Multi-hazard quantifications of the volcanic phenomena at La Soufrière volcano (Guadeloupe, Lesser Antilles)

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In the last decade, probabilistic volcanic hazard assessment (PVHA) has become one of the most rapidly developing topics in volcanology. PVHA relies on a number of simulation tools, which have been catalogued within H2020 EUROVOLC project.

Here we apply two of these tools that will concur to a probabilistic multi-hazard assessment for volcanic phenomena at La Soufrière de Guadeloupe, as reported in reference scenarios elaborated by OVSG-IPGP and communicated to the authorities. In the last 9 kyr the activity at La Soufrière is characterized by recurrent effusive to explosive activity, sector collapses and intense fumarolic emissions. Based on literature data, we focus particularly on the most likely explosive (phreatic or hydrothermal) scenario and explore the hazard posed by gas dispersal and ballistics impact, which have never been the focus of PVHA. We also set up a preliminary spatial map for phreatic vent opening, a baseline for the PVHA here presented.