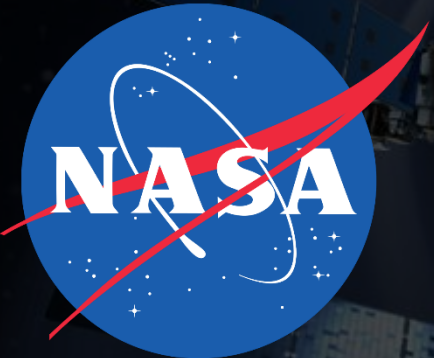
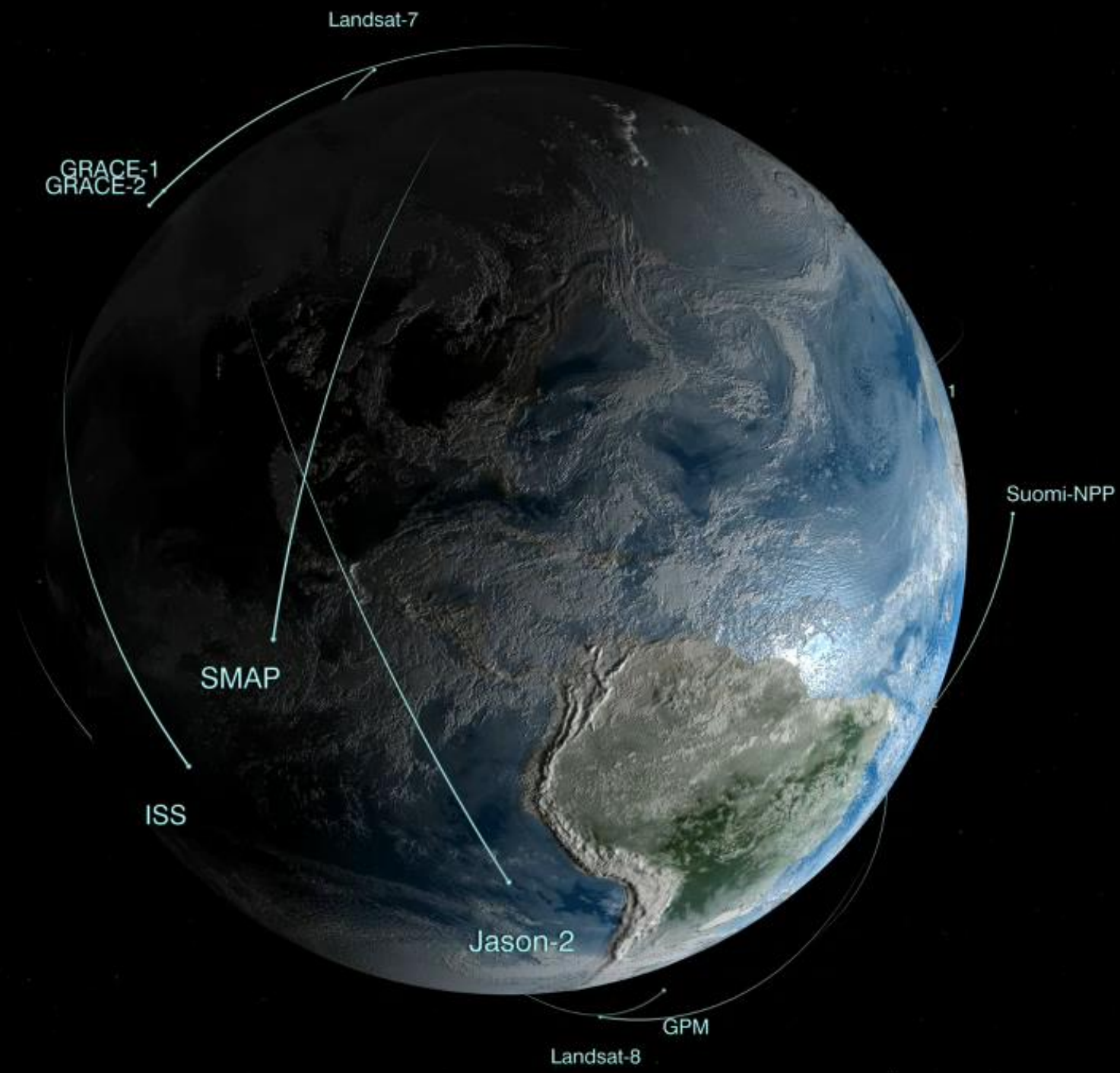


