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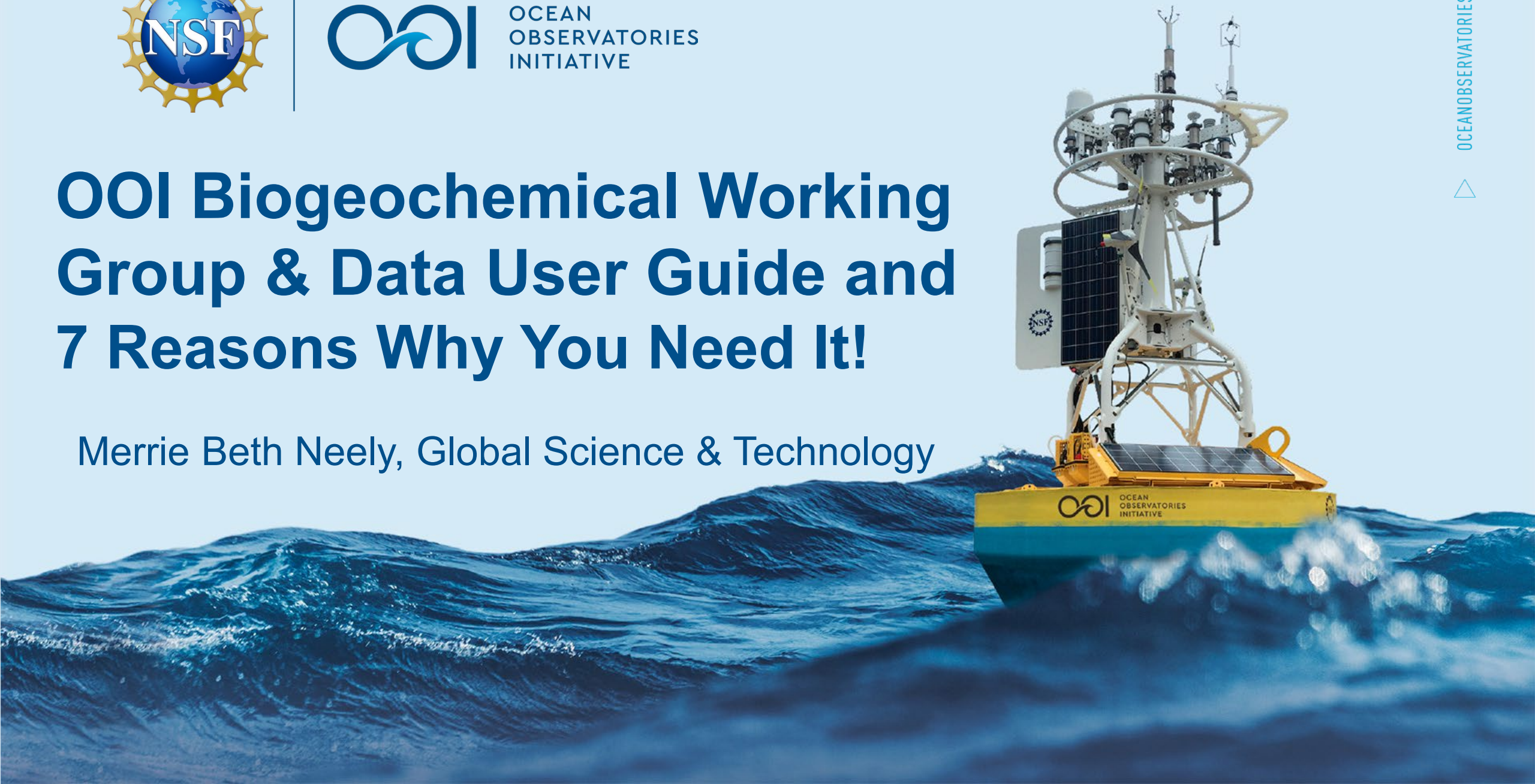
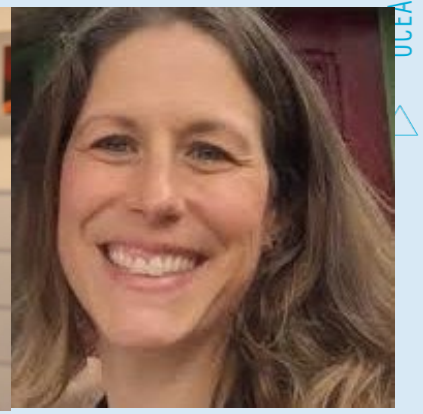
OOI Biogeochemical Working Group & Data User Guide and 7 Reasons Why You Need It!

