



*L2A+*

Ref: ESA AO/1-11041/22/I-NS

Progress Report o8 – PRo8

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

***L2A+***

Progress Report o8 – PRo8  
[01/2024-02/2024]

(Version 1.0)

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*ESA-L2A+ Progress Report o8 [PRo8]*



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Progress Report 08 – PR08

### Executive Summary - Progress Report 07 (PR07)

This is the Progress Report 08 (PR08) documentation file of the European Space Agency (ESA) project entitled L2A+ [Enhanced Aeolus L2A for depolarizing targets and impact on aerosol research and NWP]. PR08 reports on the activities performed during the period January 2024 - February 2024 (KO+15 - KO+16 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. Activities related to WP1000 included the general management of the L2A+ project as well as the communication among all partners and with the Agency. Meetings were organised to ensure a smooth execution of all scientific and technical tasks. Moreover, the following actions were performed. <ol style="list-style-type: none"> <li>1) Submission of Minutes of Meeting 04.</li> <li>2) Submission of Progress Report 07.</li> <li>3) Submission of Deliverable Item 02 – DI02 – “ASKOS ground-based datasets in support of L2A+” – V2.0.</li> <li>4) Submission of Deliverable Item 03 – DI03 – “Description of Algorithms Development” – V2.0.</li> <li>5) Submission of Deliverable Item 04 – DI04 – “L2A+ Product Development” – V1.0.</li> </ol>
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	Completed. Activities conducted during KO+15 and KO+16 months included the finalisation of the ground-based datasets provided in support of L2A+. In particular, the Aeolus-like profiles measured by the Aeolus reference instrument eVe during the Aeolus overpasses in September 2021, June 2022 and September 2022 are now available in the dedicated server. An updated version of the documentation supporting the ground-based datasets (DI02) has been submitted.
WP3000	Development of the L2A+ aerosol product. Schedule: KO+4 – KO+21 months. Started on: February 2023.
Status	Ongoing. The overarching technical Objective of L2A+ WP3000 consists of the development of a refined Aeolus aerosol optical product (L2A+) over the North Atlantic Ocean, based on AEL-FM/AEL-PRO algorithms, CAMS reanalysis outputs with a focus on non-spherical atmospheric particles (i.e., dust). Towards realization of the L2A+



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	product, the work-in-progress conducted between KO+15 months and KO+16 months, includes, among others, the following:
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	Ongoing.  The goal of WP4000 is to study the improvements of L2A+ through their impact on NWP and dust-transport experiments. The team is continuing work on adding Aeolus observations to the Data Assimilation Research Testbed and, after wind support has been completed, has moved onto aerosol assimilation. Specifically: <ul style="list-style-type: none"> <li>1. The team is continuing work on the observation operator for dust extinction coefficient. A prototype is ready in Python and is currently being validated for correctness, while in parallel the code is being transcribed in FORTRAN for use with the Data Assimilation Research Testbed (DART).</li> <li>2. Assimilation experiments with AEOLUS winds are currently in progress to study the impact of wind assimilation on dust transport. The experiments are expected to complete execution before the end of March.</li> </ul>
WP5000	Impact Studies.
	Status: Not started. Schedule: KO+12 – KO+24 months. Objectives: Scientific Analysis and Impact Assessment.
Status	Ongoing.
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	Not started.

### Status of Deliverable Items

Code	Deliverable Item	Type	Delivery Date	Status
MoM	Minutes of Meeting – Kick-Off Meeting	Documentation	KO	Completed.
PR01	Progress Report 1	Documentation	KO+2 Months	Completed.
Do1 – V1	Requirement Baseline Document (RB)	Documentation	KO+3 Months	Completed.
Do7 – V1	L2A+ project website (WEB)	Webpage	KO+3 Months	Completed.
MoM-PM01	Minutes of Meeting – Progress Meeting 1	Documentation	KO+3 Months	Completed.
PR02	Progress Report 2	Documentation	KO+4 Months	Completed.
Do1 – V2	Requirement Baseline Document (RB)	Documentation	KO+6 Months	Completed.
Do2	Data Pool (DP)	Dataset	KO+6 Months	Completed.



