M8 ESA Briefing Meeting

- ESA briefing meeting on 11 December, slides (and soon video recording at): https://www.cosmos.esa.int/web/call-for-missions-2025
- A few remarks:
  - Mission proposal must be science driven, **not** pure tech development
  - All missions must be led by ESA, contributions to e.g. NASA missions not possible!
  - International contributions possible, endorsement letter needed by May 2026
  - The call publication date will be known early next year
  - Launchers Vega-C and Ariane 62, constraints as in M7 (question of payload weight…)
  - Assume 10-12% of CaC for launcher (don't assume rideshare etc), 10% operations costs (typically)
  - Large payloads (like us) → ESA systems engineering and interface management
  - Mention descope, fallback scenarios also in phase-1 proposals, mitigate TRL and cost risks

Call objectives

Call for M8 mission candidates

- Aims at M8 mission (part the Voyage 2050 plan), process similar to M7
- < 15 years from early selection to launch
- ESA Cost at Completion (CaC): 650 M€ in e.c. 2024. Launch in ~ 2041

Call for F3 mission candidates

- Aims at F3 fast mission (part the Voyage 2050 plan)
- < 8 years from early selection to launch
- ESA CaC: 200 M€ in e.c. 2024. Launch in ~ 2034

Exploratory Call for “mini-Fast missions”

- Aims at assessing the potential of mini-Fast missions in the Programme
- Ballpark ESA CaC 50 M€ in e.c. 2024, 4-5 years from early selection to launch

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Reference schedules for M8 and F3

M8 reference schedule

• Selection of Phase 0 candidates:	Q4 2026	(up to 5 candidates)
• Downselection of Phase A candidates:	Q4 2027	(typ. 3 out of 5 candidates)
• Mission selection:	Q1 2030	(end of Phase A)
• Mission adoption:	Q4 2032	(end of Phase B1)
• Launch:	~2041	(mission dependent)

TRL 5-6 needed here!

F3 reference schedule

• Selection of Phase 0 candidate:	Q4 2026	(typ. 1 candidate + 1 back-up)
• Spacecraft industrial ITT :	Q4 2027	(following Phase 0 completion)
• Mission adoption:	mid-2030	(end of Phase B, PDR)
• Launch:	~2034	(mission dependent)

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→ THE EUROPEAN SPACE AGENCY

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Phase 1 proposal expected content

- Science objectives description
  - What do you propose to achieve? Need for space? Why now?
- Mission profile
  - Proposed destination & launcher
- Instrumentation for achieving the science objectives
  - Measurement concept
  - Instrumentation description: Hardware description, heritage, technology assessment, expected resources (mass/volume, power, data volume)
- Preliminary requirements for the platform (any specific needs?)
- Concept of operations: mission scenario, measurement phases, lifetime
- Proposed responsibility scheme (preliminary)

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Other considerations and recommendations (2/2)

Freezing the responsibility scheme is not requested for Phase 1 proposal

- However, early identification of key building blocks or options allows ESA to iterate with the Member States and helps convergence

ESA will support payload preparation activities for both F & M cases

- Early start of critical breadboarding can be envisaged, for securing the schedule or raising TRLs
- Effective available time until adoption for pre-developments and raising TRLs: ~1.5-2 years for the F case, and 3-4 years for the M case
- The F mission must rely on existing platforms (TRL ≥ 7) but the payload can be a new development (still with good heritage, TRL 5-6, Phase 0 level conceptual design)
- Definition of early development activities will be requested in the Phase 2 proposal

Pay attention to the schedule and decision timeline

- De facto drives the feasibility domain and ESA technical assessment

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News

- Simulations: Mainz (Jan Lommler, lommler@uni-mainz.de, and Uwe Oberlack) agreed to coordinate effort
- Simulations meeting on 17 December at 9:30 – 10:30, see Email to mailing list or ask Jan
- Simulation contributors needed, plan will be discussed at the meeting next week
- We also agree with the US AMEGO team to explore a common simulation effort, we will soon doodle a date for an online meeting (week 6 January) for everyone interested
- I have received further expressions of interest from Poland (SRC PAS) and Czech Republic (CTU)
- Reminder of our previous plans, which will need some adjustments in organisation and responsibilities, see phase-1 (https://syncandshare.desy.de/index.php/s/oLb9GtKTeSQCNwd) and phase-2 (https://syncandshare.desy.de/index.php/s/Y2yeDRz3AHnx7fZ) proposals

Next steps

- Conclude simulations and agree on mission configuration by March 2025
- Agree on task and responsibility distribution
- See if further groups and member states join, find out at which level?
- Commence phase-1 proposal writing once call opens in March
- Get back to me with national contact persons please (a few have done so already)

Meeting Summary

- While some people connected to the meeting expressed interest in the Fast part of the upcoming call, e.g. to propose a GeV (not MeV to GeV) mission, the majority agreed to continue to focus on an M8 proposal
- The management part of the upcoming phase-1 proposal (responsibilities, organisation) is somewhat preliminary and can be updated for the phase-2 proposal
- There are 2-3 months ahead of us in which simulation studies are possible, by early March we need to converge on a mission configuration we would like to propose
- In the simulation call on 17 December there will be a discussion whether a F2F meeting in January to discuss simulation options is a good idea
- In calendar week 51 a call on ideas and previous experience of a coded mask X-ray imager will be organised, if you are interested to join let me know
- The science case write-up and the science tracability matrix need to be worked on. Martin Pohl volunteers to kickstart this, we need volunteers to help, please let me know if you are interested to join
- Also let me know please who national contact persons are in your countries