Supporting Information for

Advancing Turbulence Essential Ocean Variable: A Reference Glider-Based Microstructure Dataset from the Western Mediterranean

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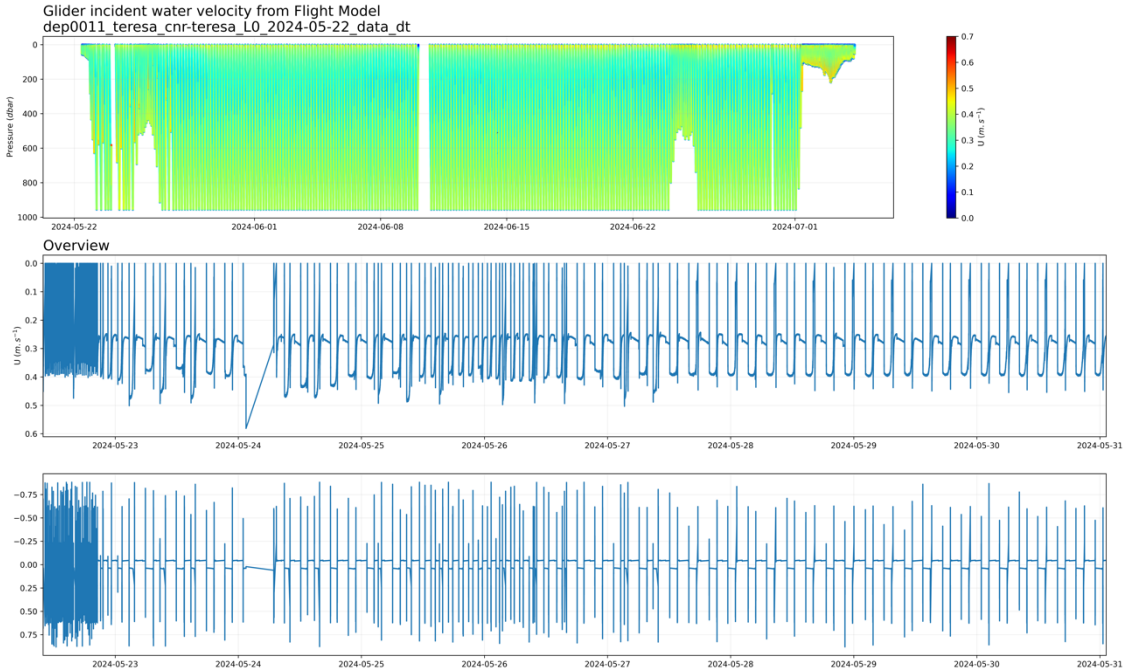
Supplementary

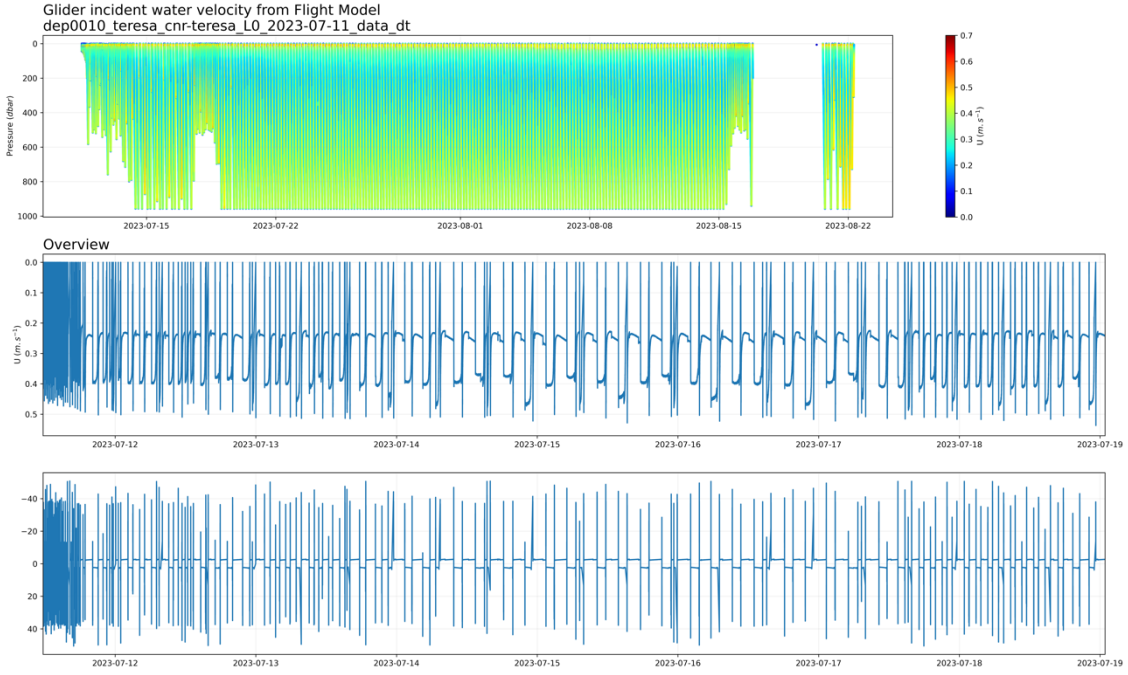
Supplementary Figure 1:
Glider Flight Model (GFM) computed following the algorithm of Merckelbach et al. (2019) for each year of the SMART glider missions. Calculations are based on L0 core variables provided by SOCIB. The top panel shows the estimated incident velocity over the full mission period. The middle panel presents a zoomed-in view of incident velocity during an arbitrary segment. The bottom panel displays the corresponding angle of attack (in degrees) for the same period.

