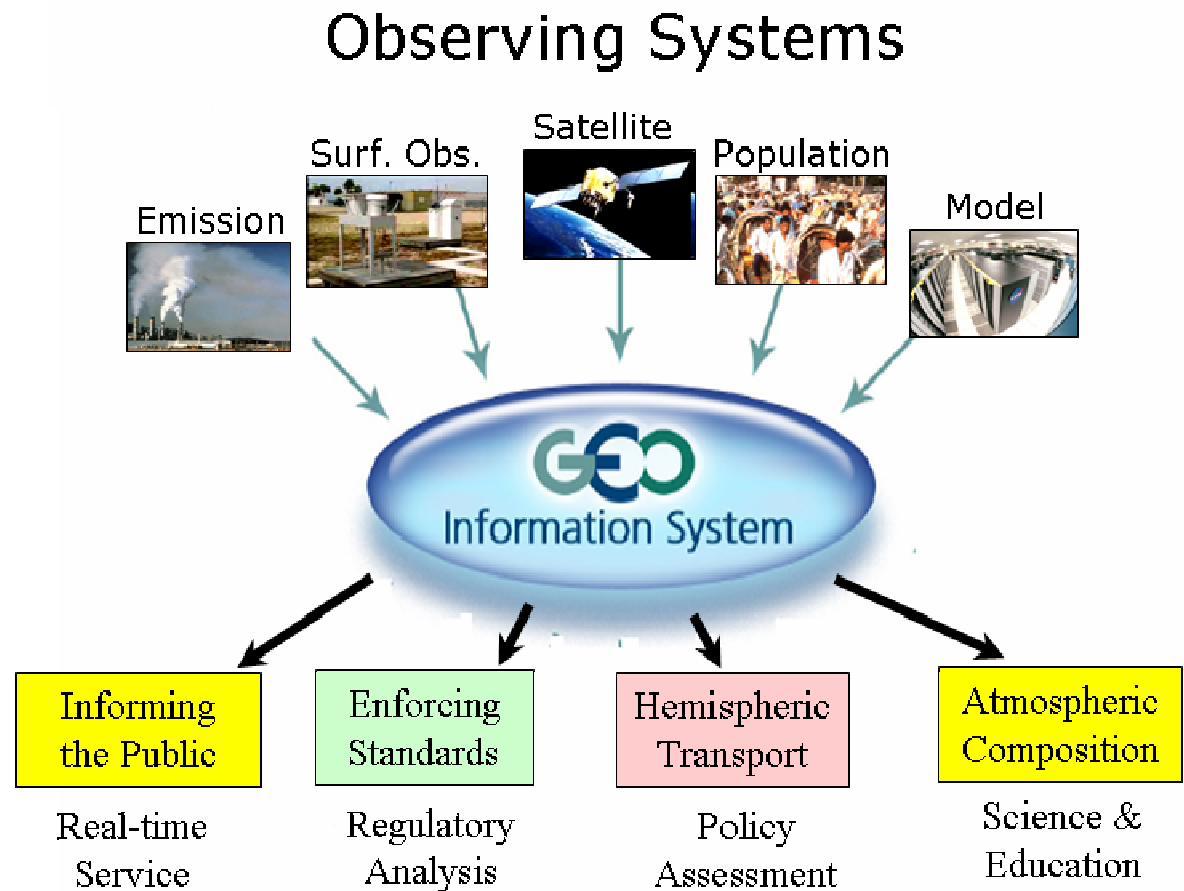
and

data users

to

benefit society

using the
**GEO Process and
GEOS Infrastructure**



2009 CoP Activities using the GEO Process

Meetings, Coordination:

Organized Session AQ and GEOSS, ISRSE, May, Stresa, Italy
Meeting AQ Community Infrastructure, ESIP, July, Santa Barbara, CA
AQ Side Meeting at GEO-VI Plenary, November, Washington DC

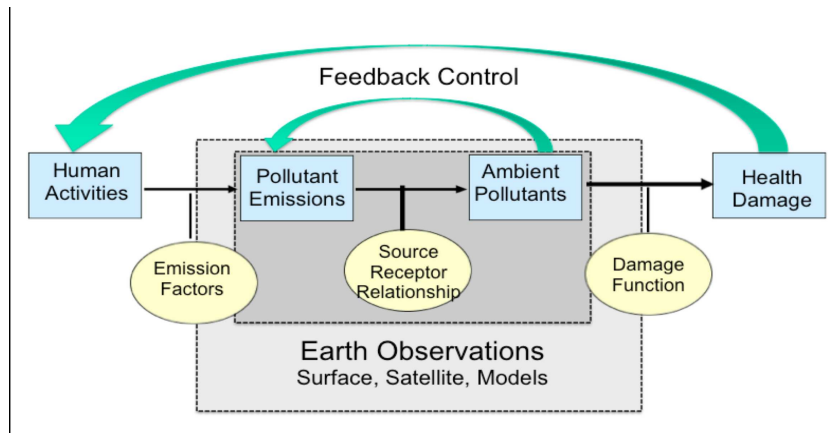
Coordinated GEO Decision Support Concept Proposal
Coordinated Participation in the GEOSS AIP-II

Monthly Teleconferences

Information sharing, communication and coordination through wiki.

