

# First LALINET-Algorithm teleconference: August 2016

## 1 Organization of the meetings

The assisting representatives to the first meeting decided to have one teleconference per month. This first meeting took place on August 11th 2016 after a DOODLE meeting request. Time difference must be considered taking into account that local times spread from UTC-3 to UTC-5.

## 2 Assisting Members

In alphabetic order:

From Argentina:	Juan Lucas Bali Milagros Herrera Pablo Ristori
From Brazil:	Fabio López Henrique Barbosa
From Chile	Antonieta Silva Riquelme Elena Montilla (moving to Colombia)
From Colombia	Alvaro Bastidas Daniel Nisperuza

*Note: Bolivia announced that they were not able to assist due to teaching activities and because of the arrival of a visiting professor (Lucas Alados Arboledas).*

## 3 Algorithm face-to-face meeting at Colombia

### 3.1 Date

Álvaro proposed two possible intervals: from 27<sup>th</sup> November to 2<sup>nd</sup> December or from 4<sup>th</sup> to 9<sup>th</sup> December. Most of the present members voted the 4<sup>th</sup> to 9<sup>th</sup> December interval.

### 3.2 Documents requirements

Please provide a passport scan and a Curriculum Vitae as soon as possible. Álvaro will communicate soon the results of the call for proposals held at Colombia.

## 4 Deliverables to be studied

### 4.1 To be tested at Colombia Meeting

At Colombia we will discuss mainly about the Raman inversion and about the ways to improve the already implemented Klett-Fernald-Sasano inversion algorithms.

### 4.2 To be shared for future studies

The LALINET groups are developing many algorithms and we proposed to have a reference group for many activities that are being done at many locations:

1. Cloud Masking (refer to Brazil, Manaus),
2. PBL detection (refer to Medellin, Colombia),

3. Error analysis, basically done using Monte Carlo approach (refer to Brazil – Sao Paulo),
4. Depolarization inversion (refer to Elena Montilla, work done at Chile)

It was also suggested to test the algorithms before assisting to the Workshop.

## 5 Common activities related to software

### 5.1 Transition to Python

Most of the groups are working using MatLab and Mathematica. However, these programs require a license and the LALINET members that assisted to this meeting agreed that the collaboration should move to a free open source software to apply their processing algorithms. The idea of using Python was suggested and well accepted by the assistants of this meeting. Transition, if accepted, should be done gradually. Members from Argentina, Brazil (Manaus), Colombia proposed share Python algorithms in a common folder.

### 5.2 Modeling

There are many lidar codes based on the maximum likelihood method to retrieve aerosol concentration (and other parameters). While the Lidar-Radiometer Inversion Code (LiRIC, Chaikovsky, AMT-2016) is widely used, we noticed the transition to the Generalized Retrieval of Aerosol and Surface Properties (GRASP, <http://www.grasp-open.com/>) which is open and well documented. As mentioned in its description, “The important feature of the GRASP is that both the core scientific algorithms and the whole package are based on several generalization principles with the idea of developing a scientifically rigorous, versatile, practically efficient, transparent, and accessible algorithm”. The Argentina, Brazil (Manaus) and Brazil (Sao Pablo) are working on this code and proposed to join efforts on this direction. Colombia group is installing this software and expressed its will to join this effort.

## 6 Next meeting

The next meeting will be organized again by doing a Doodle Poll method starting on Monday 12<sup>th</sup> September.