ADVANCING OUR UNDERSTANDING OF EARTH SYSTEMS THROUGH SATELLITE OBSERVATION PROGRAMS



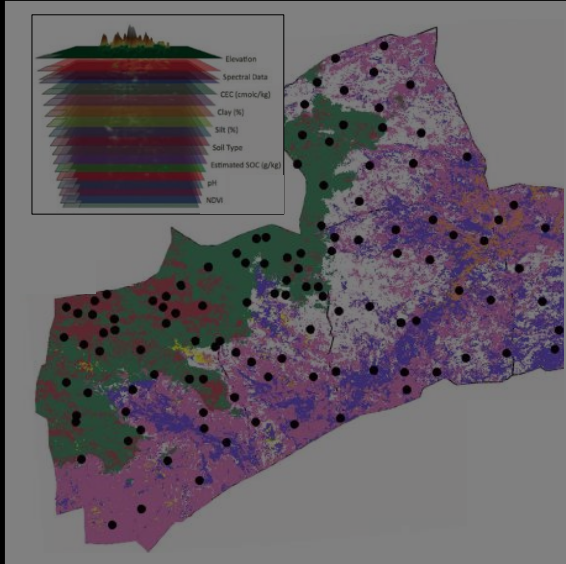
Keith Gaddis

NASA Headquarters - Earth Science Division
Applied Sciences and Research & Analysis Programs



