

## ZEO – December 2005

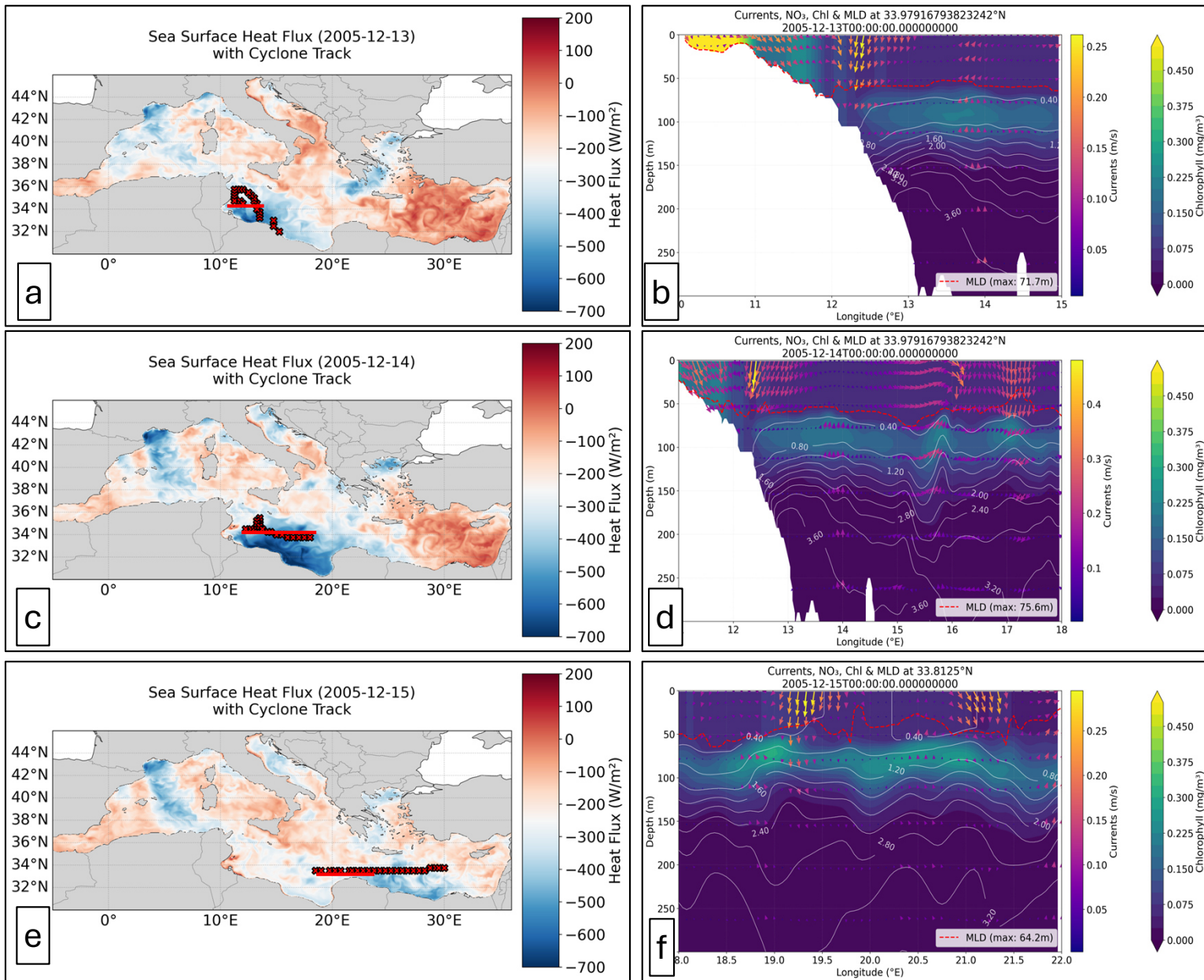


Fig. S2.1 – Heat flux and cross-section of biogeochemical features during Medicanne Zeo (12-15 December 2005); a–c–e) Heat flux maps assessed on 13/12/2005, 14/12/2005 and 15/12/2005, with cross-sections marked in red (x in red indicates the minimum MSLP value recorded on each date); b–d–f) Cross-sections showing: Chlorophyll-a concentration (viridis colormap), Nitrate concentration in mmol/m<sup>3</sup> (white contour lines), Current vectors (plasma-colored arrows), Mixed layer depth (MLD, red dashed line).

# JANET – October 2007

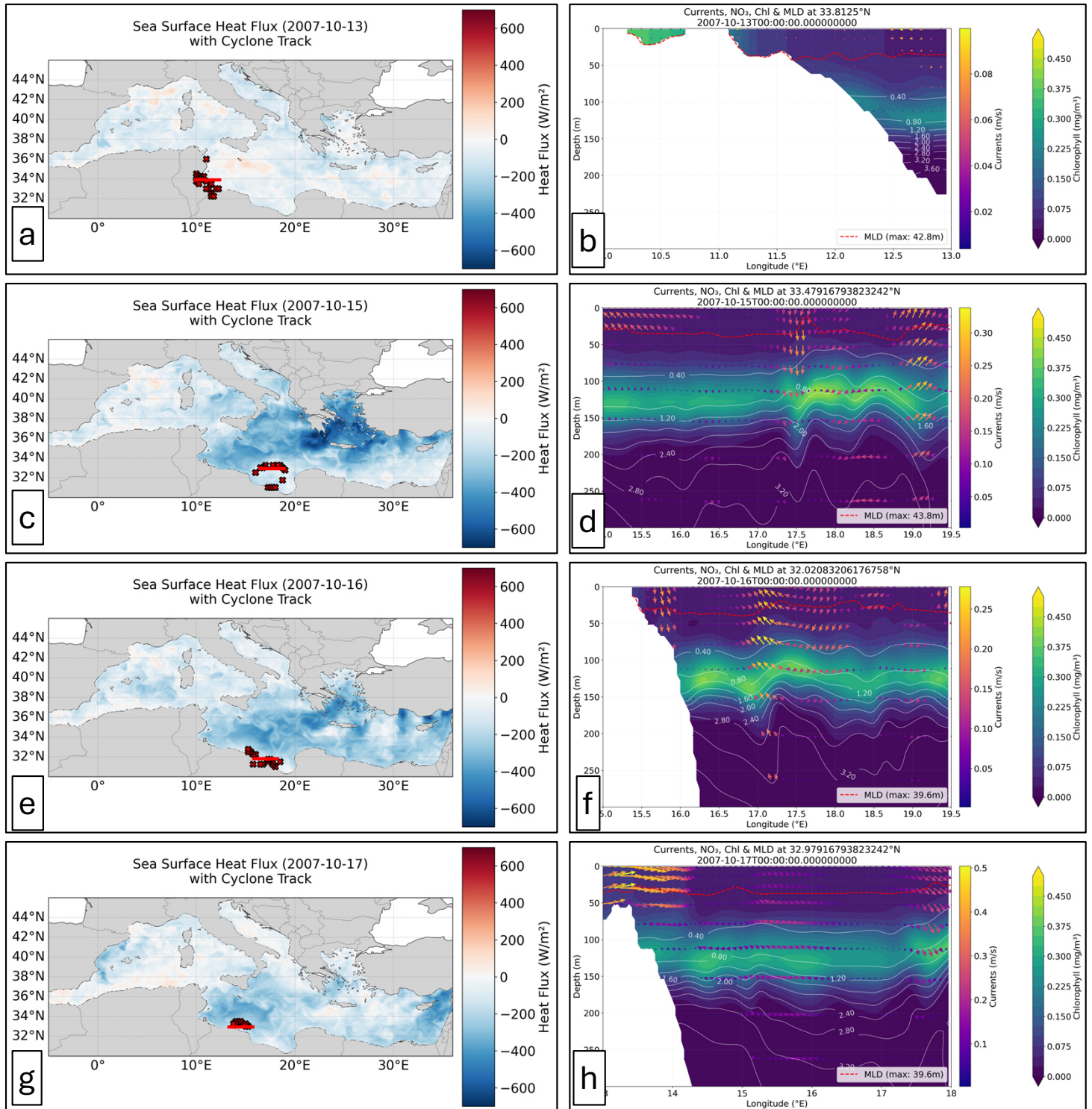


Fig. S2.2 – Heat flux and cross-section of biogeochemical features during cyclone Janet (12-17 October 2007); a–c–e–g) Heat flux maps assessed on 13/10/2007, 15/10/2007, 16/10/2007 and 17/10/2007, with cross-sections marked in red (x in red indicates the minimum MSLP value recorded on each date); b–d–f–h) Cross-sections showing: Chlorophyll-a concentration (viridis colormap), Nitrate concentration in  $\text{mmol/m}^3$  (white contour lines), Current vectors (plasma-colored arrows), Mixed layer depth (MLD, red dashed line).



