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Explosive volcanism periodically induces disturbances of the upper troposphere and low stratosphere. These injections of massive amount of aerosols, ash and gases perturb locally the physico-chemical balance of the impacted atmospheric layers, in particular the ozone concentration via heterogeneous chemistry on particles. On a larger scale some exceptional eruption can have a significant influence on the Earth radiative budget as it was the case following eruptions of El Chichon in 1982 and Mount Pinatubo in 1991.

On January 15, 2022, the Hunga-Tonga volcano erupted in the Tonga archipelago (20.5°S, 175.4°W). The Plinian eruption was of a rare intensity, especially because of the depth of the underwater caldera. The first estimates indicate a power between 10 and 15 Mt TNT, probably the most powerful since the eruption of Krakatoa in 1883. This short (~ 8min) but intense explosion whose pressure wave was observed all around the globe injected about 400 kt of material into the atmosphere (to be compared to the 20 Mt injected during the Mount Pinatubo eruption). The Volcano Stratospheric Plume (VSP) quickly moved westwards and then overflew the island of La Réunion (21°S, 55°E), located at ~12000 km away from Tonga.

In order to monitor the evolution of the VSP, lidar observations were performed at the *Observatoire de Physique de l'Atmosphère de La Réunion* (OPAR). This observatory is equipped with three lidars capable of stratospheric aerosols measurements at two wavelengths (355 nm and 532 nm). First observations were performed every night from 19 to 27 January 2022 when the first passage of the VSP occurred. The plume structures appeared to be highly variable along time, with altitudes ranging from 19 km to 36 km above the mean sea level while plume thicknesses were ranging from ~1 km to more than 3 km. Remarkable aerosol optical depth were associated with these stratospheric aerosol layers, up to 0.8 at 532 nm on January 21.

The temporal evolution of the VSP structure and optical properties will be presented and discussed.