

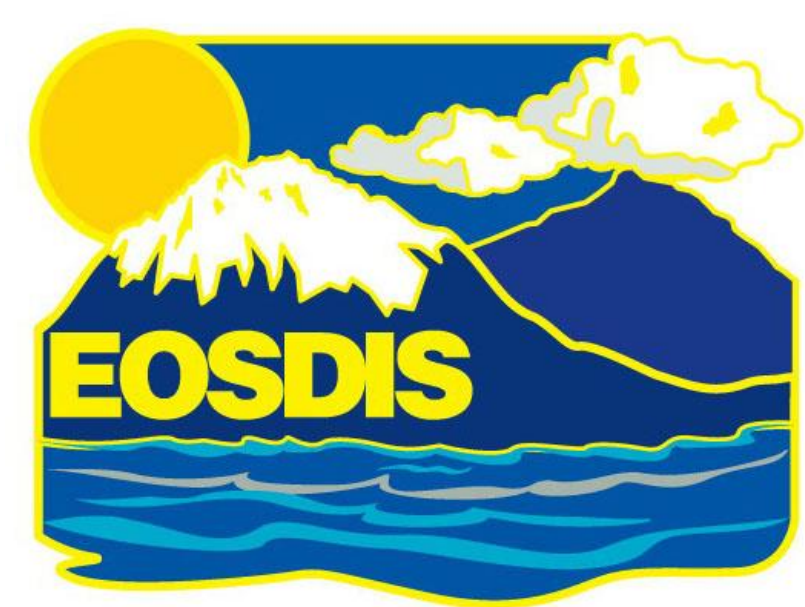


NASA Earth Observing System Data and Information System (EOSDIS)

A U.S. Network of Data Centers Serving Earth Science Data – A Network Member of ICSU/WDS

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Mission of EOSDIS

- Process, archive, and distribute Earth science satellite, suborbital, field campaign and other data
- Implement NASA's free and open data and information policy
- Ensure access to data to enable the study of Earth from space to advance Earth system science to meet the challenges of climate and environmental change.
- Promote interdisciplinary use of EOSDIS, including data products, data services, and data handling tools by a broad range of existing and potential user communities

EOSDIS Distributed Active Archive Centers (DAACs) are World Class Data Centers

- Discipline Oriented (e.g., Atmospheric Composition, Cryosphere, Ocean Biology)
- Co-located with science facilities and mission instrument teams at NASA centers, other government agencies, and universities according to their expertise
- Store Earth science mission data as well as field campaign data, and socioeconomic data - in a variety of measurements, resolutions, and formats
- provide reliable, robust services to users whose needs may cross the traditional boundaries of a science discipline, while continuing to support the particular needs of users within the discipline communities.
- Communicate frequently through wikis, telecons, meetings
- Provide mechanisms for community involvement
- Coordinate specific data and services

Successes

- Serving a large (>2.5 Million), diverse, world-wide community of users
- Managing 12 DAACs and 12 Science Investigator-led Processing Systems (SIPS) (Established 5 new SIPS in 2015 to process EOS-continuity products from Suomi National Polar Partnership (SNPP) satellite data)
- Earthdata website (<http://earthdata.nasa.gov>)
 - Comprehensive, sustainable, and evolvable
 - Unified view of NASA's Earth science data system resources
 - Links to various ways to access data, related content and external sites
- Common User Registration System across DAACs
- Consistently high customer satisfaction
- Well-established process for DOI assignments
- GIBS/Worldview – Open Source Software; averaging > 100K views/month
- Webinar series – 63 webinars; 1,000's of attendees; >10,000 viewers of youtube recordings

