L2A+

Enhanced Aeolus L2A for depolarizing targets and impact on aerosol research and NWP

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Progress Report 01 – PR01
[11/2022-12/2022]

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(Version 1.0)

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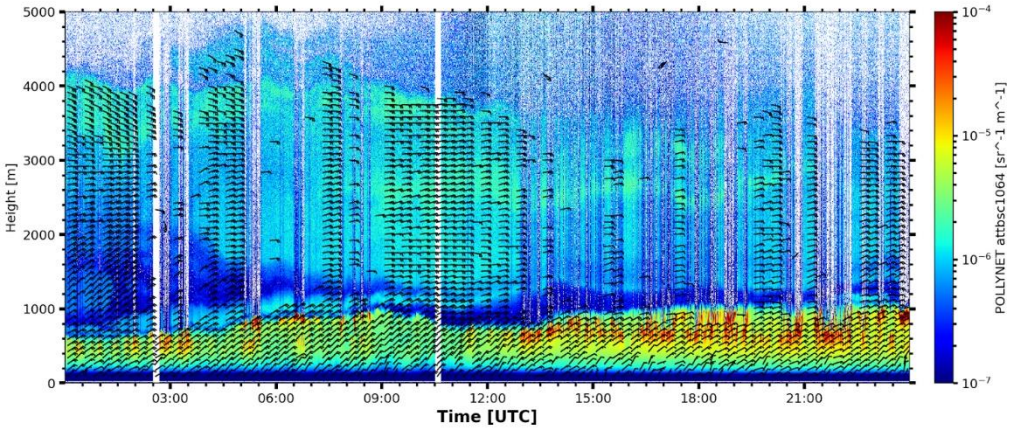
Executive Summary - Progress Report 01 (PR01)

This is the Progress Report 01 (PR01) documentation file of the European Space Agency (ESA) project entitled *L2A+* [Enhanced Aeolus L2A for depolarizing targets and impact on aerosol research and NWP]. PR01 reports on the activities performed during the period from between November 2022 and December 2022 (KO-KO+2 months).

Work Package Status

WP1000	Management, reporting and promotion.
	Status: Ongoing. Schedule: KO – KO+24 months. Started on: November 2022. Objectives: Monitoring of the L2A+ project, ensuring the timely and efficient accomplishment of the planned activities and administrative tasks and promotion of the project to the scientific community. Furthermore, consolidating the scientific requirements for L2A+ study.
Status	Ongoing. Work-in-progress aims to consolidate the preliminary scientific requirements for L2A+, outputs to be summarized in the Deliverable Item 01 (DI01) - Requirement Baseline Document (RBD), to be submitted as an initial version at KO+3 months and as a final version at KO+6 months. RBD work-in-progress includes, among others, (1) review of available L2A products (L2A, AEL-FM, AEL-PRO) and methods for the retrieval of the L2A+ layer-integrated extinction (WP3000), (2) adaptation of existing CAMS aerosol assimilation techniques to the WRF regional model over the region of interest (WP4000), (3) examination and survey of accessible datasets (space, airborne and ground-based) to be used for L2A+ and the evaluation of the model simulations (WP2000/WP4000/WP5000), (4) survey of current and ongoing initiatives and projects related to L2A+ (WP5000), and (5) a consolidated risk analysis of risk areas that could affect the final success of the project. Moreover, in the framework of WP1000 and between the project KO and KO+2 months, consortium internal meetings were held among the partners in order to ensure the smooth execution of all the ongoing scientific and technical tasks of L2A+. In this framework, the first DI of L2A+ corresponding to the Kick-Off Minutes of Meeting (KO-MoM) were provided to the Agency (11/2022). Finally, a project website providing access to the research undertaken is under developed (DI07), to be initially presented to the Agency at the Progress Meeting of KO+3 months.
WP2000	ASKOS ground-based datasets in support of L2A+.
	Status: Ongoing. Schedule: KO – KO+16 months. Started on: November 2022. Objectives: To provide ASKOS ground-based datasets for L2A+ product validation and model evaluation studies.
Status	Ongoing. Ongoing WP2000 analysis includes exploitation of the observational datasets acquired in the framework of the ESA-ASKOS/JATAC campaign at Cabo Verde in September 2021 (first phase) and June/July 2022 (second phase). Work-in-progress includes Quality-Assurance (QA) procedures applied towards the overarching objective of establishing a concrete base to support the L2A+ product development and accordingly the overall evaluation activities foreseen in the framework of WP3000 and WP5000, respectively. In addition, initial steps toward the estimation

