

NASA's EOSDIS*

Near Term Challenges

PV2018

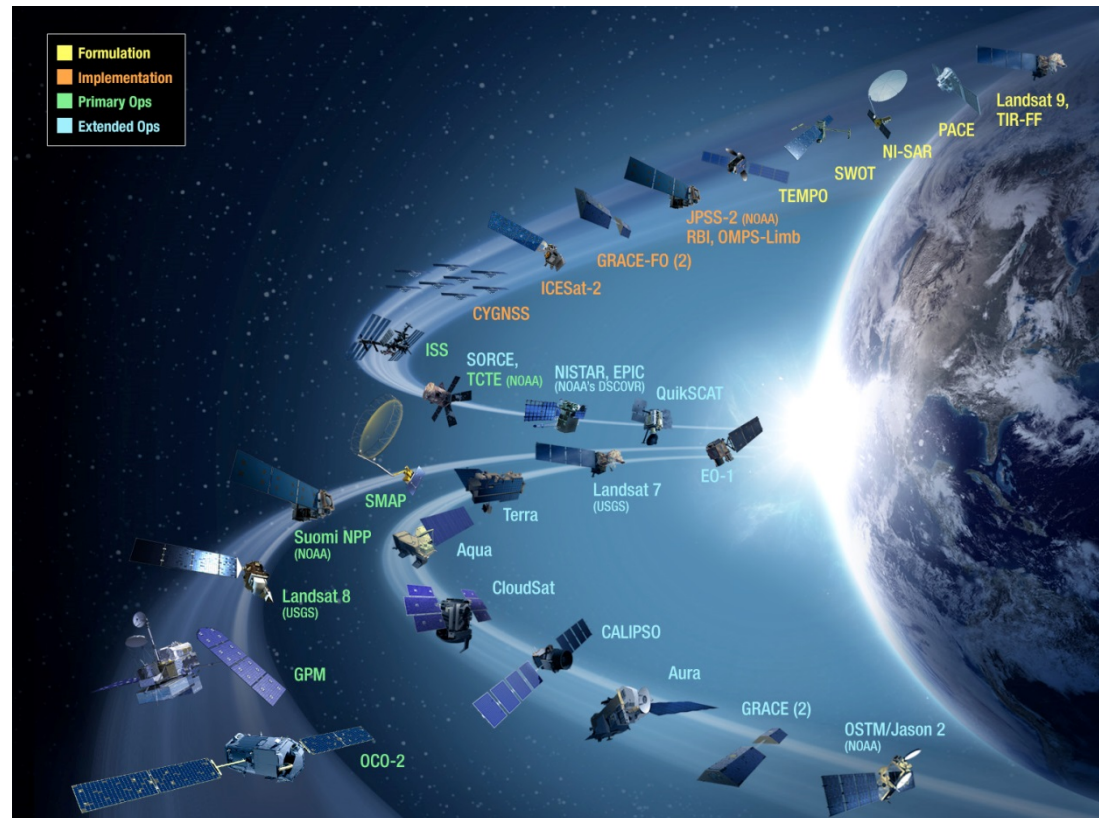
May 17, 2018

Jeanne Behnke

*Earth Observing System Data and Information System

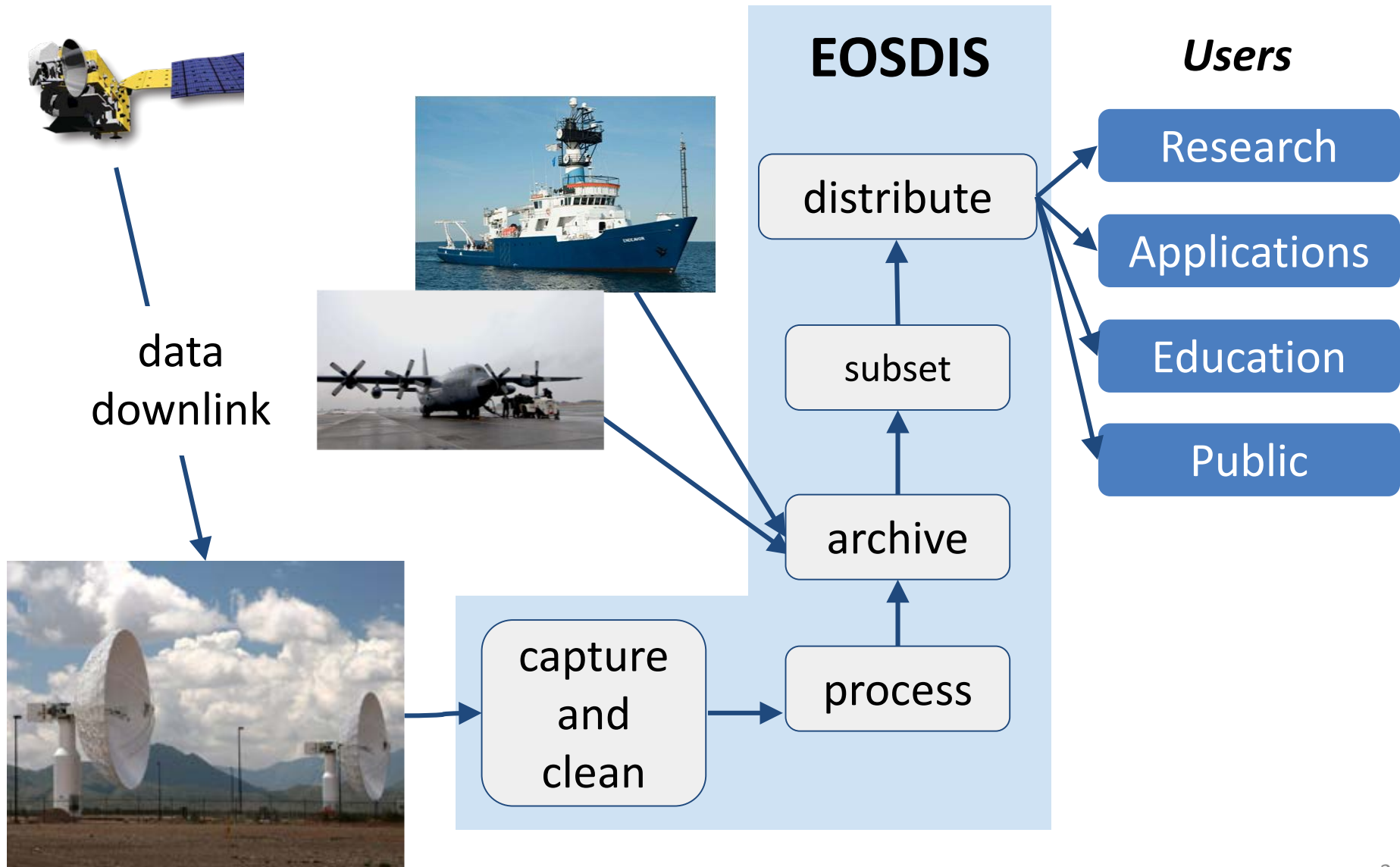
EOSDIS - Extensive Data Collection

- Started in the 1990s, EOSDIS today has distributed 11,000+ data types
- Atmosphere
 - » Winds & Precipitation
 - » Aerosols & Clouds
 - » Temperature & Humidity
 - » Solar radiation
- Ocean
 - » Surface temperature
 - » Surface wind fields & Heat flux
 - » Surface topography
 - » Ocean color
- Cryosphere
 - » Sea/Land Ice & Snow Cover