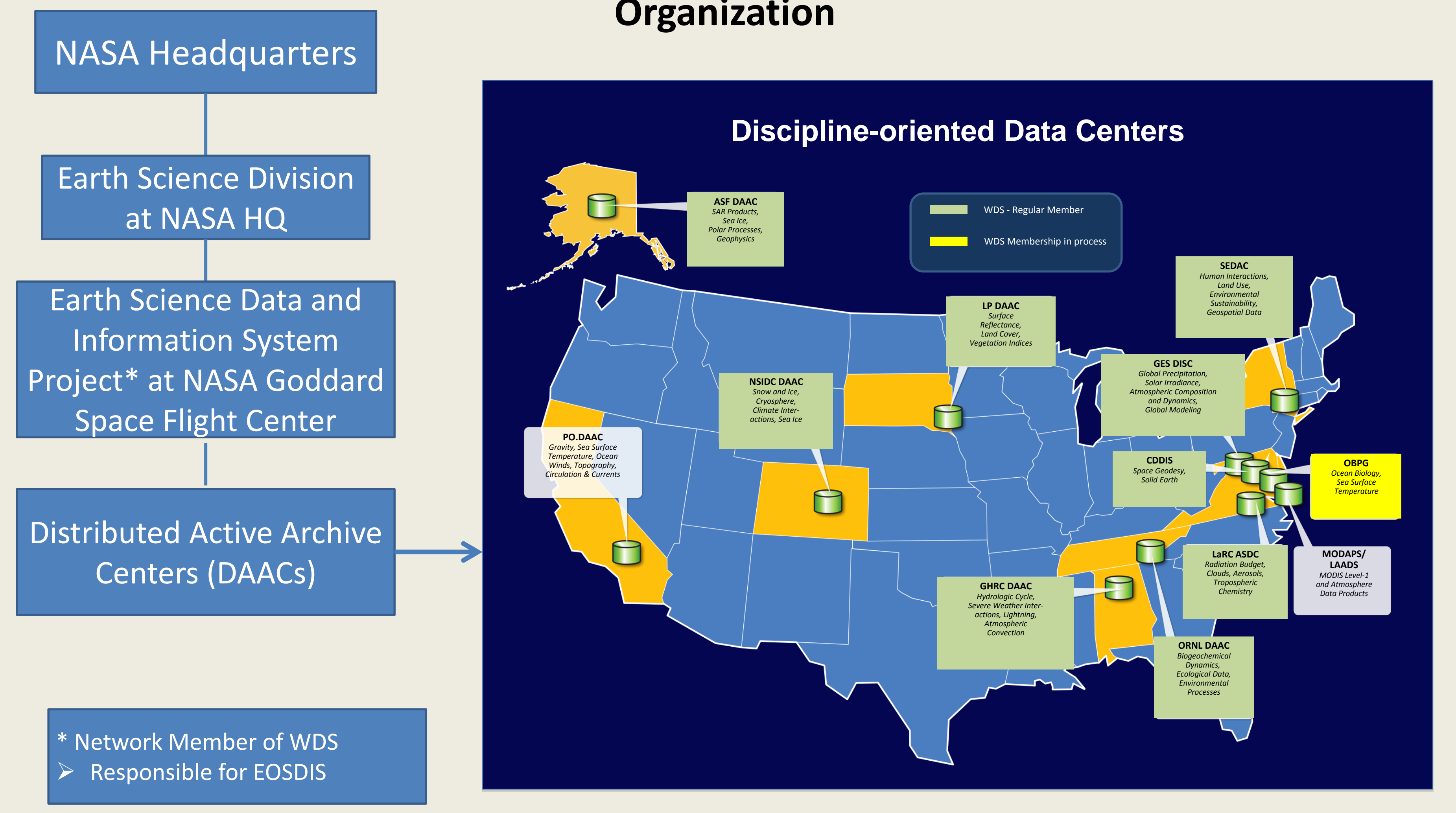
Challenges

- Big data – volume, variety, velocity, veracity
- Serving diverse user community
- Accommodating diverse data providers
- Encouraging the use of standards
- Preservation and stewardship for missions that age
- Resource control across diverse organization
- Responding to changing technology landscape

