

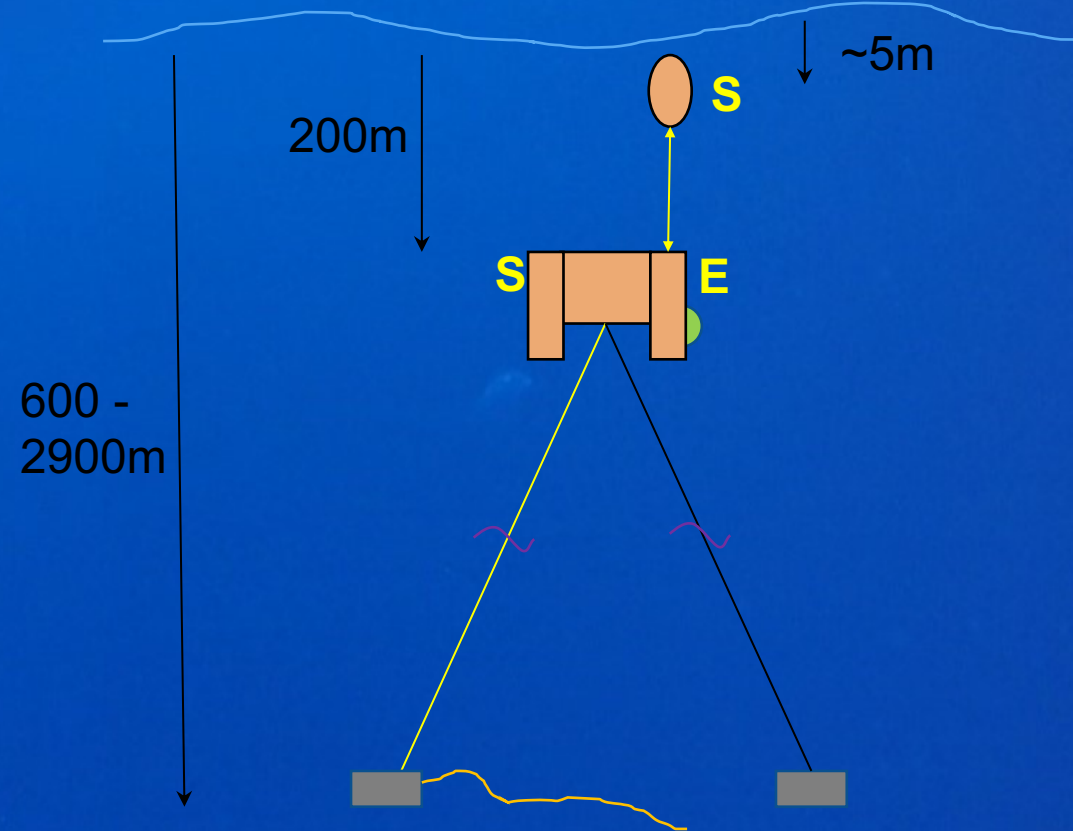
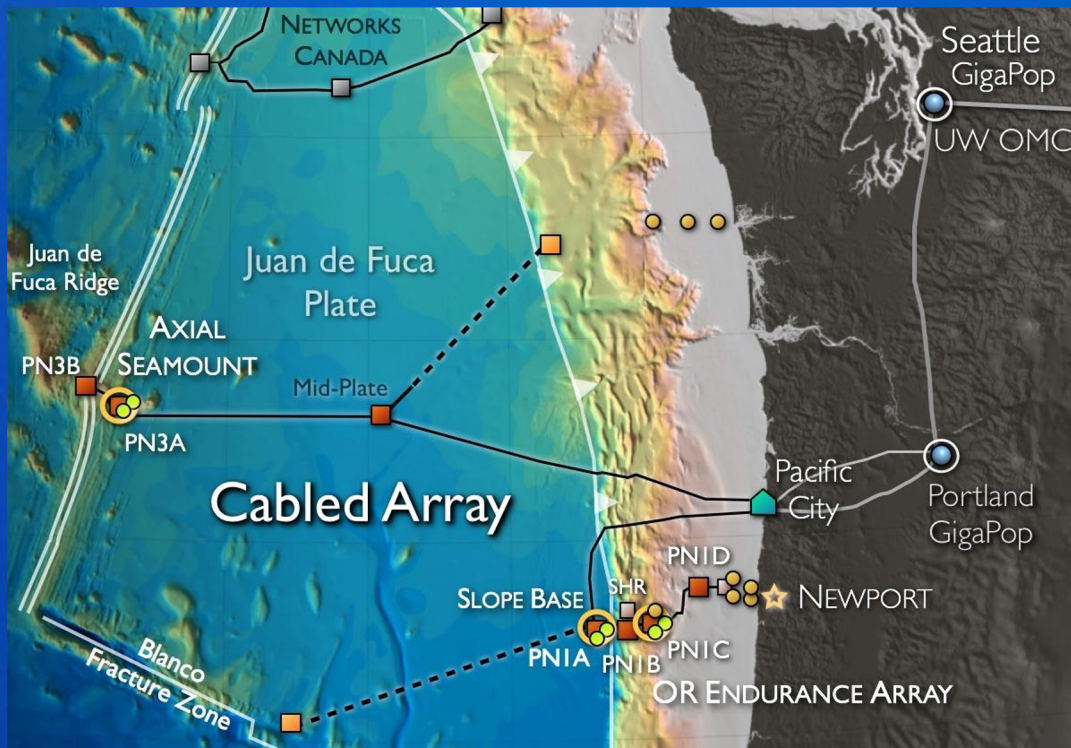
2022  
NE Pacific OOI Community Workshop  
RCA SHALLOW PROFILERS

