2D Materials in Space

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We are at a crucial point for human and robotic space exploration, with the International Space Station coming to the end of its lifetime, commercial space stations being built to replace it, and the Artemis programme set to take humans back to the Moon for the first time since the 1970s. The European Space Agency has set out a strategy [1] for the next 10 years, with the following main objectives:

1. to create new opportunities in Low Earth Orbit for a sustained European presence in the post-ISS era,
2. to enable the first European to explore the Moon's surface by 2030 as a step towards sustainable lunar exploration in the 2030's,
3. to prepare the horizon goal of Europe being part of the first human mission to Mars.

In this talk, ongoing and upcoming scientific and exploration programmes will be discussed including LEO, Moon, and Mars, with particular regard to their enabling technologies and how 2D materials may be used to enhance them or how 2D materials research could benefit from them.

References

[1] Terrae Novae 2030+ Strategy Roadmap, European Space Agency, June 2022
[2] Terrae Novae slide deck, European Space Agency, February 2022

Figures

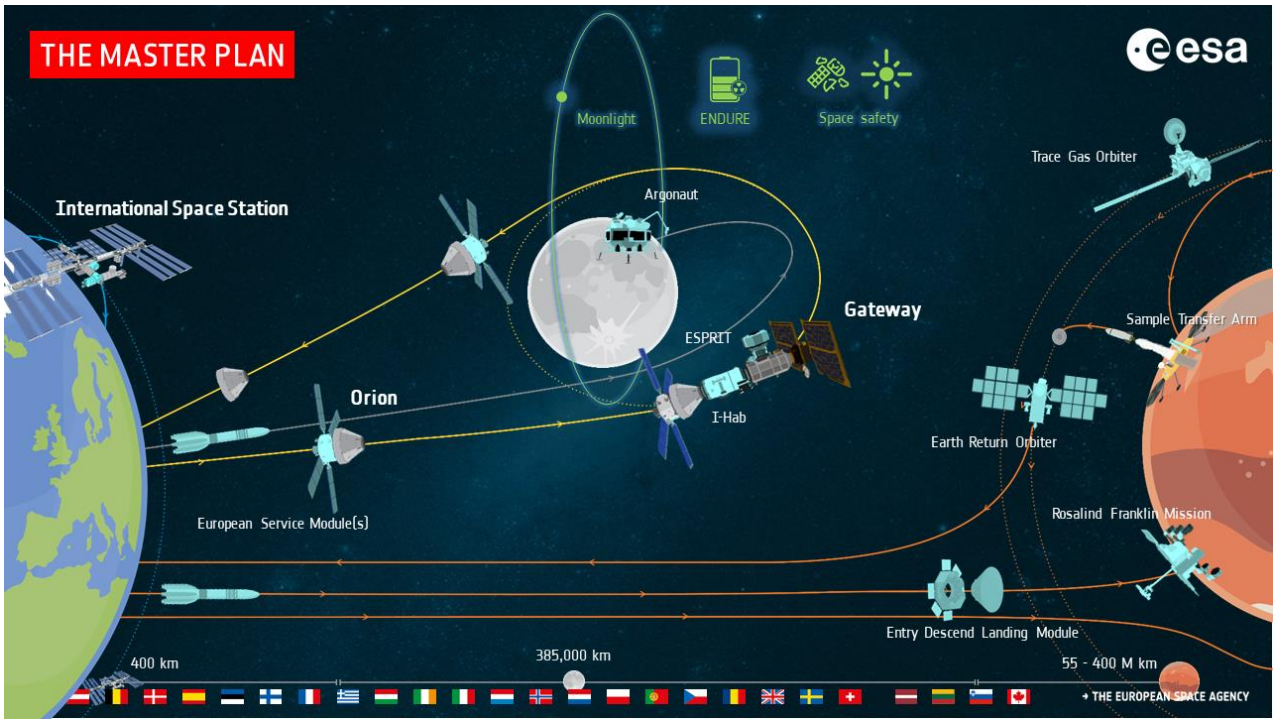

Figure 1: The European Space Agency's Terrae Novae 2030+ strategy [2]