

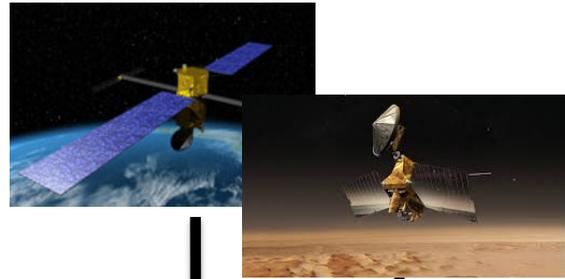


Jet Propulsion Laboratory
California Institute of Technology

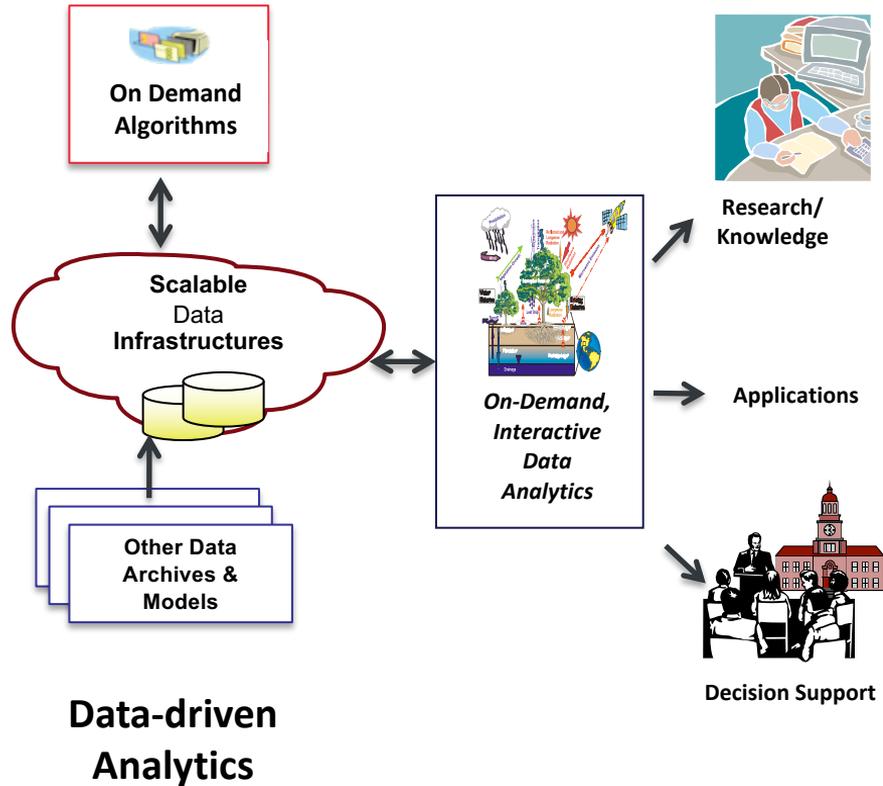
Earth Science Research Directions in Data Science

