Optical Absorption from CDOM at Coastal Pioneer week 1 April 2021

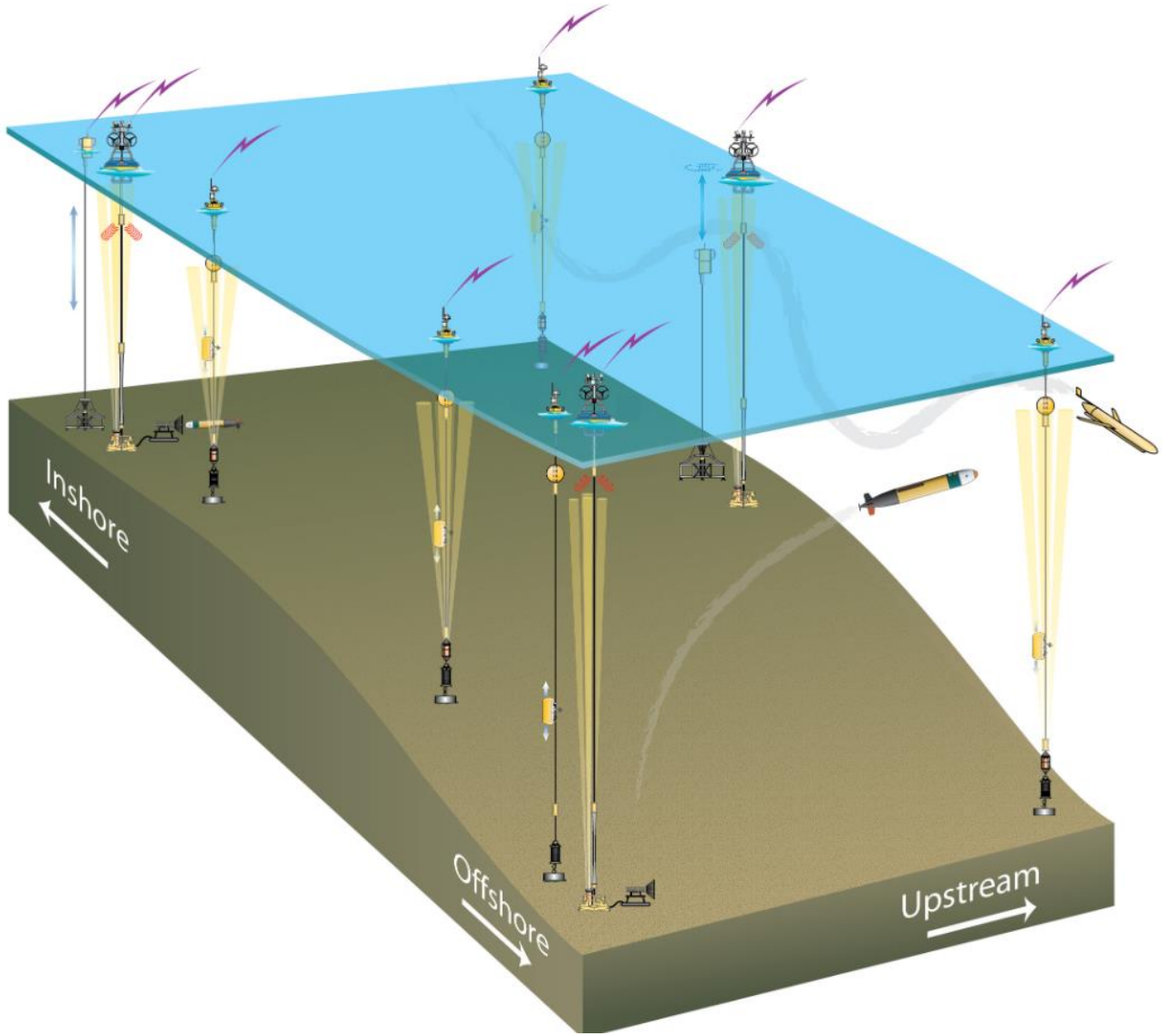
Christa Baranowski, University of South Florida

Kylene Cooley, Woods Hole Oceanographic Institution

Nishat Nimni, University of Maryland Eastern Shore

Coastal Pioneer Array

- Inshore Surface Mooring NSIF OPTAA data
- Deployment – depl. 13
- Specifically – Optical Absorption Coefficient at 7m
- Time Span – 2-11 April 2021
- Reference Designator: CP03ISSM-RID27-01-OPTAAD000



Investigate the absorption spectra with relation to CDOM and Chlorophyll during a certain time period at the Pioneer Array.