GEO Task US-09-01a: AQ-Health User Reqs

Framework: Science-based



Execution:

- Contract to Analysts
- Contributions/guidance by International Advisory Group
- Recommended key role of CoPs in future User Requirement assessments

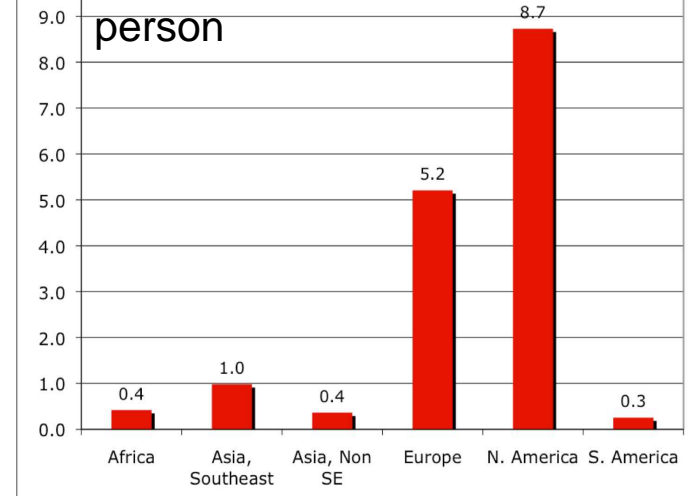
Pollutants: WHO Guidelines

Pollutant	Averaging time	AQG value
Particulate matter PM _{2.5}	1 year	10 µg/m ³
	24 hour (99 th percentile)	25 µg/m ³
PM ₁₀	1 year	20 µg/m ³
	24 hour (99 th percentile)	50 µg/m ³
Ozone, O ₃	8 hour, daily maximum	100 µg/m ³
Nitrogen dioxide, NO ₂	1 year	40 µg/m ³
	1 hour	200 µg/m ³
Sulfur dioxide, SO ₂	24 hour	20 µg/m ³
	10 minute	500 µg/m ³

