Software Product Assurance Conference 2025

22 - 25 September | ESA ESTEC | The Netherlands

Britta Schade

Head of the Quality Department

23/09/25

ESA-TECQPS-HO-2025-002806

Outline

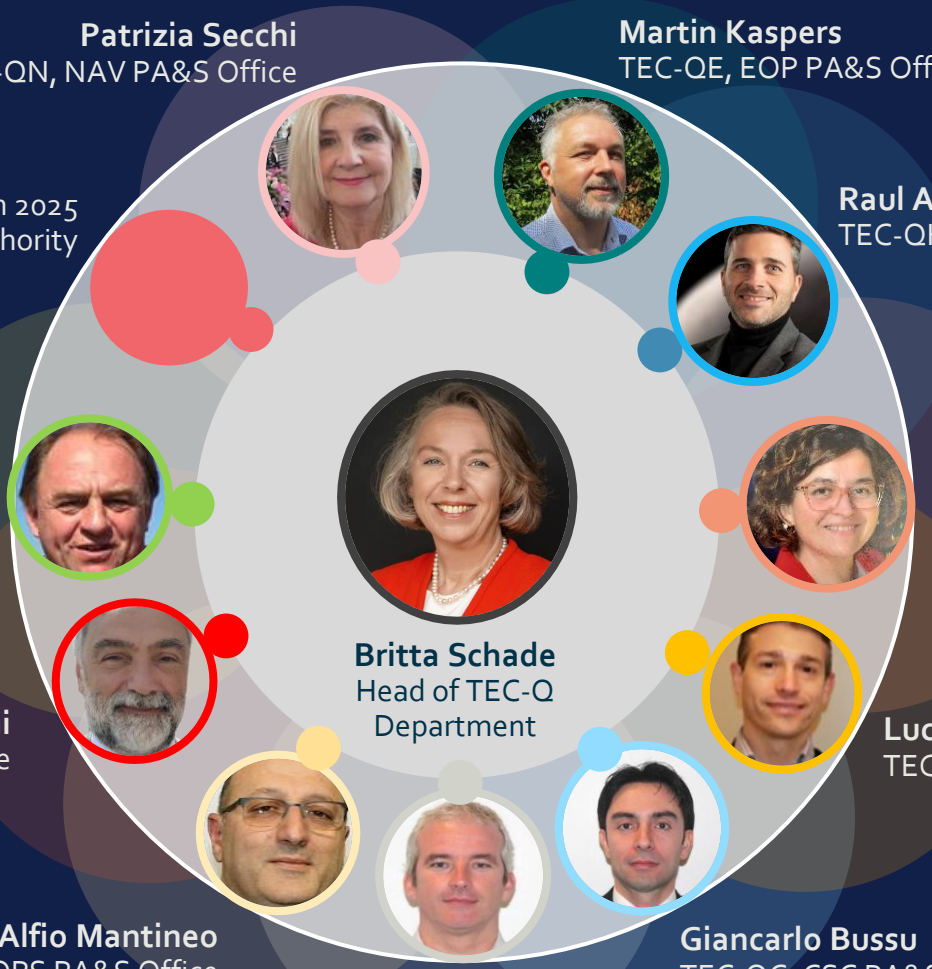
ESA Quality Department

Software PA at ESA

SWPA Conference - Past -

SWPA Conference - Present -

TEC-Q – Quality Department



Britta Schade
Head of TEC-Q Department

Patrizia Secchi
TEC-QN, NAV PA&S Office

Martin Kaspers
TEC-QE, EOP PA&S Office

To join the team in 2025
Lead Quality Technical Authority

Raul Alarcon
TEC-QH, HRE PA&S Office

Laurent Marchand
TEC-QP, Quality & Product Assurance Management Division

Paloma Villar
TEC-QI, Independent Safety Office

Massimo Falcolini
TEC-QS, SCI PA&S Office

Luca Troisi
TEC-QL, STS PA&S Office

Alfio Mantineo
TEC-QO, OPS PA&S Office

Giancarlo Bussu
TEC-QC, CSC PA&S Office

Mischa de Brouwer
TEC-PBC, Business Control & Admin Manager

Software Product Assurance at ESA – Project Support

Supporting ESA projects across different directorates.