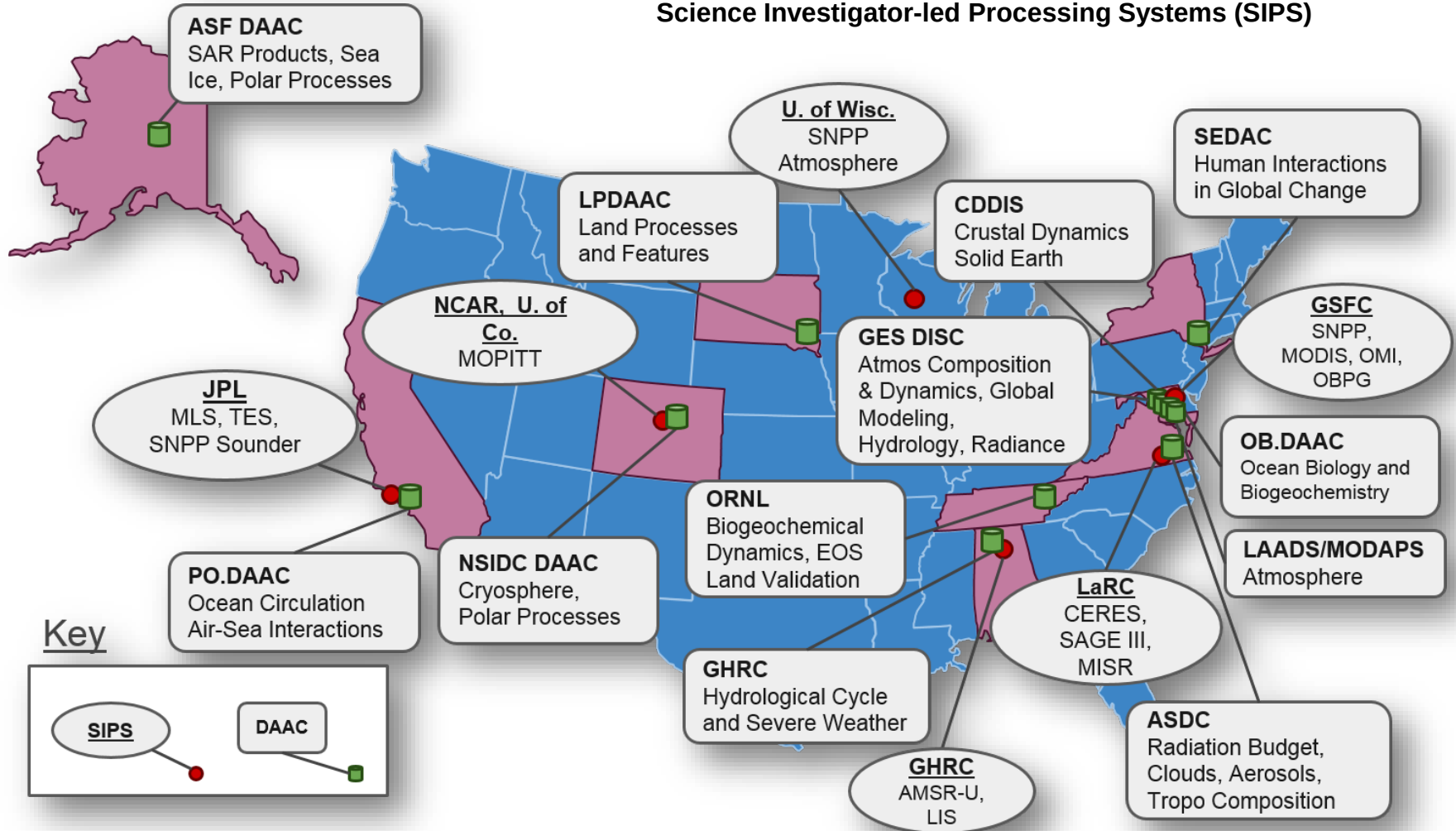
- Land
 - » Cover & Usage
 - » Soil Moisture
 - » Topography & elevation
 - » Temperature
- Human Dimensions
 - » Population & Land Use
 - » Human & Environmental Health

Earth Observing System Data and Information System (EOSDIS)