Merrie Beth Neely, Global Science & Technology



OOI Biogeochemical Sensor Data Working Group

Goal: To broaden the use of OOI biogeochemical sensor data and increase community capacity to produce analysis-ready data products



Working Group formed with 25 members in July 2021

3 day virtual kick-off meeting in July 2021

Collaboration in sub-groups + 5 full working group follow on meetings in 2021 and 2022

3 day in person workshop in June 2022 at WHOI (in conjunction with OCB)

OOI BGC WG Organizers:
Hilary Palevsky (Boston College)
Sophie Clayton (ODU)
Heather Benway (WHOI

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OCB Ocean Carbon & Biogeochemistry

OOI Biogeochemical Sensor Data Workshop: June 16-18, 2022

36 participants from 19 institutions across 5 countries
Graduate students to Senior scientists
Participants from other ocean observing systems (ONC, PAP-SO)

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OOI Biogeochemical Sensor Data: Best Practices & User Guide
(Version 1.1.1 Circa 2023)

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Introduction & Quick Start Guide

Introduction to OOI program & OOI BGC data
OOI data access & availability - pointer to OOI resources
Overview of internal-to-OOI BGC data processing
Overview of recommended end user QA/QC for all sensor types

Chapters for 4 groups of BGC variables & sensors:

Oxygen, Nitrate, Carbonate Chemistry, and Bio-Optics

Introduction to sensors, including manufacturer, model, OOI class-series designators and platforms where deployed
OOI practices for deployment, calibration, and internal data processing

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6 Great Reason Y U Need This User Guide!

“We recognize that working with OOI BGC data can, at first glance, be a daunting task. The number of different methods for accessing and downloading data, integrating multiple sources of data, the different sensors with their individual characteristics, and the sheer quantity of data can require a sizable investment of effort. The intention of this document is to lower the barrier to entry and support users in accessing and making use of the rich BGC datasets collected and provided by the OOI.”

1. Different Ways to Access OOI data
2. Instrument details, locations, sampling rate, calibration information
3. List the likely data corrections a user will apply & relevant examples
4. Flow chart of L0-L2 OOI internal data processing & OOI product names
5. Worked example datasets
6. Pseudocode and links to GITHUB & Python Notebooks