	of dust fluxes have been undertaken. An example of the ongoing work-in-progress is shown in Fig.1, providing information on dust fluxes, through the synergistic implementation of (1) attenuated backscatter at 1064 nm profiles obtained from the PollyXT lidar and (2) wind speed and direction (wind bars), obtained from the HALO Streamline-XR Doppler wind lidar, operating at the tropical islands of Cape Verde-OSCM, for September 16th, 2022. The aforementioned work-in-progress is performed towards the overall support of L2A+ activities, outputs related to L2A+ DIs 02/04/05.  *Figure 1: Overlay plot of wind barbs and attenuated backscatter values measured with the HALO Streamline-XR Doppler wind lidar and the PollyXT lidar device on the rooftop of the OSCM, Cabo Verde.*
WP3000	Development of the L2A+ aerosol product.
	Status: Not started. Schedule: KO+3 – KO+21 months. Objectives: Derivation of the L2A+ extinction and aerosol mass concentration product.
Status	-
WP4000	Assimilation of L2A/L2A+ and application of WRF-L experiments.
	Status: Not started. Schedule: KO+6 – KO+24 months. Objectives: Assimilation of L2A and L2A+ dust products on WRF-L and pertinent simulations.
Status	-
WP5000	Impact Studies.
	Status: Not started. Schedule: KO+12 – KO+24 months. Objectives: Scientific Analysis and Impact Assessment.
Status	-
WP6000	Recommendations.
	Status: Not started. Schedule: KO+12 – KO+24 months. Objectives: Summary of the main scientific outcomes of the project and recommendations for expanding the performed research activities.
Status	-

Status of Deliverable Items

Code	Deliverable Item	Type	Delivery Date	Status
MoM	Minutes of Meeting – Kick-Off Meeting	Documentation	KO	Completed.
PR1	Progress Report 1	Documentation	KO+2 Months	Submitted.
D1	Requirement Baseline Document (RB)	Documentation	KO+3 Months	-
D7	L2A+ project website (WEB)	Webpage	KO+3 Months	-
MoM-PM1	Minutes of Meeting – Progress Meeting 1	Documentation	KO+3 Months	-
PR2	Progress Report 2	Documentation	KO+4 Months	-
D1	Requirement Baseline Document (RB)	Documentation	KO+6 Months	-
D2	Data Pool (DP)	Dataset	KO+6 Months	-
PR3	Progress Report 3	Documentation	KO+6 Months	-
MoM-PM2	Minutes of Meeting – Progress Meeting 2	Documentation	KO+6 Months	-
PR4	Progress Report 4	Documentation	KO+8 Months	-
MoM-PM3	Minutes of Meeting – Progress Meeting 3	Documentation	KO+9 Months	-
D3	Description of the Algorithm Developments (ALGO)	Documentation	KO+9 Months	-
PR5	Progress Report 5	Documentation	KO+10 Months	-
D5	Output data product (OP)	Dataset	KO+12 Months	-
D8	Multi-media material (MM)	Documentation	KO+12 Months	-
PR6	Progress Report 6	Documentation	KO+12 Months	-
MoM-MTR	Minutes of Meeting – Mid Term Review Meeting	Documentation	KO+12 Months	-
PR7	Progress Report 7	Documentation	KO+14 Months	-
D2	Data Pool (DP)	Dataset	KO+15 Months	-
D3	Description of the Algorithm Developments (ALGO)	Documentation	KO+15 Months	-
D4	Analysis of the Validation Activities carried out (VAL)	Documentation	KO+15 Months	-
MoM - PM4	Minutes of Meeting – Progress Meeting 4	Documentation	KO+15 Months	-