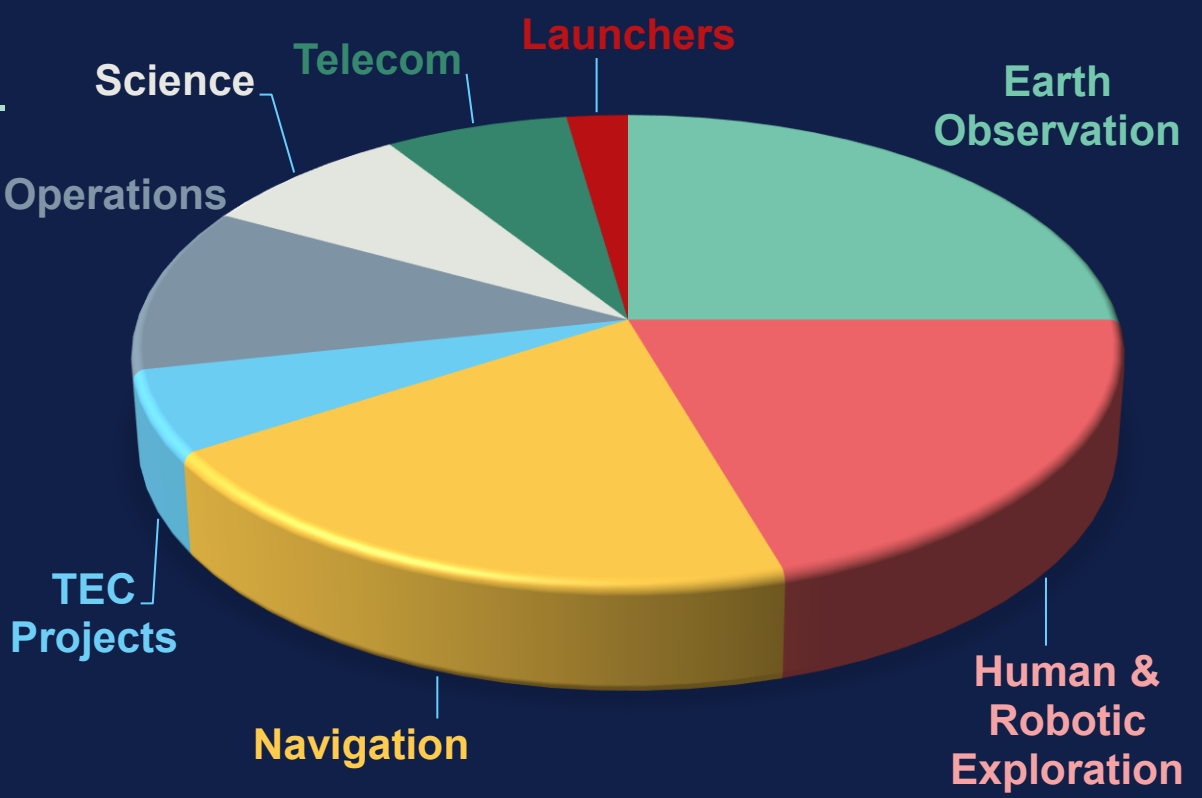
Typically already from Phase **B1** through Phases **C/D**.

18 FTE dedicated to Software Product Assurance.

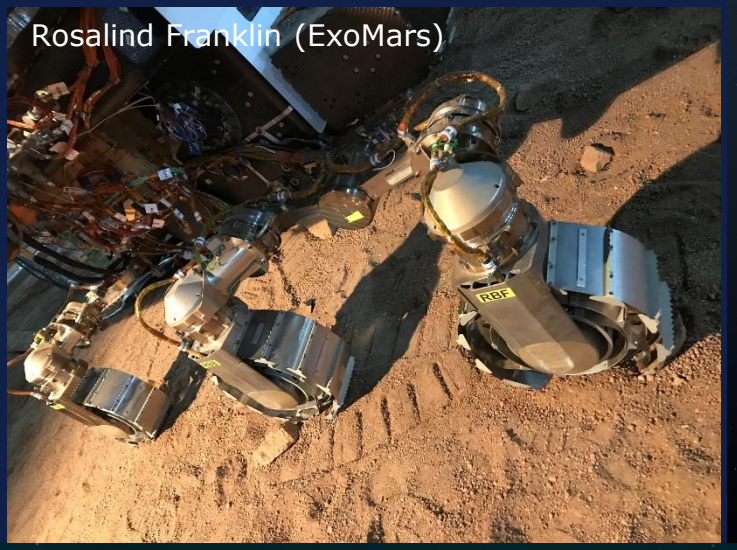
Multiple sites: ESTEC, ESOC, ESAC, TLS.