Column Observations

For
Emissions, Transport

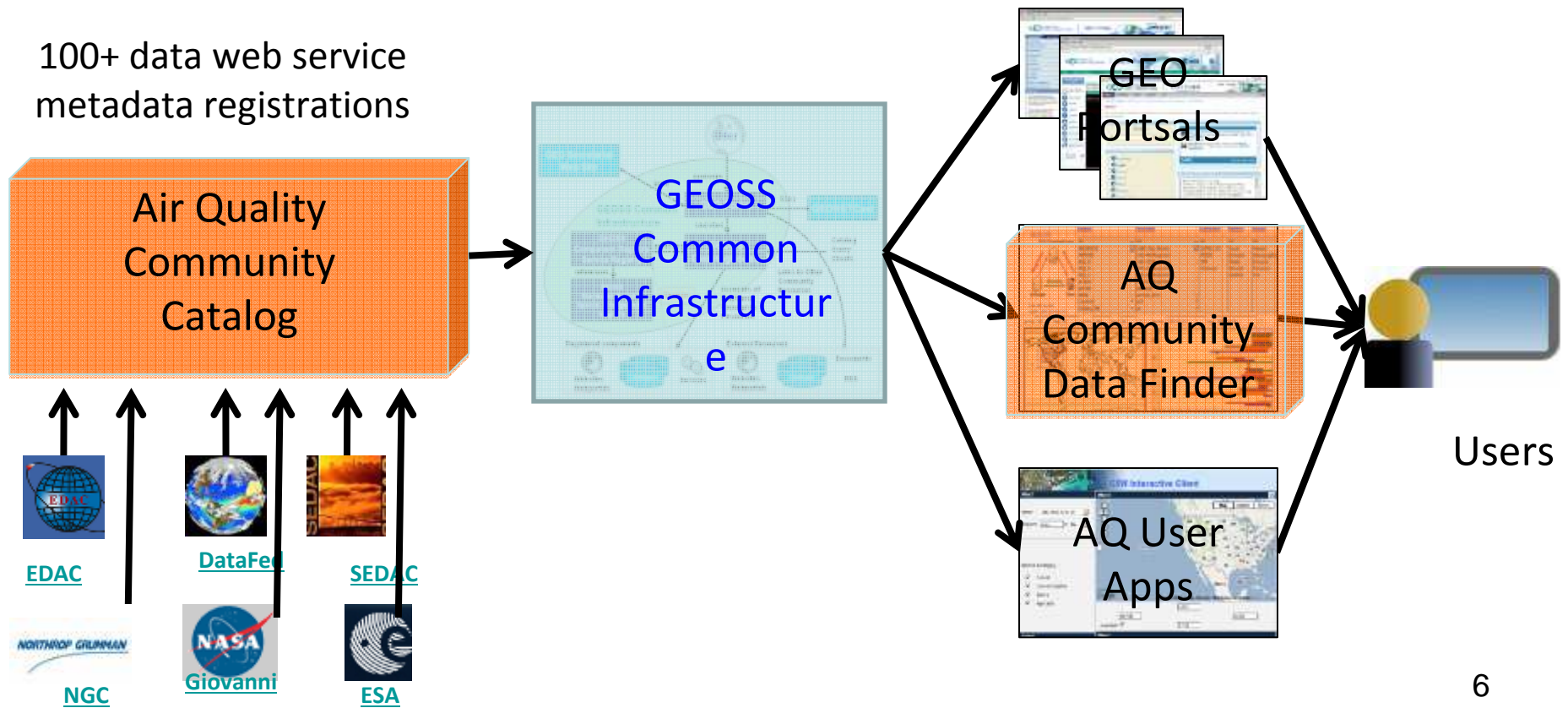
Monitoring: AQ Stations/Million person



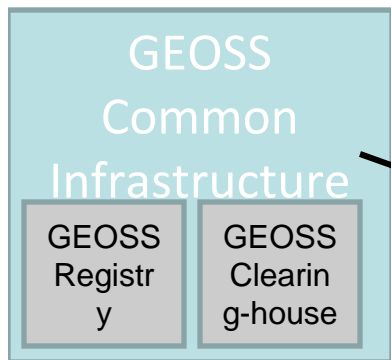
2009 AQ CoP and the GEOSS Infrastructure

AQ CoP Contributions to GEOSS GCI through AIP II:

Air quality Community Catalog
AQ Community Data Finder
Developed Discovery Metadata for Air Quality

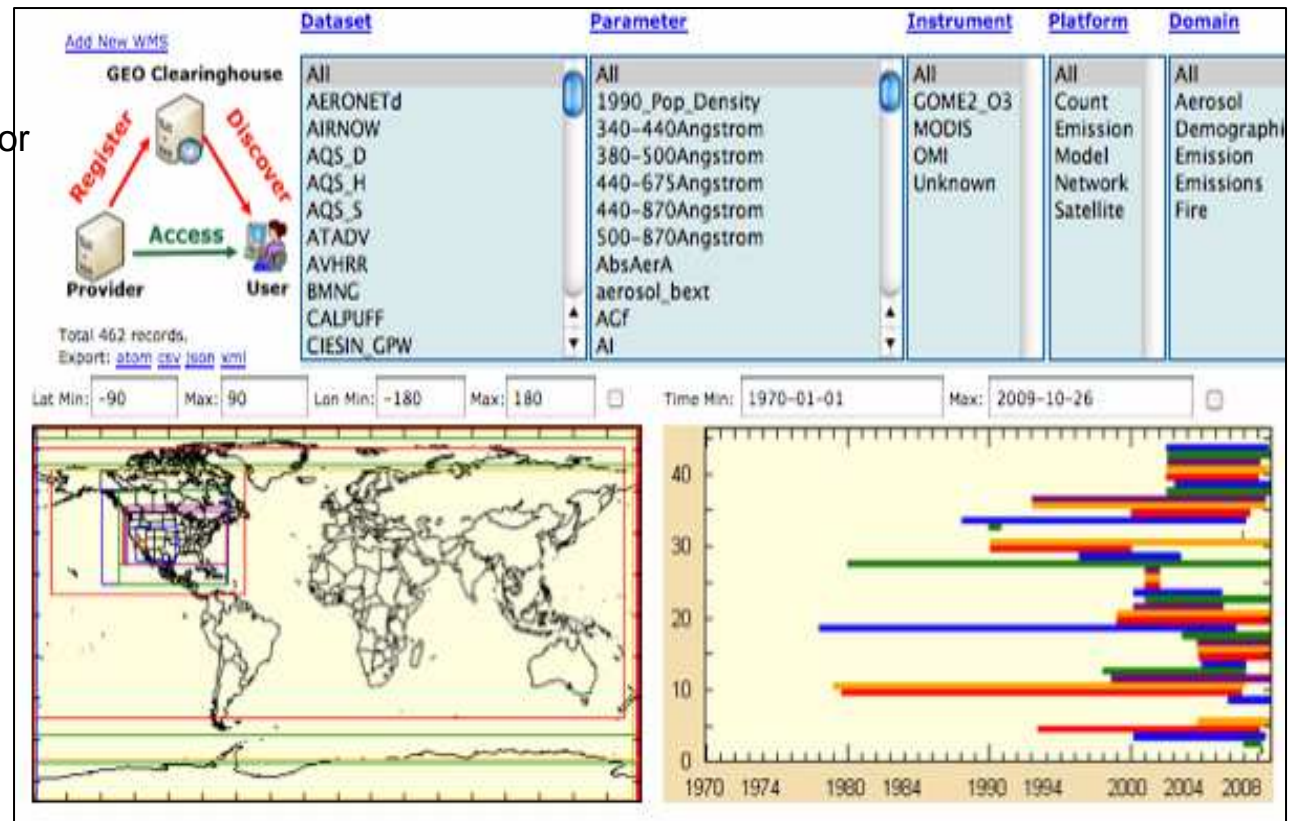


Example use of the GEOSS Common Infrastructure GUI Finder of AQ Data in the GEOSS Clearinghouse