Ben Smith, JPL

Expanding to Data-Driven Analytics

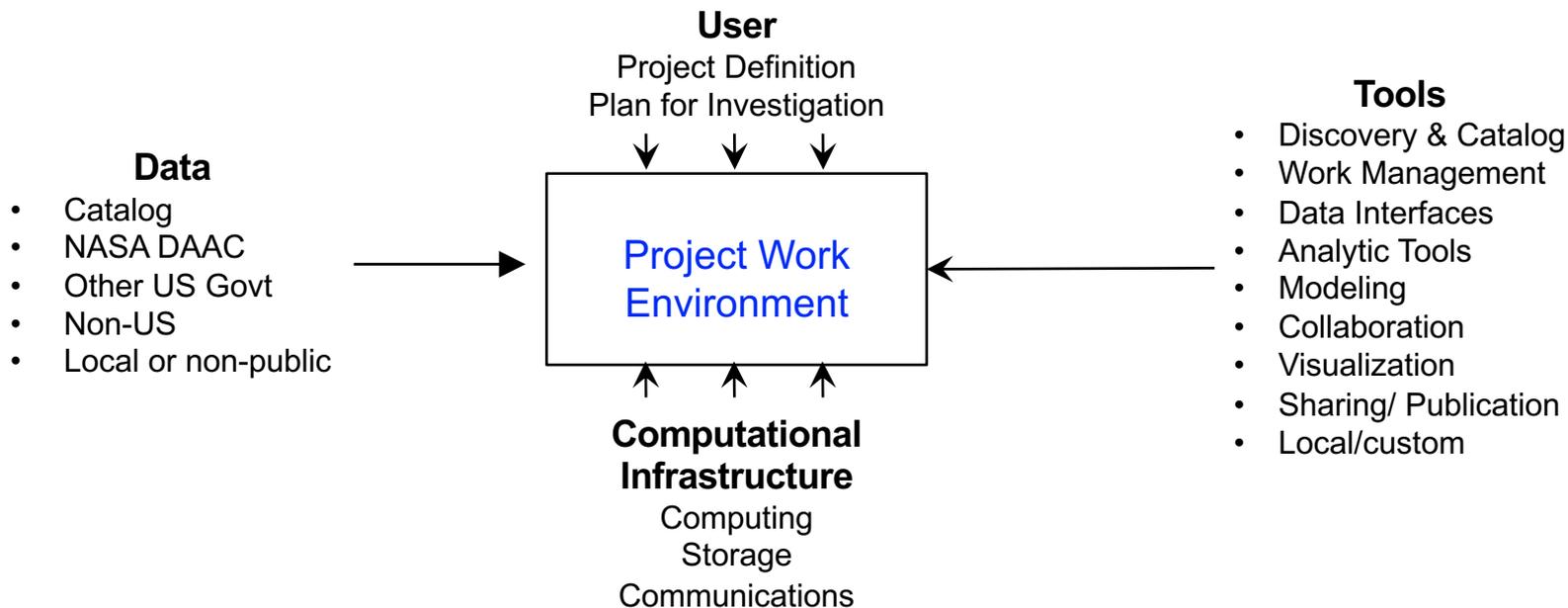


**Data Archiving and Stewardship
of Massive Data**



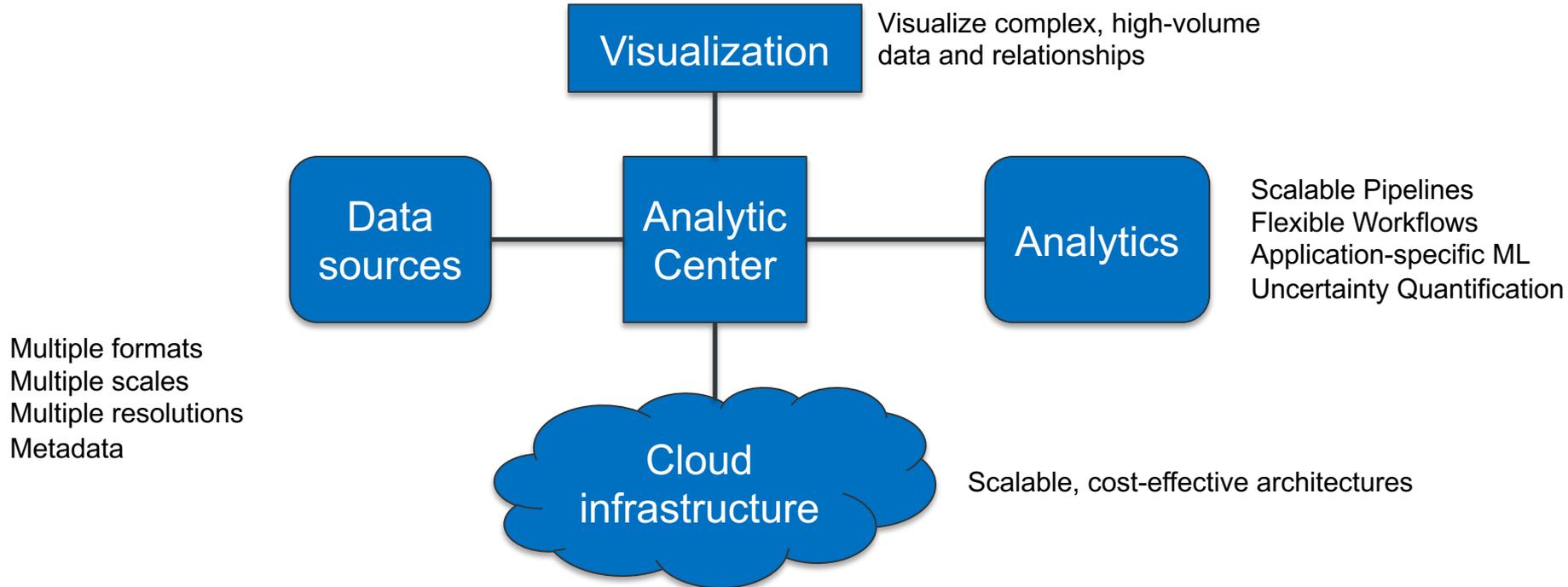
Analytic Center Frameworks

Focus on the Science User



An environment for data analysis tailored to a discipline or study.
Harmonizes data, tools and computational resources.