PR8	Progress Report 8	Documentation	KO+16 Months	-
D5	Output data product (OP)	Documentation	KO+18 Months	-
D7	L2A+ project website (WEB)	Webpage	KO+18 Months	-
PR9	Progress Report 9	Documentation	KO+18 Months	-
MoM - PM5	Minutes of Meeting – Progress Meeting 5	Documentation	KO+18 Months	-
PR10	Progress Report 10	Documentation	KO+20 Months	-
D2	Data Pool (DP)	Dataset	KO+21 Months	-
D3	Description of the Algorithm Developments (ALGO)	Documentation	KO+21 Months	-
D4	Analysis of the Validation Activities carried out (VAL)	Documentation	KO+21 Months	-
D6	Scientific Analysis, Impact Assessment and Scientific Roadmap (SIR)	Documentation	KO+21 Months	-
MoM - PM6	Minutes of Meeting – Progress Meeting 6	Documentation	KO+21 Months	-
PR11	Progress Report 11	Documentation	KO+22 Months	-
D4	Analysis of the Validation Activities carried out (VAL)	Documentation	KO+24 Months	-
D5	Output data product (OP)	Documentation	KO+24 Months	-
D6	Scientific Analysis, Impact Assessment and Scientific Roadmap (SIR)	Documentation	KO+24 Months	-
D8	Multi-media material (MM)	Documentation	KO+24 Months	-
D9	Final Report and Executive Summary Report (FR)	Documentation	KO+24 Months	-
MoM - FR	Minutes of Meeting – Final Review Meeting	Documentation	KO+24 Months	-

L2A+ Gantt Chart

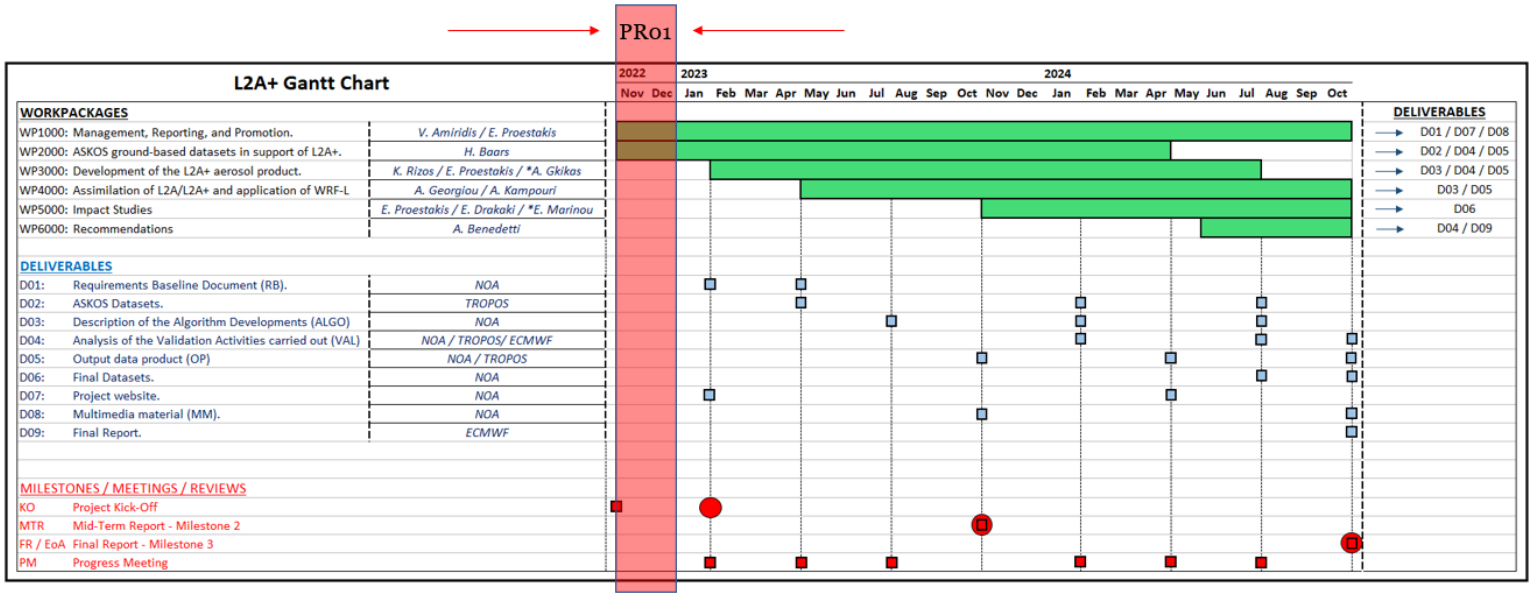


Figure: L2+ Gantt Chart and current PR01 temporal period.