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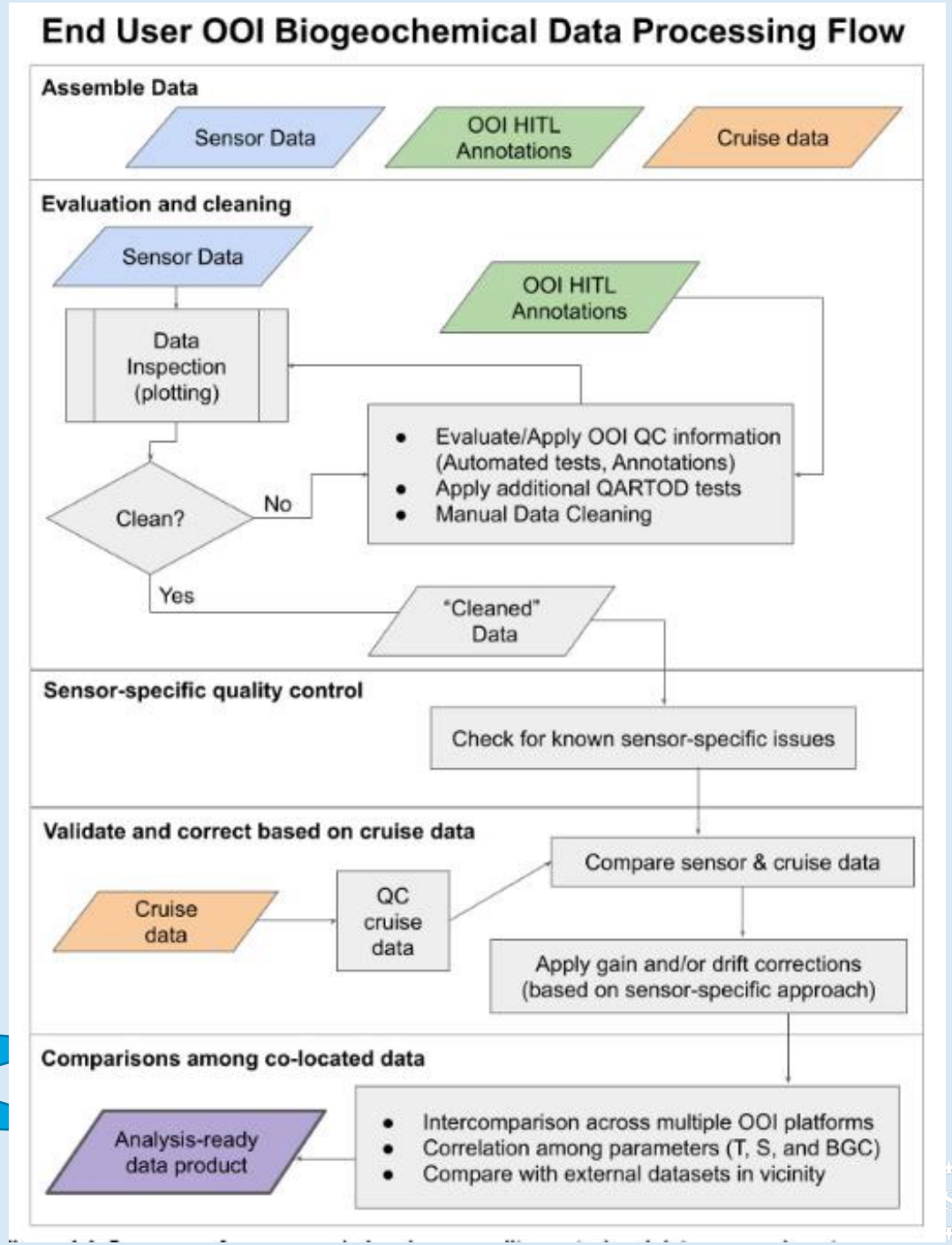
DATA USER CONSIDERATIONS

- Guidance common to all data files
- Different platforms (fixed, mobile, gliders, AUVs)
- QA and QC procedures, flagging, and physical samples
- Data file cleanup
- Sensor, location or parameter specific guidance
- Validation/Correction
- Comparison with co-located samples

We recommend where in flow to apply corrections!