## ROLF – November 2011

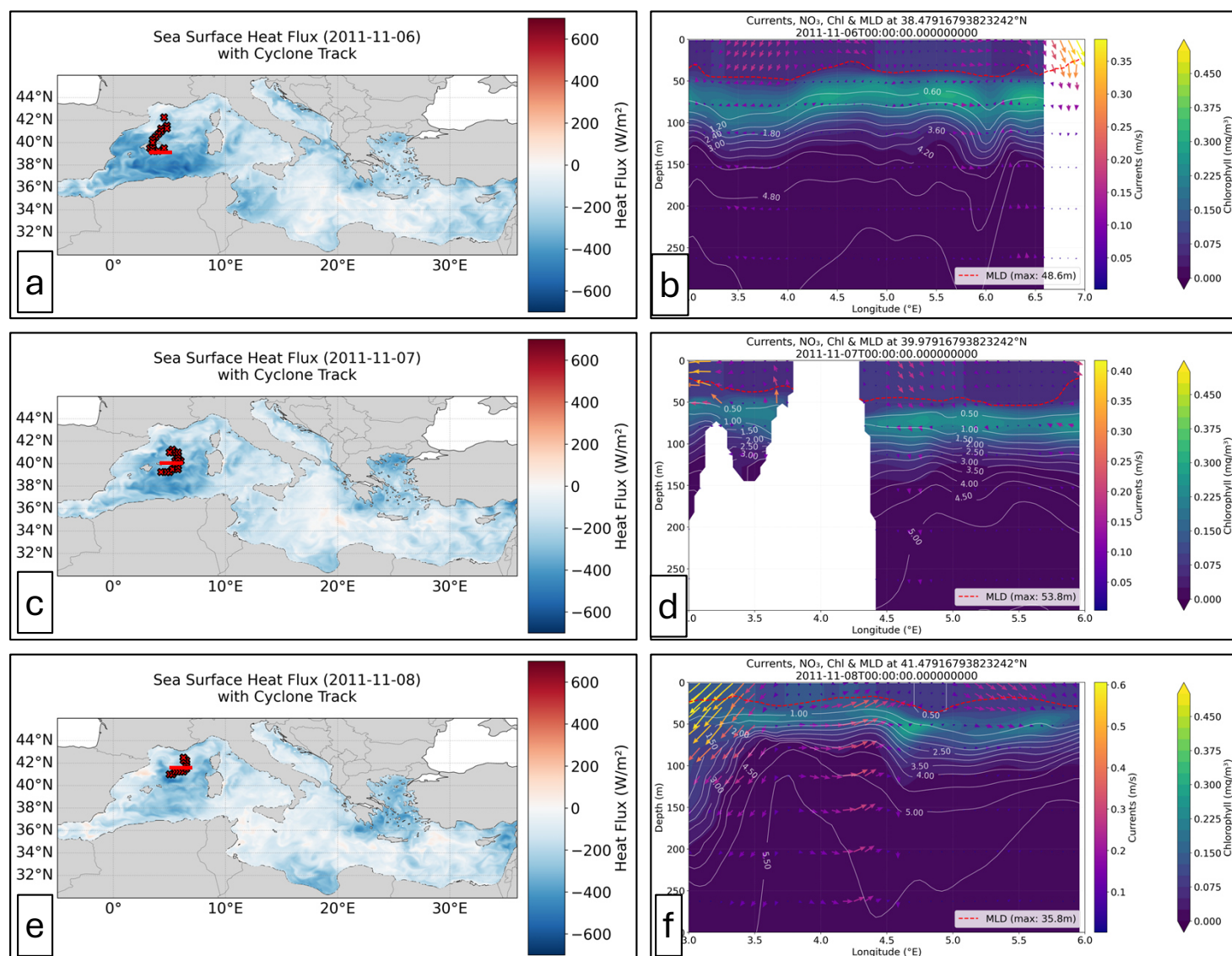


Fig. S2.3 – Heat flux and cross-section of biogeochemical features during Medicanne Rolf (06-09 November 2011); a–c–e) Heat flux maps assessed on 06/11/2011, 07/11/2011 and 08/11/2011, with cross-sections marked in red (x in red indicates the minimum MSLP value recorded on each date); b–d–f) Cross-sections showing: Chlorophyll-a concentration (viridis colormap), Nitrate concentration in  $\text{mmol/m}^3$  (white contour lines), Current vectors (plasma-colored arrows), Mixed layer depth (MLD, red dashed line).

## AKLE – January 2011

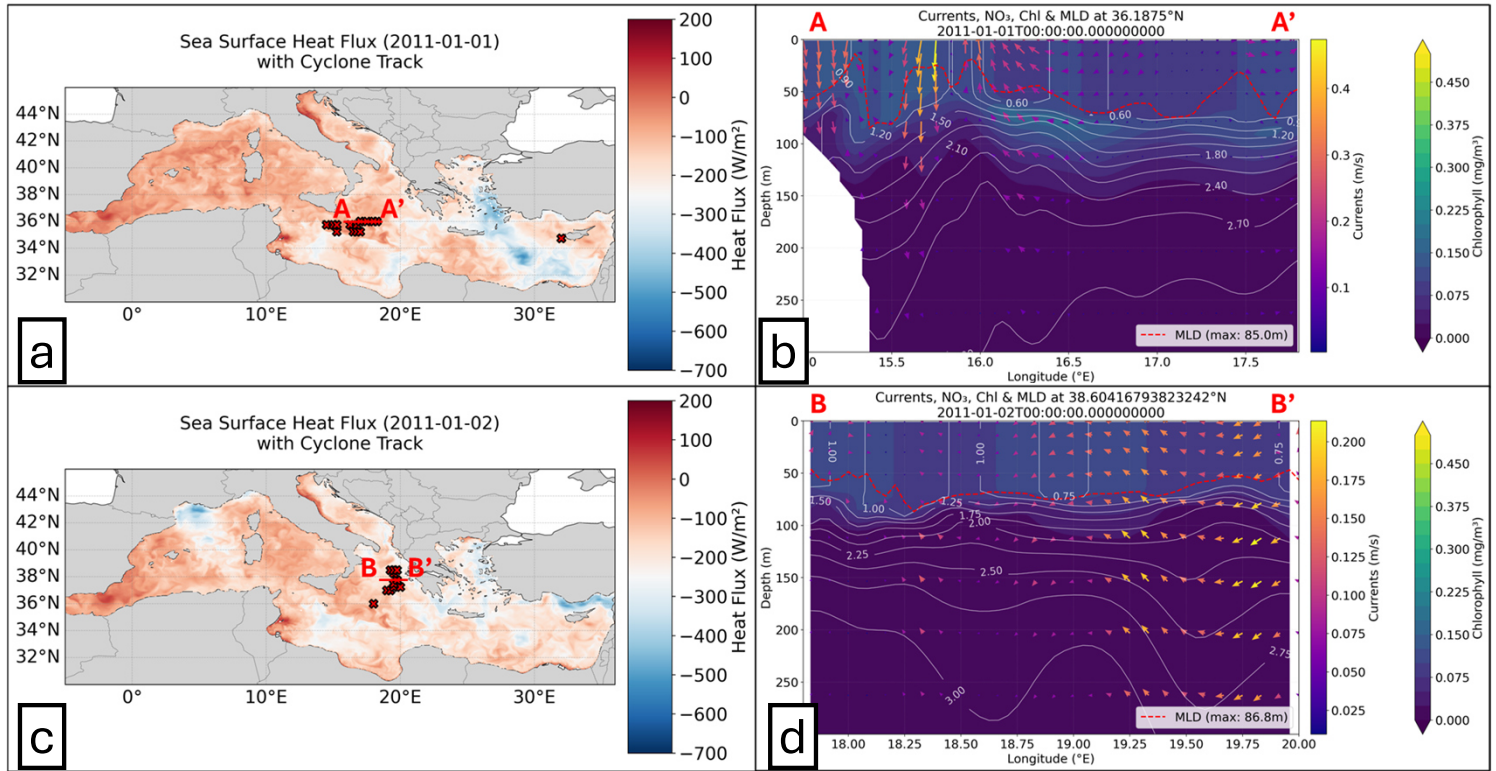


Fig. S2.4 – Heat flux and cross-section of biogeochemical features during cyclone Akle (01–02 January 2011); a–c) Heat flux maps assessed on 01/01/2011 and 02/01/2011, with cross-sections marked in red (x in red indicates the minimum MSLP value recorded on each date); b–d) Cross-sections showing: Chlorophyll-a concentration (viridis colormap), Nitrate concentration in  $\text{mmol/m}^3$  (white contour lines), Current vectors (plasma-colored arrows), Mixed layer depth (MLD, red dashed line).



