

Call for Voyage 2050 M and F missions: Technical & Programmatic boundaries

Briefing for proposers

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Call for M & F mission proposals

First Call of the Voyage 2050 programme

- F mission: ESA CaC 175 ME, fast development, launch in 2030-2031
- M mission: ESA CaC 550 ME, launch by 2037

Science objectives are open

Call planned in two phases, as done for the previous F-Call

- Approach meant to limit negotiatory work to all parties
- Also allows better iterations with the Member States on their potential provisions
- All proposals that are scientifically compelling and not judged unfeasible will be considered for the Phase 2.

Nominal scheme, for both F & M opportunities



ESA is the mission architect, in charge of the space segment development, launch and in-orbit operations

- Use of next generation of European launchers: Ariane 62 (M case) or Vega-C (F & M case)

Nationally funded contributions from the scientific community anticipated

- e.g. on the payload and science ground segment
- Large, complex payloads must involve ESA, as a minimum for the overall system engineering and system AIV



Intended to help the proposers, providing:

- Destinations achievable with Vega-C or Ariane 62 (possibly using on board propulsion after launcher separation)
- Guidelines for the space segment, e.g. mass, TRL etc
- Background information for the space segment & ground stations
- Some useful cost elements

The guidelines are provided to ease compliance with cost targets

- The proposers are invited to benchmark their ideas with recent developments
- Typically, the M-mission platform class is comparable to that of Ariel or EnVision. The F-mission class is comparable to CHEOPS or somewhat larger (depending on the destination and ESA involvement on the payload)

Reference schedules

For both F & M, selection of candidates by 2022

M-mission schedule

- Start of Phase 0: Q1 2023 (typ. 3 candidates)
- Mission selection: 2026 (end of Phase A)
- Mission adoption: 2029 (end of Phase B1)
- Launch: by ~2037 (mission dependent)

F-mission schedule

- Start of Phase 0: Q1 2023 (typ. Baseline and back-up candidates)
- Mission adoption: Q1 2026 (end of Phase A/B)
- Launch: ~ 2030 (mission dependent)

Phase 1 proposal expected content

Science case description

- What do you propose to achieve? Need for space? Why now?

Mission profile

- Proposed destination & launcher (A62 or Vega-C),

Instrumentation for achieving the science case

- Measurement concept
- Instrumentation description: Hardware description, heritage, technology assessment, expected resources (mass/volume, power, data volume)

Preliminary requirements for the platform

Concept of operations: mission scenario, measurement phases, lifetime

Proposed responsibility scheme (preliminary)

New generation launchers (A62 and Vega-C) are much more capable

- For several destinations, design limited by cost rather than launcher
- Allows enhanced mission profiles for both F & M cases
- Dry/wet mass guidelines provided to help compliance with the cost target
- Avoid presuming launcher cost reductions by assuming co-passengers may contribute to launcher cost (will be possibly done by ESA, if feasible)
- For M missions, both A62 and Vega-C are feasible (flexibility on S/C cost)

Design to cost approach will be enforced for selected candidates

- Iterative process, aiming at optimum science within cost boundary
- Define in the proposal the core science measurement objectives and think of true flexibilities and fall-back scenarios for coping with TRLs and cost.

Definition of the responsibility scheme is not requested for Phase 1

- However, early identification of key building blocks or options allows ESA to iterate with the Member State 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 unchanged: ~2 years for the F case, and 3-4 years for the M case

Pay attention to the schedule and decision timeline

- De facto drives the feasibility domain and ESA technical assessment

Q & A session