Data and code to reproduce analysis in *Contrasting mixing conditions in adjacent upwelling bays shape the occurrence of thin layers of phytoplankton*, Broullon et al. Code is available at https://github.com/ebroullon/Broullon_REMEDIOS2025 whereas Data is available at Menedeley Data repository.

The folder is divided in three subfolders in both github and Mendeley Data: one with the code and data for the CROCO model output, one for code and data corresponding to CTD and microstructure MSS90 measurements collected during the REMEDIOS-TLP cruise and one for the ADCP data also collected during REMEDIOS-TLP.

croco_model folder

- **croco_output.mat**: this files contains the model output data necessary to reproduce hydrography figure in the paper, as well as to calculate the PT, which is the turbulence production by bottom tidal friction, the main source of energy in the study area.
- **costa_REMEDIOS.mat**: this file contains the data necessary to plot the polygon corresponding to the land in the study area.
- **croco_maps_TScurrents.m**: this file is the code in MATLAB that reproduces the hydrography figures from model output in the paper.
- **PT_croco.m**: this file is the code in MATLAB that reproduces the calculations for PT and the corresponding figure.

remedios-tlp folder

- **ctd_cruise_remedios_1.mat**: this file includes data recorded by the CTD during the REMEDIOS-TLP cruise. Specifically it includes the following variables:
  - 'latitude' and 'longitude': in degrees (1x366 rows *x* cols each variable).
  - 'fluo': fluorescence in arbitrary units. Columns are the different profiles, whereas rows are the fluorescence values averaged every 1 m (142x366).
  - 'chla': chlorophyll a in μg L^{-1}. Columns are the different profiles, whereas rows are the chlorophyll values averaged every 1 m (142x366).
  - 'N2': squared buoyancy frequency in s^{-2}. Columns are the different profiles, whereas rows are the squared buoyancy frequency values averaged every 1 m (142x366).
  - 'date': date in format "YY:MM:DD:hh:mm:ss" of each CTD profile (366x6).
  - 'sample': text variable that associates each profile to its kind of sampling. 'I01', 'I02' and 'I03' are the intensive samplings, whereas surveys samplings are named as 'S01', 'S02', 'S03' and 'S04'.
  - 'pres': pressure (dbar) from surface (0 m) to maximum bottom pressure (142 m).
  - 'sigma': density-1000 in kg^{-3}. Columns are the different profiles, whereas rows are the density values averaged every 1 m (142x366).

- ‘st’: code of stations sampled during the cruise (1x366).

- **diffusivity_cruise_remedios.mat**: CTD data recorded with a MSS90 microstructure profiler during the intensive samplings are included in the file and contains the following variables:
  - ‘date’: date in format “YY:MM:DD:hh:mm:ss” of each CTD profile (1658x6).
  - ‘dens’: density-1000 in kg^{-3}. Columns correspond to the different profiles, whereas rows are the density values averaged every 1 m (45x1658).
  - ‘fluo’: fluorescence profiles. Columns correspond to the different profiles, whereas rows are the fluorescence values averaged every 1 m (45x1658).
  - ‘T’: temperature in ºC. Columns correspond to the different profiles, whereas rows are the temperature values averaged every 1 m (45x1658).
  - ‘S’: salinity in PSU. Columns correspond to the different profiles, whereas rows are the salinity values averaged every 1 m (45x1658).
  - ‘N2’: buoyancy frequency in s^{-2}. Columns correspond to the different profiles, whereas rows are the N2 values averaged every 1 m (45x1658).
  - ‘pres’: pressure in dbar. Rows are the pressure values every 1 m (45x1).
- **LTd.mat**: thorpe length scale in meters, derived from MSS90 data. It contains values for the there different legs during the intensive samplings carried out during the cruise.
- **nutrients_remedios_cruise.mat**: nitrate data from water samples collected during the cruise.
  - ‘cruise’: code of the intensive sampling. 1 corresponds to intensive I01, 2 to I02 and 3 to I03 (134x1).
  - ‘date’: date in format “YY:MM:DD:hh:mm:ss” of each CTD profile (134x6).
  - ‘pres’: pressure (dbar) in m (134x1).
  - ‘NO3’: nitrate values in µM. Values are displayed in an unique column and are associated to the variables ‘date’ and ‘pres’ (134x1).
- **ctd_all_profiles_surveys1.m**: this file is the code in MATLAB that reproduces the CTD hydrography in the paper.
- **SCM_metrics.m**: this file is the code in MATLAB that reproduces the analysis of the subsurface chlorophyll maximum described in the paper.
- **timeseries_chl_S_T_LT_N2_NO3.m**: this file is the code in MATLAB that reproduces the figure related to the intensive samplings carried out during REMEDIOS-TLP cruise.

ADCP

- **ADCP_remedios.m**: this file includes data recorded by the ADCP during the REMEDIOS-TLP cruise.

- **ADCP_graphic.mat**: this file includes the code that reproduces ADCP figure in the paper.