

**Starting date = 1<sup>st</sup> Feb 2023**

**Application deadline = end Nov 2022**

## Space Flight Dynamics Engineer for Copernicus

The key person will join our Flight Dynamics team supporting on a daily basis our customer ESA/ESOC. The ESOC Flight Dynamics division provides mission analysis and flight dynamics operations support to ESA and third-party missions during all mission phases. Flight Dynamics cooperates with different elements of the ground segment, such as the flight control teams, ground operations teams, science teams, the project teams, and the spacecraft manufacturers.

More specifically, the selected key person will primarily support the Flight Dynamics operations for the Sentinel missions of the EU Copernicus programme. The dedicated Copernicus Flight Dynamics team is responsible for the flying missions of Sentinel-1A/B, Sentinel-2A/B and Sentinel-5p, as well as for the launch campaigns of their successor missions and of Sentinel-3 and Sentinel-6. Besides the multi-mission support, the position offers a diversified working field due to the widespread responsibilities of each team member and various interfaces inside and outside the team.

As the solely working language is English, fluency in English is essential. We are looking for a young professional; any experience with Flight Dynamics operations and Earth observation missions is an asset.

### Tasks & Responsibilities

The key person will join a team responsible of the following tasks (not limited to):

- Orbit determination and manoeuvre optimization
- Attitude determination and on-board systems monitoring and verification
- AOCS command generation
- AOCS and optical sensors calibration
- Test & Validation for the above
- Performing studies and technical analyses to support the above
- Performing software development and maintenance to support the above covering
- Routine mission operations
- Pre-launch activities, e.g. software development and testing, procedure writing, technical analyses, support to test and simulation campaigns
- Support during critical mission phases, e.g. launch and commissioning, end of mission activities
- Support of collision avoidance manoeuvres (with space debris) including on-call service
- Maintenance and evolution of the Flight Dynamics system

### Profile:

*Mandatory skills:*

- University degree in a relevant engineering field, mathematics, or physics
- Very good skills in classical mechanics, including:



- Kinematics and dynamics of point masses,
  - Dynamics of rigid bodies,
  - Dynamics expressed in non-inertial reference frames, e.g. including dynamics in rotating frames, rotation dynamics expressed in body fixed frame,
  - Conservation laws in mechanics,
  - Gravitational forces and field,
  - Orbit dynamics, Keplerian orbits and Kepler laws.
- Very good skills in linear algebra and being familiar with different representations of rotation in 3D
  - Good skills in calculus in one or several variables; good skills in numerical methods; ability to solve mechanics problems via analytical mechanics methods is an asset
  - Competence to apply their knowledge to develop solutions for technical (mathematical and dynamical) problems
  - Ability to define, implement, validate, and operate software which applies the above solutions
    - Using e.g., Unix and/or Linux scripting languages, Fortran 77 and/or 95, Python, C/C++
  - Fluency in English, both in speech and writing
  - Good team-worker and will to take operational responsibility in a multi-discipline team
  - Ability to work independently, and high motivation to learn
  - Ability to multi-task efficiently; working on multiple activities, multiple subsystems, and multiple missions simultaneously

*Additional skills (which will be considered as an advantage):*

- Experience with Earth observation satellites, Flight Dynamics operations and/or Flight Dynamics software coding
- Experience in working on a Unix or Linux based operating system
- Experience in software coding with Fortran (77 or 95), Python and/or C/C++
- Experience in interacting with other teams and other fields
- French language skills

**Our offer:**

- Manifold tasks and responsibilities in an interesting, multi-national working environment
- Efficient support and trainings to be able for smooth and quick integration into the operational team
- Attractive relocation packages and employment condition
- Constant support in your adaption to a potential new country and a new working environment thanks to our international teams and our frequent team building activities
- Be part of one of the most innovative companies in the astrodynamics field