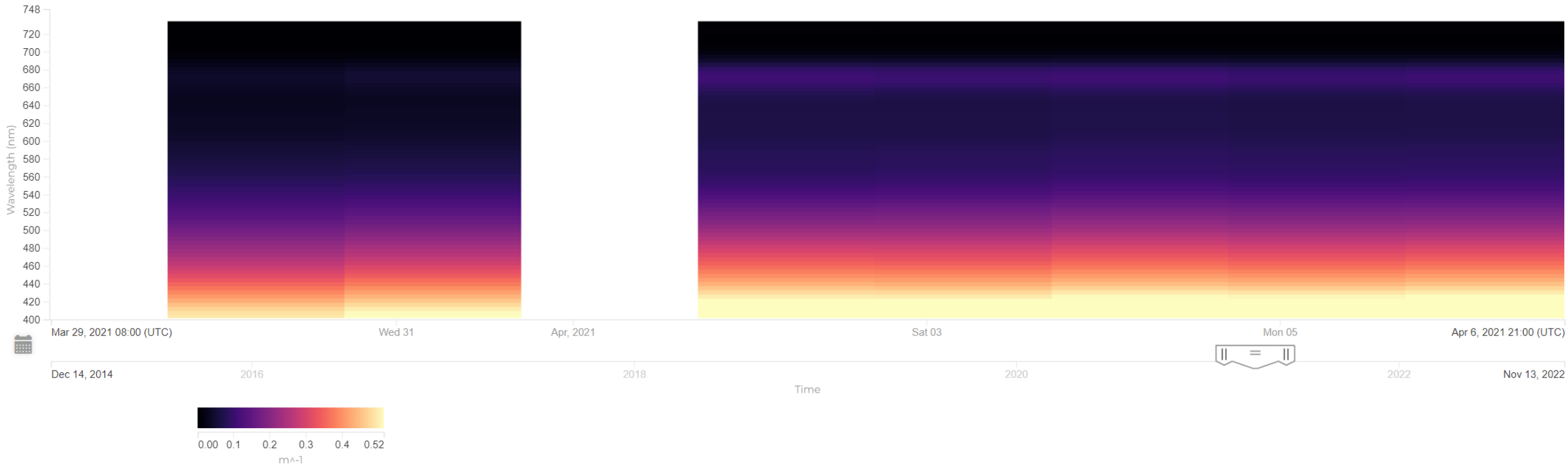
Coastal Pioneer ▾ Inshore Surface Mooring ▾ Near Surface Instrument Frame: Spectrophotometer ▾

Optical Absorption Coefficient ▾

Data | More information | All downloads

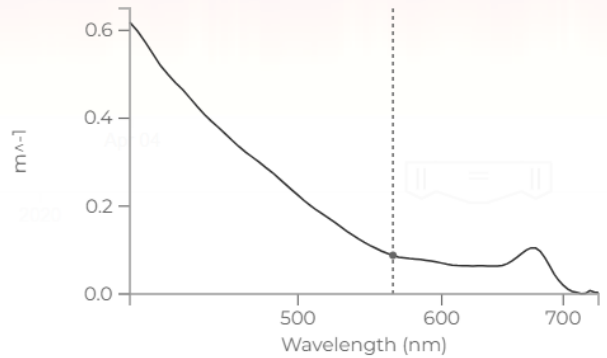
Depth 7 (m)