Search for AQ data

Return AQ metadata



filtered AQ metadata available to other applications through RSS, atom, etc.⁷
http://webapps.datafed.net/AQ_uFIND.aspx

Giovanni

Data Inputs

MLS **Aura**

OMI **Aura**

AIRS **Aqua**

MODIS **Aqua**

MODIS **Terra**

SeaWiFS

TRMM

HALOE **UARS**

TOMS **EP, N7**

AMSR-E **Aqua**

MISR **Terra**

CloudSat

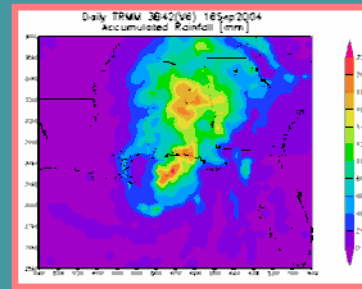
CALIOP **CALIPSO**

MERRA **Models**

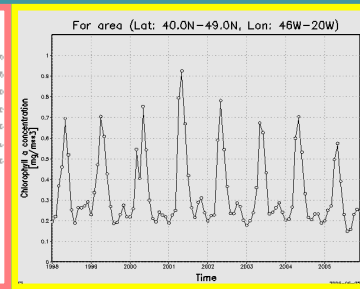
Giovanni Instances



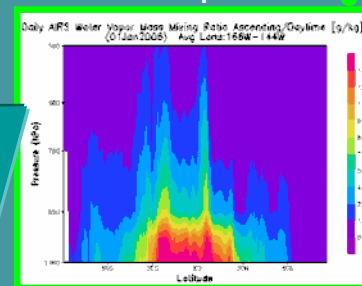
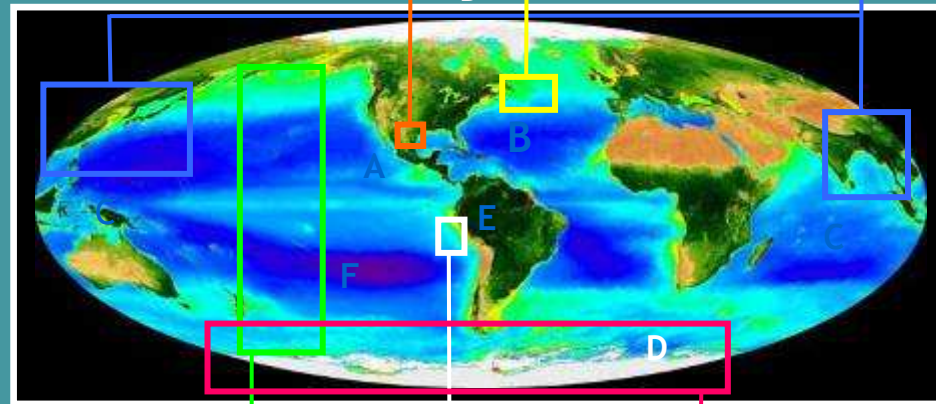
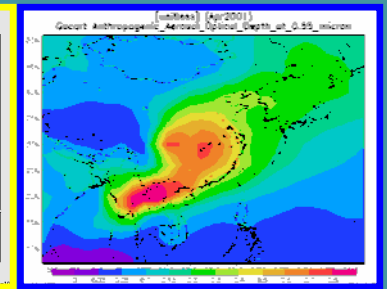
Area Plot



