10 Years of Stratospheric Ozone Measurements by DIAL at Maïdo Observatory in La Réunion Island: Instrument, Algorithm and Profiles.

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Reunion Island is located in the western Indian Ocean (55° East, 21° South). This island is perfectly located for the monitoring of stratospheric ozone in the southern tropics, for the study of tropical stratospheric dynamics as a whole, such as the study of quasi-horizontal exchanges in the lower stratosphere.

An altitude observatory was built in 2012 on the west coast of Reunion Island at an altitude of 2200 m. The main objective of this station is to observe the long-term chemical composition of the atmosphere in this region of the world where very few measurements are made. The Maido observatory houses many atmospheric instruments including several lidar systems, some dedicated to ozone measurement.

Vertical profiles of stratospheric ozone between 15 and 45 km are made using the DIAL technique. The design of this lidar is similar to other stratospheric ozone DIAL lidar from NDACC (Network for the Detection of Atmospheric Composition Change). Laser sources are a tripled Nd:Yag laser at 355 nm for the the non-absorbed channel and a XeCl excimer laser at 308 nm corresponding to the absorbed channel.

The objective of this communication is to present succinctly the instrument itself, the algorithm used to process the 10 years of measurements carried out on this site and finally the comparison of lidar profiles with the MLS/Aura satellite retrievals or the ECC ozonesonde launched at the same location. Particular attention will be given to the recently completely re-built DIAL processing code.