

Extending LALINET observations to the Upper Troposphere and Lower Stratosphere (UTLS): A challenge in the post-COVID-19 era

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Abstract: By the end of the XX century the lack of resources in the Latin America was not an obstacle to create the Latin America Lidar Network (LALINET). The strategy to build LALINET was to create first a lidar community in the region from the few lidar teams (mainly measuring in the troposphere). A little more than two decades later LALINET resilience will be tested by the post-COVID-19 era. In Latin America the economic crisis resulting from the COVID-19 health crisis will reduce notably funds for many activities, including scientific research. LALINET contingency strategy (to be discussed and approved at the XI WLMLA) has as its main goal to maintain the level of tropospheric aerosols observations and research activities reached during the last decade. However, the contingency strategy has several other goals, including extending LALINET observations to the UTLS making use of the existing lidar facilities. We have been setting up progressively a program for UTLS regular measurements, making use of the existing lidar facilities. It consist in four main steps: 1) Lidars currently retrieving tropospheric aerosols profiles will be tested for its signal to noise ratios in the region of the UTLS to determine if its current characteristics allows retrieving aerosol backscatter profiles in that region; 2) designing the algorithm to be used and implement the version 1 of LALINET standard software/scripts to produce UTLS aerosol backscatter and extinction profiles; 3) implement the processing of UTLS observations at each site having that capabilities; 4) conduct the processing of all the stored profiles at those sites. Several studies on stratospheric aerosols conducted in the region and abroad have accumulated know-how that is being and will be applied to the retrieval of UTLS aerosols lidar backscattering and extinction profiles at LALINET sites. The presentations will show and discuss those studies and also describe the current status of the four steps listed above.

Keywords: stratospheric aerosols; lidar; LALINET.

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