## QENDRESA – November 2014

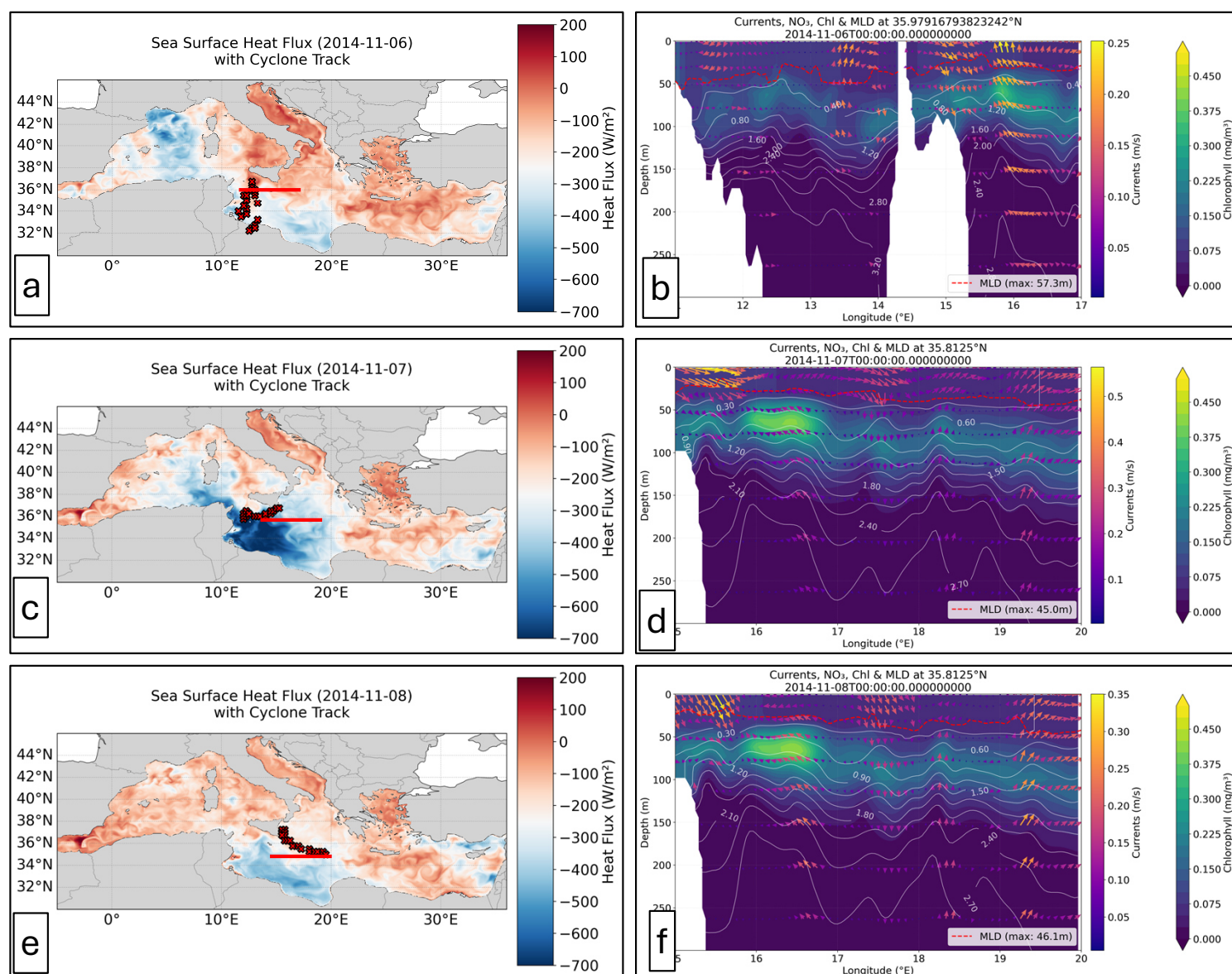


Fig. S2.5 – Heat flux and cross-section of biogeochemical features during Mediane Qendresa (06-09 November 2014); a–c–e) Heat flux maps assessed on 06/11/2014, 07/11/2014 and 08/11/2014, with cross-sections marked in red (x in red indicates the minimum MSLP value recorded on each date); b–d–f) Cross-sections showing: Chlorophyll-a concentration (viridis colormap), Nitrate concentration in  $\text{mmol/m}^3$  (white contour lines), Current vectors (plasma-colored arrows), Mixed layer depth (MLD, red dashed line).

## XANDRA – December 2014

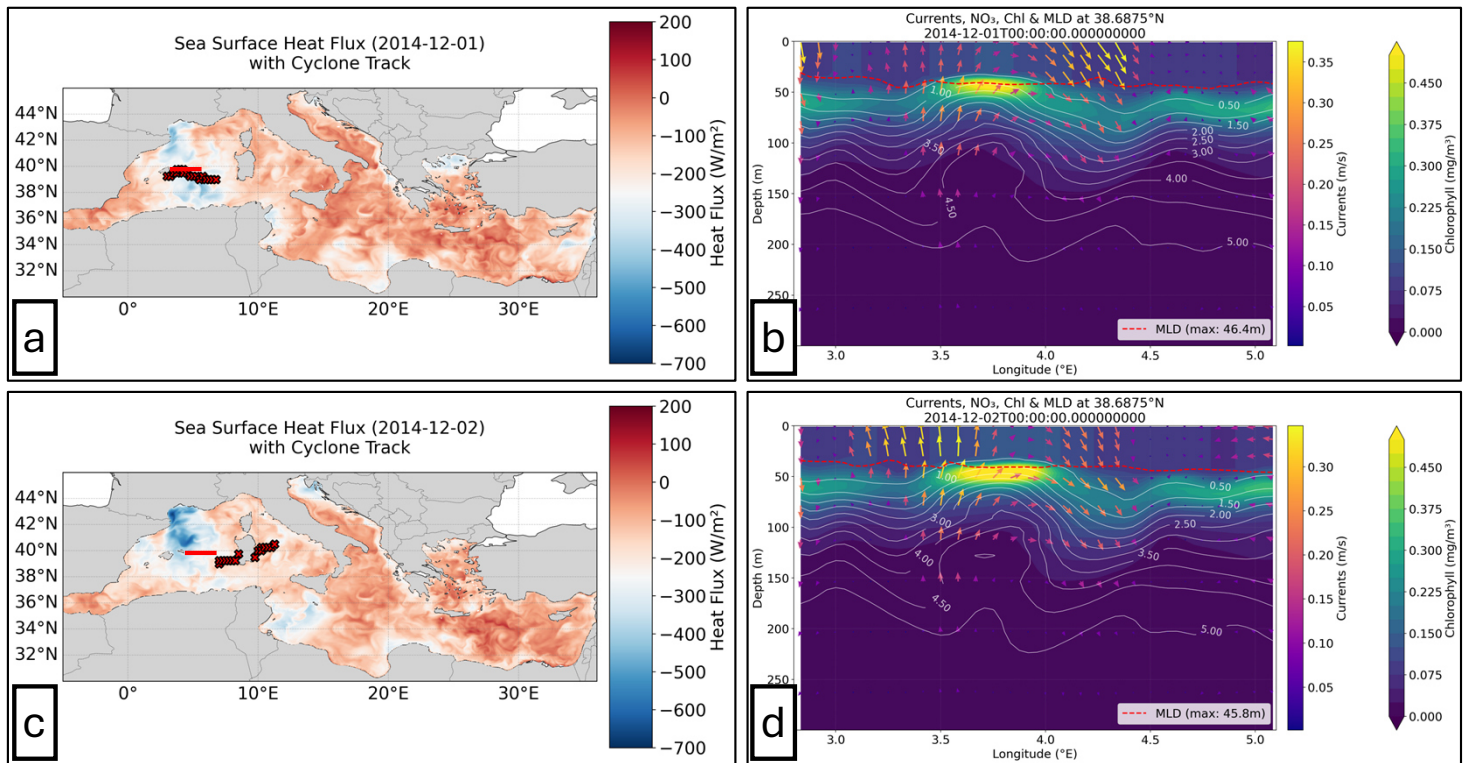


Fig. S2.6 – Heat flux and cross-section of biogeochemical features during cyclone Caulonia (01–02 December 2014); a–c) Heat flux maps assessed on 01/12/2014 and 02/12/2014, with cross-sections marked in red (x in red indicates the minimum MSLP value recorded on each date); b–d) Cross-sections showing: Chlorophyll-a concentration (viridis colormap), Nitrate concentration in  $\text{mmol/m}^3$  (white contour lines), Current vectors (plasma-colored arrows), Mixed layer depth (MLD, red dashed line).



## ERIK – May 2015

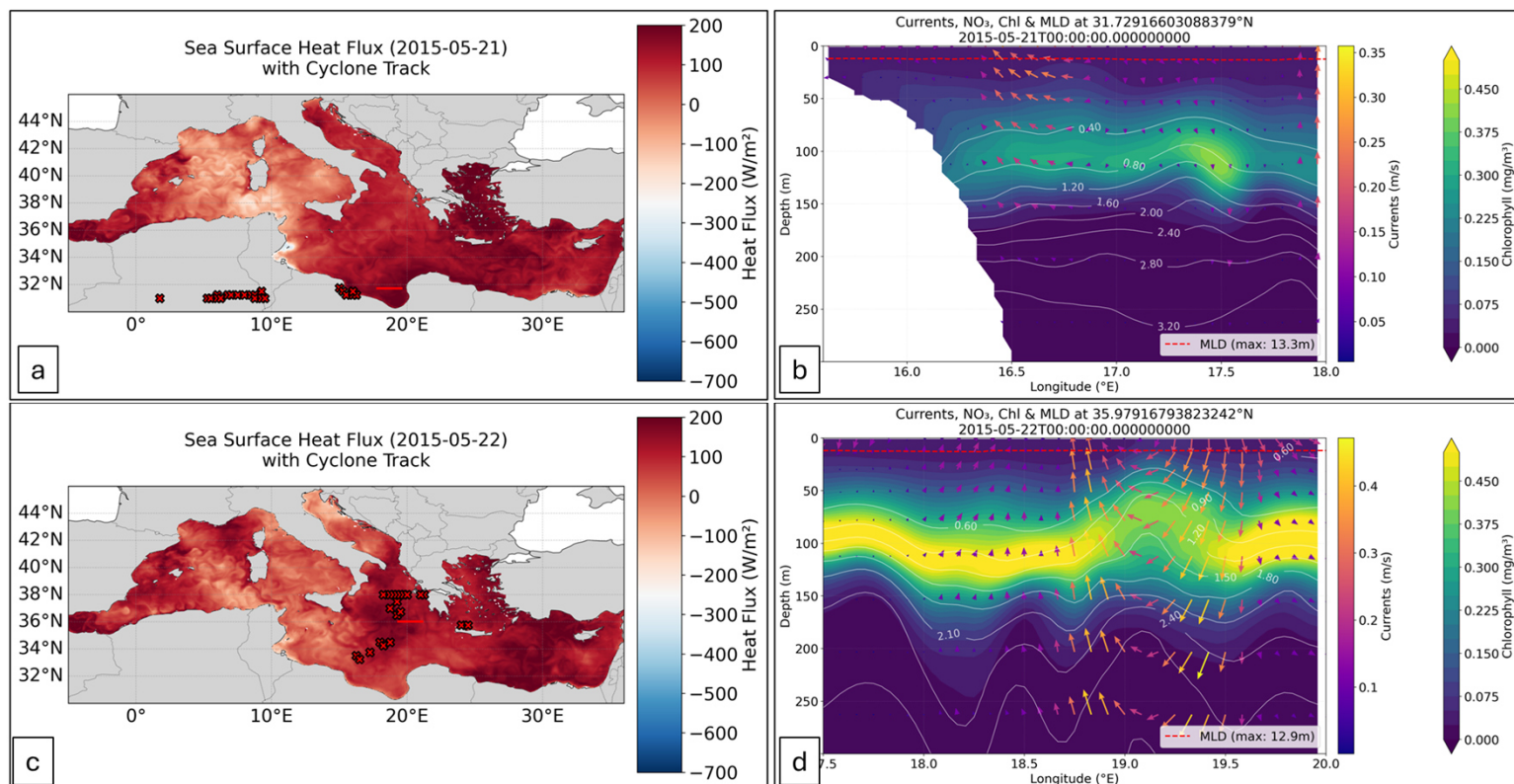


Fig. S2.7 – Heat flux and cross-section of biogeochemical features during cyclone Erik (21–22 May 2015); a–c) Heat flux maps assessed on 21/05/2015 and 22/05/2015, with cross-sections marked in red (x in red indicates the minimum MSLP value recorded on each date); b–d) Cross-sections showing: Chlorophyll-a concentration (viridis colormap), Nitrate concentration in  $\text{mmol/m}^3$  (white contour lines), Current vectors (plasma-colored arrows), Mixed layer depth (MLD, red dashed line).