2024

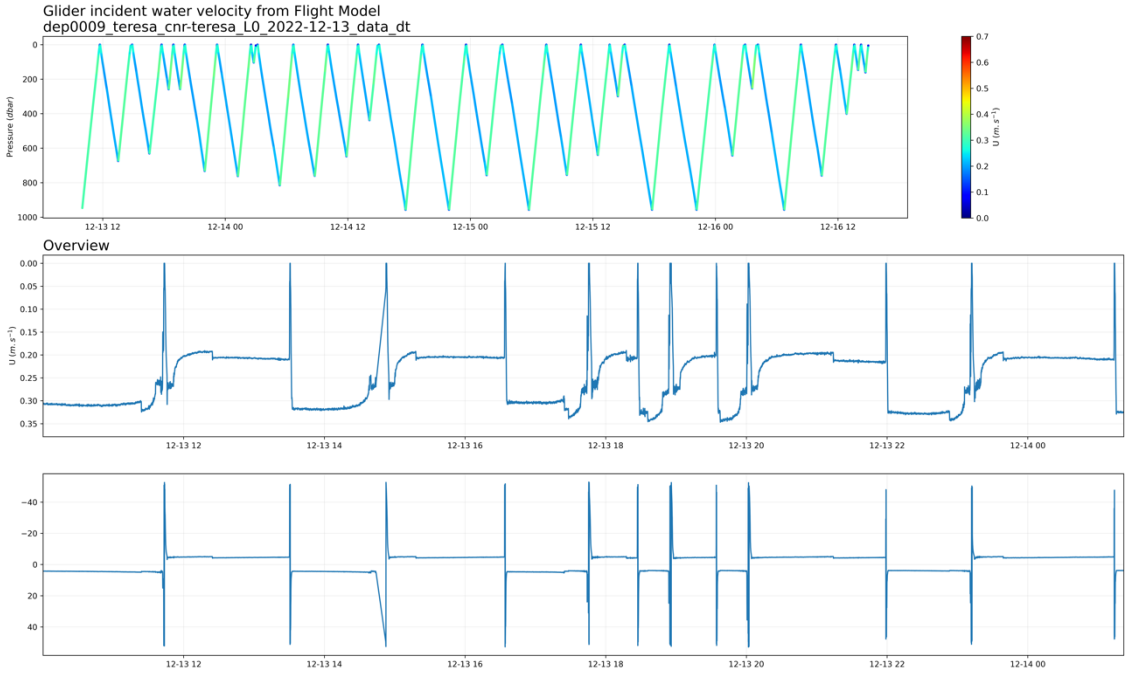

Glider incident water velocity from Flight Model
dep0011_teresa_cnr-teresa_L0_2024-05-22_data_dt
Pressure (dbar)
U (m.s⁻¹)
Overview
2024-05-22
2024-06-01
2024-06-08
2024-06-15
2024-06-22
2024-07-01
2024-05-23
2024-05-24
2024-05-25
2024-05-26
2024-05-27
2024-05-28
2024-05-29
2024-05-30
2024-05-31