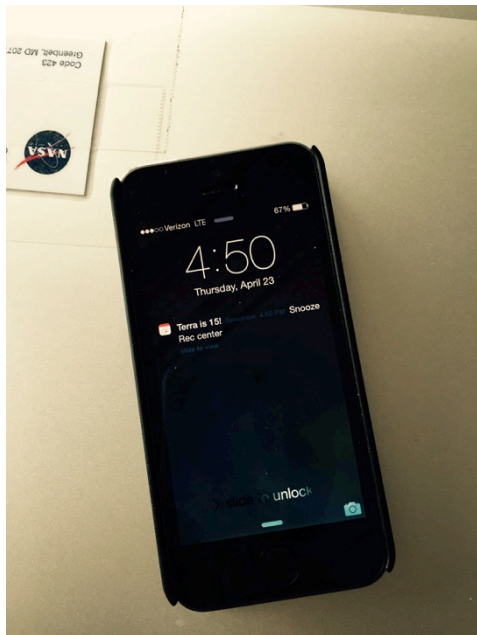


EOSDIS Components

Distributed Active Archive Centers (DAACs) , collocated with centers of science discipline expertise, archive and distribute standard data products produced by **Science Investigator-led Processing Systems (SIPS)**



Facing Change

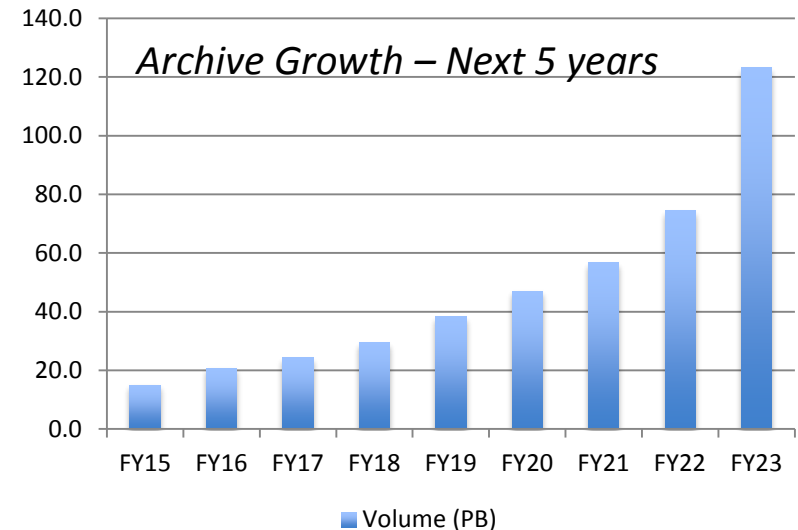


Photos by author, images from Pixabay

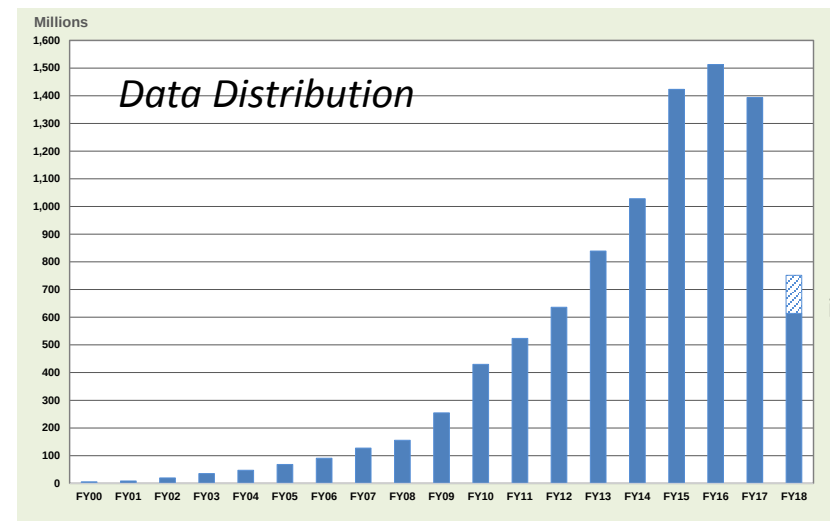
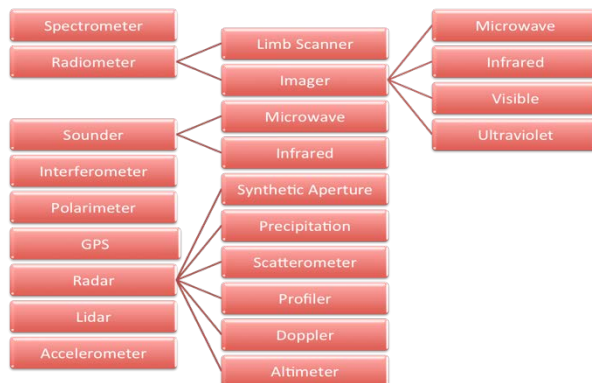
Specific Challenge 1