NASA & Ecosystem Services

Funded Proposals



Workshop Series



EO4EA



NASA-CI Partnership





Application To Ecological and Biodiversity Monitoring



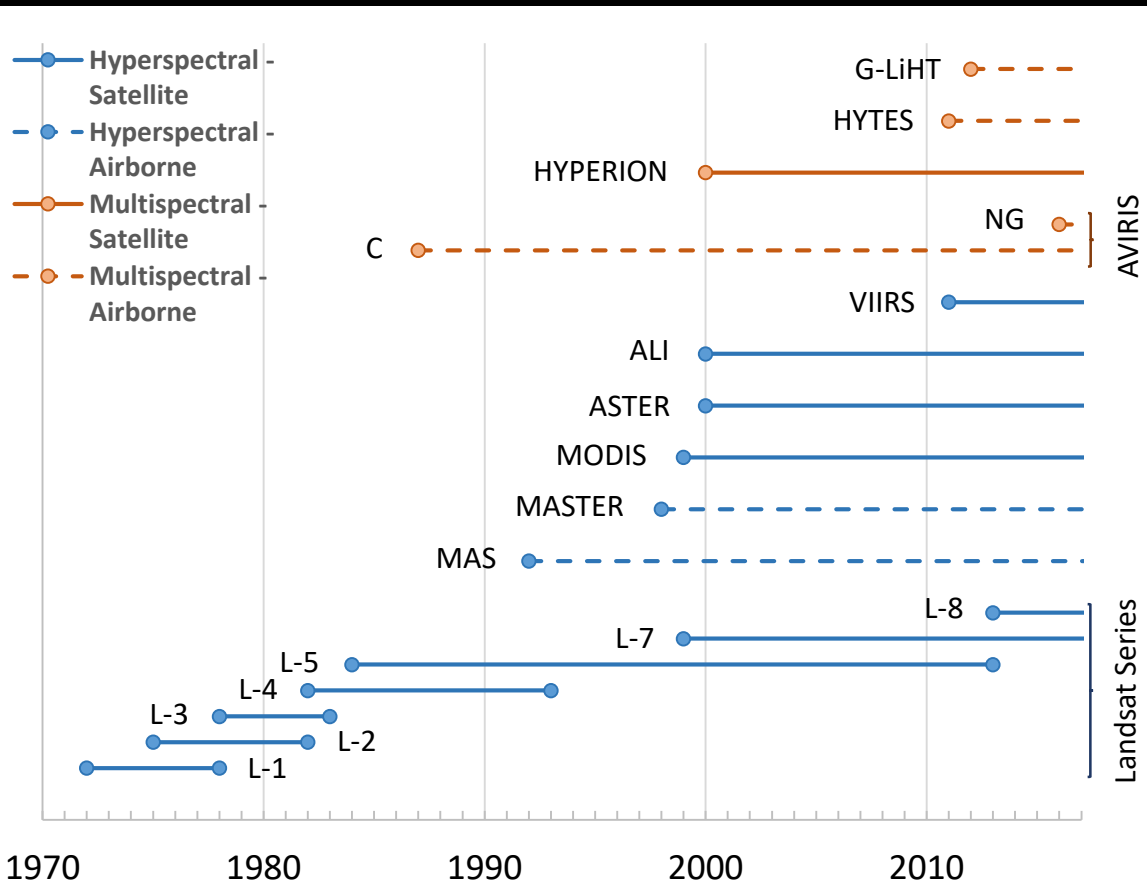
Direct Sensing of Biological Diversity

Land cover

-  Satellite
-  Aircraft
-  Shuttle or ISS

Direct Sensing of Biological Diversity

