HyspIRI Low Latency Products Concept of Operation

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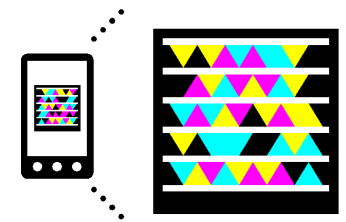
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User Stories

- **Context**: A tsunami hits Japan, NASA scientists are called upon to image area and determine the impact of disaster.

1. Scientist requests low-latency imaging and specific product(s) by area and theme of interest. This generates one or more products that are immediately downloaded as soon as they are acquired and processed. User is notified upon product availability.
2. Much later, scientist [re-]processes existing data on the cloud using existing algorithms.
3. Scientist creates custom algorithm.
4. Algorithm is uploaded to satellite for subsequent ad-hoc product generation

1. Tasking Request

- ✓ User requests low-latency imaging and specific product(s) by area and theme of interest.
- ✓ HyspIRI is one of the available SensorWeb assets.
- ✓ Request is submitted to satellite(s).
- ✓ One or more products are immediately downloaded as possible.
- ✓ User is notified upon product availability via data feed.
- ✓ User displays product on Google Earth or IPAD or desktop.

2. Cloud Processing

✓ User decides to [re-] process data from specific area or specific task request.

✓ User picks algorithm to execute against specific data set.

✓ User is notified when product is generated

✓ User selects product from data feed and display it on Google Earth

3. New Algorithm on the Cloud

- ✓ User decides to customize an existing algorithm or create a new one.

- ✓ User could even use WEKA (Machine Learning Tool) and upload its output to WCPS.

3. New Algorithm Onboard

✓ User is satisfied with new algorithm.

✓ User submits algorithm for upload to HyspIRI

✓ Algorithm is now available for ad-hoc custom processing

Low Latency Products

HyspIRI

- Quick Response Ad-hoc Processing Where the Data is
  - On board
  - On the Cloud
  - Near Real-time
- Science (and Applications) As A Service
  - For Scientists
  - And Many Others...

Thank You!

NASA

Goddard

SPACE FLIGHT CENTER