Growing Volume and Variety

- New instruments + New Products + continuing data = Growth + Variety
- Ensuring accuracy and consistency in metadata
- Employing new storage and service technologies; i.e commercial cloud
- Managing the pieces that accompany data; i.e. documentation



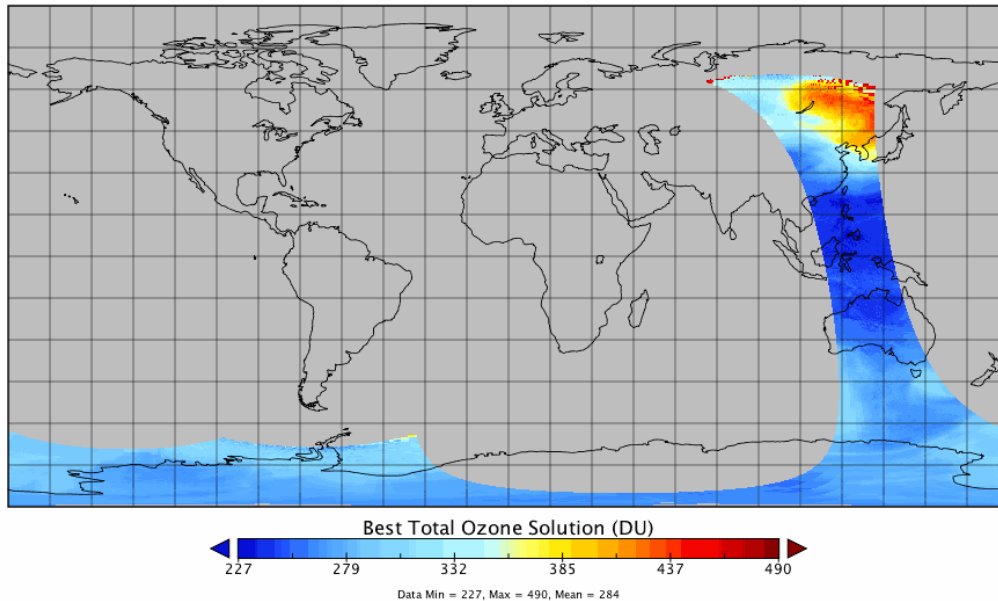
Instrument Variety



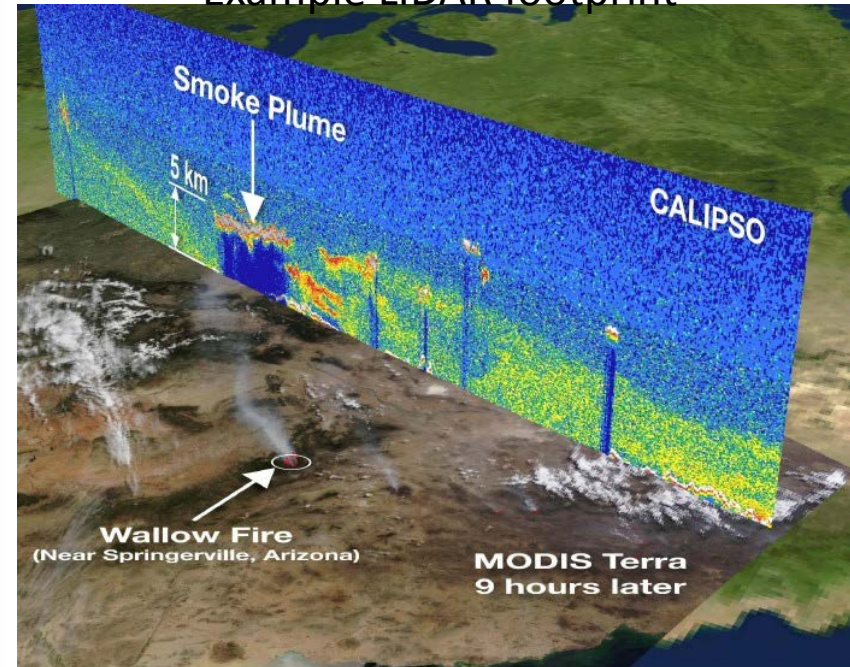
Satellite Instrument “Footprints”