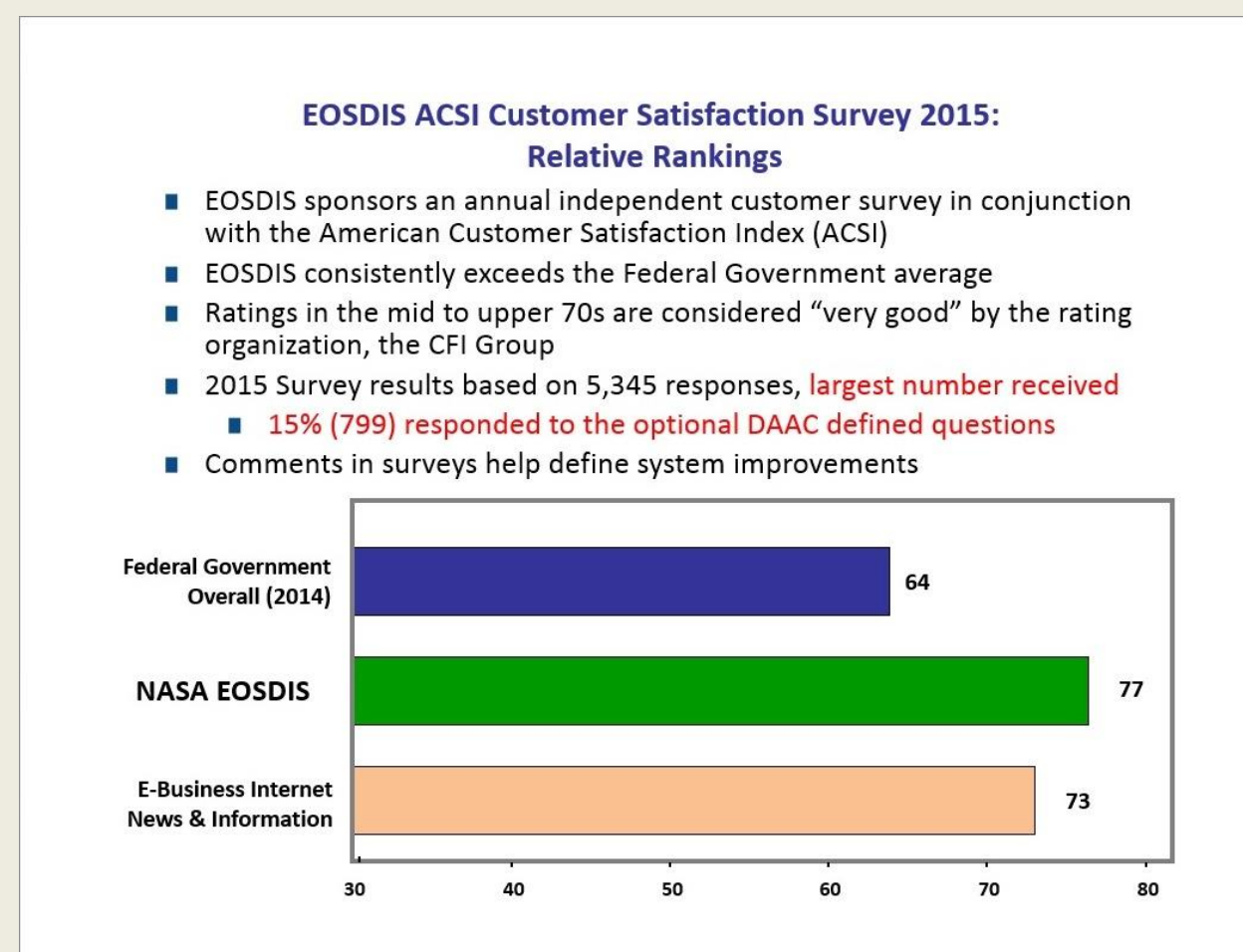
Best Practices

- Annual user surveys – American Customer Satisfaction Index
- DAAC User Working Groups
- Clear interface specifications and configuration management process
- Earth Science Data System Working Groups provide community inputs to EOSDIS evolution (10 WG's active during 2016-2017)
- Commercial Cloud Prototyping
- Cross-DAAC collaborative projects, weekly telecons, technical interchange meetings (e.g., User Needs, System Engineering)
- ESDIS Standards Office – assess standards; maintained approved list for use in NASA Earth Science Data Systems
- Preservation Content Specification adopted as requirement for new missions
- Data Citations and Acknowledgements – guidance to DAACs and users - <https://earthdata.nasa.gov/earth-observation-data/data-citations-acknowledgements>
- Collection of Data Recipes for helping users - <https://earthdata.nasa.gov/user-resources/data-recipes>

