

NASA & NOAA Training on Monitoring Water Quality in the Great Lakes

October 25-26, 2016

NASA Glenn Research Center

Cleveland, OH

A 2015 study¹ indicated that harmful algal blooms (HABs) in Lake Erie in 2011 and 2014 cost the area tens of millions of dollars. In addition to damaging property and causing a decline in tourism, HABs can also have detrimental effects on water quality. Remote sensing observations can be an important tool for monitoring water quality, including HABs.

This joint workshop between NASA ARSET and NOAA will provide information on the background, access, and interpretation of NASA remote sensing observations relevant for water quality monitoring. The training will focus on how NOAA uses remote sensing for harmful algal bloom monitoring in the Great Lakes, and how drinking water utilities and water resource managers can also apply remote sensing to make better decisions about water quality management.

October 25, 2016

Session One: Overview of NASA Remote Sensing

9:00 – 9:15: Introduction and Course Outline Presentation (NASA)

9:15 – 9:30: About ARSET and NOAA Great Lakes Environmental Research Lab Presentations (NASA, NOAA)

9:30 – 10:15: Overview of Remote Sensing and Usage for the Cyanobacterial Index (CI), NOAA HAB Tracker, and HAB Bulletin Presentations (NASA)

10:15 – 10:30: Break

10:30 – 11:00: Tracking Satellite-based Chlorophyll Concentration in the Great Lakes Presentation and Demonstration of NASA Web Tools for data access (NASA)

11:00 – 12:30: Tracking Satellite-based Chlorophyll Concentration in the Great Lakes Using NASA Web Tools Case Study: Hands-on Exercise

12:30 – 1:30: Lunch

Session Two: NOAA HAB Tracker

1:30 – 2:15: Overview of HAB Tracker Presentation (NOAA)

2:15 – 3:00: Participant Presentations on Data Applications and Needs Presentations (Stakeholders)

3:00 – 3:15: Break

3:15 – 5:00: HAB Tracker Case Studies: Understanding and Interpretation
Hands-on Exercise (NOAA)

October 26, 2016

Session Three: Remote Sensing Data Usage for HAB Applications

9:00 – 9:45: Landsat High-Resolution Images for Water Quality Monitoring
Presentation and Demonstration of Landsat Data Access (NASA)

9:45 – 10:30: Examples of Using Remote Sensing Images, In Situ Data, and
Models for Water Quality DSS Presentation (NASA)

10:30 – 10:45: Break

10:45 – 12:00: Using Remote Sensing Data for HAB Monitoring Group Projects -
Participants Select Case Studies: Hands-on Exercise (NASA and NOAA)

12:00 – 12:30: Participants Presentations

12:30 – 1:30: Lunch

1:30 – 2:15: Hyper-Spectral Imager for Water Quality Monitoring Presentation
(NASA; Lekki and Liou)

2:15 – 3:00: Hyper-spectral Images - Demonstration and Interpretation (NOAA)

3:00 – 3:30: Q/A and Course Feedback Survey

ⁱ “Economic Benefits of Reducing Harmful Algal Blooms in Lake Erie,” M. Bingham, S. K. Sinha, and F. Lupi, Environmental Consulting & Technology, Inc., Report, 66 pp, October 2015.