Land cover



Landsat

Terra/Aqua

Hyperion/ALI

EO-1

AVIRIS

VIIRS

Suomi
NPP

G-LiHT

AVHRR

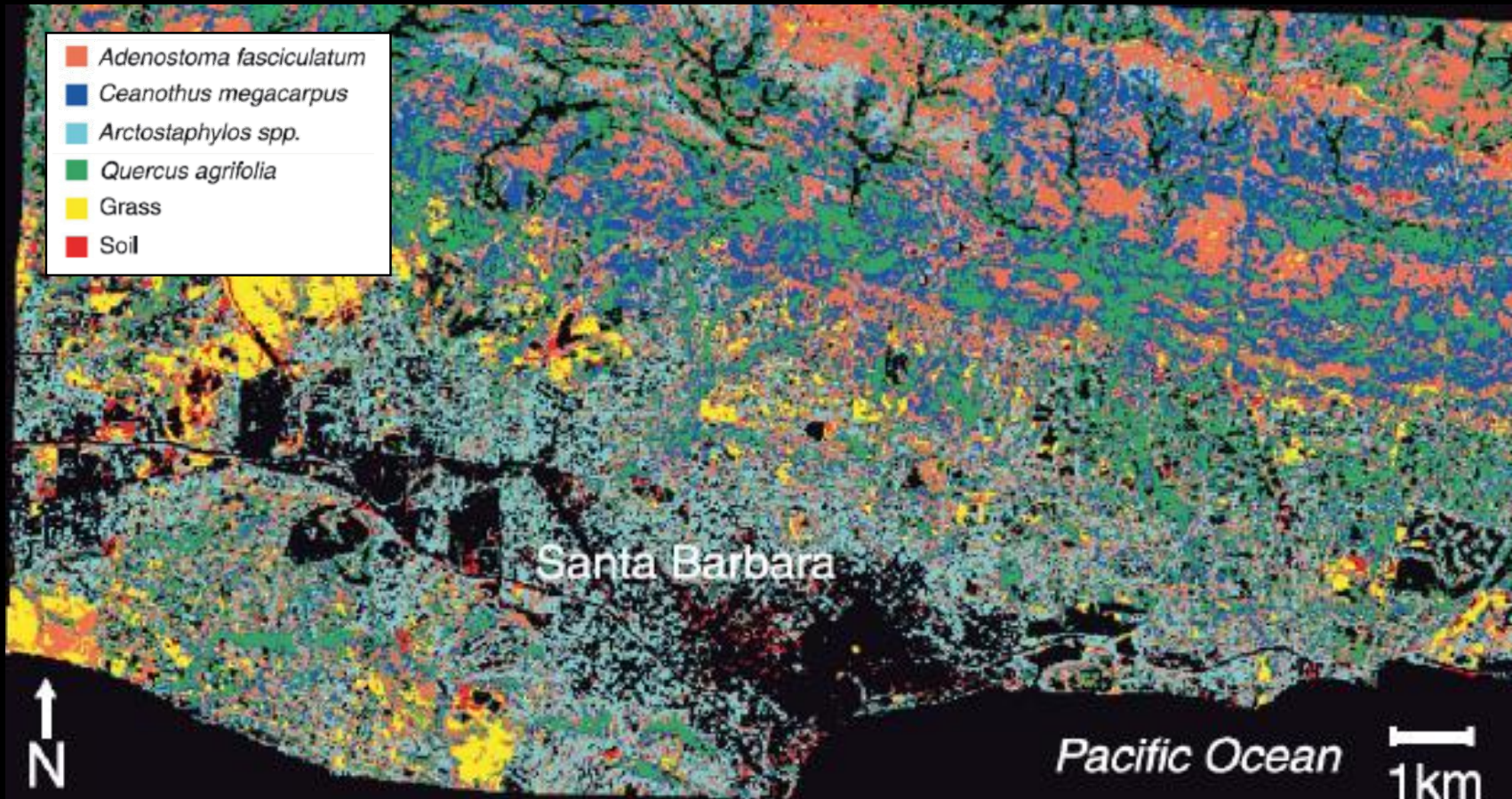
NOAA-19

HyTES

- Satellite
- Aircraft
- Shuttle or ISS

Direct Sensing of Biological Diversity

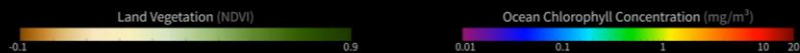
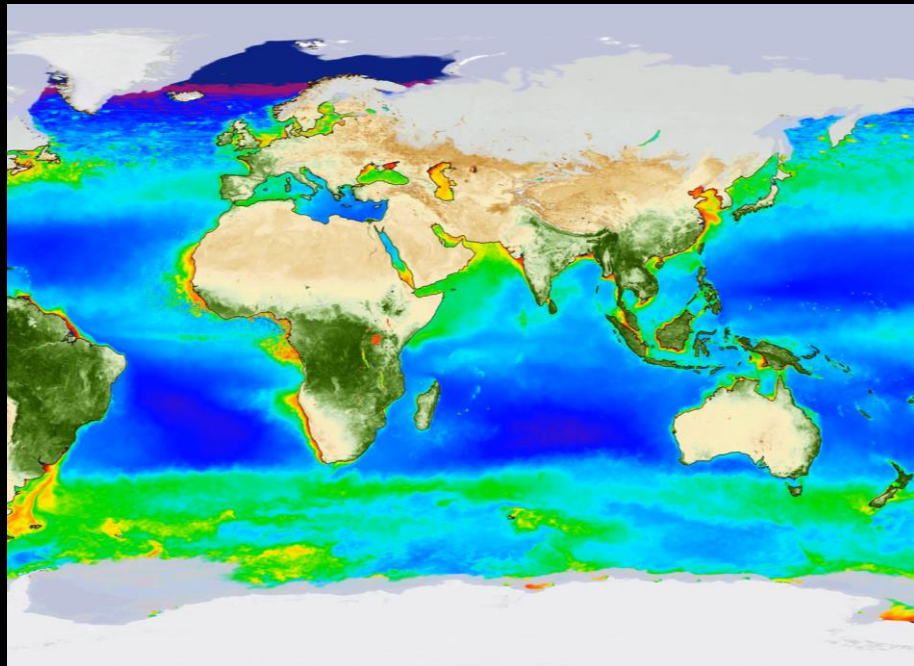
Species Composition