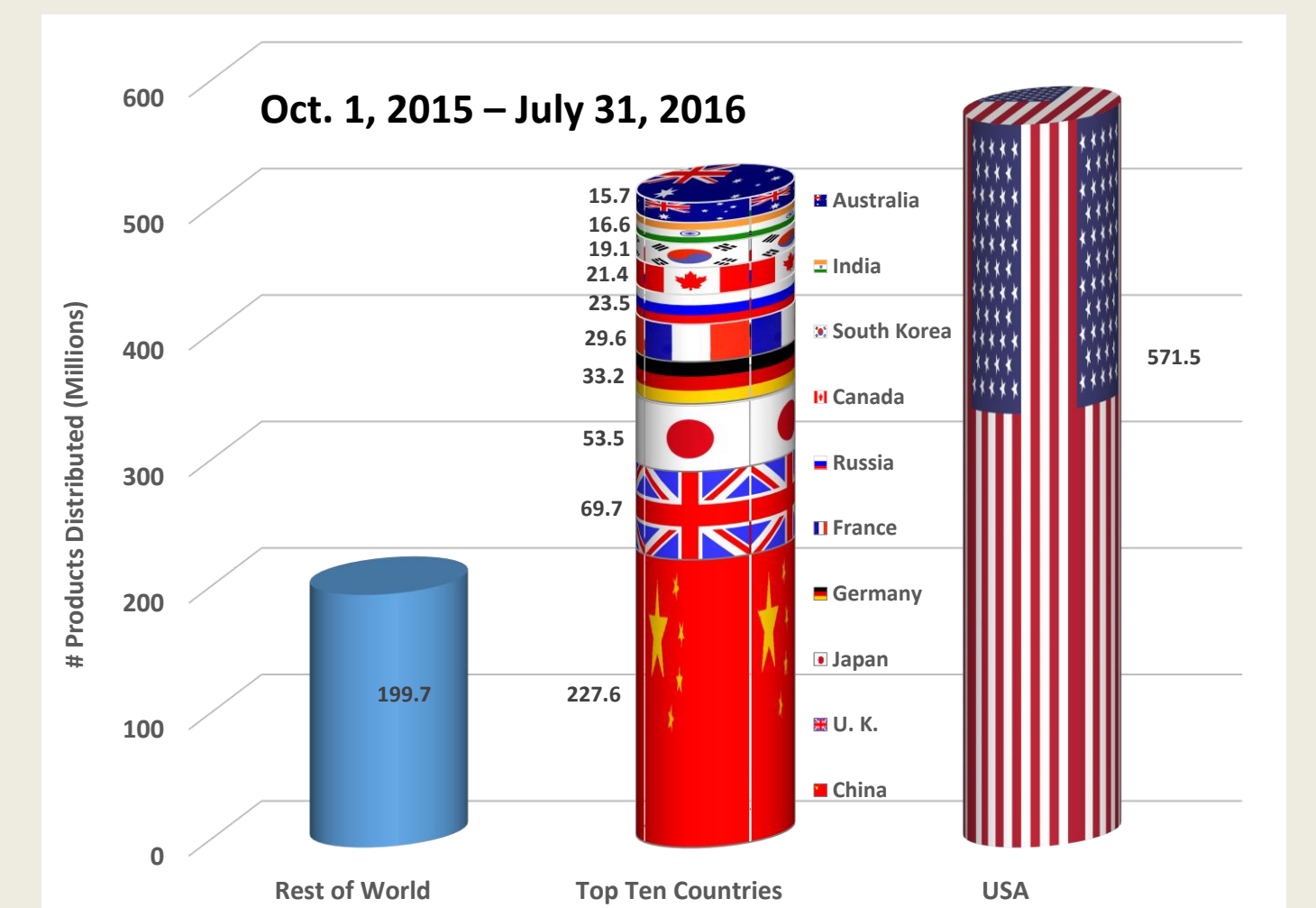
Organization



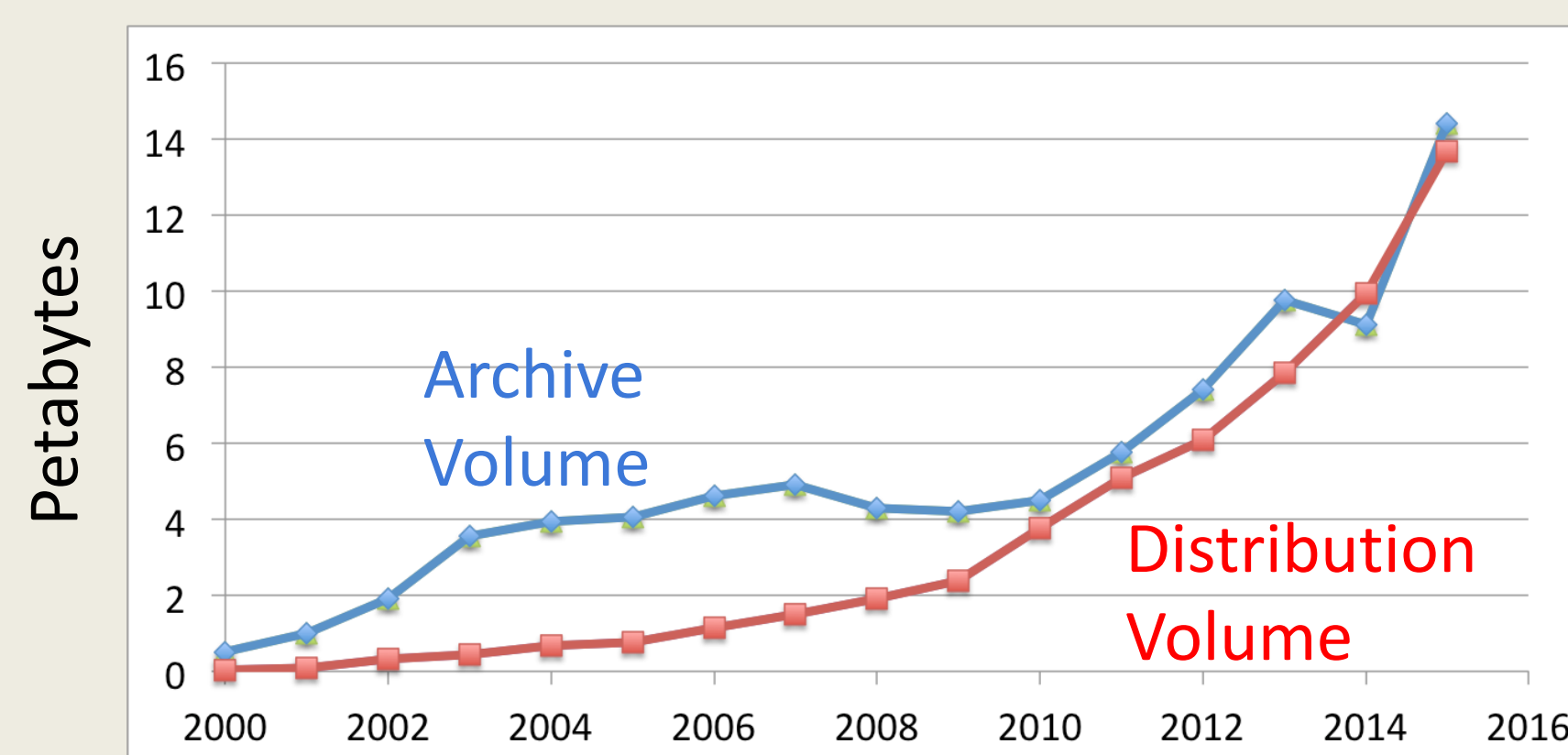