# FINDING SINGULARITIES IN THE UPPER OCEAN

Eric McRae  
Principal Electrical Engineer



UNIVERSITY of WASHINGTON  
**Applied Physics Laboratory**



# VERTICAL MOORING AND SHALLOW PROFILER



Science Instruments

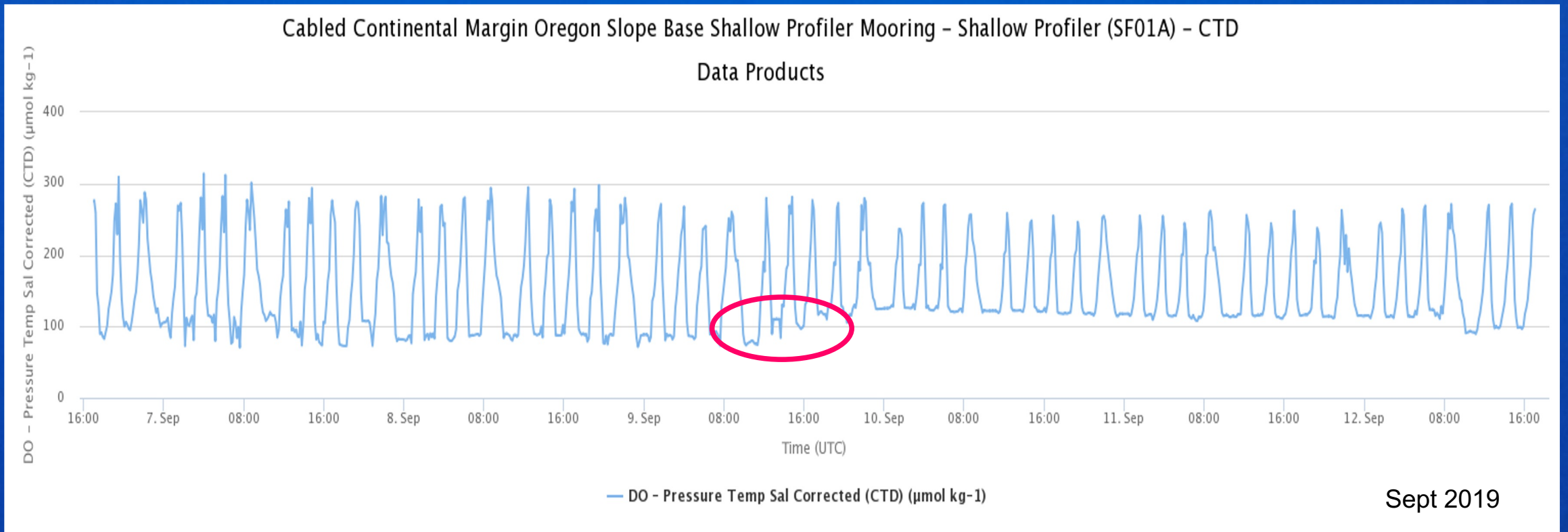
Most sampled at 1 Hz

Engineering Telemetry

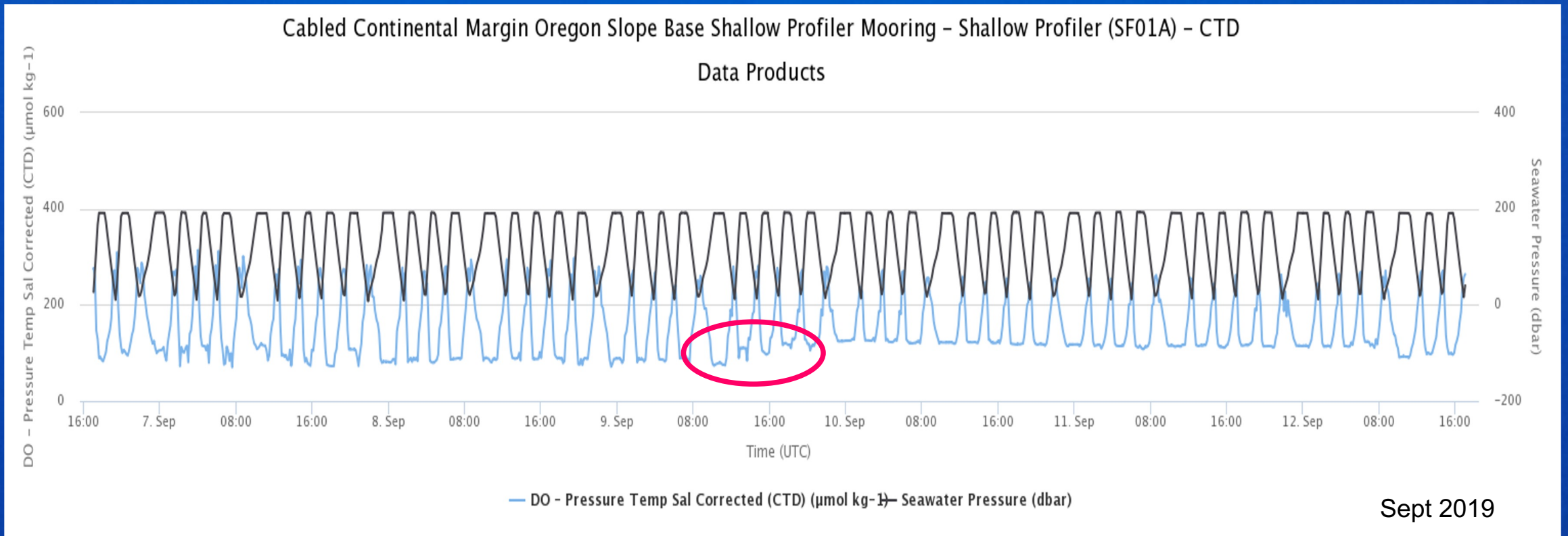
Sampled at 2.4 Hz

<i>Mooring (200m)</i>	<i>Science Pod (200m – 5m)</i>
CTD	CTD
Fast Response Dissolved Oxygen	Fast Response Dissolved Oxygen
pH	pH
3 Wavelength Fluorometer	3 Wavelength Fluorometer
pCO <sub>2</sub>	pCO <sub>2</sub>
5 Beam VADCP	Absorption Spectrophotometer
Digital Still Camera	Photosynthetically Active Radiation
150KHz ADCP	Spectral Irradiance
Broadband Hydrophone	Nitrate
Bioacoustic Sonar	Single Point Velocity
3D Gyro and Compass	3D Gyro and Compass
Instrument Power Monitor	Instrument Power Monitor
Instrument Ground Fault Detect	Instrument Ground Fault Detect
Internal Environmental Conditions	Internal Environmental Conditions
Profiler Winch and Dock Video	Pressure Depth
Motor Torque, Speed, & Position	
Hydraulic Status	