## CAULONIA – March 2016

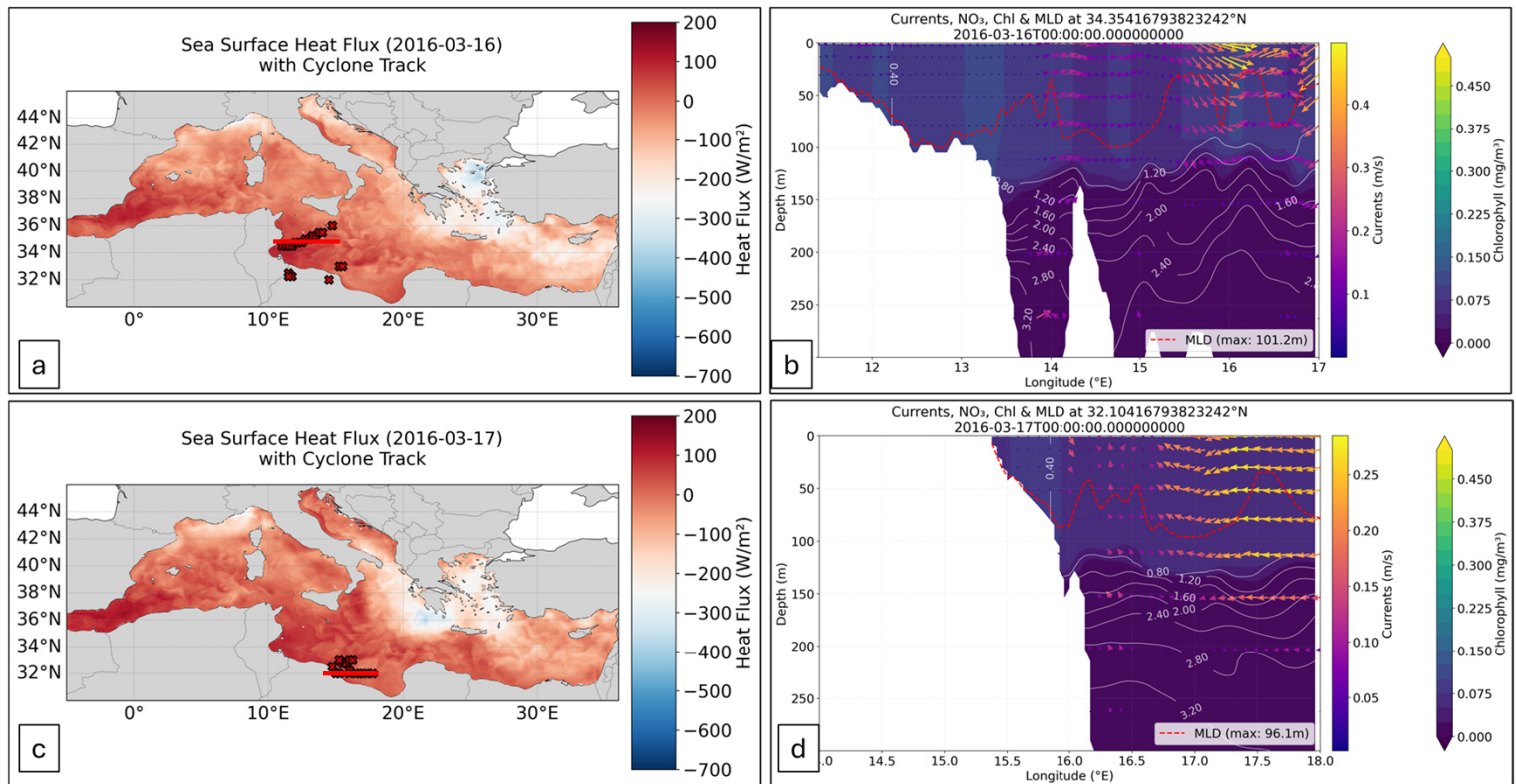


Fig. S2.8 – Heat flux and cross-section of biogeochemical features during cyclone Caulonia (16–17 March 2016); a–c) Heat flux maps assessed on 16/03/2016 and 17/03/2016, with cross-sections marked in red (x in red indicates the minimum MSLP value recorded on each date); b–d) Cross-sections showing: Chlorophyll-a concentration (viridis colormap), Nitrate concentration in mmol/m<sup>3</sup> (white contour lines), Current vectors (plasma-colored arrows), Mixed layer depth (MLD, red dashed line).



## TRIXIE – October 2016

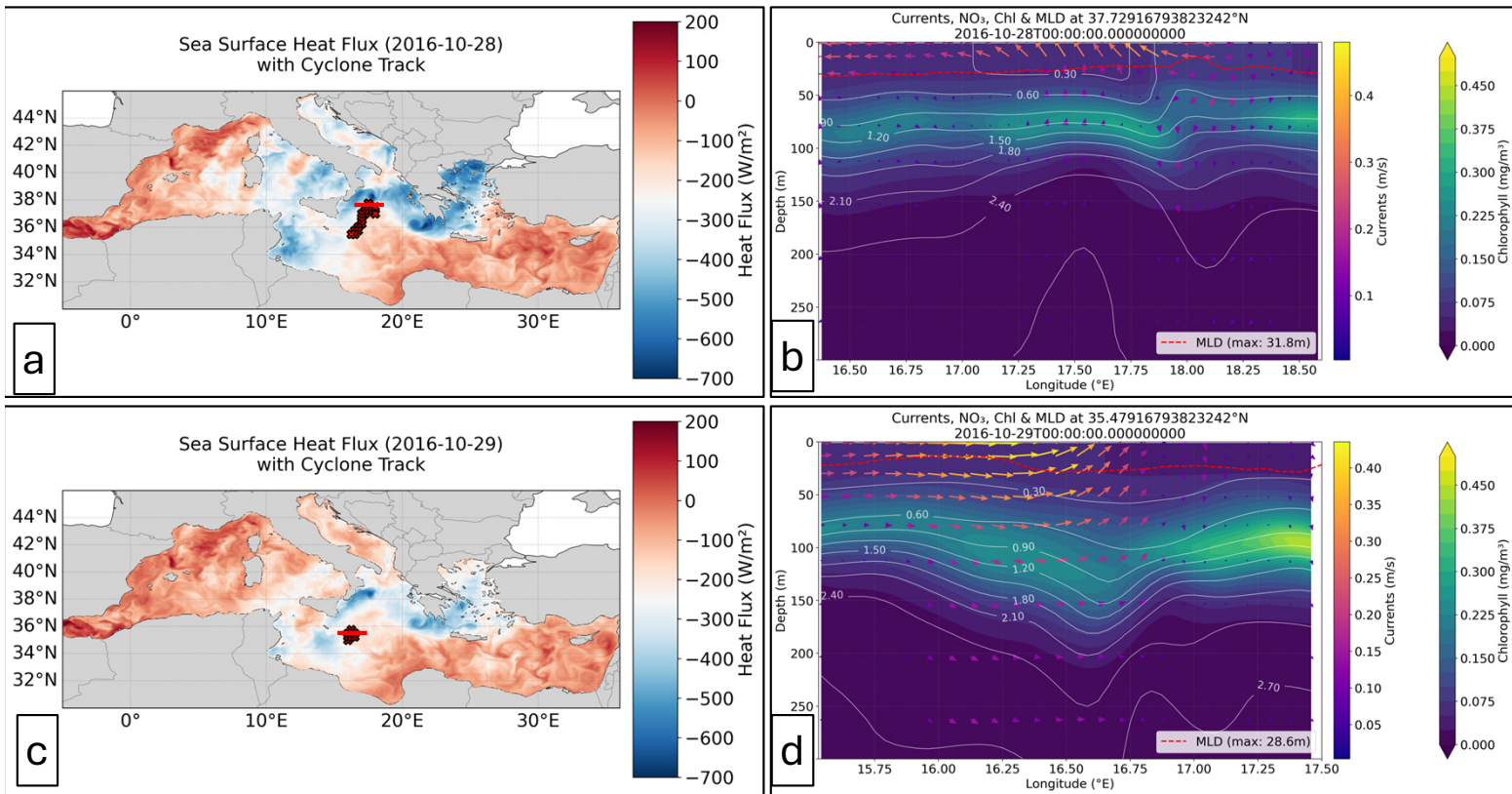


Fig. S2.9 – Heat flux and cross-section of biogeochemical features during cyclone Caulonia (28–29 October 2016); a–c) Heat flux maps assessed on 28/10/2016 and 29/10/2016, with cross-sections marked in red (x in red indicates the minimum MSLP value recorded on each date); b–d) Cross-sections showing: Chlorophyll-a concentration (viridis colormap), Nitrate concentration in mmol/m<sup>3</sup> (white contour lines), Current vectors (plasma-colored arrows), Mixed layer depth (MLD, red dashed line).