High Customer Satisfaction



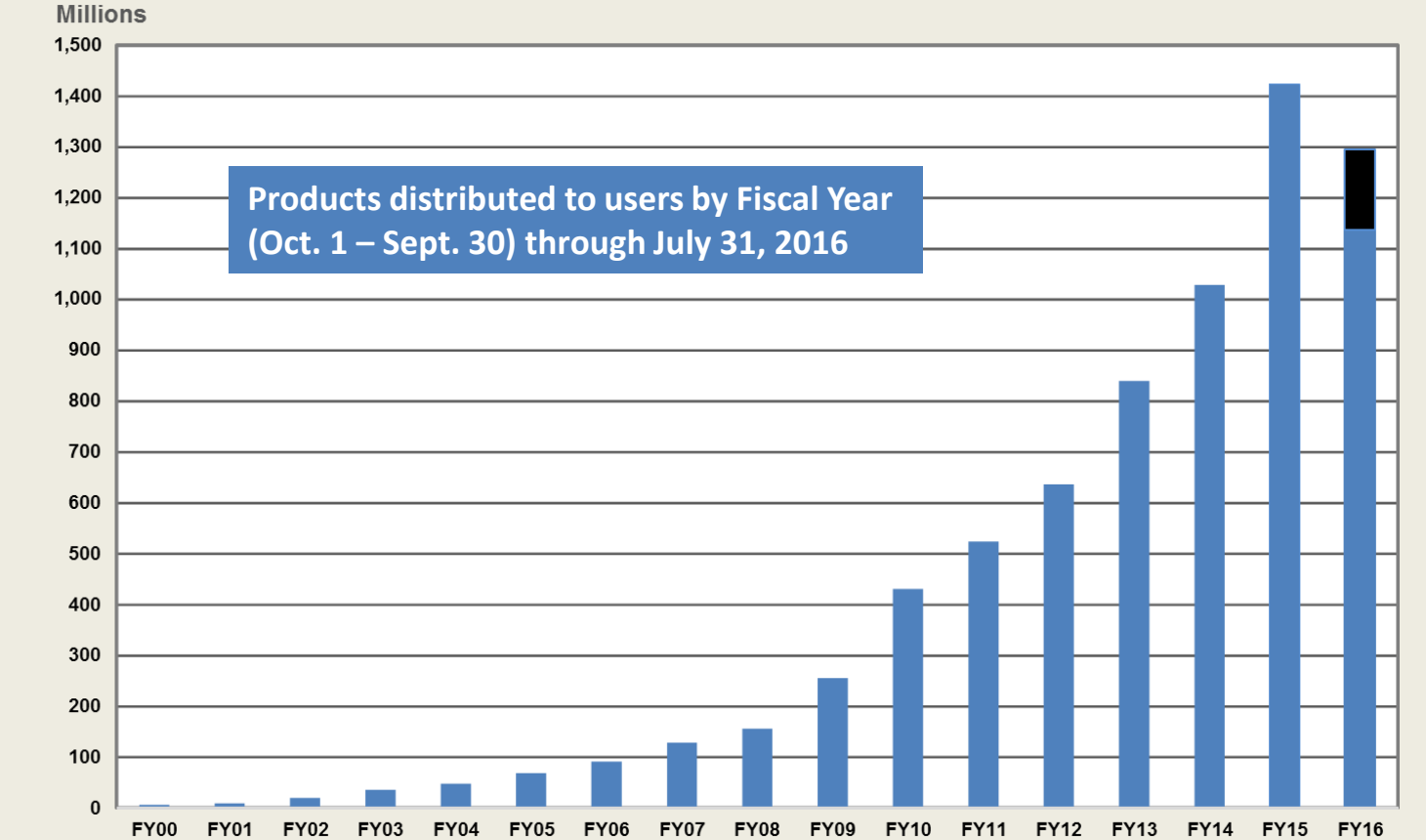
World-wide Distribution – Free & Open