Example Imaging Footprint

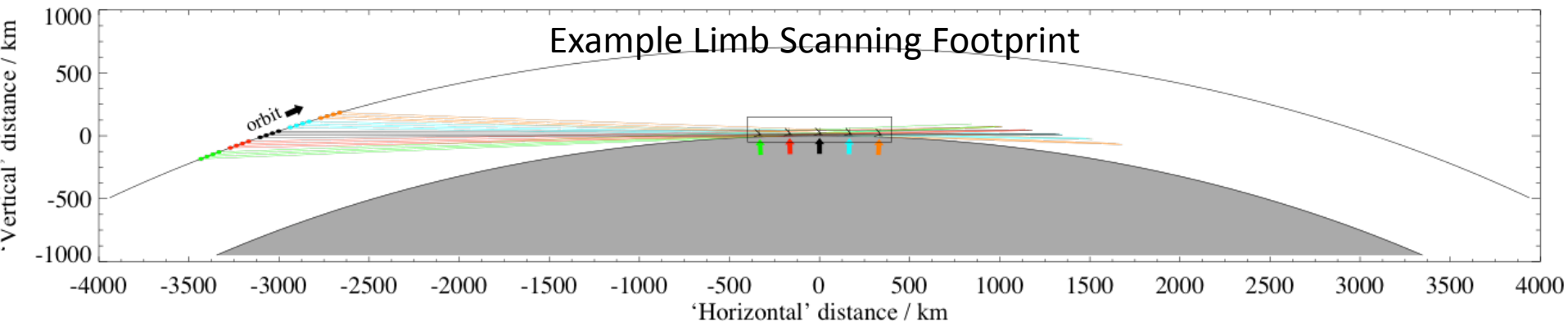
Best Total Ozone Solution



Example LIDAR footprint



Example Limb Scanning Footprint

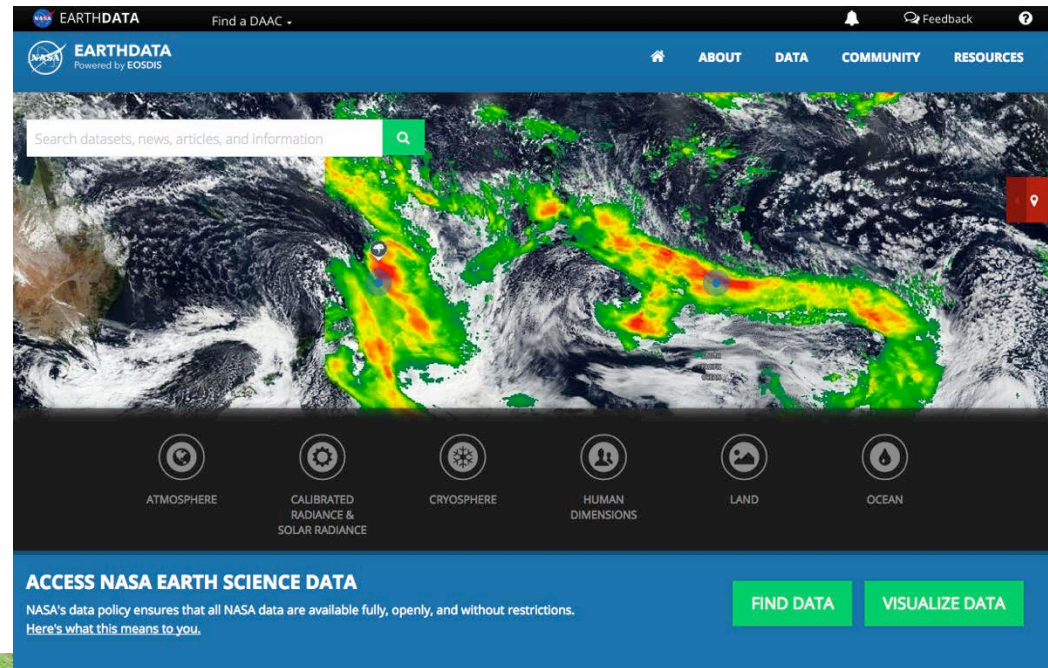
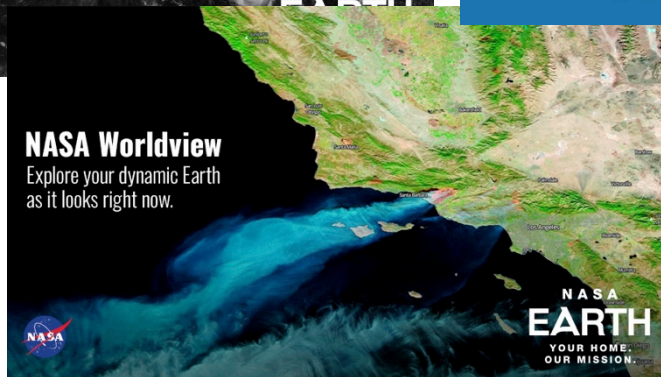


Microwave Limb Scanner (from Algorithm Theoretical Basis Document, Livesey and Wu, 1999)

Specific Challenge 2

Enabling Access and Discovery

- Providing users with search results that best meet their needs
- Service development is still the key to helping the user community