# SINGULARITIES: DO LAYERS

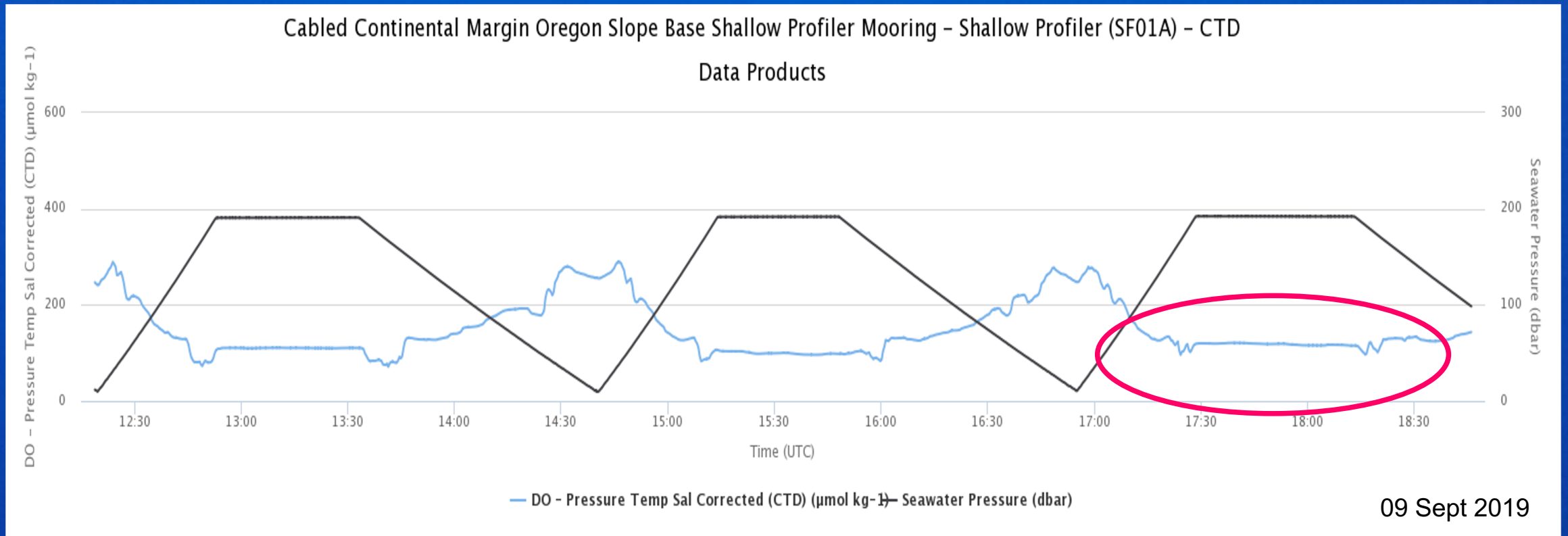


# SINGULARITIES: DO LAYERS

