



Image ESA https://www.esa.int/Science_Exploration/Human_and_Robotic_Exploration/Cosmic_kiss

KISS meets Cosmos

November 12, Joachim J. Kehr, Editor SpaceOps News

Cape Canvaral Nov. 11, 2021.

Originally planned for October 31, 2021 then shifted to November 3 the launch of Matthias Maurer and his crew mates required some patience.

ESA astronaut Maurer has to replace his French colleague Thomas Pesquet on board the ISS. Pesquet spent 199 days in space, together with the Japanese spaceman Aki Hoshide and NASA astronauts Megan McArthur and Shane Kimbrough. Actually, they should not have returned to Earth until the replacement crew arrived on the ISS. After the start of Maurer's Crew-3 was postponed due to bad weather and an unspecified "minor medical problem", the return flight of Crew-2 was brought forward - only to be delayed because of bad weather in the possible landing zones in the sea around Florida . There is was not much leeway left because the SpaceX Crew Dragon spaceship with which Pesquet's team had already flown to the ISS, could only stay in space for a maximum of 210 days; this period expired in mid-November, but Thomas and crew splashed down off the coast of Florida, USA on 9 November 2021 at 03:33 GMT (04:33 CET) safely. [1]

On a be dazzling fireball and brilliant afterglow, enveloped by white clouds from the re-usable Falcon 9 with the SpaceX Crew-Dragon capsule "Endurance" on top finally blasted off from the Cape launch complex on Wednesday Nov. 10 at 9:03 p.m. EST (0200 Nov. 11 GMT) during a flawless, spectacular night launch. In the commodious "new space age" capsule, commander Raja Chari together with Matthias Maurer and Nasa astronauts Kayla Barron and Thomas Marshburn shared the stylish, premium seats NASA chartered from Elon Musk's commercial company SpaceX. [6]

Maurer will take over for French ESA astronaut Thomas Pesquet, who has been on the ISS since 23 April 2021. Maurer , the third*) German astronaut on the ISS will, in turn, be followed by Italian ESA astronaut Samantha Cristoforetti (her flight is currently planned for April 2022). For the first time, three ESA astronauts will be on board the ISS in an unbroken sequence over a one-and-a-half-year period. While being up there they will work alongside their US, Russian and Japanese colleagues. [2]

*) *His predecessors were Thomas Reiter and Alexander Gerst.*



*Crew seated inside the spaceship before launch of the Falcon 9 (Matthias Maurer left**).*



Lift-off from historical launch Pad 39A at Cape Kennedy launch facility.



Fascinating image of the trajectory rising into orbit...



...and Falcon 9 booster returning to be refurbished, (live comment: astronaut Hans Schlegel)

****) An interesting feature of the Dragon capsule is that the crew is seated in a vertical position at ingress, the seats tilted before lift-off into a 70° position like a dentist's chair.*

Matthias Maurer's mission is called "Cosmic Kiss". The mission's name is a declaration of love for space, for the ISS as a link between humanity and the cosmos and for what people there do now and will be able to achieve in the future. The mission patch carries certain cosmic elements such as the earth, the moon and the Pleiades star formation as well as Mars as a target for exploration over the next ten years. [2]

At the same time, it stands for the value of exploring space in geopolitical partnership, and for the respectful and sustainable treatment of Earth. The symbolized ISS therefore appears in red at the center of the mission logo, connected to Earth and the Moon via a symbolic human heartbeat. The heartbeat is intended to express the passion and curiosity that drives people to explore space. [1]



Matthias Maurer is one of seven currently active ESA astronauts and according to ESA's Director Josef Aschbacher "an excellent candidate for a trip to the Moon" [6]. He has been a member of the ESA astronaut corps since July 2015. In September 2018, he completed his 18-month basic training and in December 2020 he was officially nominated for his first mission to the ISS. To prepare for the mission, he completed training sessions at ESA's European Astronaut Centre in Cologne, NASA's Johnson Space Center in Houston, the SpaceX Crew Dragon facility in California, as well as in Russia, Japan and Canada. [1]

The Moon has a special meaning for Maurer. Before joining the astronaut corps, he worked as project manager on the development of ESA's future Moon simulation facility – Luna - a joint project between ESA and DLR in Cologne. [1]

ESA's Columbus Control Centre (Col-CC), located at the German Space Operations Center (GSOC) on DLR's site in Oberpfaffenhofen, is responsible for all experiments carried out in the European Columbus Laboratory on the ISS. At GSOC, DLR and ESA work closely together and are in constant contact with the three other ISS partner control centers around the world and the astronauts on the ISS. The planning and integration of new experiments begins here, long before the mission itself. The Col-CC is responsible for the management and control of the European space laboratory systems, the coordination of the operation of the European payloads on the ISS and the operation of the European ground communications network and its global ISS interfaces.

It also is in charge of the interface between the Columbus experimental facilities on the ISS and the scientists in the European user control centers, including the Microgravity User Support Center (MUSC) at DLR in Cologne. The MUSC qualifies space experiments for certification of readiness for flight, supports their operation with the necessary infrastructure during the flight and makes the archived data accessible to users all over Europe after each successful mission. On behalf of ESA, it operates the Biolab, Expose, DOSIS, Materials Science Laboratory (MSL), Facility for Adsorption and Surface Tension (FASTER), European Drawer Rack (EDR) and Electromagnetic Levitator (EML) facilities on board the ISS. Maurer will make extensive use of those facilities during his stay to conduct the 100 scientific experiments scheduled for this flight. [3]

Biography

Maurer graduated from Gymnasium Wendalinum in Sankt Wendel, Saarland, in 1989. He served as a civic paramedic with the Malteser Emergency Service. Afterwards he studied materials science and technology at Saarland University in Saarbrücken, Germany, the EEIGM (École européenne d'ingénieurs en génie des matériaux), in Nancy, France, the University of Leeds, UK, and at the Polytechnic University of Catalonia (Universitat Politècnica de Catalunya) in Barcelona, Spain. From 1999 to 2004, Maurer completed his doctorate at the Institute of Materials Sciences of the RWTH Aachen University, Germany, where he received his engineering doctorate degree. His dissertation entitled "Lightweight composites made of aluminum foam with thermally sprayed coatings" won him several scientific prizes. After completing his doctorate, Maurer undertook a long-term trip around the world. In 2006, Maurer successfully completed an additional course of study in economics at the University of Hagen with a MBA management degree. Maurer holds several patents in the field of materials science and materials engineering. He is fluent in four languages (German, English, Spanish, French) and as part of his astronaut training, he is also taking intensive language training in Russian and Chinese. [5]

References:

[1] DLR "Cosmic KISS": <https://www.dlr.de/content/en/articles/missions-projects/cosmic-kiss/about-the-mission.html>

[2] DLR_rb: <https://www.dlr.de/rb/cosmickiss>

[3] Experiments: <https://www.dlr.de/content/de/artikel/missionen-projekte/cosmic-kiss/deutsche-experimente.html>

[4] Live stream: https://www.youtube.com/watch?v=xI-T_SSuEQE

[5] Biography: https://en.wikipedia.org/wiki/Matthias_Maurer

[6] Delay: <https://www.sueddeutsche.de/wissen/raumfahrt-matthias-maurer-iss-nasa-esa-toilette-spacex-start-cape-canaveral-1.5459306>

[7] Phoenix live: <https://www.youtube.com/watch?v=7STYkvm2fVY&t=59s>