Temporal metadata are systematically provided with the following code referring to the TEMPO image time series:

e.g. 20120727\_180008\_2012-2013\_20\_1130

* + 20120727 = date (YYYYMMDD)
  + 180008 = time (HHMMSS in UTC)
  + 2012-2013 = period of image acquisition (YYYY-YYYY)
  + 20 = image number within the period image series
  + 1130 = image number since the first image taken in 2011 (hereafter called “within the full time series)

The “Reference picture.JPG” (3127x2159) consists in the overlay of 7 pictures corresponding to the periods of image acquisition (i.e. between deployment and recovery of the TEMPO ecological module). These pictures were overlaid onto each other after homography transformation using a homography workflow (separate DOI). It can be used as a background image to plot “homography-transformed” X-Y coordinates of the data. The scale corresponds to 0.6478 mm/pixel.

1. **Folder « Dilution gradient »**

This folder contains raster as .txt files with temperatures [°C] spatialized over the “Reference picture.JPG” (hereafter called “homography-transformed”) using monthly spatial regressions of iButton temperatures. These rasters (3127x2159) can be loaded in Python using the *numpy* function *load.txt()*. “nan” means that no temperature data was provided for that given pixel.

1. **Folder « FoV delimitation » (FoV being “field of view”)**

* All the masks as .txt rasters (3127x2159) necessary to withdraw from all transformed images areas with no spatio-temporal continuity, (0) meaning it has no such continuity over the time series considered and specified in the file name. It either removes areas outside the field of view considered (“boundaries\_FoV\_period.txt”) or the area occupied by the Chemini module (“mask\_CHEMINI\_module\_period.txt”). Note that “FoV” means “Field of View”.

1. **Folder « Zoanthid »**

This folder contains the .IMJ scripts that can be loaded in ImageJ. They were used to count individuals of zoanthid for each acquisition period and using non-transformed images that can be found in a separate DOI. Scripts for “automated detection” loops throughout an image time series the isolation of zoanthid individuals from images after several image filtering with parameters calibrated for each period and a particle analysis. Scripts for “manual detection” only isolate the area of interest in order to use the ROI manager of ImageJ to count the zoanthid individuals manually.

1. **.csv files**

* “Bathymodiolus azoricus mussel tracking.csv” relates the period during which the *Bathymodiolus azoricus* mussel was tracked, the image number since the first image analyzed was taken in 2011 in which the mussel was observed (image acquisition frequency = 4x a day), the ID of each mussel individual tracked and its non-transformed X-Y coordinates. Scales used to convert pixel to metric distances to compute individual speed were: 1.4286 pixel/mm (2011-2012, *see Matabos et al. 2015 doi:10.1016/j.dsr2.2015.04.008*), 1.2468 pixel/mm (2012-2013, measurement in the image), 1.3017 pixel/mm (2014-2015, measurement in the image). “NR” means “not relevant” and was assigned only to mussels tracked within the mussel assemblage as their speed had no research interest.
* “CHEMINI submersible measurements.csv” contains data related with punctual chemical measurements made by the submersible during the MoMARSAT cruises from 2014 to 2019. Measurements include concentrations of Fe (II), ΣS (H2S+HS-+S2-), the average temperature and standard deviation measured during the CHEMINI measurement (~4 min) and dive-specific detection limits for concentrations of Fe (II) and ΣS. Coordinates refer to the repositioning of the submersible probe within the “Reference picture.JPG” image. The last column “Substrate” refers to the type of feature over which the measurement was made. “NA” means “not available” (i.e. the CHEMINI measurement failed).
* “iButton.csv” contains successively by columns: period of measurement, iButton ID, monthly measurement date [YYYY-MM-DD] and time [HH:MM:SS] on which the calculation was performed. Homography-transformed X-Y coordinates. Average of the temperatures measured over 1-week time slot, standard deviation, 95% percentile, 5% percentile and name of the closest picture to which the iButton position was assigned. “NA” means the data is “not available” (i.e. temperature logger failed to record).
* “Polygon cover.csv” contains polygon annotation data with the columns successively presenting the name of the image annotated, the polygon ID being the individual number for each polygon, X-Y coordinates homography-transformed of the polygon vertices, the internal name of the polygon and the feature that was annotated (*Bathymodiolus azoricus* mussel, microbial mat, white hydrothermal deposit and crevices). For microbial mat, “no file” relates that no microbial cover was detected within a given image.
* The file “Segonzacia mesatlantica crabs.csv” contains the image name in which an individual of *Segonzacia mesatlantica* crab was manually detected and its associated X-Y coordinates (already homography-transformed).
* The file “Zoanthid.csv” compiles the following information by successive columns: Period, Image name, Zoanthid ID (number of the Zoanthid sp. Individual counted), X and Y (coordinates of the individual within the non-transformed image), Detection mode (either “automated” or “manual”), Replicate number. The replicate number is only relevant for the “manual count” as 3 replicates were performed for each image analyzed manually. Therefore, rows with “automated count” harbors “NR” in that column (i.e. “not relevant”) as counts were not replicated in that case. Areas used to compute densities from counted abundances were the following: 11110.94 mm² (2014-2015), 13075.08 mm² (2015-2016), 12240.5 mm² (2017-2018), 15476.86 mm² (2018-2019).

If the user is interested in any scripts used to extract these data from annotations, please email to *lvanaude@ifremer.fr/loic.vanaudenhaege@gmail.com*