# Abstract AVCoR-2013

*C. Michellier et al. An attempted assessment of the human health impact of Nyiragongo and Nyamulagira volcanoes SO2-rich plume*

Based on two different statistical approaches, we attempted to assess the human health impact of the volcanic plume of Nyiragongo and Nyamulagira volcanoes. Located in the east of the Democratic Republic of Congo (DRC), these two volcanoes are among the most active of the continent. Nyiragongo, which last eruption in January 2002, hosts a permanent lava lake that produces a SO2-rich plume. On its side, Nyamulagira makes major contributions to these emissions during its frequent eruptive periods (~2-3 years; last occurred in November 2011). Up to date, an assessment of the permanent volcanic plume impact on the population health has not been undertaken. It was the objective of this study conducted at two different scales.

- 1999-2010 data were extracted from the Health Information System (HIS). Through temporal and spatial analyses (Poisson regression), acute respiratory infection (ARI) cases routinely registered in health centres located under the plume were studied. No strong relationship of the ARI cases number was identified neither with distance to volcanoes, nor with eruptive months. This first approach was completed with the analysis of the health data collected during the last 2011 Nyamulagira eruption.
- As a second step, a field survey was conducted in March 2012, following the last Nyamulagira eruption. The objective was to collect general population's specific health information. Statistical analyses highlighted new correlation between respiratory infection and this specific eruption. Other impacts, linked either to health or to agriculture, were also underlined through our results, as well as through field observations.

This (on-going) study aimed at determining the magnitude of the impact of volcanic plumes on the population health, at different scale and through various types of data. This study could be extended to the border region of Rwanda, by analyzing the routine data from the local health centers. As a whole, this study should contributes to define the appropriate sanitation recommendations and lead to effective volcanic impact reduction on human health.