## NUMA – October 2017

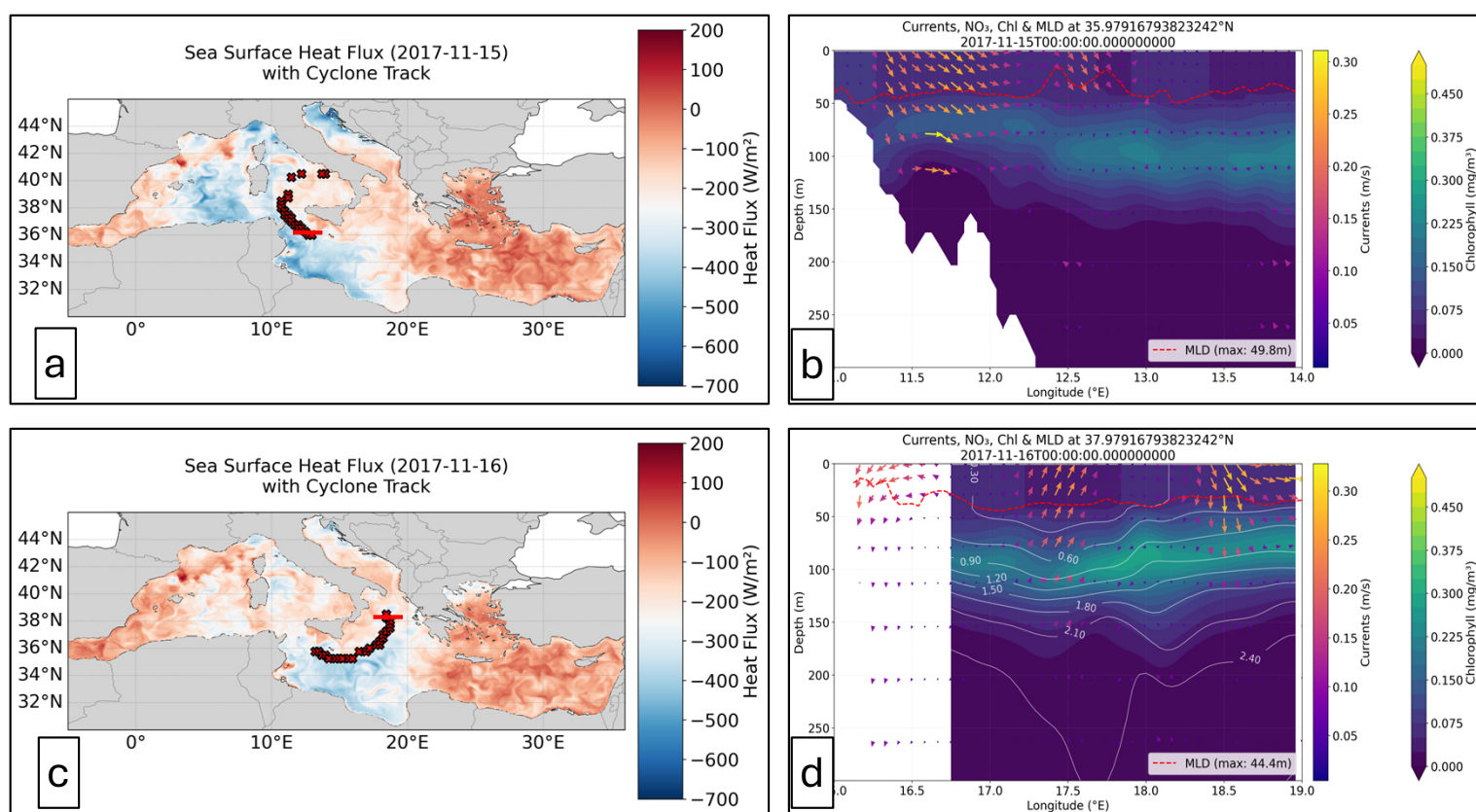


Fig. S2.10 – Heat flux and cross-section of biogeochemical features during cyclone Numa (15–19 November 2017); a–c) Heat flux maps assessed on 15/11/2017 and 16/11/2017, with cross-sections marked in red (x in red indicates the minimum MSLP value recorded on each date); b–d) Cross-sections showing: Chlorophyll-a concentration (viridis colormap), Nitrate concentration in mmol/m<sup>3</sup> (white contour lines), Current vectors (plasma-colored arrows), Mixed layer depth (MLD, red dashed line).



## ZORBAS – September 2018

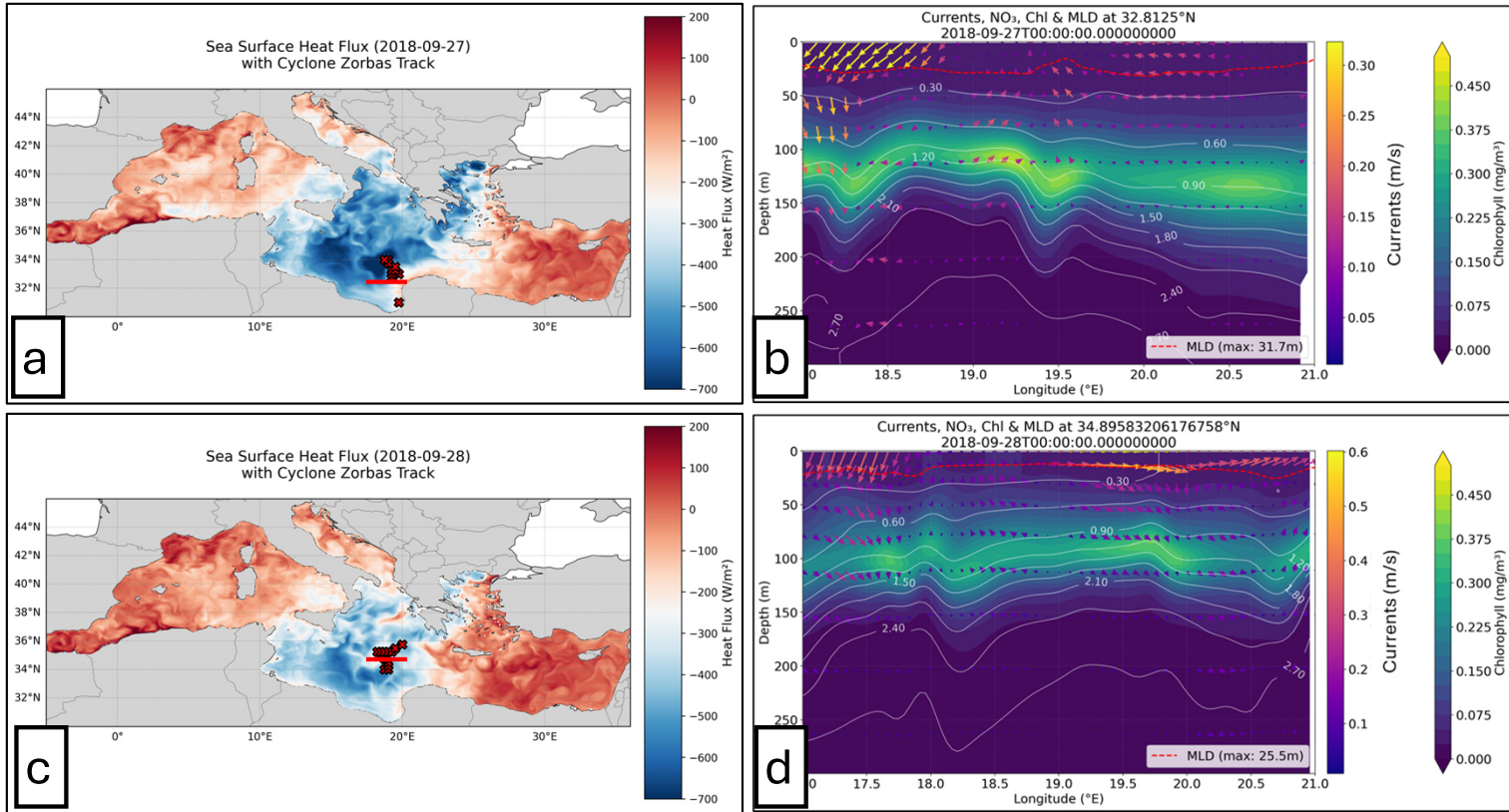


Fig. S2.11 – Heat flux and cross-section of biogeochemical features during medicane Zorbas (27–30 September 2018); a–c) Heat flux maps assessed on 27/09/2018 and 28/09/2018, with cross-sections marked in red (x in red indicates the minimum MSLP value recorded on each date); b–d) Cross-sections showing: Chlorophyll-a concentration (viridis colormap), Nitrate concentration in mmol/m<sup>3</sup> (white contour lines), Current vectors (plasma-colored arrows), Mixed layer depth (MLD, red dashed line).