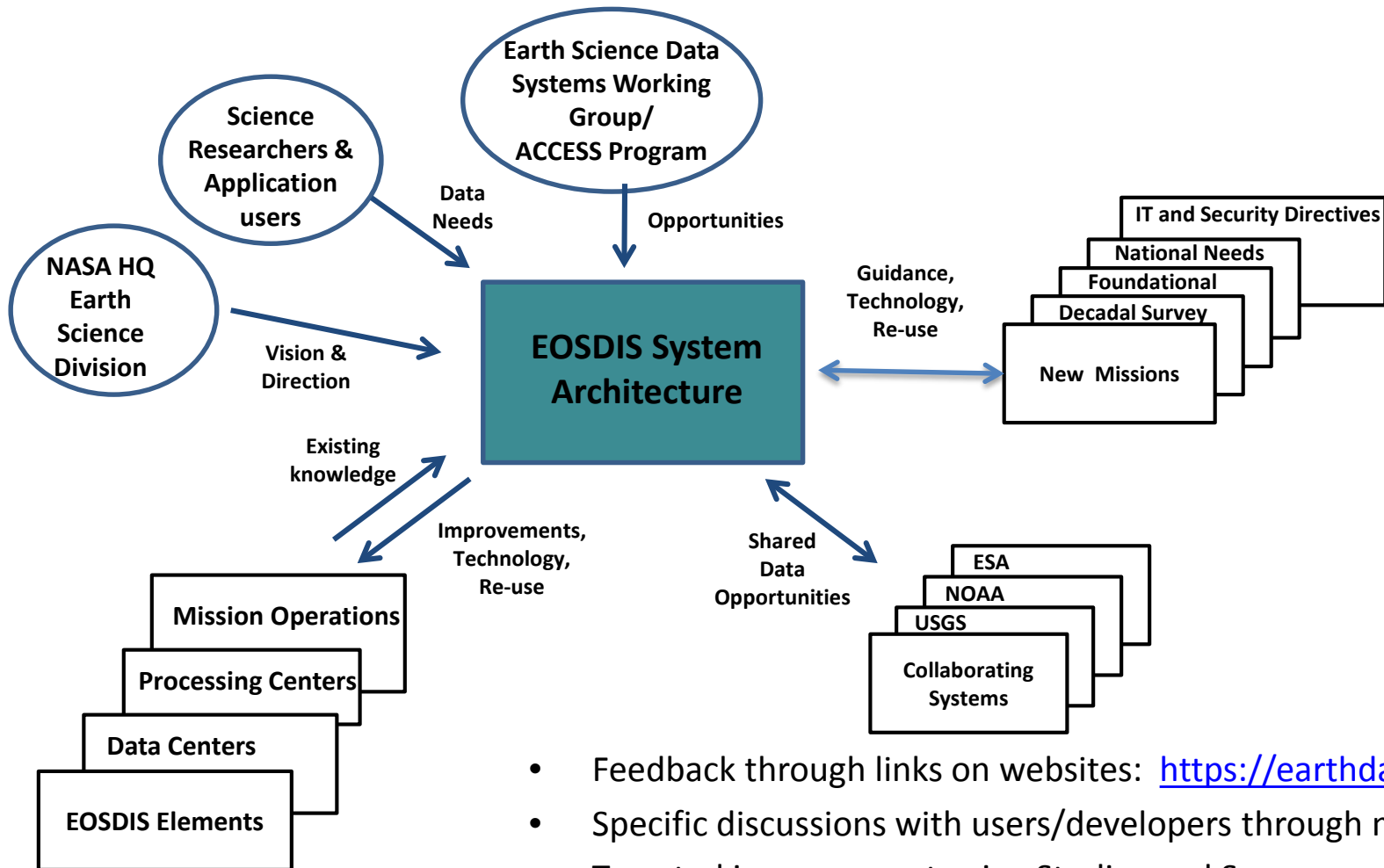


- Access Challenges addressed through:
 - Keeping ahead of changing privacy rules
 - Providing “analysis-ready” data
 - Providing near-archive processing/analysis services and tools
 - Ensuring all the content needed for understanding datasets by future users is identified and preserved

Images from nasa.gov & earthdata.nasa.gov

Specific Challenge 3

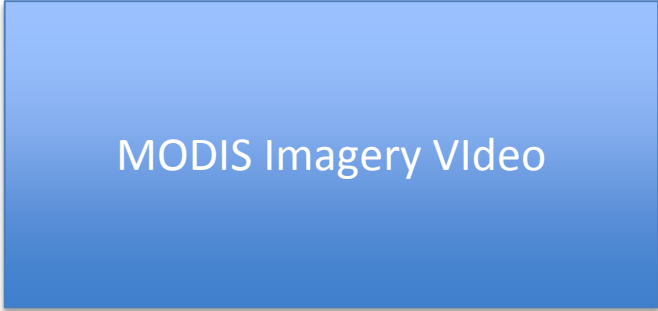
Incorporating User Feedback and Concerns



- Feedback through links on websites: <https://earthdata.nasa.gov>
- Specific discussions with users/developers through meetings
- Targeted improvement using Studies and Surveys; e.g. ACSI and Blink

Conclusion

- EOSDIS has been facing technical, organizational, sociological challenges over the past 2 decades
- Planned evolution helps us to keep ahead of issues



MODIS Imagery Video

Acknowledgements & References

- Paper and presentation co-authored by:
 - Andrew Mitchell, NASA GSFC, ESDIS Project Code 423
 - andrew.e.mitchell@nasa.gov
 - Jeanne Behnke, NASA GSFC, ESDIS Project Code 423
 - jeanne.behnke@nasa.gov
 - Dr. Hampapuram Ramapriyan, NASA GSFC and Science Systems and Applications, Inc
 - hampapuram.ramapriya@ssaihq.com
- For further information on EOSDIS:
 - <https://earthdata.nasa.gov>