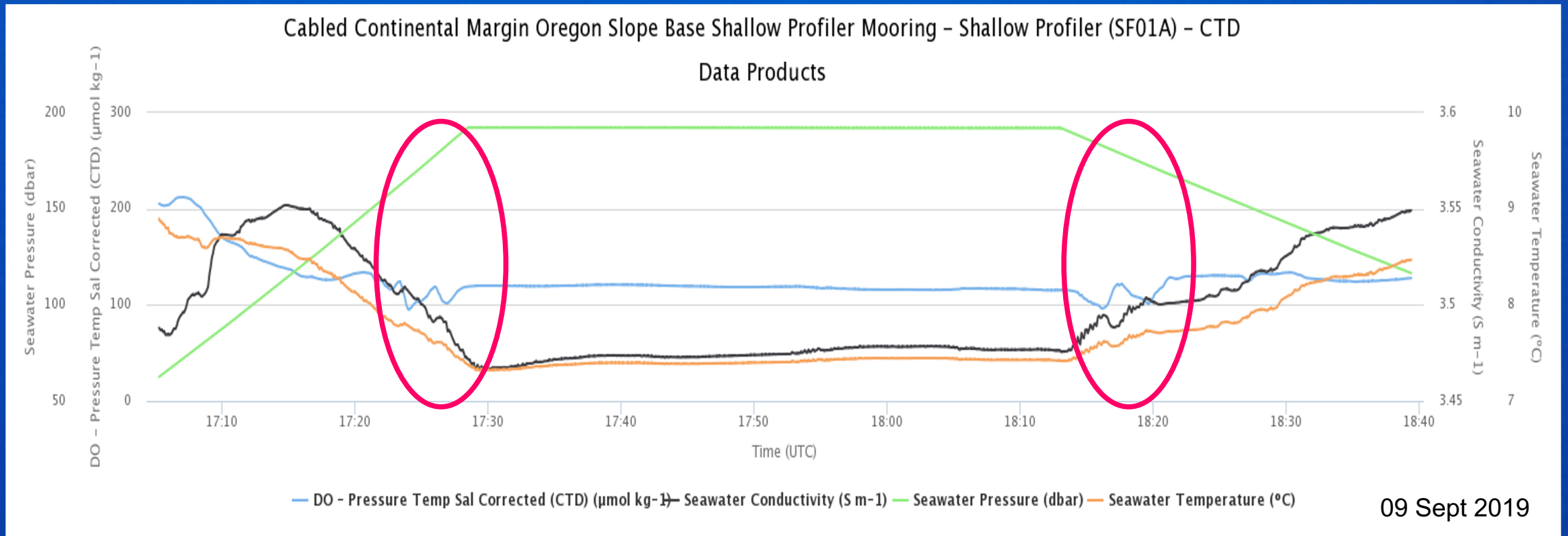




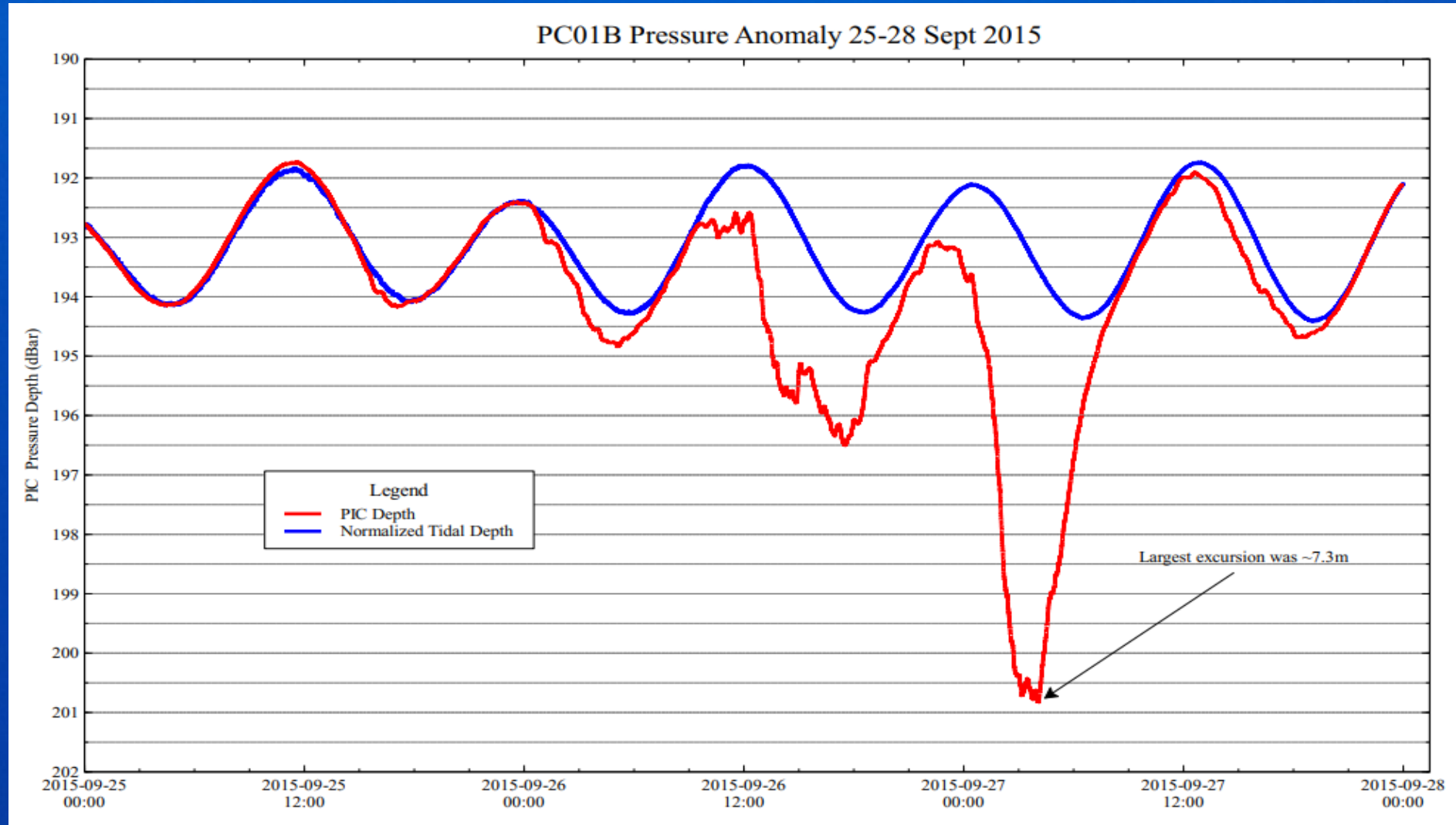
# SINGULARITIES: DO LAYERS



