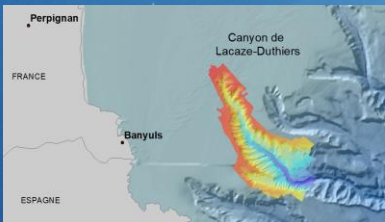
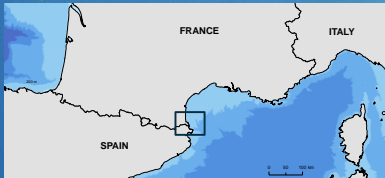


Focus on cold-water corals in a Mediterranean canyon

Come and dive in an underwater canyon !

... as if you were there

www.ifremer.fr

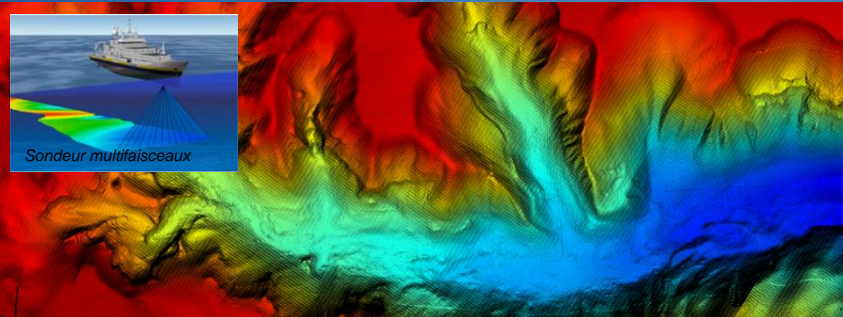


The film you are about to see is not a fiction! It was made with images of real elements, integrated in a virtual environment.

These images were collected during the CALADU-2019 and 2021 oceanographic cruises dedicated to the study of Mediterranean cold-water corals. They are produced by different imaging techniques depending on the scale used.

These images will offer you a sensational experience thanks to the virtual reality!

You will dive into a canyon in the middle of the marine snow, dive along its walls in search of coral and discover the internal structure of these curious animals.

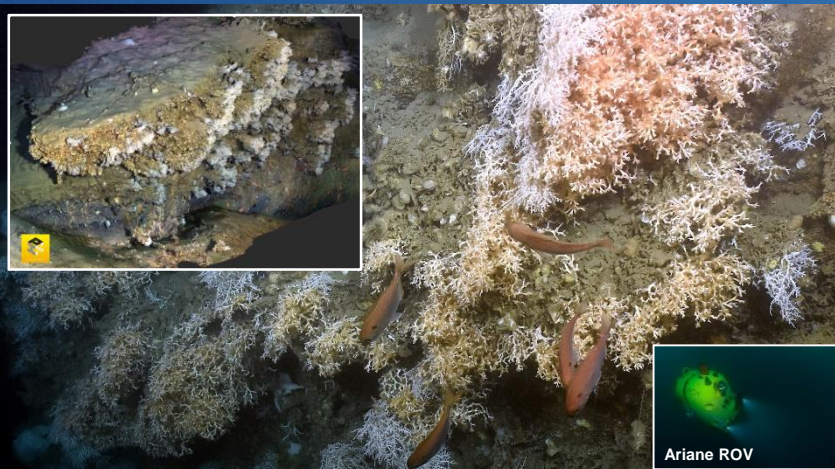


Bathymetry

The multibeam echosounder and acoustic waves

The high resolution mapping of a submarine canyon (bathymetry), is obtained thanks to **acoustic waves** emitted by a multibeam echosounder installed on an oceanographic vessel or on an underwater robot.

(Globe software © Ifremer)

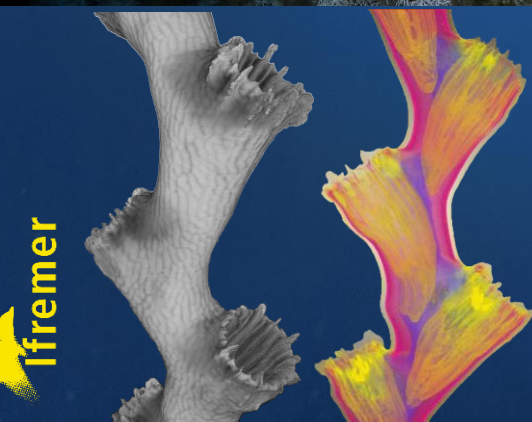


Photogrammetry

The reconstruction of a site in 3 dimensions (Structure from motion)

The 3D reconstruction of a coral reef was made from a series of **photos** recorded *in situ* by a remotely operated underwater robot. The scientists thus obtain a digital reconstruction of an entire ecosystem. This georeferenced model is to scale. It is used to count the different species, to measure sizes and surfaces and to calculate densities. It also allows to obtain the depths at which the species are found.

(Matisse software © Ifremer)



X-ray micro-tomography

Animal skeletons and X-rays

Corals collected in a canyon by a remotely operated underwater robot were imaged by **X-ray** micro-tomography to produce a 3D scan of the skeleton density. This allows to make transverse and longitudinal sections and also to reveal the differences in density between the various parts of the skeleton.

Subatech laboratory



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CALADU 2019, 2021
Oceanographic cruises
3D video

This poster refers to published work:

Fabri, M.C., Dugornay, O., de la Bernardie, X., Guerin, C., Sanchez, P., Arnaubec, A., Autin, T., Piasco, R., Puig, P., 2022.

3D-Representations for studying deep-sea coral habitats in the Lacaze-Duthiers Canyon, from geological settings to individual specimens, Deep Sea Res. I (Oceanogr. Res. Pap.) 187, <http://doi.org/10.1016/j.dsr.2022.103831>.

