MUSEUM GHERDËINA

Special exhibition, 26.07.– 31.10.2023

# CORALS AMONG LAVAS

## The Alpe di Siusi 240 million years ago

### CORALS AND FLUORESCENCE

Recent research carried out by Museum Gherdëina on the Alpe di Siusi found that some fossils can be fluorescent. Corals in particular, but also molluscs and echinoderms to a lesser extent, were found to undergo this physical phenomenon. Fluorescence happens when matter, hit by ultraviolet light (UV), emits visible light in return.

For the time being, the ongoing studies have not achieved an interpretation of this discovery. Nonetheless, we can hypothesize this peculiarity to be the result of an extremely long diagenetic history, from 240 million years ago to the recent collection of samples.

In modern corals the skeleton is made up of aragonite, which is calcium carbonate in a much less stable chemical form than calcite. As a consequence, in case of reef emersion, the aragonite can be easily dissolved. Something similar probably happened during upper Ladinian to the coral colonies widely spread in the shallow waters around the volcanic islands, as well as on the carbonate platform margins. We can therefore suppose that a drop in sea-level exposed the already lithified reef, dissolving corals and leaving voids in their place. When pieces of the reef margin collapsed into the deep basin, new carbonates filled the voids alongside other ions (probably strontium or manganese) contained in the water circulating inside the bottom sediments. These ions are probably the source of the fluorescence. If this sequence of events is correct, it could well explain why the original internal structure of the corals is lost, cancelled by the diagenetic processes. But, fortunately, there are some exceptions!

*(Text: Andrea Tintori)*

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