Some of the Challenges



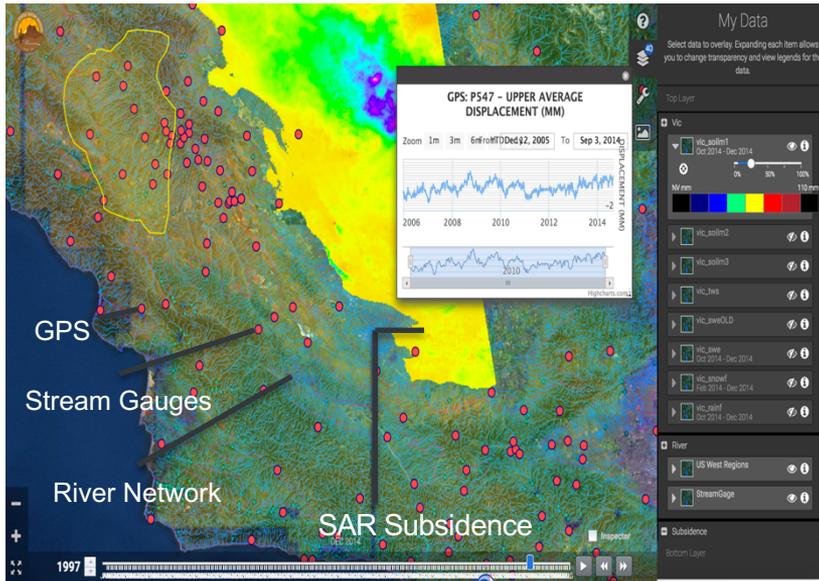
OceanWorks: An Analytic Center for Ocean Science



Credit: T. Huang, JPL

- **Visualize** parameter
- **Compute** daily differences against climatology
- **Analyze** time series area averaged differences
- **Replay** the anomaly and visualize with other measurements
- **Document** the anomaly
- **Publish** the anomaly

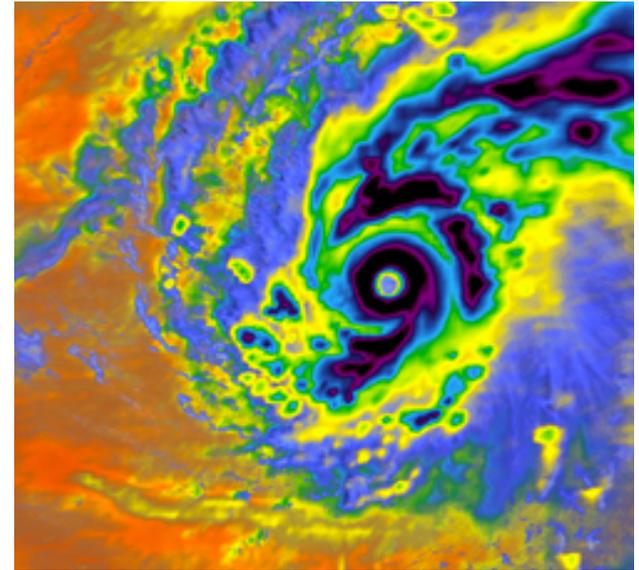
Analytic Centers for other domains ...



Credit: S. Malhotra et al

WaterTrek

Analytic center for hydrology

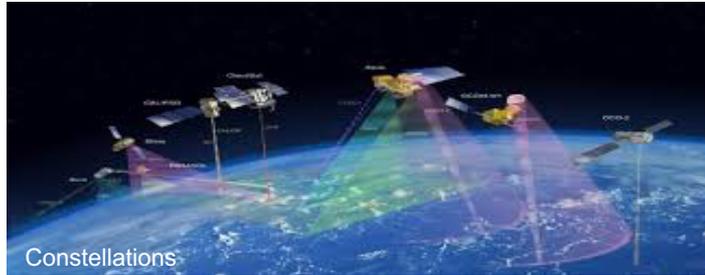


Credit: S. Hristova et al

Tropical Cyclone Information System

Analytic center for studying tropical cyclones

Future Vision: Data-driven Observing Systems



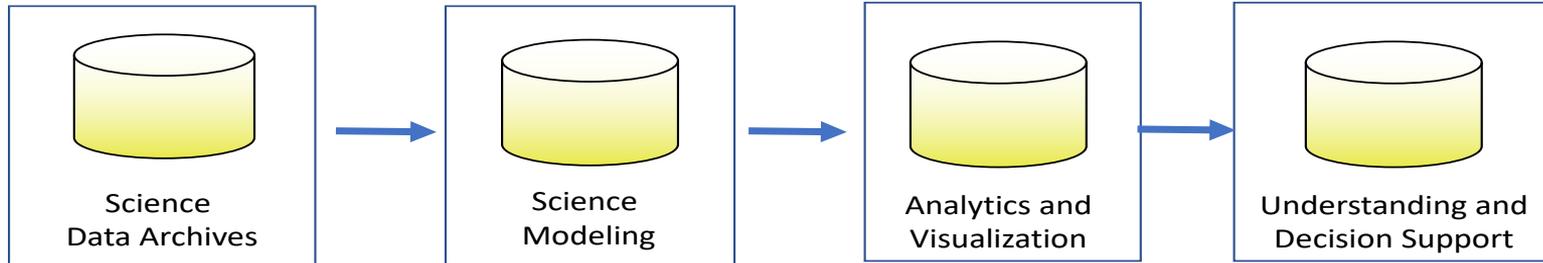
Onboard Intelligence

Uplink/Downlink

Processing



Planning



Reduce Latency

Provide Traceability

Increase Efficiency



Jet Propulsion Laboratory
California Institute of Technology

jpl.nasa.gov