35

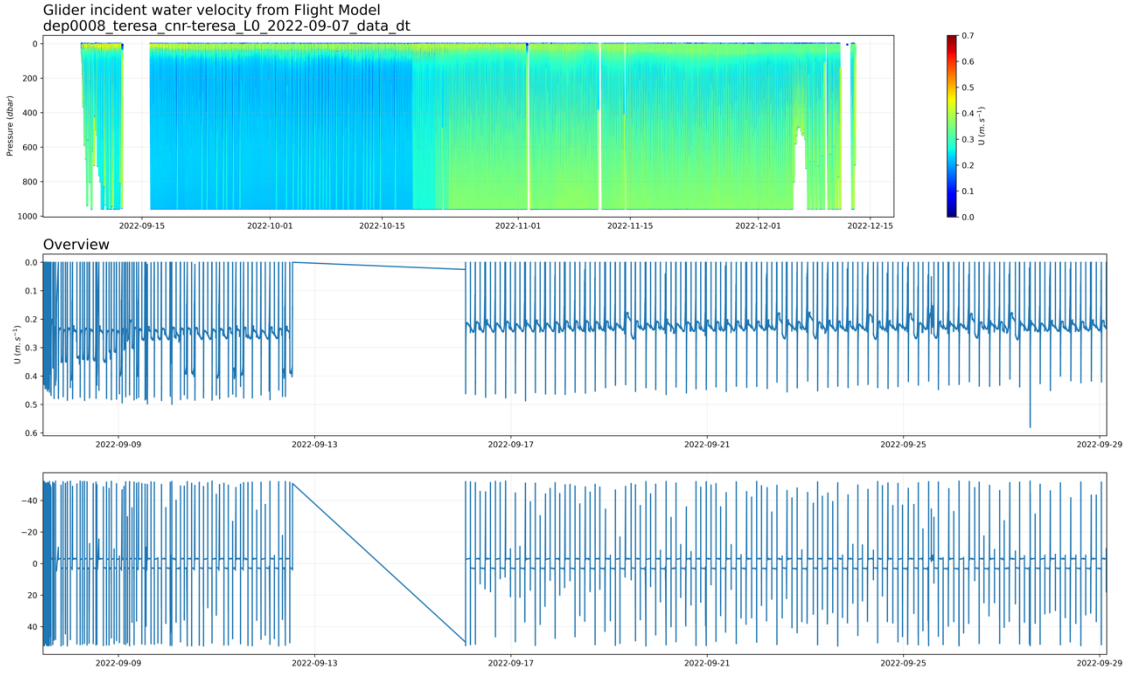
2023


Glider incident water velocity from Flight Model
dep0010_teresa_cnr-teresa_L0_2023-07-11_data_dt
Pressure (dbar)
U (m.s⁻¹)
Overview
2023-07-15
2023-07-22
2023-08-01
2023-08-08
2023-08-15
2023-08-22
2023-07-12
2023-07-13
2023-07-14
2023-07-15
2023-07-16
2023-07-17
2023-07-18
2023-07-19

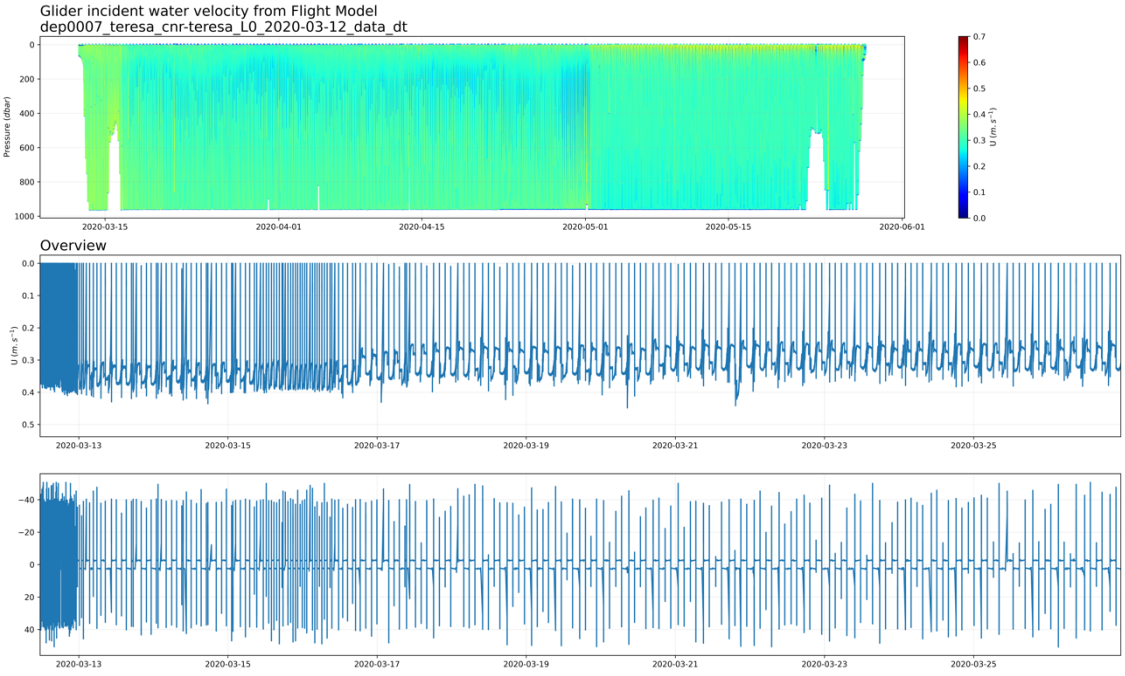
2022


Glider incident water velocity from Flight Model
dep0009_teresa_cnr-teresa_L0_2022-12-13_data_dt
Pressure (dbar)
U (m.s⁻¹)
Overview
12-13 12
12-14 00
12-14 12
12-15 00
12-15 12
12-16 00
12-16 12
12-13 14
12-13 16
12-13 18
12-13 20
12-13 22