Autoscale color axis | Time bin Days ▾ | ⤢ | ☆ ▾



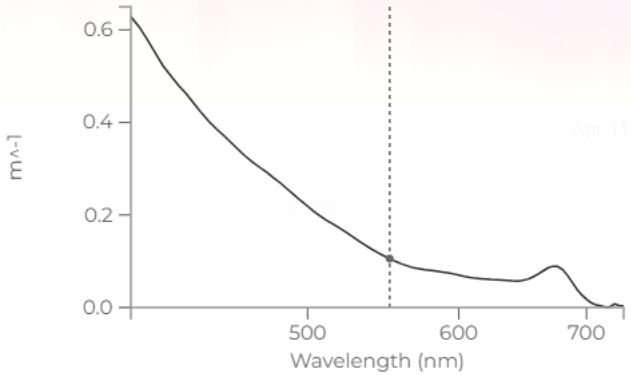
Apr 02, 2021 21:00 to 22:00 (UTC)
Wavelength: 564

Mean value: 0.09 **Min:** -0.11 **Max:** 0.11



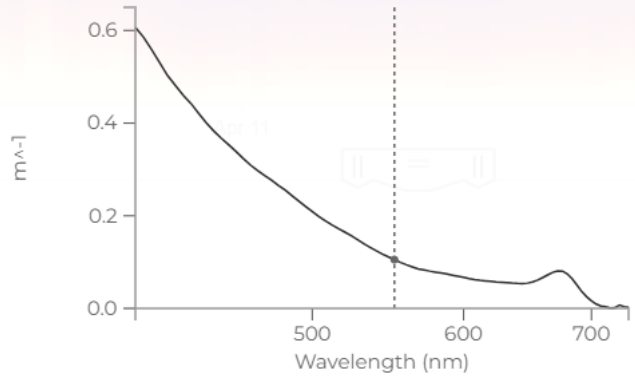
Apr 05, 2021 03:00 to 06:00 (UTC)
Wavelength: 552

Mean value: 0.11 **Min:** -0.01 **Max:** 0.33



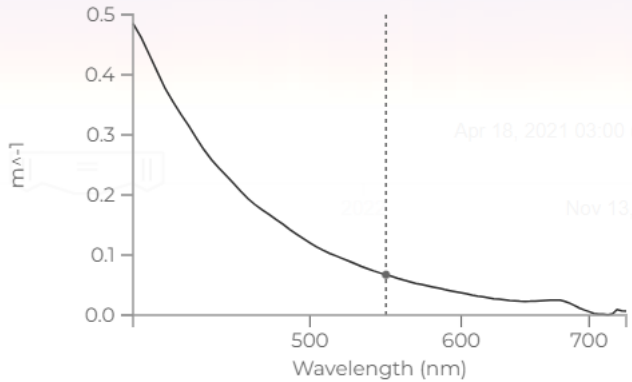
Apr 08, 2021 06:00 to 09:00 (UTC)
Wavelength: 552

