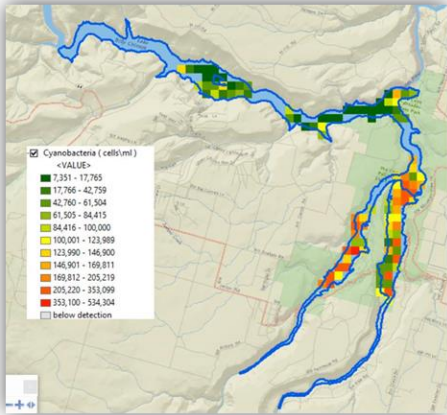


Oregon DEQ Water Quality Program

A new web application for satellite imagery of freshwater cyanobacteria harmful algal blooms in Oregon

April 15, 2021

Region 10 HABs call check in meeting



Project Goals

- Identify and monitor cyanoHABs in Oregon using satellite imagery
- Build early warning system for cyanoHABs using a combination of satellite and *in situ* continuous data
- Use satellite imagery to help identify contributing/determining factors of cyanoHABs

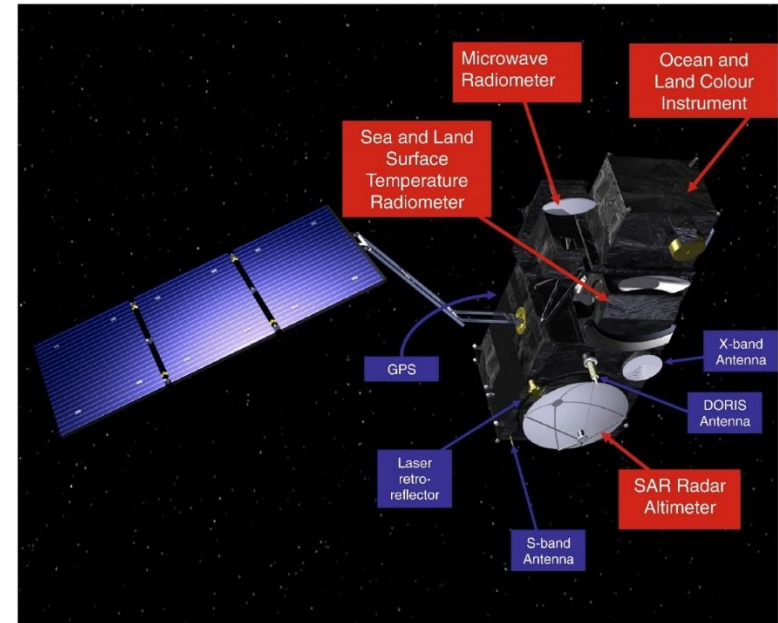
CyAN imagery from EPA

Sentinel-3 OLCI

- 300m pixels
- optimal spectral bands
- from 2016 (June)
- 1-2 day return time
- Uses both Sentinel 3a and 3b

Data:

- **Cyanobacteria Abundance (CI) in cells/ml**
- Spectral Shape Algorithm (based on *Wynne, et al 2008; 2010*) focusing on Phycocyanin
- *Includes error detection*
 - mixed land water, dry lakes, snow/ice, stray light
- ~85% correlation of blooms (> 100,000 cells/ml) with advisories throughout US



44+ 'resolvable' lakes within Oregon

Oregon DEQ R Shiny Application demonstration

- Application
- Github repo

Acknowledgements

- Alison Frohn, Oregon DEQ HABs monitoring Coordinator
 - Aaron Borisenko, Oregon DEQ Water Quality Monitoring Manager
 - The Oregon DEQ Harmful Algal Blooms Coordination Team
 - Rochelle Labiosa, US EPA R10
 - Blake Schaeffer, USEPA ORD
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- **Lead contact:**
 - Dan Sobota, Oregon DEQ: daniel.sobota@deq.state.or.us
 - **Github repository:**
 - https://github.com/OR-Dept-Environmental-Quality/HAB_Shiny_app