# SINGULARITIES: DO LAYERS

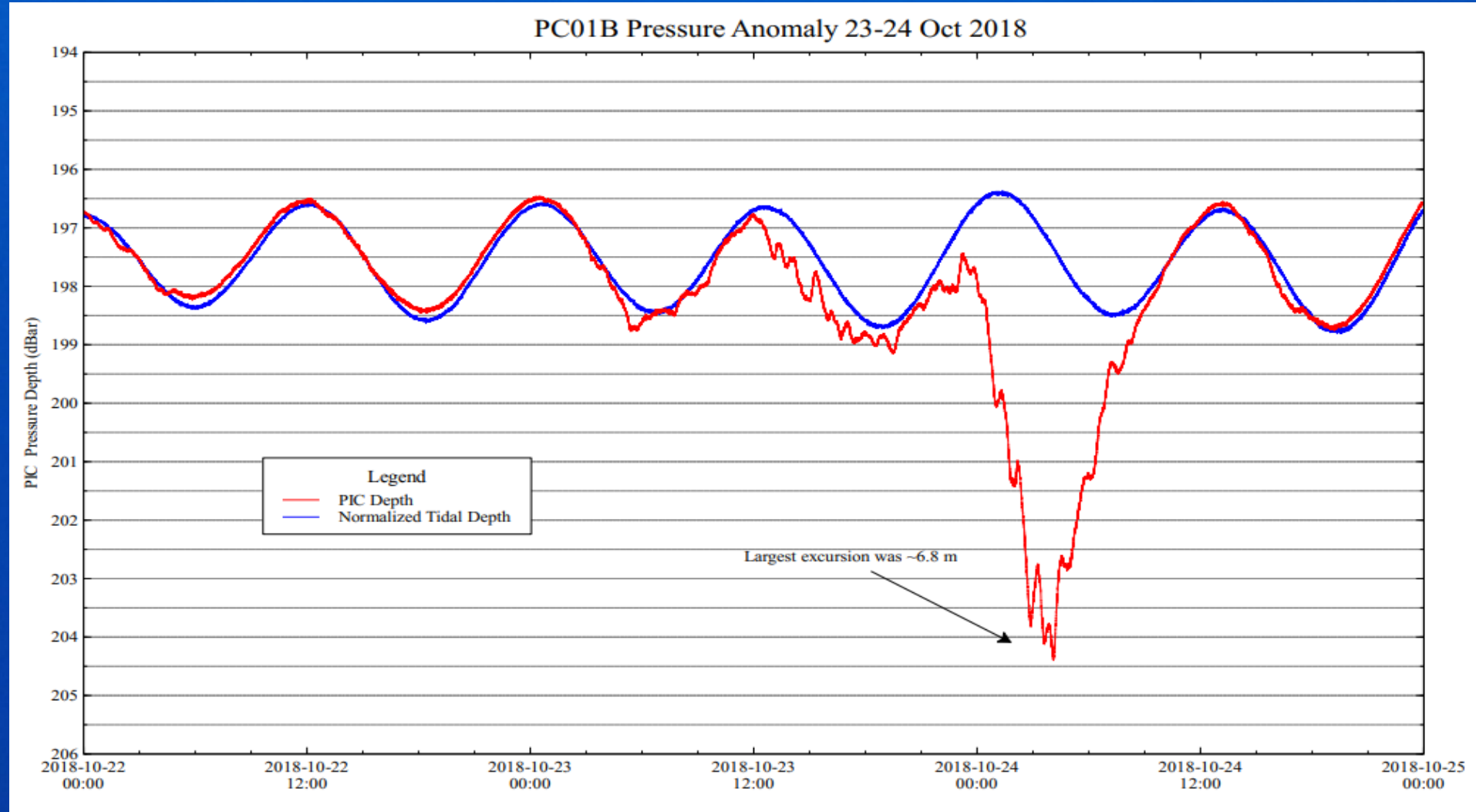


# SINGULARITIES: BLOWDOWNS