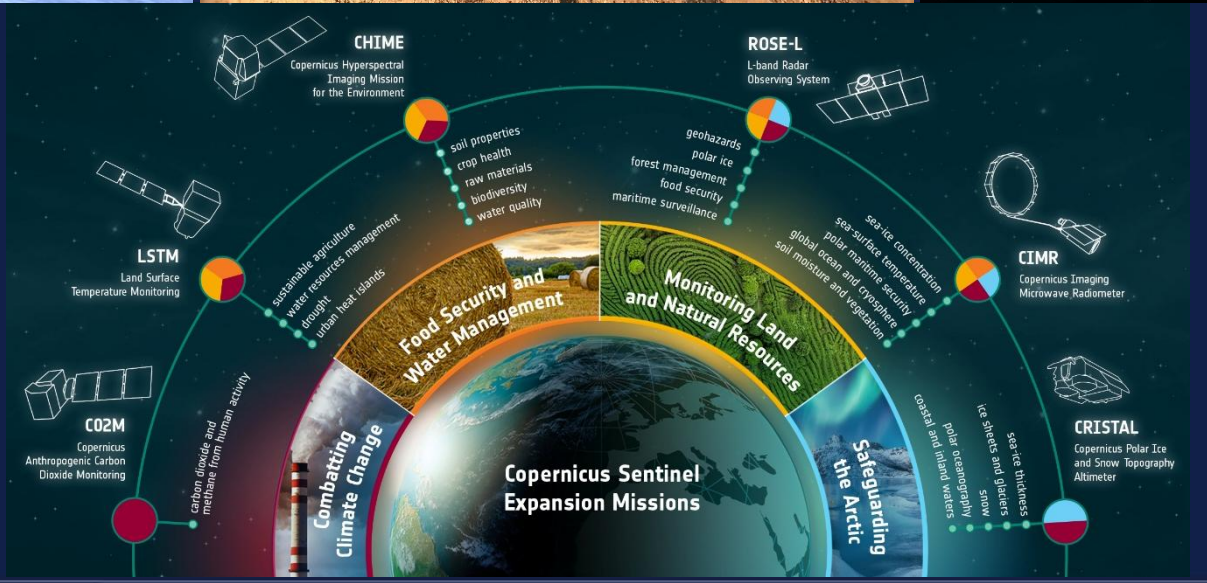
Main scope covered:

- Flight Software.
- Ground Segment Software.
- Software Tools.
- ASIC / FPGA / IP Core.



Software Product Assurance – Project Support Highlights





Software Product Assurance at ESA – Additional activities

R&D

Contributing to **Harmonisation** process and SW PA **research Roadmap**

Focus areas:

- SW dependability and safety.
- MBSE and Product Assurance.
- Agile techniques and SW PA.
- SW process assessment.
- SW Quality tools.
- SW PA applied to Ground Segments.
- Secure SW engineering.
- New techniques and methods.

Standardization

Contribution to ESA **Mission Classification** tailoring.

Review of **ECSS Next Generation** standards.

Book captain of:

- ECSS Q-ST-80C (SW PA).
- ECSS-Q-ST-60-03C (DEVICE PA).
- Related handbooks.

Communication

- Bi-lateral & multi-lateral **cooperation** with LSIs and Space Agencies.
- SW PA Conference.

