

**Séminaire vendredi le 16 novembre 2018 11:00 / Seminar Friday November 16<sup>th</sup> 2018 11:00h**

**Sujet/Subject:**

**The effects of volcanic eruptions on ENSO, Tropical Cyclones and Ocean Circulation: The role of the initial conditions and aerosol distribution**

**Langue/language** : Anglais/English

**Conférenciers/Lecturers:** Dr. Francesco S.R. Pausat (Dept. of Earth and Sciences, UQAM)

**Résumé/Abstract**

Large volcanic eruptions can have major impacts on global climate, affecting both atmospheric and ocean circulation through changes in atmospheric chemical composition and optical properties. The residence time of volcanic aerosol from strong eruptions is roughly 2–3 y. Attention has consequently focused on their short-term impacts, whereas the long-term, ocean-mediated response has not been well studied. Most studies have focused on tropical eruptions; high-latitude eruptions have drawn less attention because their impacts are thought to be merely hemispheric rather than global. We use a climate model to show that not only tropical eruptions but also large summer high-latitude eruptions can have global impacts, through their effects on El Niño–Southern Oscillation (ENSO) and ocean circulation. We then present the mechanisms through which high-latitude and tropical volcanic eruptions are able to affect ENSO and how the ENSO response to eruptions depends on the state of the tropical Pacific at the time of the eruption. Finally, we discuss how volcanic eruptions can alter tropical cyclone activity.

The results of these studies could lay the groundwork for improved predictions of the global climatic response to volcanic eruptions.