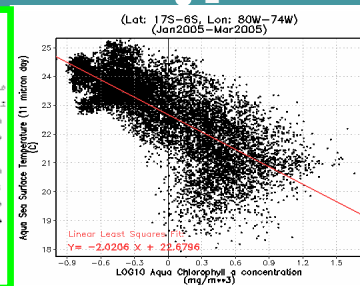
Time Series



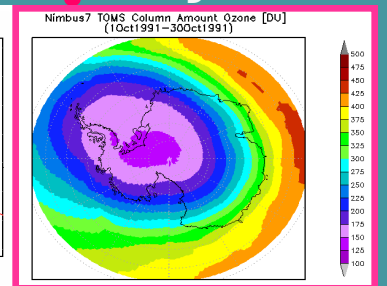
Model Output



Profile Cross-Section

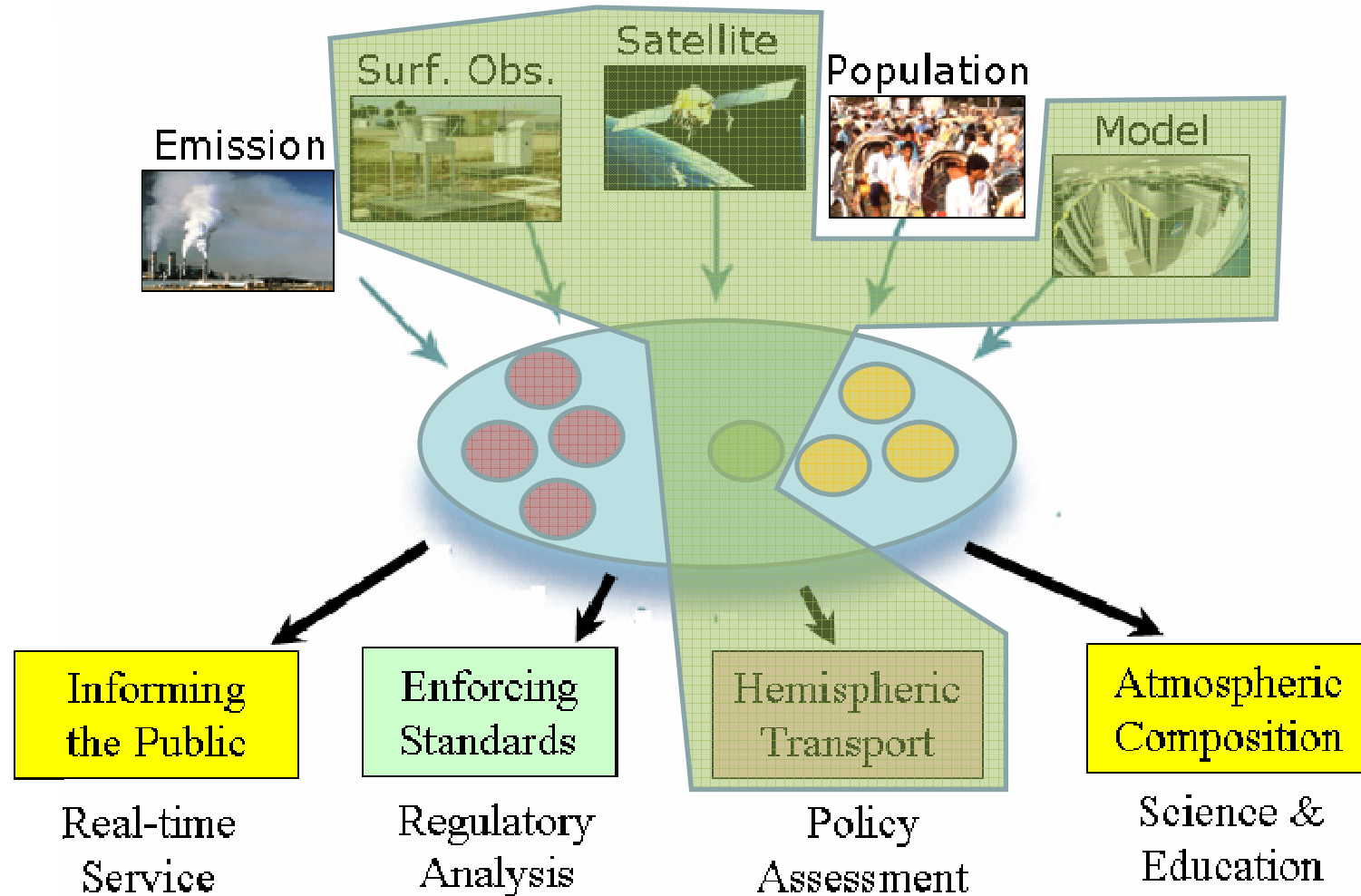


Correlations



Column Densities

Observing Systems



Hemispheric Transport Application: HTAP Project

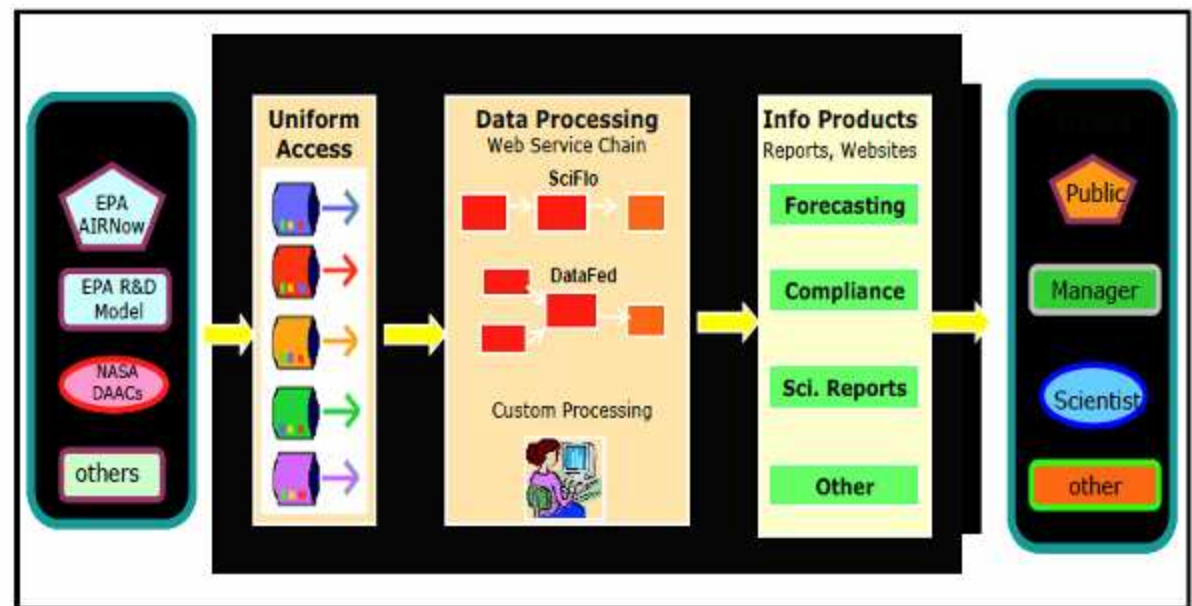
DataFed: An Architecture for Federating Atmospheric Data for GEOSS

