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Adaptive and evolutionary responses of microalgae to ultra-low radioactivity at the Modane Underground Laboratory - (in-person)

Tuesday, 20 August 2024 11:30 (30 minutes)

20-minute talk + 10-minute questions

Our knowledge is limited on the long-term impact of natural radioactivity on living organisms, particularly those inhabiting aquatic ecosystems. Living organisms have developed resistance to ionizing radiation, but it remains to be determined whether they have fully adapted to this radiation or whether they continue to be influenced by this stress. Biological experiments conducted on bacterial populations in underground laboratories have shown that reduced radiation levels lead to various physiological consequences, such as growth inhibition and increased sensitivity to chemical mutagens. The RAMURe project at LSM studies the response of three species of diatoms, sentinels of the environment, to ultra-low radioactivity: 1) Planothidium frequentissimum, present in radioactive mineral sources in Auvergne; 2) Phaeodactylum tricornutum, a marine diatom widely used as a model to study the response to stress; 3) Achnanthidium saprophilum, living in lakes, used for radiochemistry studies on the fixation of radioelements. The project focuses on the ability of diatoms to adapt to radioactive stress, measuring parameters such as growth rate, size, volume, photosynthetic capacity, pigment and lipid content, as well as oxidative stresses. and antioxidants.

Presenter: BRETON, Vincent

Session Classification: Studies of Life in Low Background Radiation