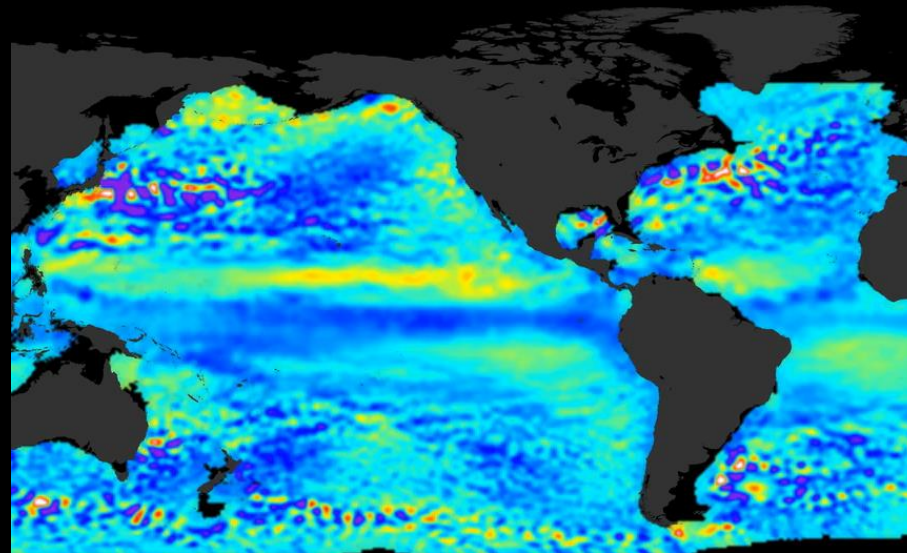
- Satellite
- Aircraft
- Shuttle or ISS

Indirect Sensing of Biological Diversity

Phenology



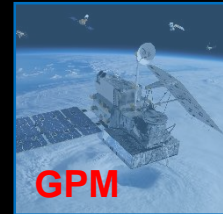
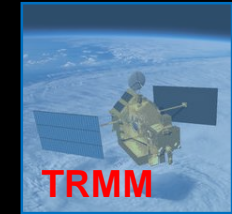
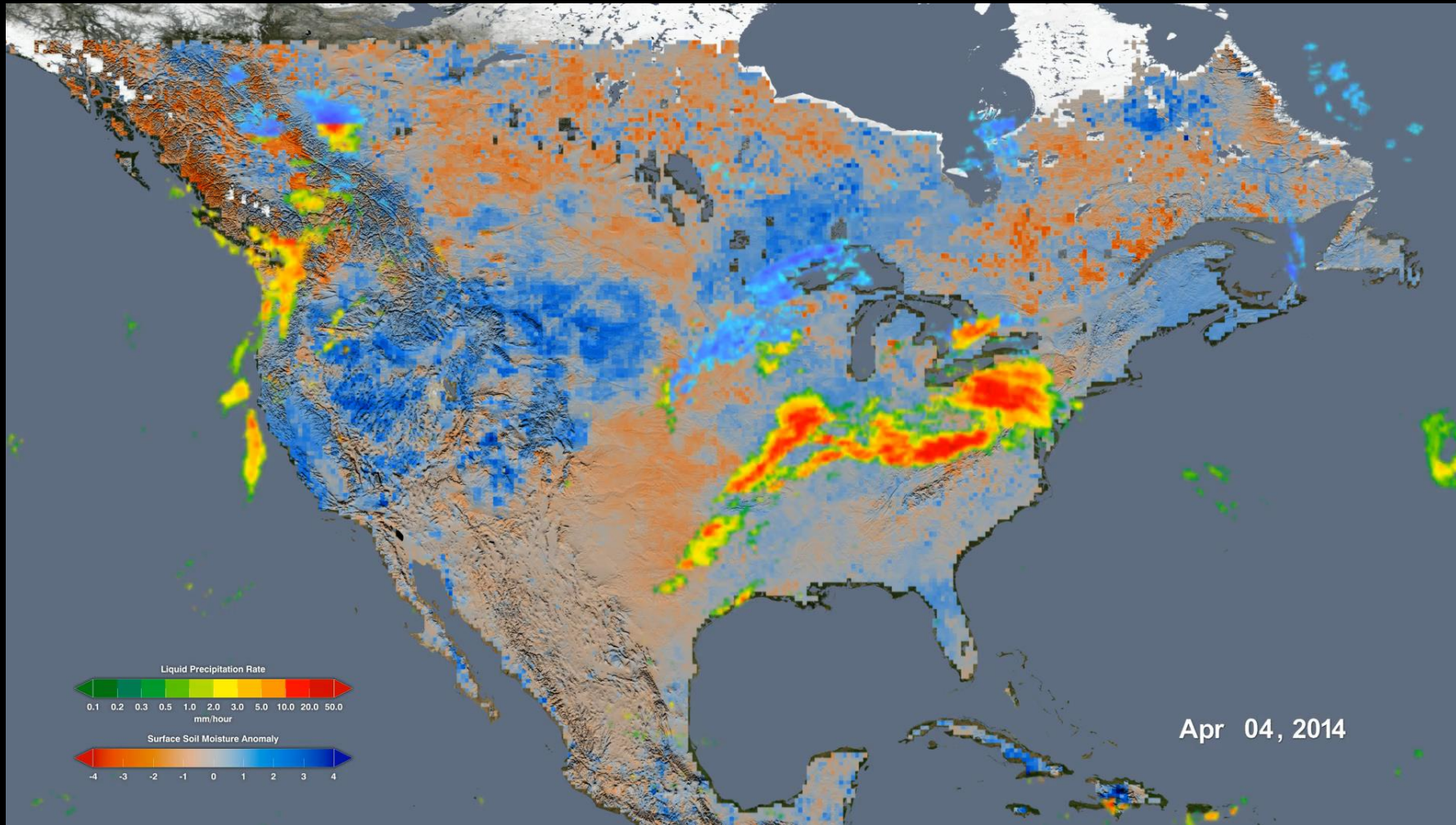
Ocean Color and Circulation