Rudolf B. Husar, Kari Hoijarvi, Stefan R. Falke, Erin M. Robinson, and George S. Percivall

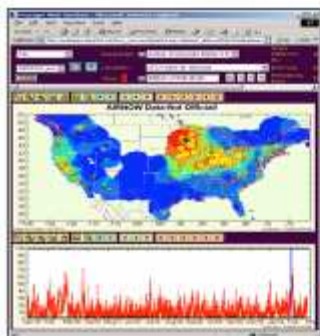
IEEE Systems Journal, 2008

Design Concept

SOA for Data Access & Processing
 Mediator for 100+ AQ Datasets
 Includes Tools for Analysis
 Applied to EPA EE Analysis
 Supported by NSF, NASA, EPA



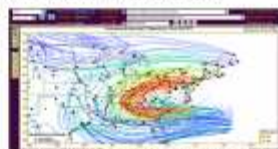
Main tools of DataFed



Viewer: General purpose spatio-temporal data browser and view editor applicable for all DataFed datasets

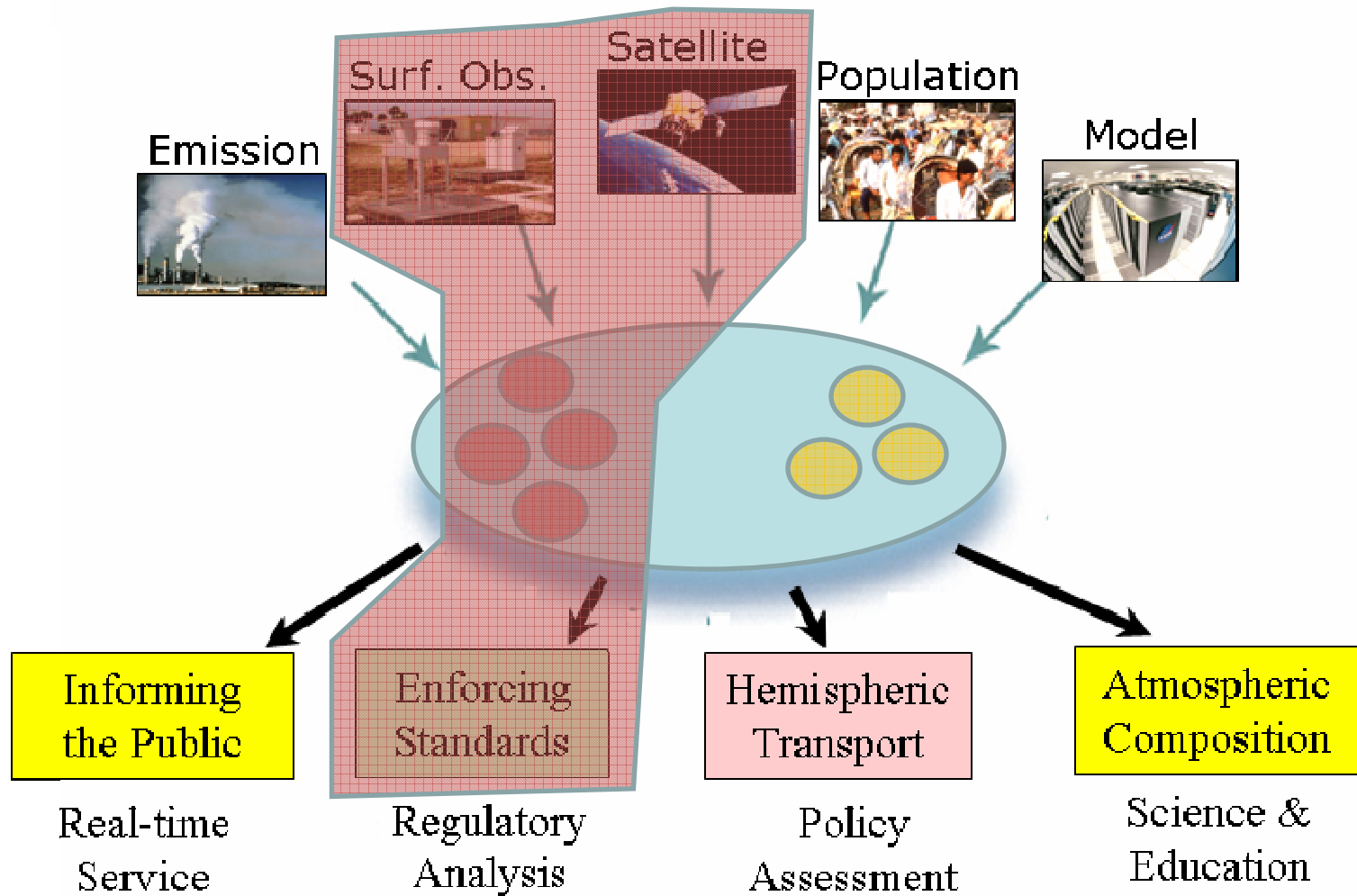


Consoles: Data from diverse sources are displayed to create a rich context for exploration and analysis



CATT: Combined Aerosol Trajectory Tool for the browsing backtrajectories for specified chemical conditions