2022


Glider incident water velocity from Flight Model
dep0008_teresa_cnr-teresa_L0_2022-09-07_data_dt
Pressure (dbar)
U (m.s⁻¹)
Overview
2022-09-15
2022-10-01
2022-10-15
2022-11-01
2022-11-15
2022-12-01
2022-12-15
2022-09-09
2022-09-13
2022-09-17
2022-09-21
2022-09-25
2022-09-29

2020

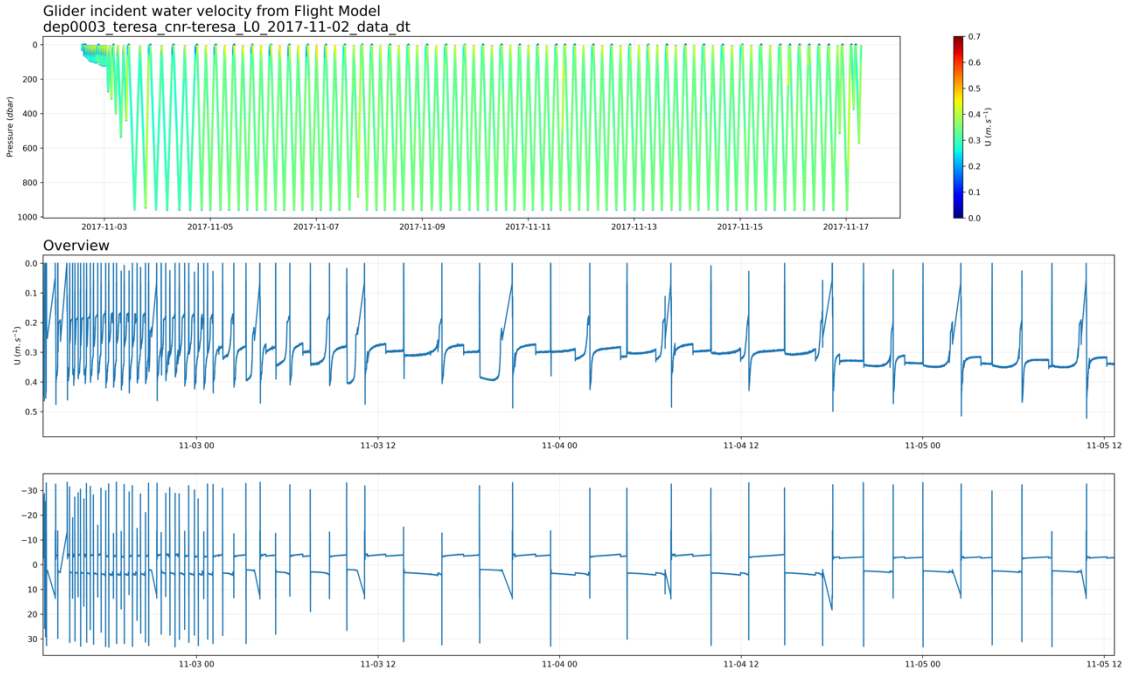

Glider incident water velocity from Flight Model
dep0007_teresa_cnr-teresa_L0_2020-03-12_data_dt
Pressure (dbar)
U (m.s⁻¹)
Overview
U (m.s⁻¹)