## VAIA – October 2018

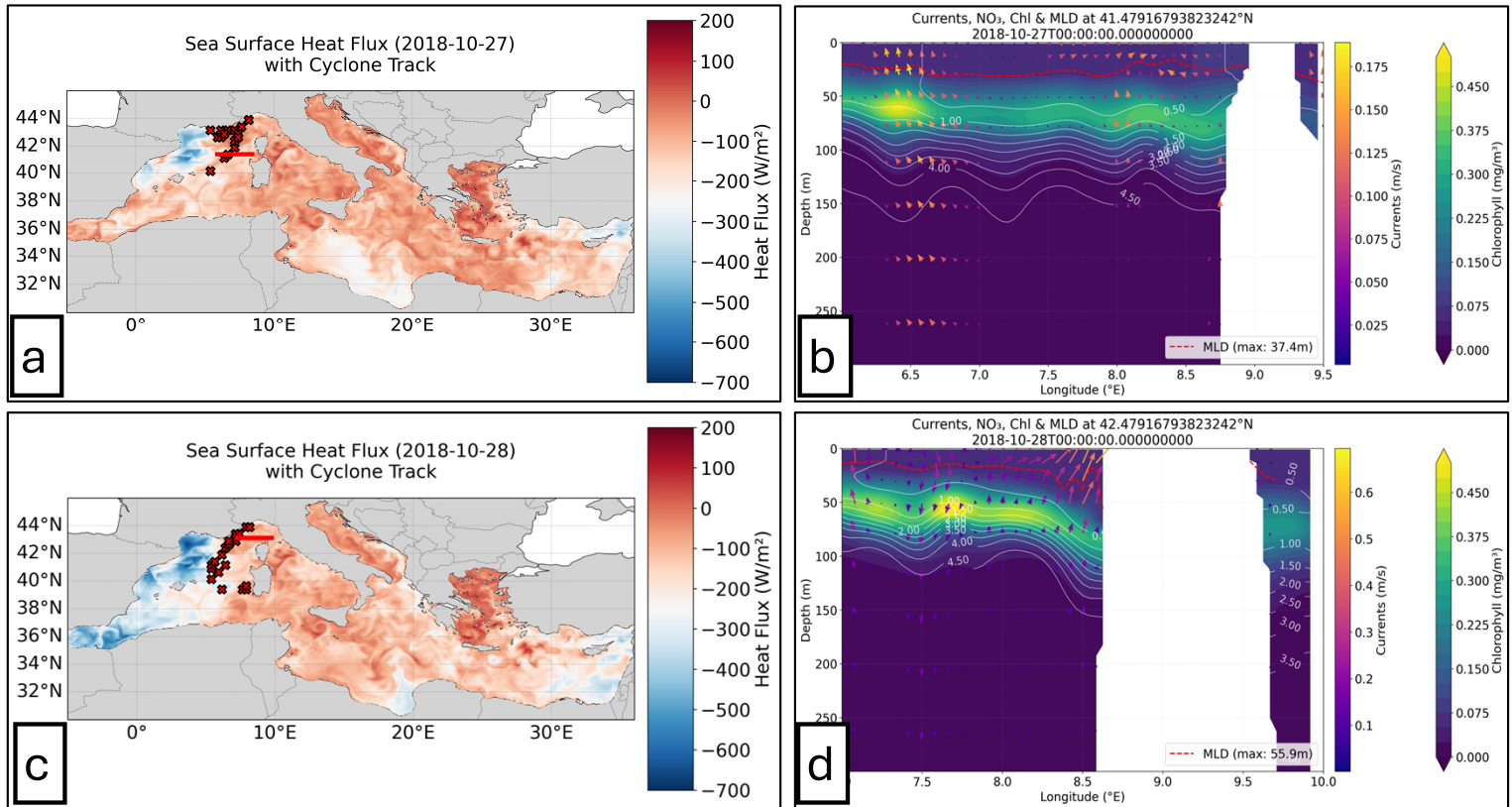


Fig. S2.12 – Heat flux and cross-section of biogeochemical features during cyclone Vaia (27–29 October 2018); a–c) Heat flux maps assessed on 27/10/2018 and 28/10/2018, with cross-sections marked in red (x in red indicates the minimum MSLP value recorded on each date); b–d) Cross-sections showing: Chlorophyll-a concentration (viridis colormap), Nitrate concentration in mmol/m<sup>3</sup> (white contour lines), Current vectors (plasma-colored arrows), Mixed layer depth (MLD, red dashed line).



## TRUDY – November 2019

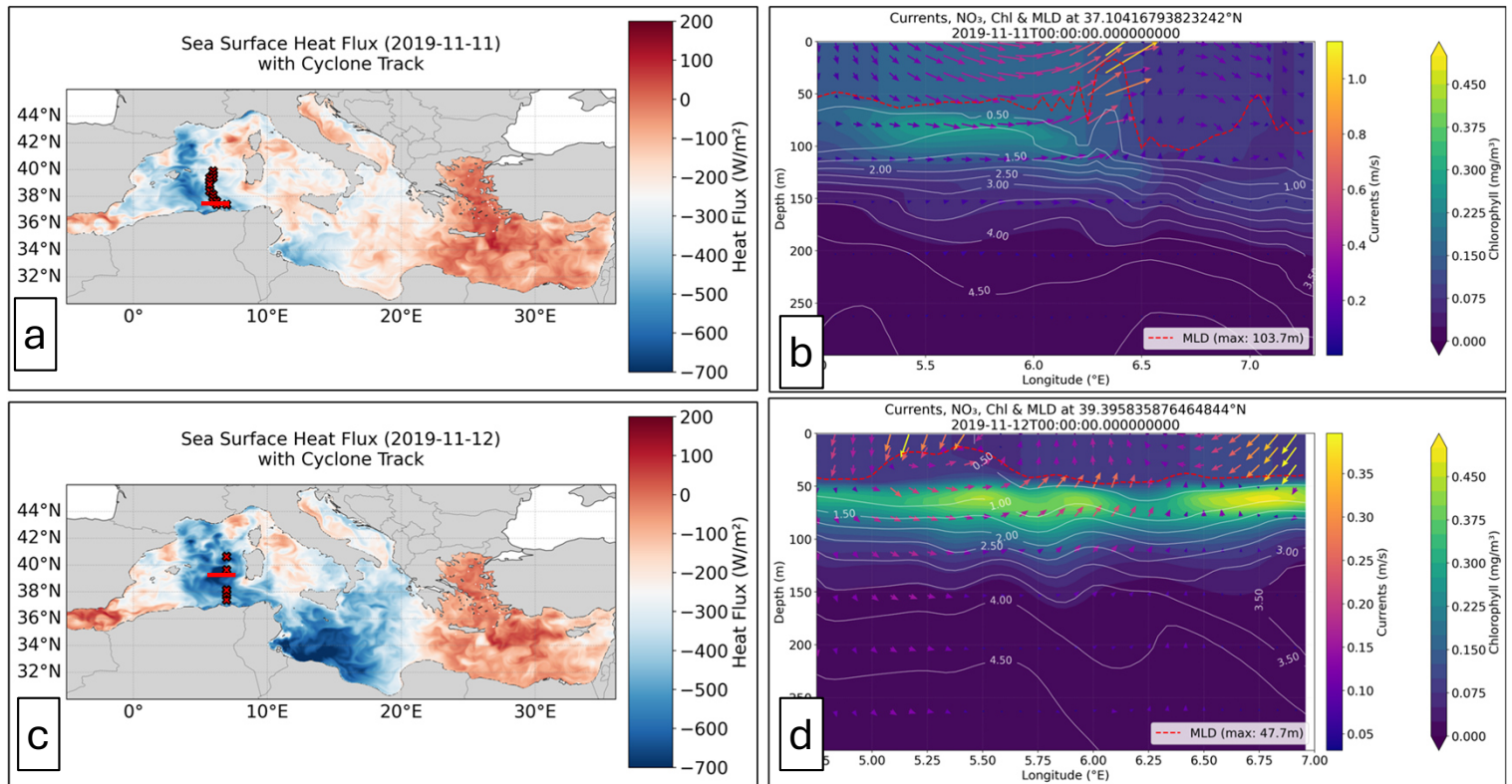


Fig. S2.9 – Heat flux and cross-section of biogeochemical features during medicane Trudy(10-12 November 2019); a–c) Heat flux maps assessed on 11/11/2019 and 12/11/2019, with cross-sections marked in red (x in red indicates the minimum MSLP value recorded on each date); b–d) Cross-sections showing: Chlorophyll-a concentration (viridis colormap), Nitrate concentration in mmol/m<sup>3</sup> (white contour lines), Current vectors (plasma-colored arrows), Mixed layer depth (MLD, red dashed line).

