Stage de recherche au LACy

Laboratoire de l'Atmosphère et des Cyclones

UMR8105 - Université de La Réunion, 97490 Saint-Denis de La Réunion

Titre du stage :

Cal/Val activities at OPAR for the recently launched EarthCARE satellite

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Description du stage :

Contexte : The ESA EarthCARE satellite has been launched on 28 May, 2024. The payload includes an aerosol lidar, a cloud radar, an imager and a broadband radiometer. OPAR (Observatoire de Physique de l'Atmosphère de la Réunion) operates similar remote sensing instruments (lidar and radar) and performs regular measurements of the aerosol and cloud optical properties. OPAR is involved in the cal/val of EarthCARE in the framework of a European project and in two ESA validation projects. With its clean atmosphere, the Reunion Island site is ideal for studying long-distance transport aerosols, but also for characterizing the detection limits of space lidars in low aerosol loads (optical depth < 0.1). The tropical latitude of the site gives it an additional advantage for the study of convection and precipitation.

Objectifs :

- *Compare L1 and L2 EarthCARE data with ground based data*
- *Perform a statistics on EarthCARE performance per altitude levels and aerosol conditions*
- *Evaluate the representativity of Reunion Island for the south west Indian Ocean region*

Méthodologie/Outils :

- *Use of Maïdo and Moufia lidar systems and database*
- *Use of EarthCARE database and ESA tools*
- *Development of in-house comparative and statistical tools*

Attendus :

- *Identification and quantification of possible bias and surface effects of the spaceborne lidar*
- *Demonstration of the quality of the Reunion Island site to be representative of the spatio-temporal aerosol distribution in the south west Indian Ocean region.*