- Satellite
- Aircraft
- Shuttle or ISS

Climate

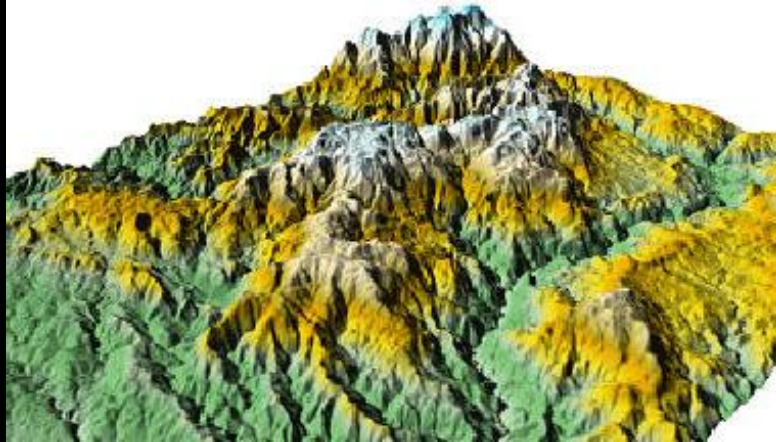
Rainfall and Soil Moisture



- Satellite
- Aircraft
- Shuttle or ISS

Habitat Structure

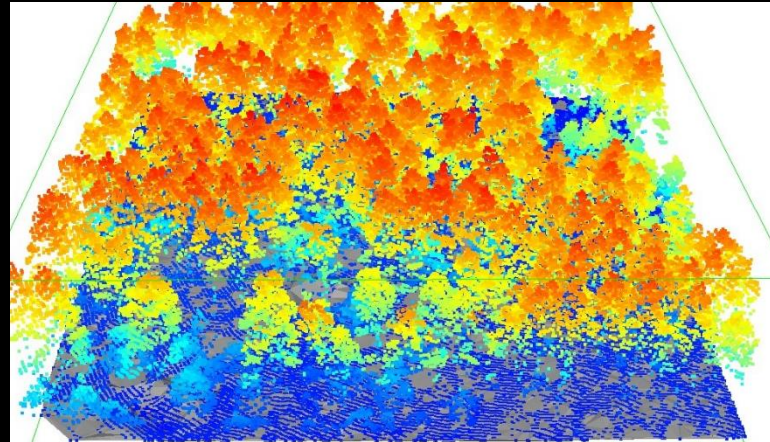
Topography



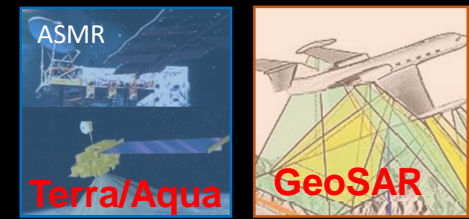
Aerosols



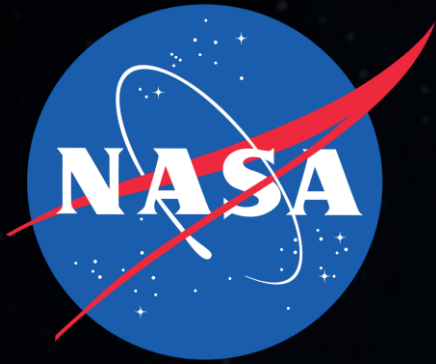
Canopy Structure



Nightlights and Wildfires



- Satellite
- Aircraft
- Shuttle or ISS



AppEEARS!

Application for Extracting and Exploring Analysis Ready Samples

<https://lpdaacsvc.cr.usgs.gov/appeears/>

ARSET

Applied Remote Sensing Training

<https://arset.gsfc.nasa.gov/>

Keith.Gaddis@NASA.gov