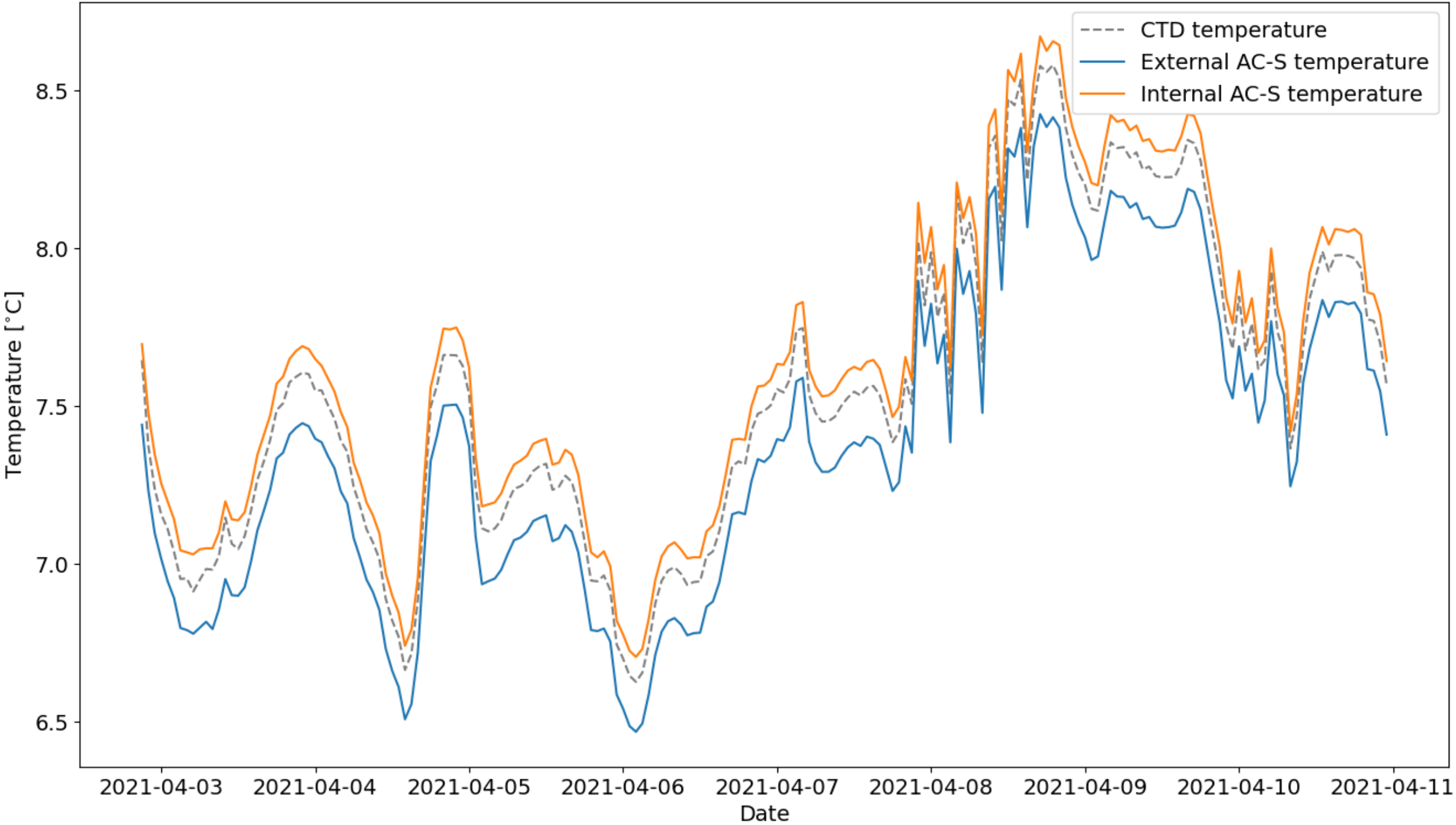
Mean value: 0.11 **Min:** 0.02 **Max:** 0.34

