CONFÉRENCE

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The aeromicrobiome

JEUDI 13 FÉVRIER 2025 à 12 h 30

Pavillon Charles-Eugène Marchand, salle Hydro-Québec (1210)

Abstract:

Microorganisms are transported in the atmosphere up to high altitudes and clouds, with ecological and biogeochemical implications. Since the early 2000's, we investigate outdoor airborne microbial communities using multidisciplinary approaches at the master site of puy de Dôme Mountain summit (1,465 m asl) and its surrounding landscape in Central France.

We use and develop microbiological (cultural, cellular, molecular) and modeling approaches associated with fine characterization of air masses from chemical and meteorological variables to depict the aeromicrobiome. We explore microbial biodiversity in air masses and, in particular, the survival and metabolic functioning of living cells along with their atmospheric transport from aerosols to precipitation, and their physical and chemical interactions with the atmospheric environment.
In parallel, isolated microorganisms are assessed in the laboratory and atmospheric simulation chambers for their responses and acclimation mechanisms to atmospheric conditions.

Our specific objectives are to better understand how microorganisms maintain in such harsh conditions, what environmental and biological variables drive microbial diversity, viability and activity, and the associated environmental and ecological impacts, such as the selective role of microbial aerial transport and the contribution of biologically driven processes to atmospheric chemistry and physics. This seminar will examine the many aspects of a microbial journey through the atmosphere.

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