International Master 2 Atmospheric Sciences: Research Training 2020-2021

Laboratory: LASIRe

Supervisor: CHOEL Marie

Tél : 03.20.43.49.07, E-mail : marie.choel@univ-lille.fr

Collaborator: VISEZ Nicolas

Eventually,

CaPPA Work Package: WP2

Rupturing of individual pollen grains under controlled environment

An increasing number of individuals suffer from pollinosis. Pollen allergens are found in respirable particles, including whole anemophilous pollen grains (10-40 µm diameter), pollen-derived starch cytoplasmic granules (2-4 µm) and submicrometric particles called orbicules. Pollen grain structure can be damaged after exposure to pollutants in humid air eventually causing pollen membrane breakdown.

During this internship, the candidate will study the mechanism of exine (pollen membrane) rupture and release of cytoplasmic granules by simulating ageing processes suffered by pollen grains during their transport in the atmosphere. The student will use optical fluorescence microscopy coupled to a micro-reactor to make in-situ microscopic observation of native and ozonolyzed pollen bursting in wet and dry conditions.

Key words: Pollen, Rupture, Microscopy