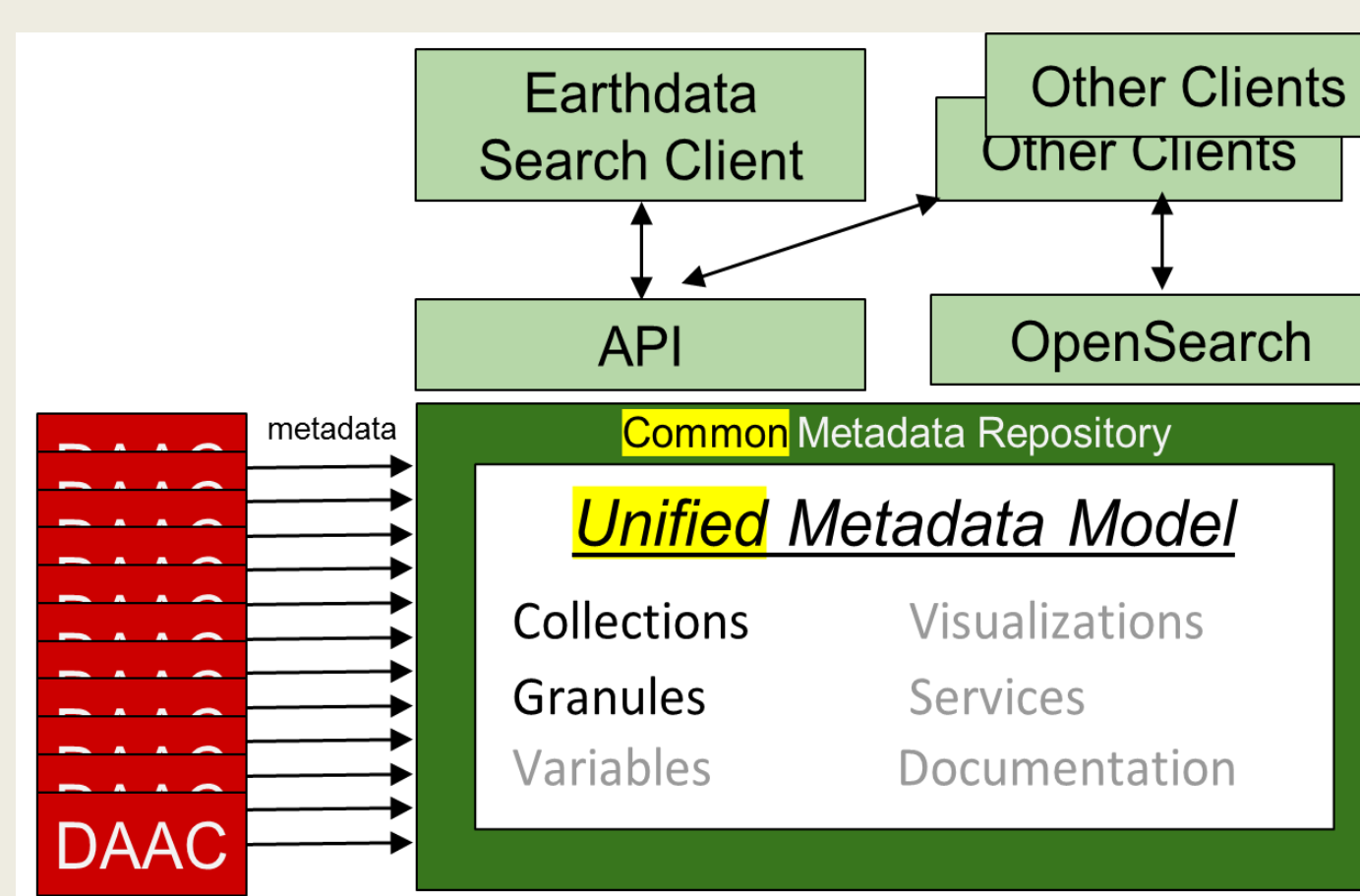
Large & Growing Archive & Distribution Volumes