## IANOS – September 2020

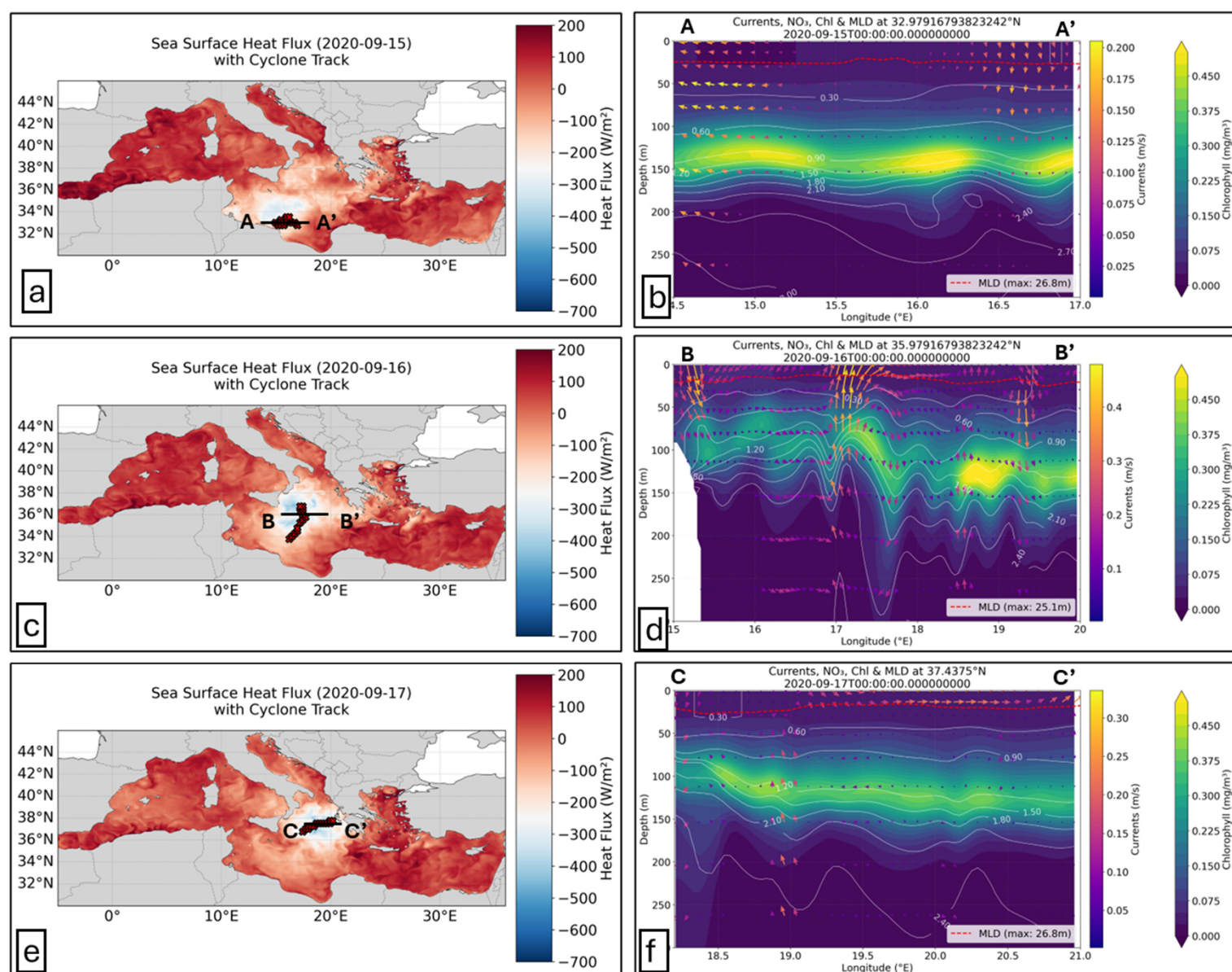


Fig. S2.14 – Heat flux and cross-section of biogeochemical features during Medicane Ianos (15–20 September 2020); a–c–e) Heat flux maps assessed on 15/09/2020 and 17/09/2020, with cross-sections marked in black (x in red indicates the minimum MSLP value recorded on each date); b–d–f) Cross-sections showing: Chlorophyll-a concentration (viridis colormap), Nitrate concentration in  $\text{mmol/m}^3$  (white contour lines), Current vectors (plasma-colored arrows), Mixed layer depth (MLD, red dashed line).



## APOLLO – October 2021

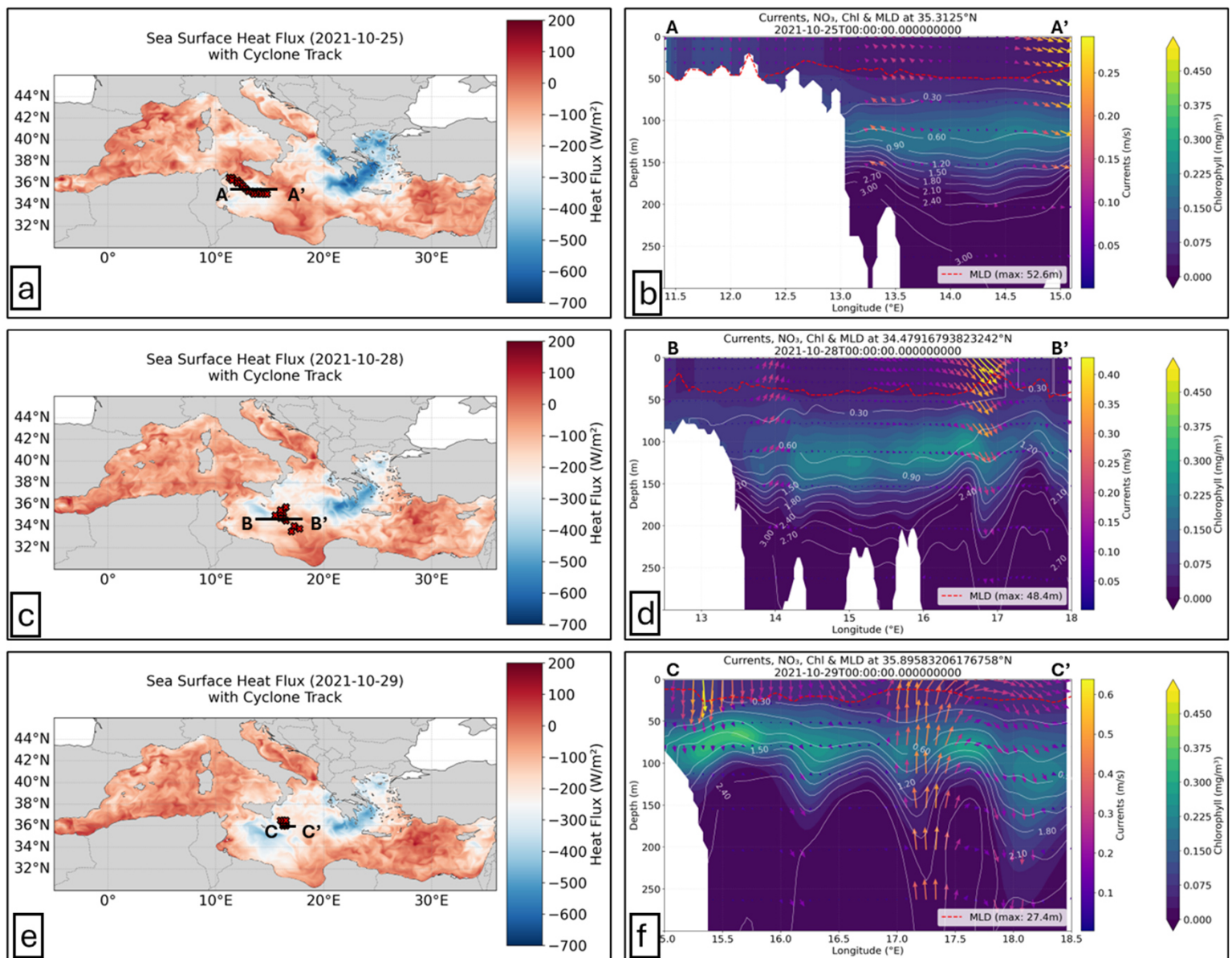


Fig. S2.15 – Heat flux and cross-section of biogeochemical features during Medican Apollo (25 October–01 November 2021); a–c–e) Heat flux maps assessed on 25/10/2021, 28/10/2021, and 29/10/2021, with cross-sections marked in black (x in red indicates the minimum MSLP value recorded on each date); b–d–f) Cross-sections showing: Chlorophyll-a concentration (viridis colormap), Nitrate concentration in  $\text{mmol/m}^3$  (white contour lines), Current vectors (plasma-colored arrows), Mixed layer depth (MLD, red dashed line).



# BLAS – November 2021

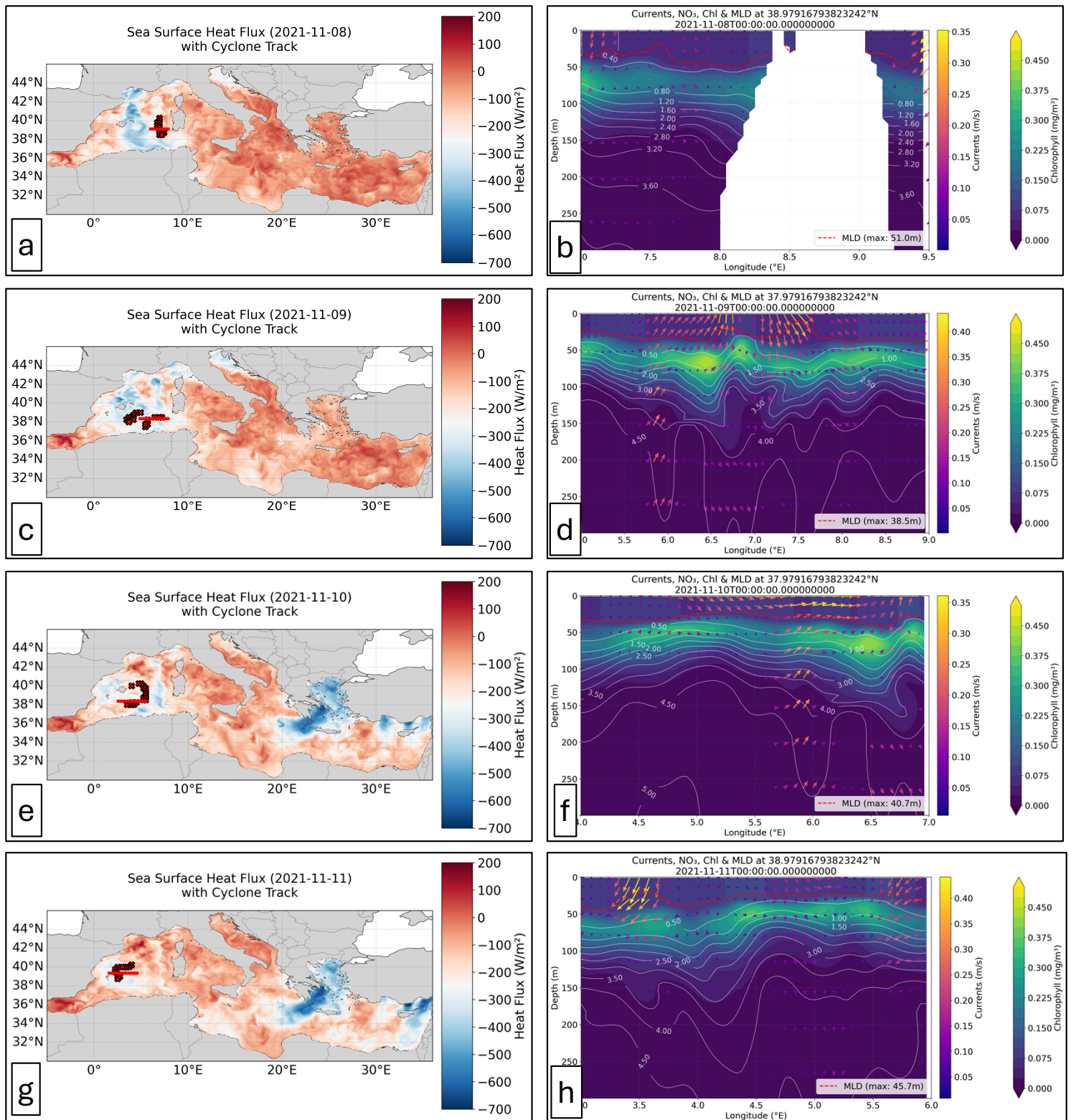


Fig. S2.16 – Heat flux and cross-section of biogeochemical features during cyclone Blas (06-18 November 2021); a–c–e–g) Heat flux maps assessed on 08/11/2021, 09/11/2021, 10/11/2021 and 11/11/2021, with cross-sections marked in red (x in red indicates the minimum MSLP value recorded on each date); b–d–f–h) Cross-sections showing: Chlorophyll-a concentration (viridis colormap), Nitrate concentration in  $\text{mmol/m}^3$  (white contour lines), Current vectors (plasma-colored arrows), Mixed layer depth (MLD, red dashed line).