50

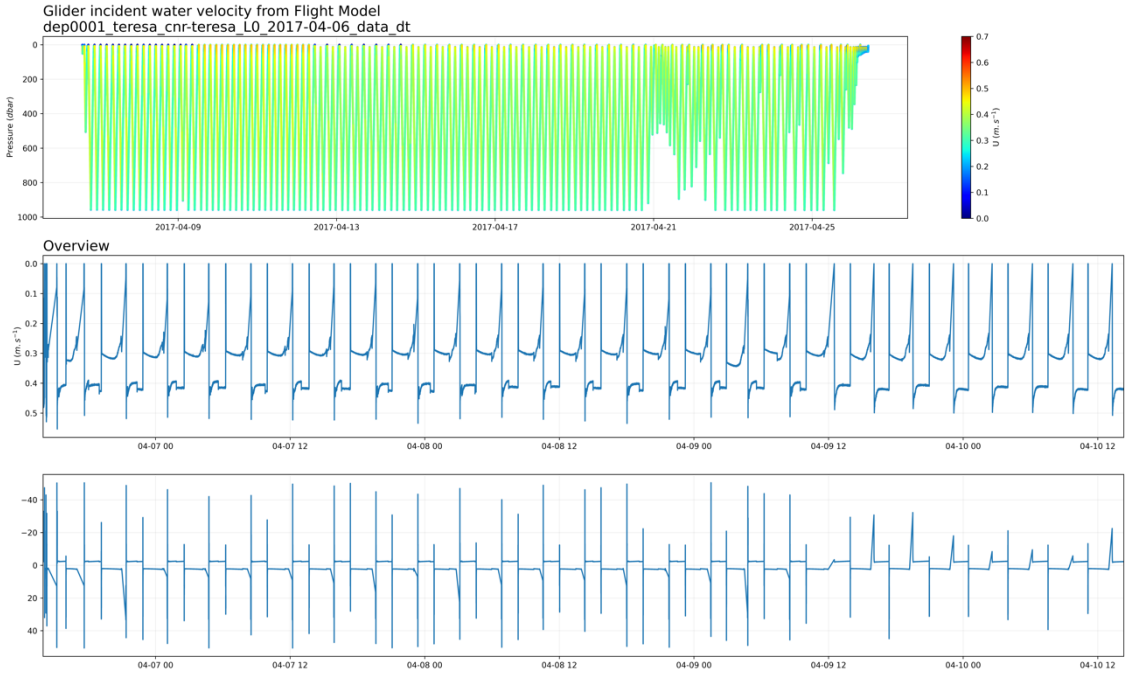
2020

Glider incident water velocity from Flight Model
dep0006_teresa_cnr-teresa_L0_2020-02-19_data_dt
Pressure (dbar)
U (m.s⁻¹)
Overview
U (m.s⁻¹)

2017


Glider incident water velocity from Flight Model
dep0003_teresa_cnr-teresa_L0_2017-11-02_data_dt
