Report on the outcomes of a Virtual Mobility[1]

Action number: CA21119

Grantee name: Monica Campaneli

Virtual Mobility Details

Title: **Possible synergies of measurements towards better quality aerosol products**

Start and end date: 5/10/2023 to 14/10/2023

Description of the work carried out during the VM

The Virtual collaboration activities were aimed to report the work done in HARMONIA connected to the deliverable D2.1: "Report on synergistic approaches towards better quality products". The collaboration with Dr. Victor Estelles, of the University of Valencia, who is co-leader of the HARMONIA WG2 and with Dr. Annalisa di Bernardino, of the University of Rome who is participant of WG2, was important to reach the goal. My main effort was dedicated to the knowledge of the state of the art of existing aerosol measurements using solar, lunar and star photometry, as retrieved by the analysis of a census of the existing field campaigns, experiments and permanent observatories.

Description of the VM main achievements and planned follow-up activities

To study the possible improvements of aerosol measurements using solar, lunar and star photometry, a census of existing field campaigns or experiments, was carried out in the first year of HARMONIA, paying attention to day-time and night-time measurements and aerosol retrievals. The census included established networks, low-cost sensors and other independent instruments databases. Knowledge about campaigns and long-term measurements were separately gathered.

The analysis of the census showed the availability of a large number of measurements collected both during night and day, and the accessibility to many databases of different instruments. The simultaneous acquisition of aerosol vertical profiles from lidars, gases concentrations from spectrometers, in situ particles sampling and measures of meteorological parameters at the ground level and/or along the atmospheric column, co-located in many campaigns and observatories, makes it possible to accurately survey and characterize the

[1] This report is submitted by the grantee to the Action MC for approval and for claiming payment of the awarded grant. The Grant Awarding Coordinator coordinates the evaluation of this report on behalf of the Action MC and instructs the GH for payment of the Grant.

peculiar events (e.g., the passage of volcanic or fires plumes) but also air quality studies and the investigation of the radiative effects related to the aerosol optical properties.

Plans for future follow-up collaborations concern the possibility to:

1. increase, during the next year, the number of the collected Campaigns and Observatories by directly contacting PIs of some Nations missing in the census

2. improve the dissemination of the gathered information. In fact the details obtained during the census on instruments, database, and processing in the campaigns, long-term measurements and permanent observatories, needs to be available to the scientific community, possibly integrating them in a catalogue, with user friendly characteristics and a public use. This chance will be evaluated considering the possible contributions and available capabilities from the community.