## CIPRIAN – October 2022

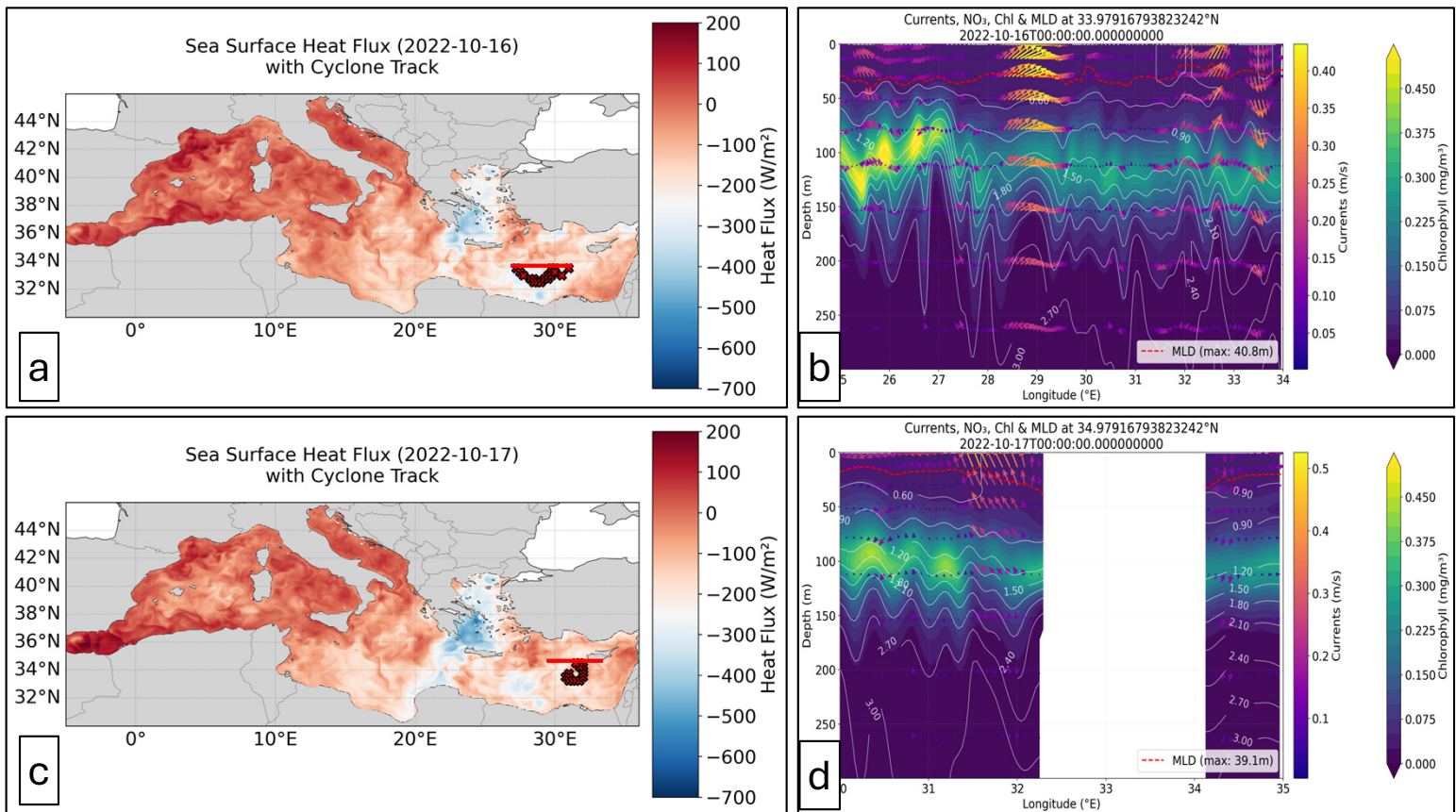


Fig. S2.17 – Heat flux and cross-section of biogeochemical features during cyclone Ciprian(16-20 October 2022); a–c) Heat flux maps assessed on 16/10/2022 and 17/10/2022, with cross-sections marked in red (x in red indicates the minimum MSLP value recorded on each date); b–d) Cross-sections showing: Chlorophyll-a concentration (viridis colormap), Nitrate concentration in  $\text{mmol/m}^3$  (white contour lines), Current vectors (plasma-colored arrows), Mixed layer depth (MLD, red dashed line).



## HELIOS – February 2023

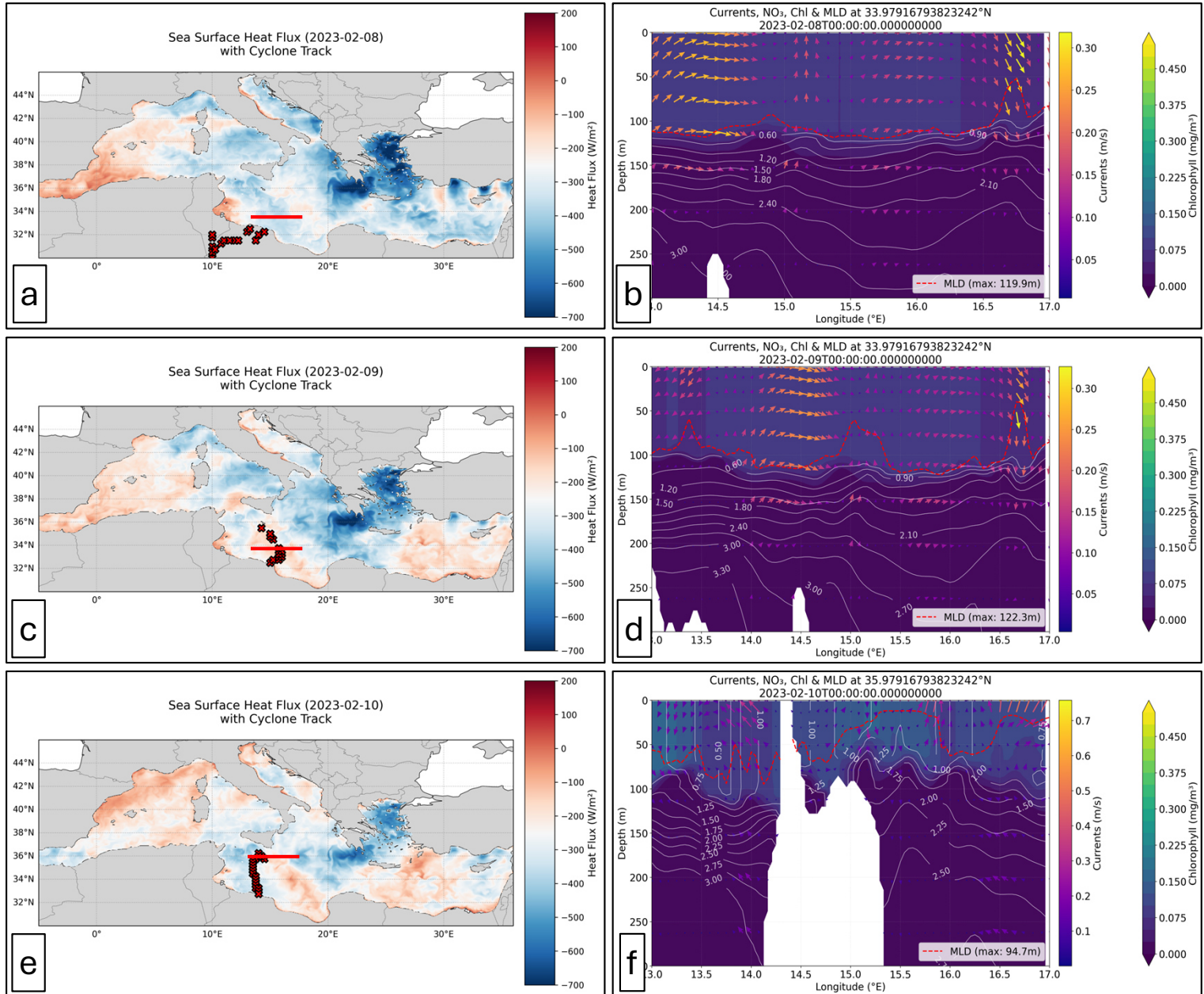


Fig. S2.18 – Heat flux and cross-section of biogeochemical features during Medicane Helios (08 – 11 February 2023); a–c–e) Heat flux maps assessed on 08/02/2023, 09/02/2023, and 10/02/2023, with cross-sections marked in red (x in red indicates the minimum MSLP value recorded on each date); b–d–f) Cross-sections showing: Chlorophyll-a concentration (viridis colormap), Nitrate concentration in  $\text{mmol/m}^3$  (white contour lines), Current vectors (plasma-colored arrows), Mixed layer depth (MLD, red dashed line).