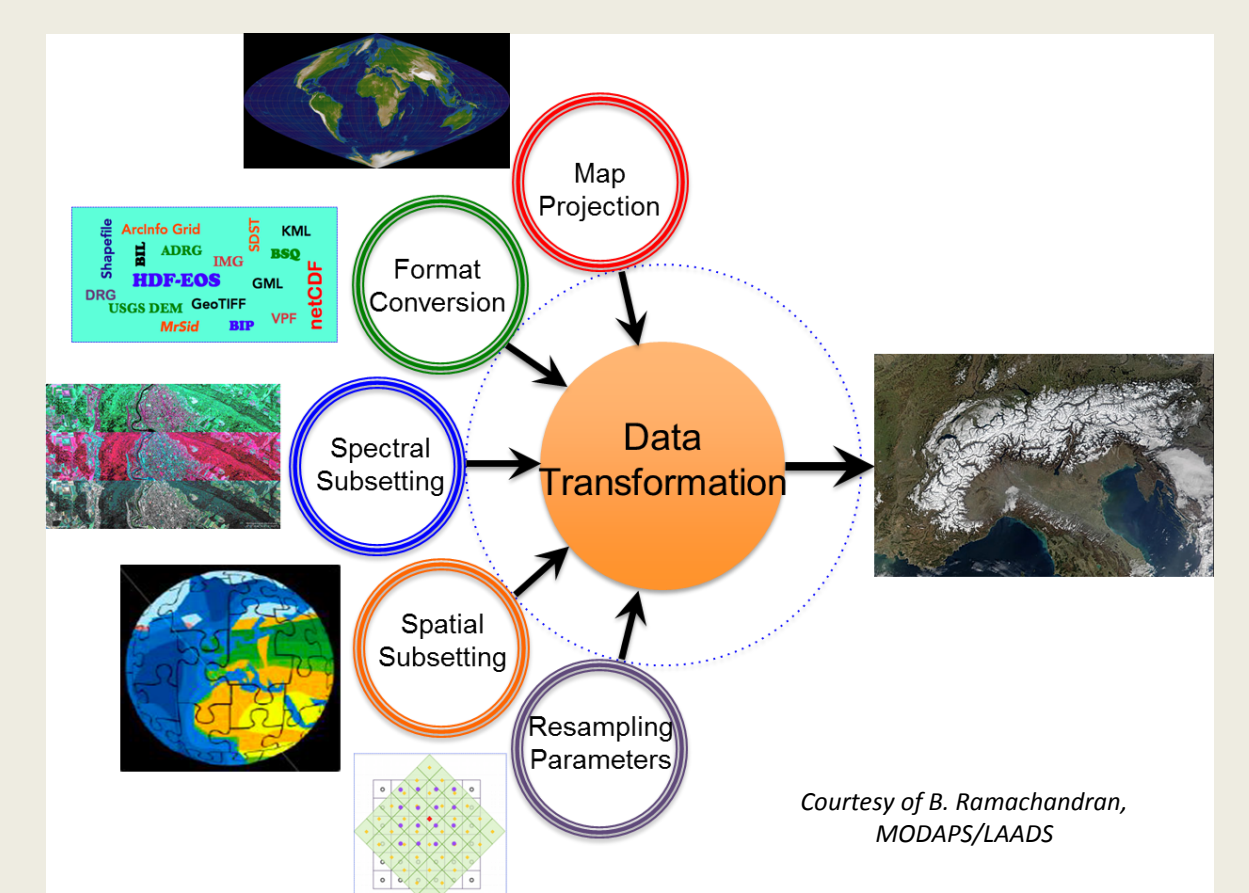
Exponentially Growing Distribution



Unified Metadata Model & Common Metadata Repository



Data Transformations to Suit End-User Application Needs



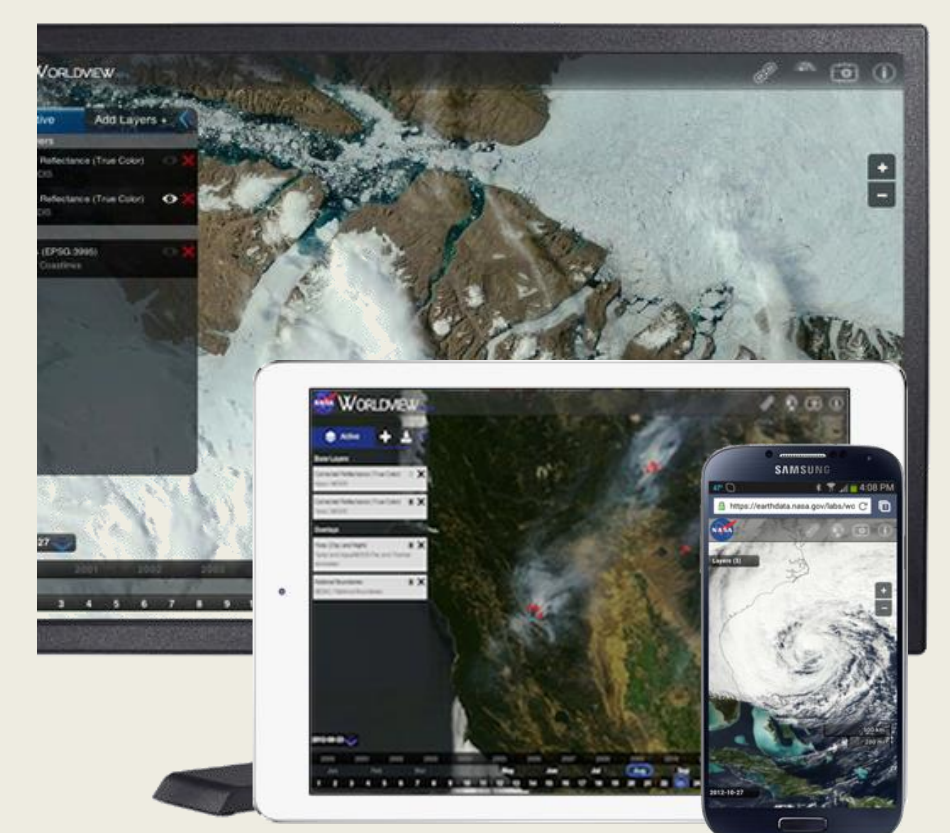
Land Atmosphere Near Real-Time Capability for EOS (LANCE)

Selected data products ready for users with an average latency of <3 hours after observation

- MISR
- MODIS
- SNPP
- VIIRS
- AMSR2
- LANCE
- AIRS
- OMI

- Numerical weather and climate prediction
- Forecasting and monitoring of natural hazards, ecological/invasive species; agriculture, and air quality
- Providing help with disaster relief and homeland security.
- Tracking propagation of toxic gases like Carbon Monoxide (CO) from massive fires
- Identifying and tracking ash plumes from volcanic eruptions
- Monitoring and predicting dust storms
- Providing detailed information about locations of fires to help mobilize fire-fighters (world-wide)

Global Imagery Browse System (GIBS)/WorldView – Full Resolution Browse



NASA ESDIS Project Active in National and International Data System Communities



Find out More

ESDIS Website: <https://earthdata.nasa.gov>

- NASAEarthData - <https://www.facebook.com/NASAEarthData>
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