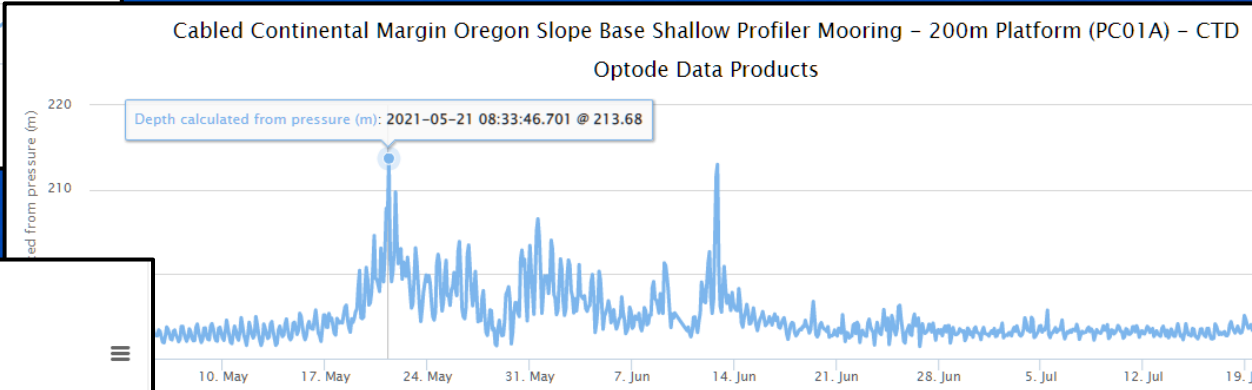
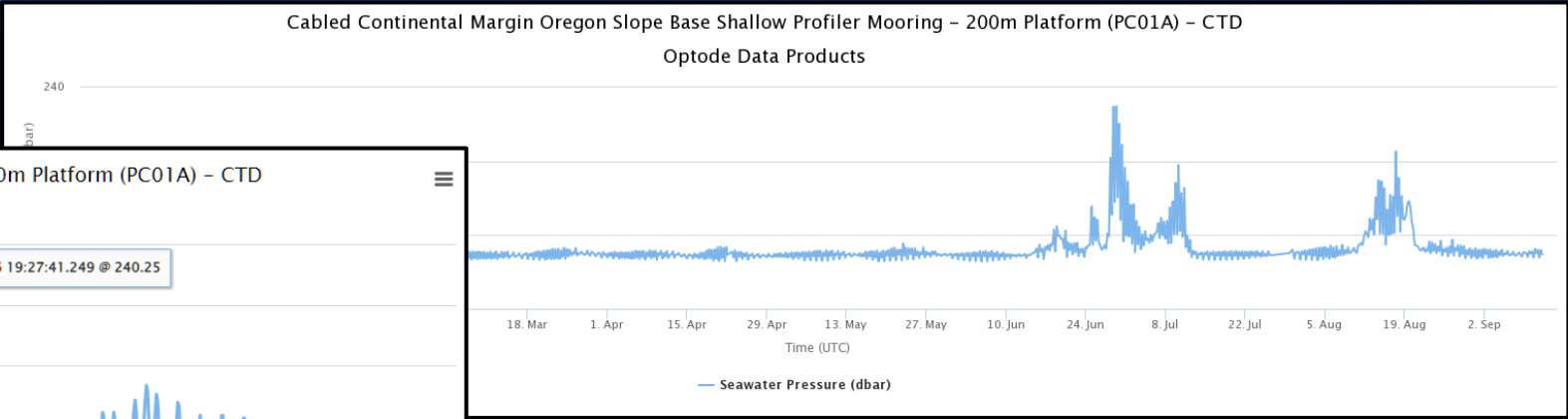
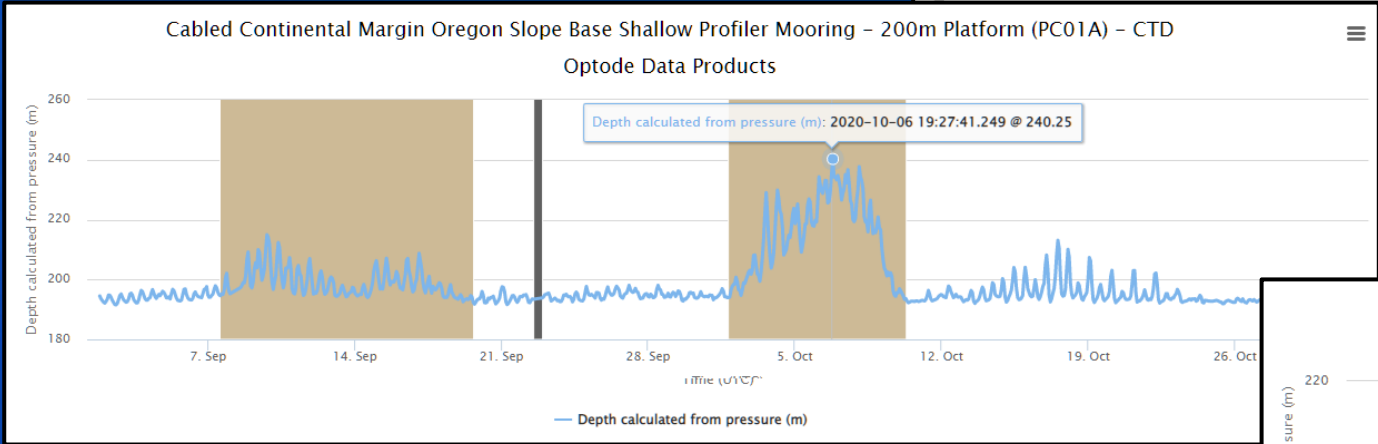