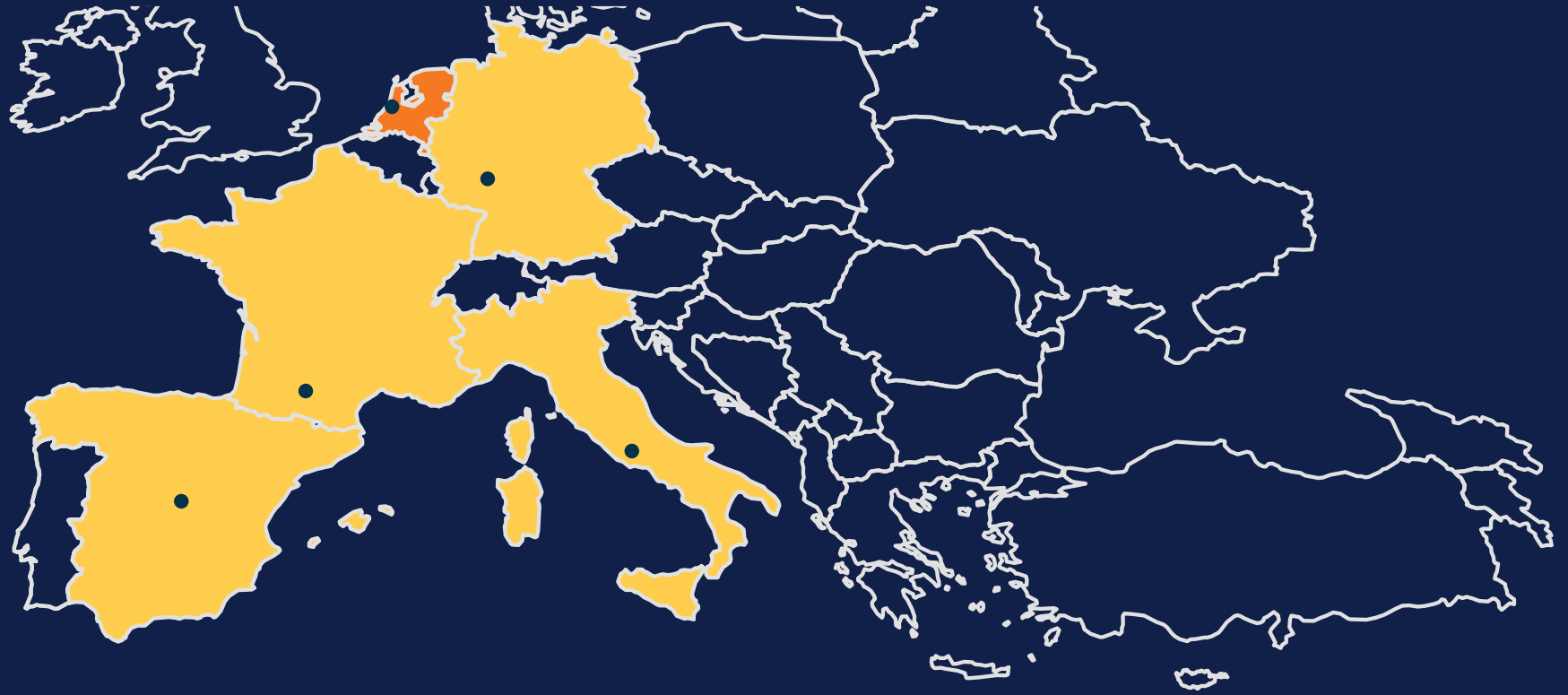
Training activities:

- ECSS SW PA courses.
- **SW PA training** for NMS & SME's, for students …

Services

- Software Process Assessment & Improvement (S4S).
- SW **Quality Laboratory**.

Welcome to the Software Product Assurance Conference



2013	2015	2017	2019	2021	2023	2025
ESTEC (NL)	ESRIN (IT)	ESOC (DE)	CNES (FR)	Online	ESAC (ES)	ESTEC (NL)