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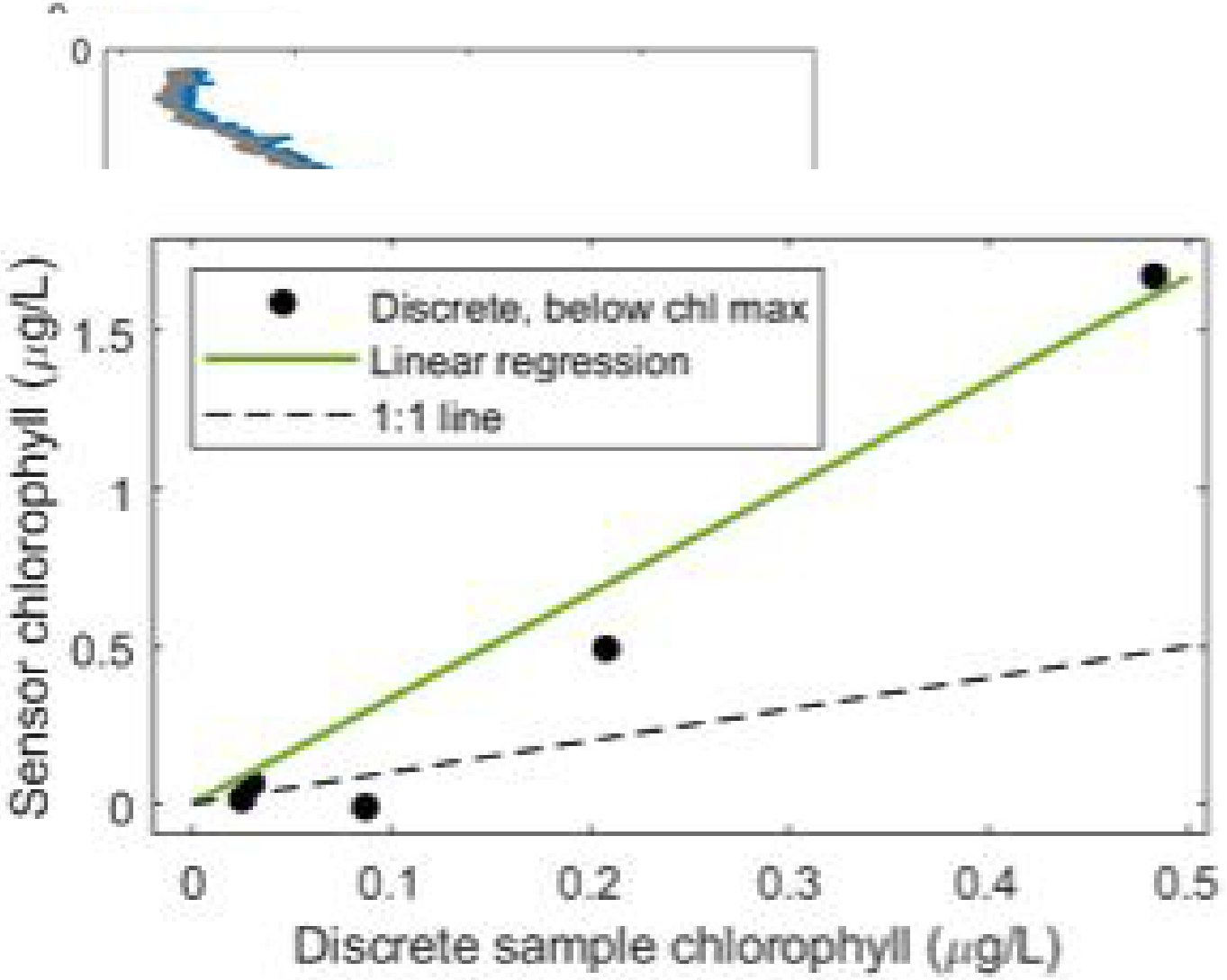

Figure 5.6. Linear regression of the bottle *chlorophyll-a* and sensor *chlorophyll-a* data using match-ups based on depth. A quenching filter has been applied (i.e., only data below the chlorophyll maximum depth are used) to determine the linear regression relationship.

ONE MORE REASON WHY YOU NEED THIS USER GUIDE!

Appendix

A1. OOI websites with key information
A2. Terminology
A3. Additional external-to-OOI resources on QA/QC and BGC sensors
A4. Code toolboxes
A5. GitHub repository for Worked Examples
A6. OOI for Teaching
A7. Schematic drawings of OOI Arrays

IDEALOGICAL FRAMEWORK

Go forth and use OOI data!

USER GUIDE

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