Observing Systems

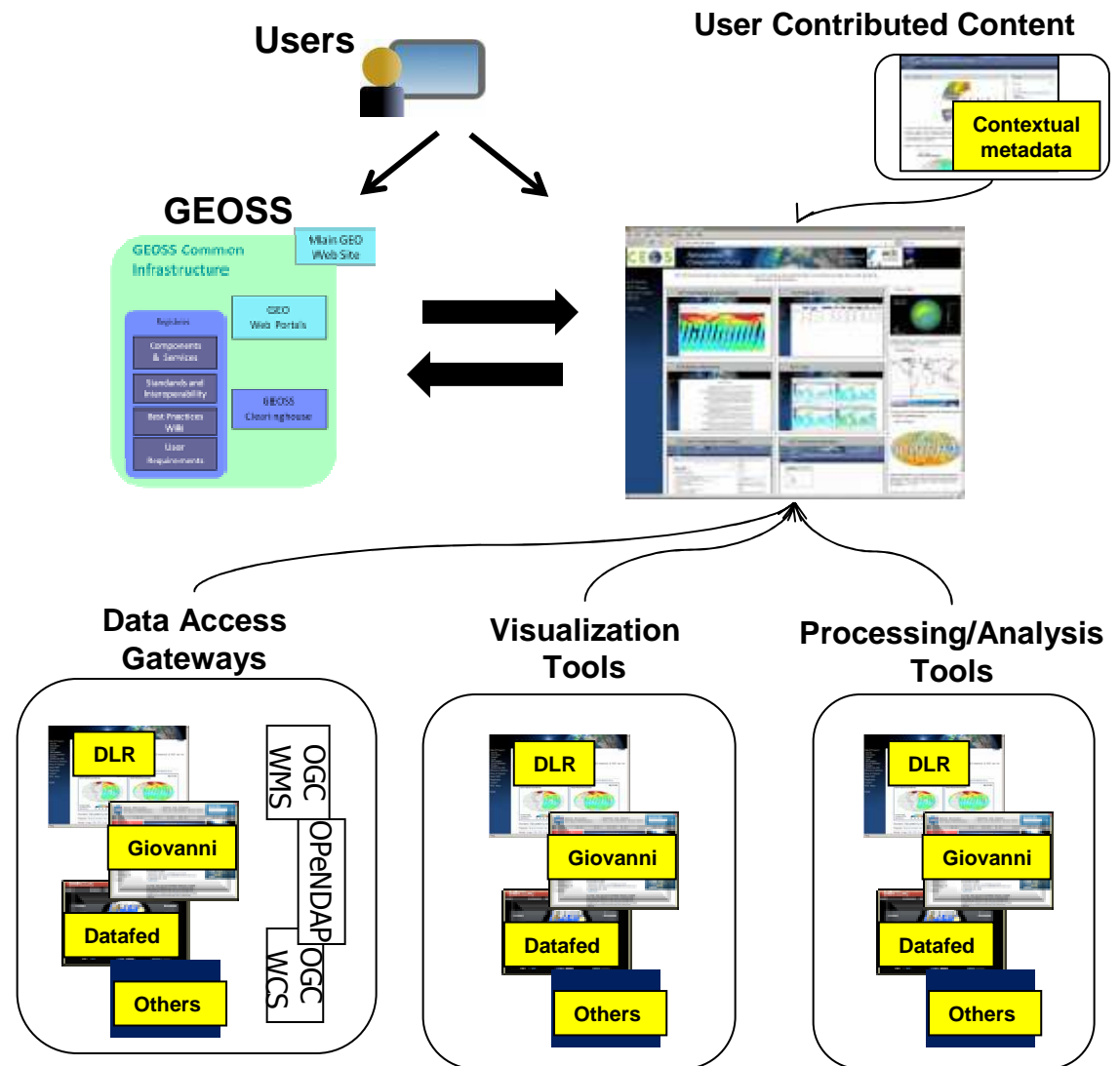


AQ Regulatory Application: Exceptional Events

Atmospheric Composition Portal

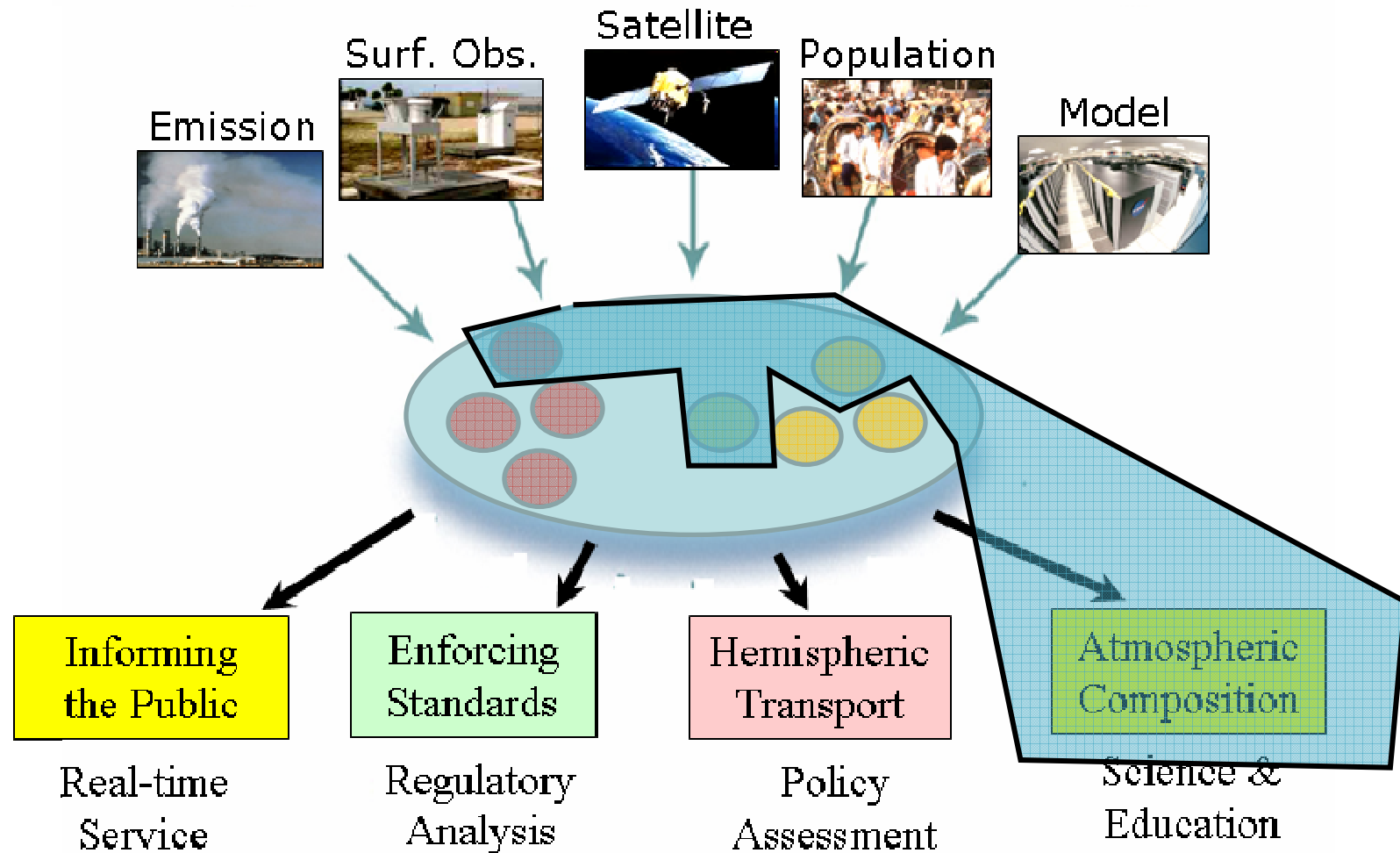
Objectives

- Provide access, tools, and contextual guidance to scientists and value-
- Foster interoperability and application of atmospheric composition data, information and services worldwide
- **Start with DLR and NASA**, work with partners in CEOS and the broader AC community in advancing the AC Portal



Slide By S. Falke

Observing Systems



Atmospheric Composition Portal: ACC Project ¹³

AQ CoP Goal:

Support the Development of a

Functioning AQ System of Systems by 2015

By Connecting and Enabling

Use of Earth Observations
Tools & Methods for Data
Sharing Practical Knowledge

AQ
Community

AQ Community of Practice

GEO
Process