# Development of a Cloud-based Toolkit for Land Data from the PACE Ocean Color Instrument

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## Background

NASA hyperspectral missions:

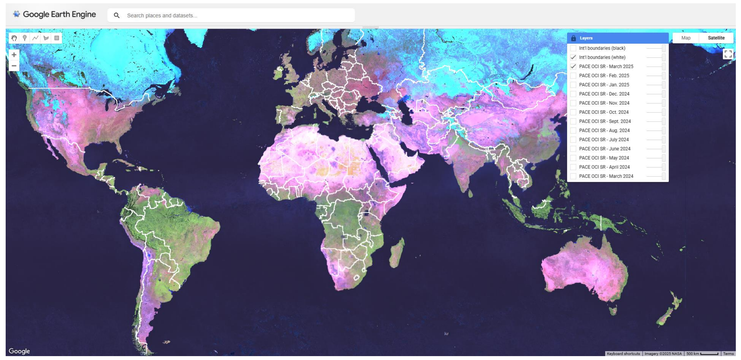
- EO-1 Hyperion (~May 2001 – March 2017)
  - 30m res. / on demand / 224 bands / 427-2,396 nm
- EMIT (~Aug. 2022 – present)
  - 60m res. / on demand / 285 bands / 381-2,493 nm
- PACE OCI (March 2024 – present)
  - 1.2 km res. / DAILY global / 122 bands / 346-2,258 nm
- SBG (~2027-2028)
  -Technical details TBD

## Major objectives

- Get PACE OCI land data into Google Earth Engine
  - *PACE data are big; GEE facilitates work w/ big Earth data*
  - *GEE facilitates comparisons w/ other data*
    *e.g. EMIT, Hyperion, MODIS, etc.*
- Provide basic tools for interacting with said data
  - *Just having access to the data isn't enough*

## Toolkit features

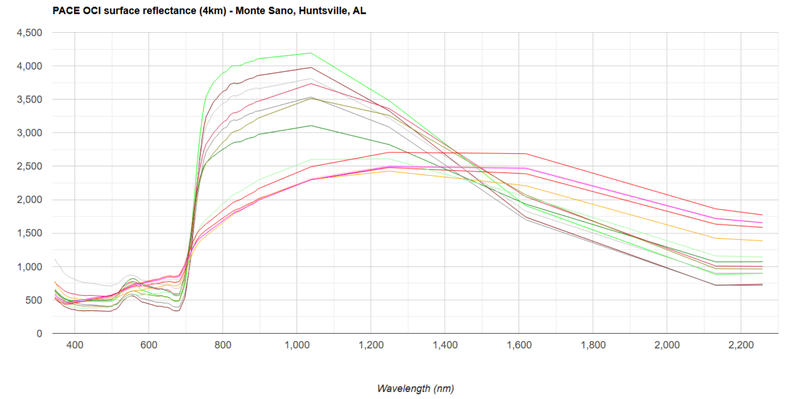
1. Data discovery
2. Data visualization
   - *Viewing images*
   - *Visualizing spectral signatures*
3. Time series analysis
4. Gap-filling
5. Image classification




## Toolkit dependency packages

1. Miscellaneous functions
   - PACE OCI (v3) wavelengths [122 bands]
   - Vegetation index (VI) equations
   - Example band combinations for visualizations

2. Data loader
   - Surface reflectance data – monthly only
     -Mesoamerica (4km, a few 1km select daily scenes)
     -CONUS (4km)
     -Global (0.1 degree)
   - VIs – 8 day, monthly (4km, global)

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*Development in progress!*

***You can now access and process PACE OCI land data via GEE.***

***What will you do?***

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