Pressure (dbar)
U (m.s⁻¹)
Overview

2017


Glider incident water velocity from Flight Model
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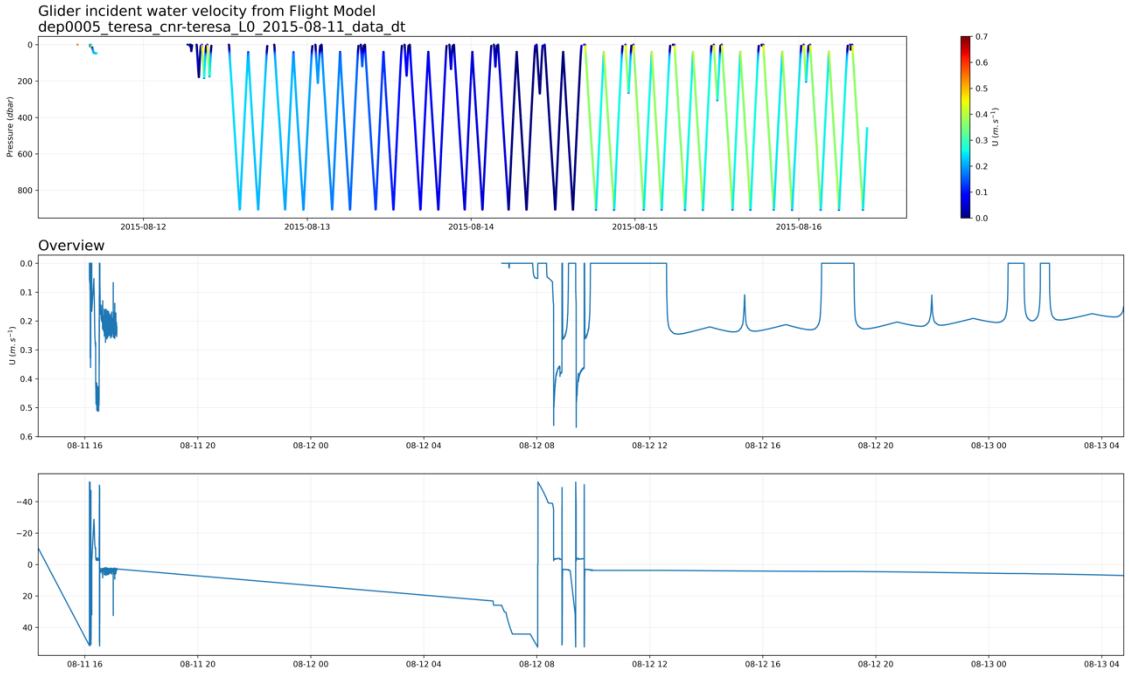
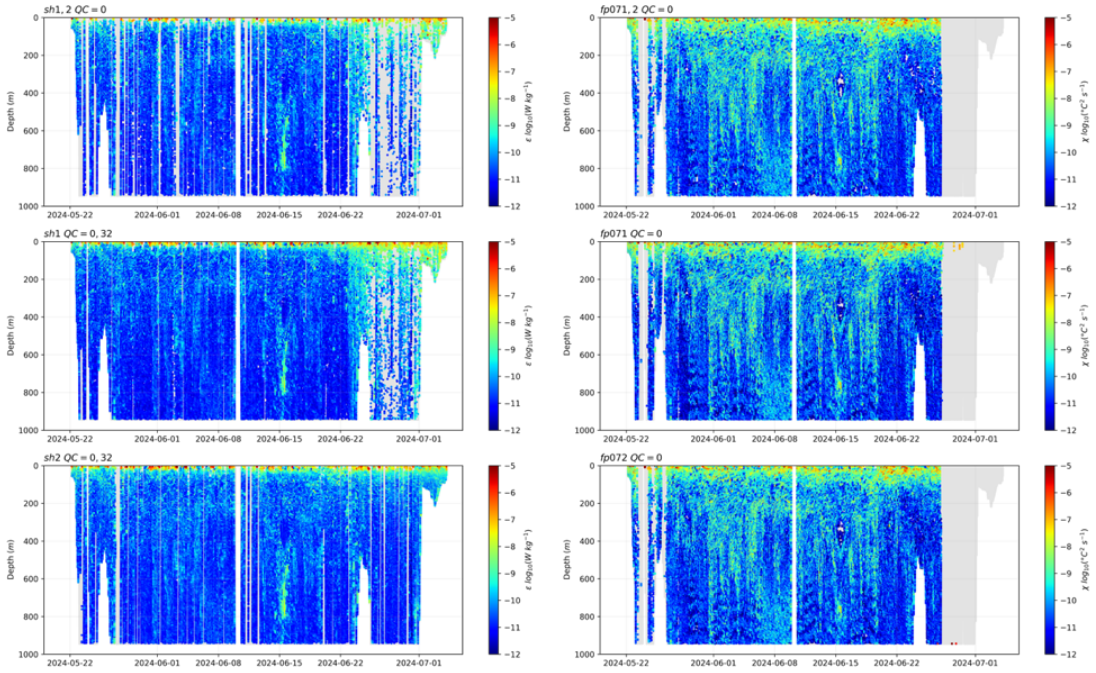
Pressure (dbar)
U (m.s⁻¹)
Overview