# SINGULARITIES: BLOWDOWNS

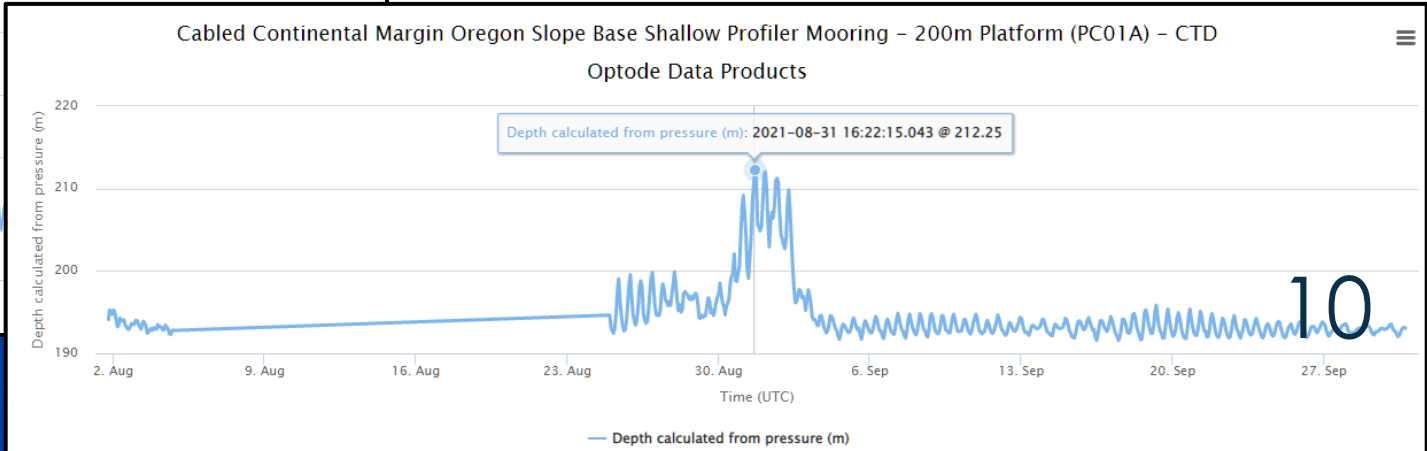
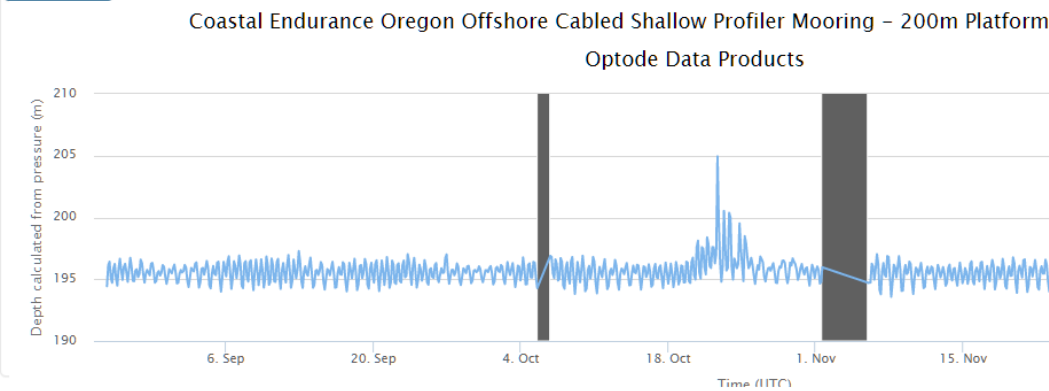


# SINGULARITIES: BLOWDOWNS



Min: 2021-08-25 17:04:51.701, Max: 2021-12-26 15:46:37.284

Reset Zoom



These events are NOT singularities!

Tip:  
There are many co-located  
instruments

There may be correlated signatures  
across chemical, biological, and  
oceanographic domains



Questions?



All science data sourced from the  
OOI Data Portal



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