

VIRTUAL MOBILITY (VM) GRANT REPORT

This report is submitted by the VM grantee to VNS Manager, who will coordinate the approval on behalf of the Action MC.

Action number: CA18235

VM grant title: Online Webminar on lidar instruments and products (with examples from Romanian lidar sites), initial setup of the instrument and data processing procedures (including ACTRIS Single Calculus Chain setup, data formats and tools)

VM grant start and end date: 18/10/2021 to 18/10/2021

Grantee name: Horatiu Stefanie

Description of the outcomes and achieved outputs (including any specific Action objective and deliverables, or publications resulting from the Virtual Mobility).

During this online webinar several useful tools (e.g.: Atmospheric lidar python script and SCC access python script available for download at: <https://cloud.inoe.ro/s/9NgLc2gikgzvUtV/download> and <https://cloud.inoe.ro/s/vHAQe9df7Wx8yUq/download>), technical aspects for each component to consider when starting to work with a lidar, along with detailed instructions for set-up, atmospheric lidar configuration with examples for measurement conversion file and depolarization calibration conversion file, “tips and tricks” when running some scripts, all were provided to less experienced lidar groups that just started using lidar instrumentation and the SCC (Single Calculus Chain) platform. The discussions continued with a description of the lidar measurement procedures and the quality assurance test developed within the Actris research community: •Telecover test •Rayleigh fit test •Zero bin test • Depolarization calibration •Dark stability test and examples for each of the steps.

This online workshop is contributing to research coordination specific objective O3.1 and capacity building specific objective O3.3, by “improving the capabilities of existing ABL instrument networks through (...) real-time processing, optimal measurement strategy” and O4.1 (a) better operational procedures and tools, and (b) harmonized data interpretation algorithms and codes suited for network application” and O4.2 cooperation with manufacturers. Based on the webinar, people were able to learn new skills related to setting-up of their lidar and also to run SCC provided by ACTRIS (Aerosol, Clouds and Trace gases Research InfraStructure Network).

Description of the benefits to the COST Action Strategy (what and how).

The main aim of the quality assurance procedures and the centralized processing platform (SCC) is to provide any ACTRIS compliant lidar station with a quality controlled instrument and data processing chain to retrieve in a fully automatic way the vertical profiles of important aerosol optical parameters like the aerosol backscatter, extinction coefficient profiles, volume and particle depolarization ratio profiles. But this is not a plug and play procedure therefore many research groups (in general ITC countries like Romania, Turkey, Serbia, Cech Republic) struggle to better implement all procedures related to running the SCC. The webinar was focus on the optimization of the instrument and the SCC (EARLINET Single

Calculus Chain) principles and initial setup. The virtual collaboration contributed to PROBE inclusiveness, because the main target teams belongs to “Inclusiveness Target Country” (ITC) as it is Romania, Serbia and Cech Republic. Moreover, the grantee is an early career investigator as well as other participants: Lucia Deaconu, Andrei Radovici, Horia Camarasan, Alexandru Mereuta-Romania, Damyan Barantiev-Bulgaria, Juraj Kostyk, Tomáš Ištók-Cech Republic, Marilena Gidakou and Dimitra Anagnou-Greece, Daniel Fenner-Germany. The proposed theme is going to be very useful for other ITC countries like e.g. Turkey, Hungary, Croatia when planning to implement lidar stations complying with ACTRIS procedures.

Description of the virtual collaboration (including constructive reflection on activities undertaken, identified successful practices and lessons learned).

The main objective of the virtual collaboration was the knowledge transfer between several lidar groups involved in ACTRIS (Aerosol, Clouds and Trace gases Research InfraStructure Network). Before the meeting discussions were initiated between Horatiu Stefanie Babeş-Bolyai University Cluj-Napoca, Livio Belegante, Nicolae Ajtai, Mihai Cazacu, and Ovidiu Tudose to schedule ‘tips and tricks’ along with practicalities for people from the lidar community. The online webinar on 18.10.2021 was set up on Webex platform and the invitation with the details for connection was posted on PROBE’s website, was send by email to all participants of the action and to other interested parties from ACTRIS network.

The three hours were dedicated to introduction on lidar instruments and products with focus on the Romanian lidar sites that are part of Actris, the initial setup of the instrument (signal optimization) and data processing – with focus on the SCC (EARLINET Single Calculus Chain) setup. The SCC is the solution adopted by the ACTRIS aerosol remote data center to ensure homogenous, traceable and quality controlled lidar data. Representatives from new ACTRIS stations like National Atmospheric Observatory Košetice, Check Republic, Babes Bolyai University of Cluj, Romania, Institute fo Physics Serbia were present. Also interested people from Bulgary, Iceland, Spain, Greece, Germany, Swiss have been online during the workshop. A total of 25 people were online, 10 ECI from 4 different ITC countries. Representatives of lidar manufacturers were also assisting during the presentations (Raymetrics-Greece, Vaisala-Germany, INOESY-Romania)

The meeting was recorded, send to dissemination manager of the action and will be posted on PROBE’s Youtube channel (<https://www.youtube.com/channel/UC46J4rAzbt1PbzRFHZMmHWA>)