Supplementary Figure 2:
Gliding sections of turbulent dissipation rate of kinetic energy (ε, left) and thermal variance dissipation rate (χ, right), derived from microstructure profiles along selected mission tracks.
Top row: Estimates obtained from cross-checked probe pairs (shear 1 & 2 for ε; FP07 1 & 2 for χ), using the strictest quality control criterion (QC = 0).
Middle and bottom rows: Estimates based on individual probes. For ε (left), shear 1 (middle) and shear 2 (bottom) use QC = 0 or 32. For χ (right), FP07 1 (middle) and FP07 2 (bottom) use QC = 0 only.

2024



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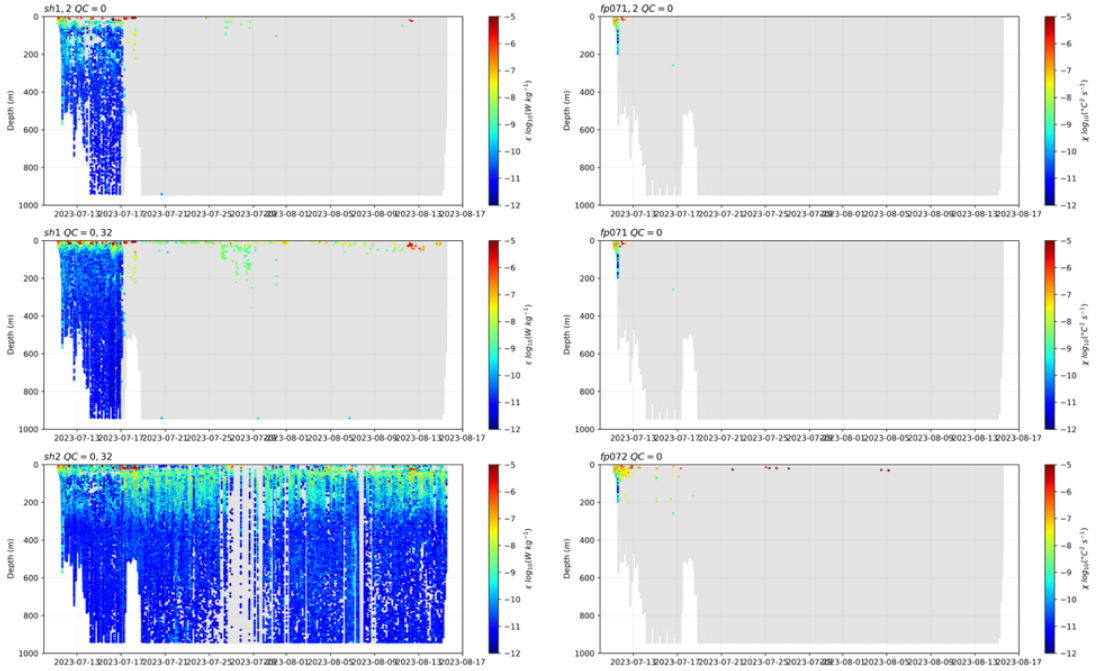
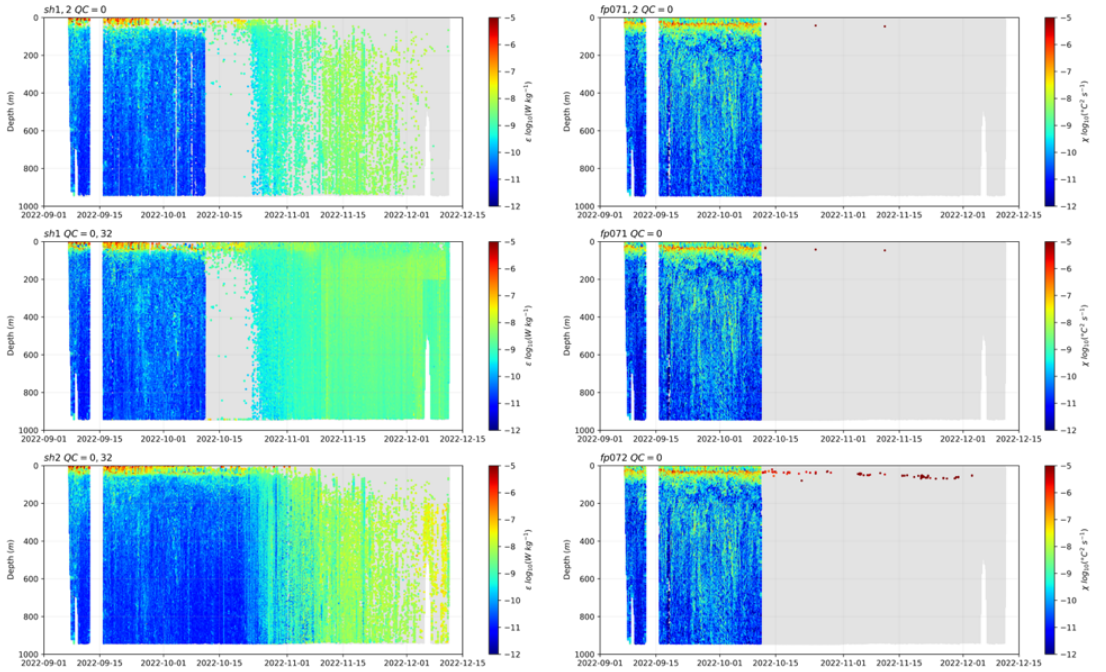
2023