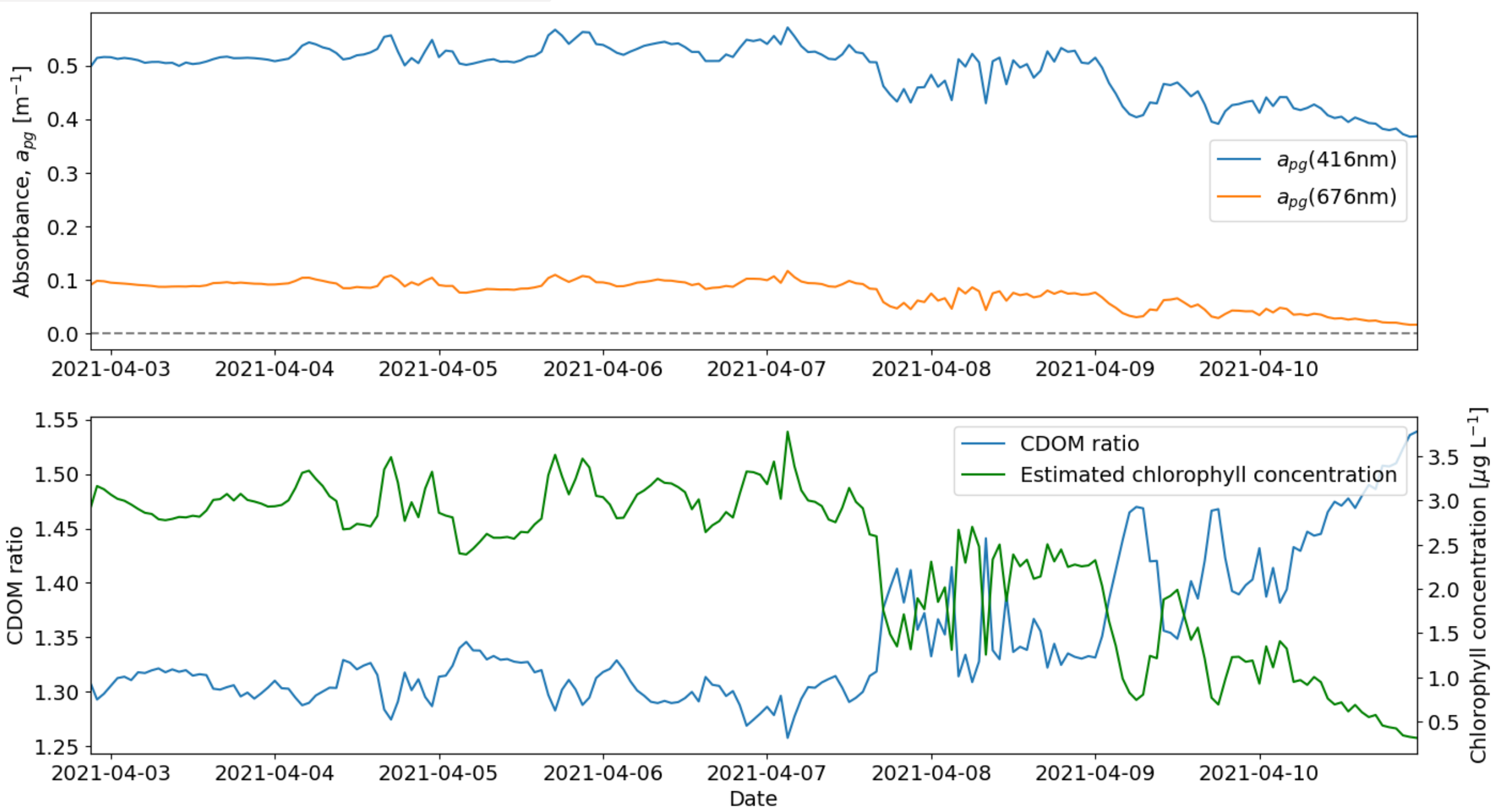


Apr 11, 2021 06:00 to 09:00 (UTC)
Wavelength: 548

Mean value: 0.07 **Min:** -0.01 **Max:** 0.27




CTD temperature
External AC-S temperature
Internal AC-S temperature
Temperature [˚C]
8.5
8.0
7.5
7.0
6.5
2021-04-03
2021-04-04
2021-04-05
2021-04-06
2021-04-07
2021-04-08
2021-04-09
2021-04-10
2021-04-11
Date


Absorbance, a_{pg} [m^{-1}]
0.0
0.1
0.2
0.3
0.4
0.5
a_{pg}(416nm)
a_{pg}(676nm)
2021-04-03
2021-04-04
2021-04-05
2021-04-06
2021-04-07
2021-04-08
2021-04-09
2021-04-10
CDOM ratio
1.25
1.30
1.35
1.40
1.45
1.50
1.55
Estimated chlorophyll concentration
Chlorophyll concentration [$\mu g\ L^{-1}$]
0.5
1.0
1.5
2.0
2.5
3.0
3.5
Date

Interpretations

Short time period with changes to q-band – less chlorophyll?

CDOM ratios consistently above 1, and rose over the observation time – strong CDOM presence

Correlations between change in Chlorophyll and temperature

Next Steps

Analyzing more than 1 week of data, realistically months or seasons

Comparing chlorophyll activities between seasons

Changes in CDOM

Key Learnings from OOI Summer Course

Using Data Explorer as a starting place

Getting more familiar with the AC-S and other instrumentation

Applying code to analyze the abundance of data

Attempting to trouble shoot confusing data

Getting used to interpreting proxies and graphical analyses