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PR3	Progress Report 3	Documentation	KO+6 Months	Completed.
MoM-PM02	Minutes of Meeting – Progress Meeting 2	Documentation	KO+6 Months	Completed.
PR04	Progress Report 4	Documentation	KO+8 Months	Completed.
MoM-PM03	Minutes of Meeting – Progress Meeting 3	Documentation	KO+9 Months	Completed.
Do3	Description of the Algorithm Developments (ALGO)	Documentation	KO+9 Months	Completed.
PR05	Progress Report 5	Documentation	KO+10 Months	Completed.
Do5	Output data product (OP)	Dataset	KO+12 Months	Completed.
PR06	Progress Report 6	Documentation	KO+12 Months	Completed.
MoM-MTR	Minutes of Meeting – Mid Term Review Meeting	Documentation	KO+12 Months	Completed
PR07	Progress Report 7	Documentation	KO+14 Months	Submitted
Do2	Data Pool (DP)	Dataset	KO+15 Months	Submitted
Do3	Description of the Algorithm Developments (ALGO)	Documentation	KO+15 Months	Submitted
Do4	Analysis of the Validation Activities carried out (VAL)	Documentation	KO+15 Months	Submitted
MoM - PM04	Minutes of Meeting – Progress Meeting 4	Documentation	KO+15 Months	Pending.
PR08	Progress Report 8	Documentation	KO+16 Months	Pending.
Do5	Output data product (OP)	Documentation	KO+18 Months	Pending.
Do7 – V2	L2A+ project website (WEB)	Webpage	KO+18 Months	Pending.
PR9	Progress Report 9	Documentation	KO+18 Months	Pending.
MoM - PM05	Minutes of Meeting – Progress Meeting 5	Documentation	KO+18 Months	Pending.
PR10	Progress Report 10	Documentation	KO+20 Months	Pending.
Do2	Data Pool (DP)	Dataset	KO+21 Months	Pending.
Do3	Description of the Algorithm Developments (ALGO)	Documentation	KO+21 Months	Pending.
Do4	Analysis of the Validation Activities carried out (VAL)	Documentation	KO+21 Months	Pending.
Do6	Scientific Analysis, Impact Assessment and Scientific Roadmap (SIR)	Documentation	KO+21 Months	Pending.
MoM - PM06	Minutes of Meeting – Progress Meeting 6	Documentation	KO+21 Months	Pending.
PR11	Progress Report 11	Documentation	KO+22 Months	Pending.
Do4	Analysis of the Validation Activities carried out (VAL)	Documentation	KO+24 Months	Pending.
Do5	Output data product (OP)	Documentation	KO+24 Months	Pending.
Do6	Scientific Analysis, Impact Assessment and Scientific Roadmap (SIR)	Documentation	KO+24 Months	Pending.
Do8	Multi-media material (MM)	Documentation	KO+24 Months	Pending.
Do9	Final Report and Executive Summary Report (FR)	Documentation	KO+24 Months	Pending.



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MoM -FR	Minutes of Meeting – Final Review Meeting	Documentation	KO+24 Months	Pending.
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**L2A+ Gantt Chart**

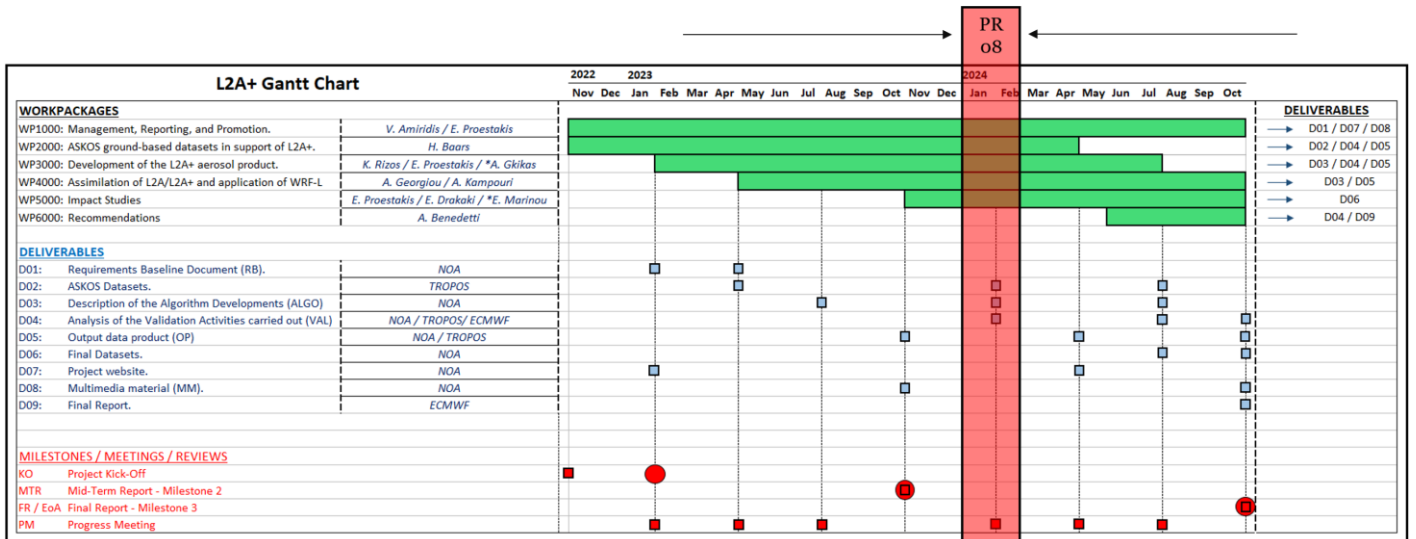


Figure: L2+ Gantt Chart and current PRo8 temporal period.