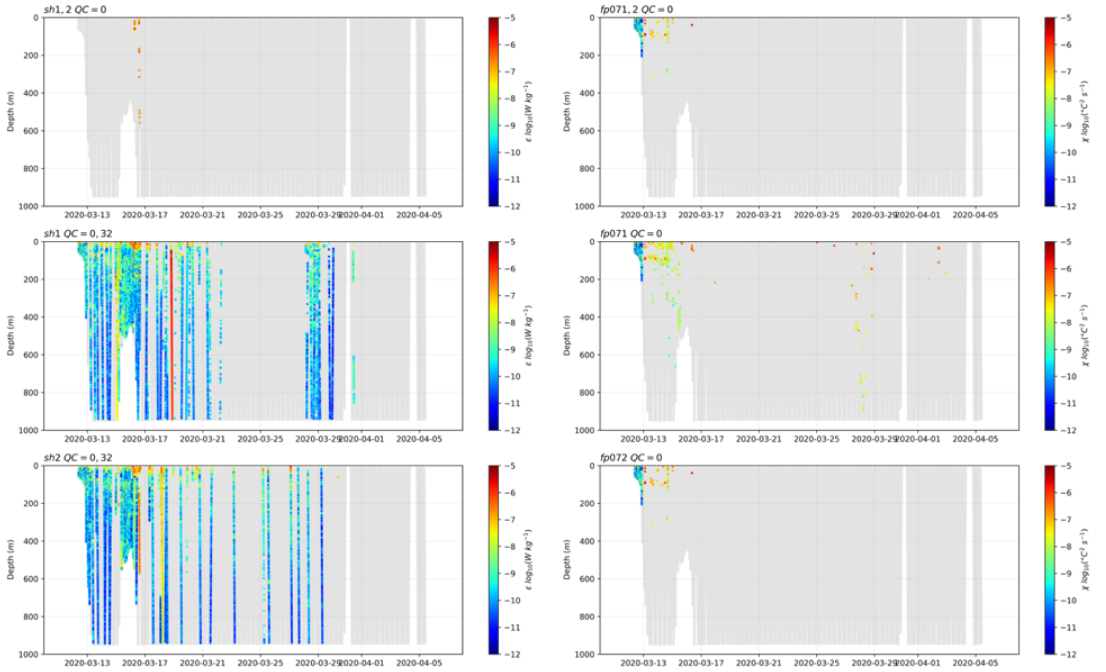
90

2022

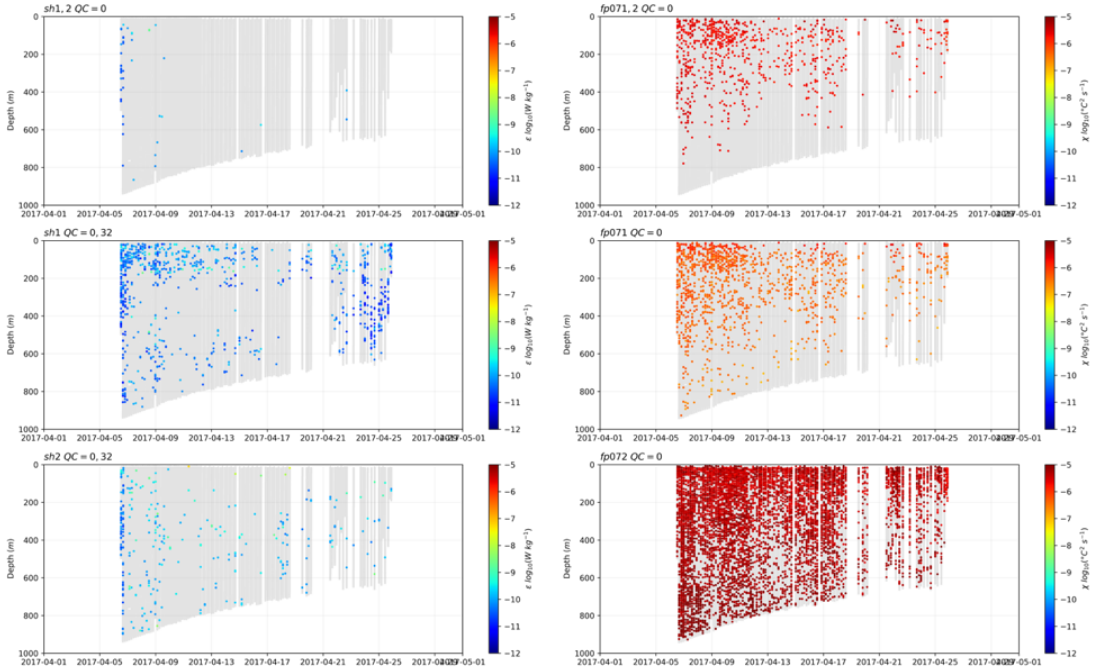

sh1, 2 QC = 0
fp071, 2 QC = 0
sh1 QC = 0, 32
fp071 QC = 0
sh2 QC = 0, 32
fp072 QC = 0
Depth (m)

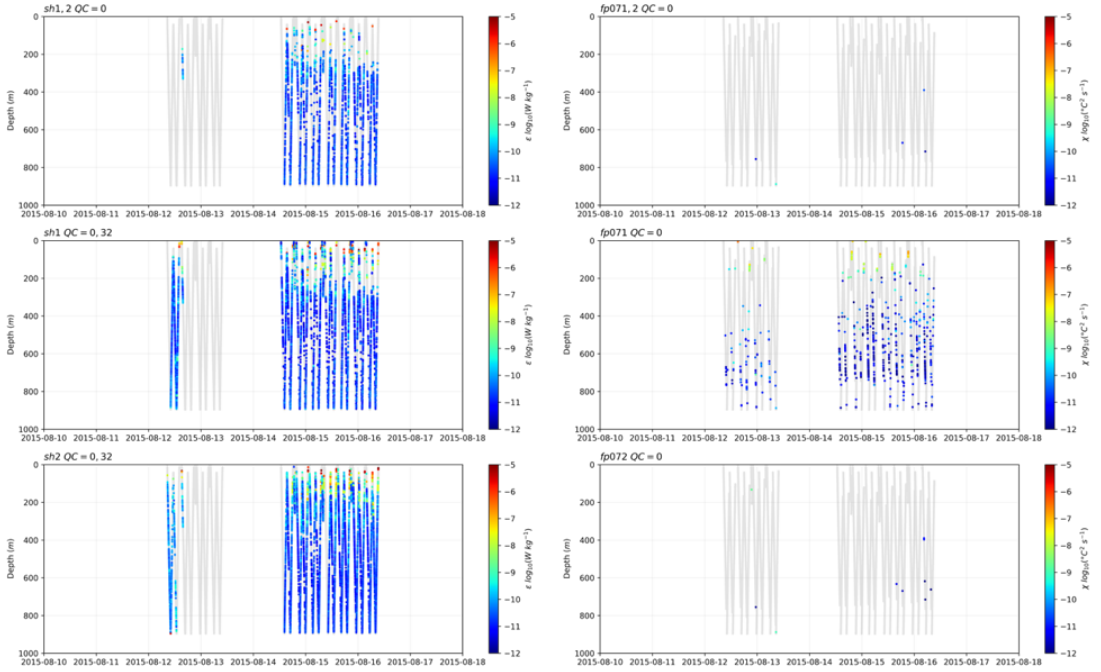
95

2020


sh1, 2 QC = 0
fp071, 2 QC = 0
sh1 QC = 0, 32
fp071 QC = 0
sh2 QC = 0, 32
fp072 QC = 0
Depth (m)

2017



100

2015