Looking back at SWPA Workshop 2023 - Feedback

Q&A right after the presentations

Keynote speakers

Consistent start and end time

Networking opportunity

Knowledge sharing

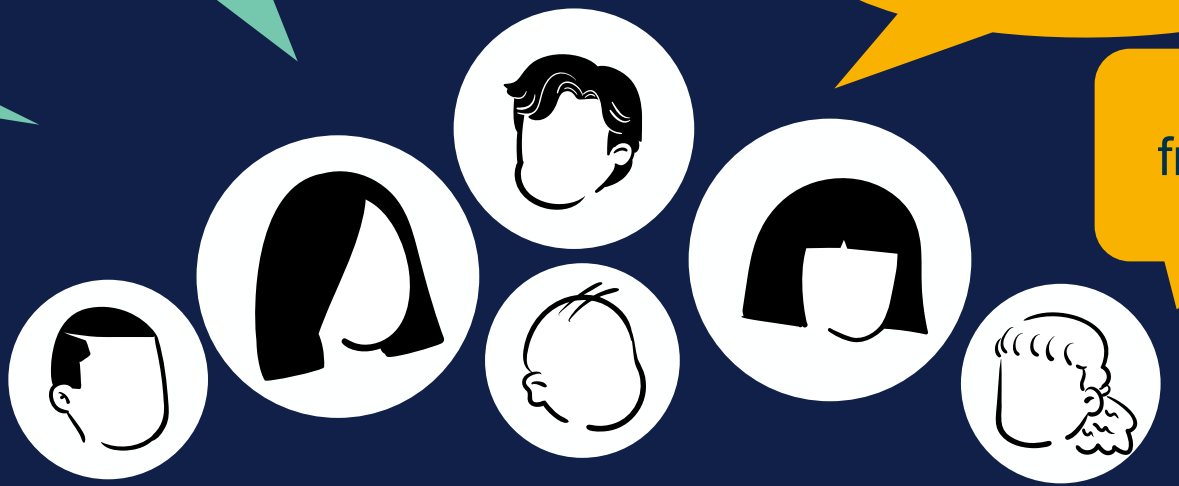
Engaging presentations

Easy to reach location

Increase frequency of the event

Wide variety of topics

Social event



Looking back at SWPA Workshop 2023

Overall Experience:	4.53	★★★★½
Would Recommend:	4.55	★★★★½
Overall Programme:	4.45	★★★★½
Presentations:	4.28	★★★★☆
Posters:	4.00	★★★★☆
Training Satisfaction:	3.25	★★★☆☆
Session Organization:	4.70	★★★★½
Coffee and lunch breaks :	4.47	★★★★½
Social event:	4.53	★★★★½

Based on 2023 event satisfaction survey. 47 participants responded.

Member States Represented - 2025

ESA Member States & Cooperating States

- Austria
- Belgium
- Canada
- Czech Republic
- Denmark
- Estonia
- France
- Germany
- Greece
- Hungary
- Italy
- Luxembourg
- Netherlands
- Poland
- Portugal
- Romania
- Spain
- Sweden
- United Kingdom

Non-Member States

- Colombia
- India
- Turkey
- United States

Software Product Assurance Conference 2025

- 150+ Participants
- 25+ Countries
- Strong space agency presence
  ESA, CNES, DLR, NASA
- 70+ Industry & Academia
- Increased participation
  of New Space companies
- 2 Trainings
- 33 Presentations
- 9 Posters
- 4 Key Notes
- 2 esa academy Sponsored Students

Software Product Assurance Future Challenges

New technologies

Preparing for future space exploration:

AI for SW Product Assurance.
Product Assurance **for AI.**
Software Defined Satellites.
Cloud computing in Spacemputing in space.

Building blocks

Framework for managing **software building blocks**.

Support industry driven building-block development and **pre-qualification**.

Flight software library for CubeSat missions

Digitalisation

Shift towards **machine readable project deliverables**, adoption of digital [reporting] technologies.

Enable **remote and virtual SW Product Assurance, reviews**, audits and assessments.

Develop **tools to turn SW quality data** into coherent, and interactive insights.

Standardisation

ESA Mission Classification.

ECSS Next Generation. Evolution of standards and handbooks.

Standards and SW PA in **New Space** missions.

ECSS I-Branch (Industrialisation)

The SW PA Conference 2025 – Sessions

Session 1 23 Sept. 10:00-17:30	**Software Development Tools and Methods** **Poster Section** **Social Event**
Session 2 24 Sept. 09:30-13:00	**Software Processes & Product Assessments**
Session 3 24 Sept. 14:00-17:30	**Assurance & Artificial Intelligence**
Session 4 25 Sept. 9:30-13:00	**Software Security, Safety and Dependability**

The SW PA Conference 2025 – Keynotes

Key Note 1 Session 1 **23 Sept.** 14:00-14:30	**Tim Crumbley** NASA Marshall Space Flight Center *"NASA Software Assurance Direction"*	**Key Note 3** Session 3 **24 Sept.** 14:10-14:40	**Molly O'Brien** Exida GmbH *"AI & Safety in Automotive Applications: AI Safety Standards, Current Applications, and Future Work"*
Key Note 2 Session 2 **24 Sept.** 09:40-10:10	**Leonidas Kosmidis** Barcelona Supercomputing Center *"Combining High Performance Hardware and Software with High Software Assurance: Is it Possible?"*	**Key Note 4** Session 4 **25 Sept.**	**Alwyn E. Goodloe** NASA Langley Research Center *"Formal Methods for Space at NASA Langley"*


Enjoy the Conference!
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