Terrestrial hints for prospecting microbial life in Venus clouds. P. Amato[1], [1]Université Clermont Auvergne, CNRS, SIGMA Clermont, ICCF, F-63000 CLERMONT-FERRAND, France. Pierre.amato@uca.fr

Clouds have been identified as the best candidates for hosting microbial life on Venus. On Earth, clouds are also thought to be particular environments in the atmosphere, providing water, nutrients and protection against UV radiation to microbial cells. Our group studies microbiological processes occurring in clouds with the aim to characterize and quantify their impacts on atmospheric chemistry and microphysics. Although the conditions are much more favorable than on Venus, investigating biological material scattered in clouds or in the air, its viability and metabolic activity are already highly challenging. We, as other aerobiologists interested in microbial life in the high atmosphere, have to face technical and practical difficulties that will likely be encountered on Venus as well, and our experience could certainly help addressing them. In-situ measurements are necessarily constrained by the low biomass, and methods and approaches potentially applicable to extraterrestrial environments have been developed. These require high specificity and sensitivity; they include offline and online detection and quantification of specific biological markers by fluorescence, luminescence, mass spectrometry, imagery or else. Isotopic signatures as well can attest specifically of biological processes. I will present the most promising of them in the exploration of microbial life in Venus clouds.