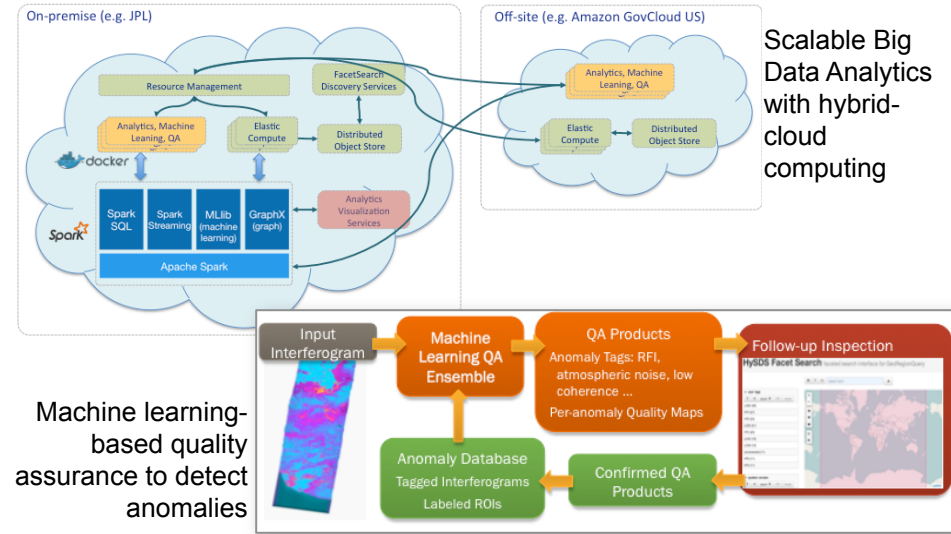


Agile Big Data Analytics of High-Volume Geodetic Data Products for Improving Science and Hazard Response

PI: Hook Hua, JPL

Objective

- Develop an advanced hybrid-cloud computing science data system for performing massive-scale analytics of geodetic data products. This includes:
 - Improving the quality of automated data product generation of high-volume and low-latency NASA solid Earth science data products to support hazards monitoring
 - Enabling end-user analysis to be performed on increasing collections of InSAR and GPS data in order to improve the understanding, quality, and features of the data



Accomplishments

- Developed a cloud-based system for agile and large-scale SAR analysis that applies machine learning and data analytics to assess and deliver high-quality data products.
- Enabled production of earthquake, flood, and volcano monitoring response products, including automated processing of proxy maps and urgent response interferograms from Sentinel-1A observations (and others), while lowering delivery latencies from 20+ hours to ~2 hours.
- Infused capability into missions supporting OCO-2 L2 full physics bulk processing, NISAR science data processing (85-430 TB/day expected), and SWOT science data processing (minimum 25 TB/day expected).
- Actively used in supporting analysis for Hurricanes Harvey and Irma through the Applied Science Disaster response program including autonomous response to the M8.1 Mexico earthquake, all in September, 2017.
- Received 2017 AGU Charles D. Falkenberg award in recognition of the impact of this, and related, work.

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TRL_{in} = 3 TRL_{out} = 5