UNIVERSIDAD DE CONCEPCIÓN
CENTRO DE ÓPTICA Y FOTÓNICA
Programa de Financiamiento Basal para Centros Científicos y Tecnológicos de Excelencia -CONICYT

Centro de Óptica y Fotónica

LatAm Lidar Network

WORK SCHEDULE

I Workshop on Lidar Inversion Algorithms-ALINE
Concepción, Chile
March, 10 to 13, 2014

Lidar researchers representing each Lidar group from the Latin America Lidar Network (ALINE) will participate in the first workshop on Lidar inversion algorithms supported by the Center for Optics and Photonics (CEFOP) of the Universidad de Concepción. Main goal of this first workshop is the establishment of a quantitative Lidar dataset to describe the aerosol vertical, horizontal, and temporal distribution, including its variability on a continental scale. This dataset could be a comprehensive data source to address the four-dimensional spatio-temporal distribution of aerosols on a global scale.

The working days will be held in the Universidad de Concepción, according to the following program:

Day 1. (Monday, March 10th, 2014)

09h. Meeting on the hall (first floor) of Faculty of Physical Sciences and Mathematics, Universidad de Concepción, Chile (Calle Esteban Iturra).

09.15-09.45: 30min Step 1. Getting acquainted with the first EARLINET simulation case (Boeckmann et al., Appl. Opt., 2004). File structure, available variables, input format and units will be described. Expected output format and units will be defined for easy comparison.

09:45-10h: Coffe Break

10h-13h: 3hs Step 2. Each group should processes this dataset using their own version of the Klett-Fernald method and compute separately Rayleigh and particle backscattering.

Step 3. Upload of results #1.

13h-14-30h: Lunch

14.30-16h: 1h30 Step 4. Presentation of each group's methodology: from the molecular calculation to the method of integration. These presentations should be prepared prior to the workshop.

16-16.30h: 30min Step 5. Comparison of calculated particle properties with the simulation input profiles. Discussion should follow.

16:30-17h: 30min Coffee break.

17h-19h: 2h Step 6. Simulation input files will be distributed. Groups should use those for helping debugging the algorithms and obtaining an improved inversion.

Step 7. Upload of results #2.

30min Step 8. Comparison of calculated particle properties with the simulation input profiles. Discussion should follow.

Day 2. (Tuesday, March 11th, 2014)

09-09.30h: 30min Step 9. Paper discussion: Bucholtz (1995) and Bodhaine (1999), or, computing the molecular backscattering from first principles.

09:30-11h: 1h30 Step 10. Check the calculation of all molecular quantities in all algorithms; take into account that absolute no difference should occur the same inputs are used. Then it should be checked how the reference height is chosen.

Step 11. Upload of results #4.

11h-11.30: 30min Step 12. Comparison of calculated molecular properties. Discussion should follow.

11.30-13h: 1h Step 13. Calibration of Lidar signal. Define the use of one single point or a height range to calibrate the Lidar signal.

Step 14. Upload of results #4.

13h-14-30h: Lunch

14:30-15h: 30min Step 15. Comparison of calibrated lidar signals. Discussion should follow.

15h-16h: 1h Step 16. Checked how the reference height is chosen. If the same reference height and the same lidar ratio is used by each user, the output should be almost identical.

Step 17. Upload of results #5.

16h-16.30: 30min Coffee break

16:30-17h: 30min Step 18. Comparison of inverted lidar signals: now we should have same molecular reference, same calibration and same reference height. Discussion should follow.

Day 3. (Wednesday, March 12th, 2014)

09:30-13h: 3h Step 19. Time for working on the codes and last intercomparison. Focus on signal processing: background removal, binning, smoothing and gluing.

13h-14-30h: Lunch

14:30-16:30: 2h Step 19. Time for discussing the unified algorithm (or two: matlab and mathematica). Preparation of the codes to be shared via ALINE from the contribution of the groups.

16:30-17h: 30min Coffee break

17h-19h: 2h Step 20. Time for discussing the unified algorithm (or two: matlab and mathematica). Preparation of the codes to be shared via ALINE from the contribution of the groups.

Day 4. (Thursday, March 13th, 2014)

09h-19h: All day Step 21. A manuscript will be write with the results. Emphasis will be done due to South America lidar network would be very valuable to contrast northern hemispheric with southern hemispheric aerosol conditions, and the consequences on climate.

13h-14-30h: Lunch