**ESA Highlights 2022**

2022 was a year of many ‘firsts’ for space in Europe, seeing the first European female ISS commander, the launch of the first Vega-C rocket, Solar Orbiter’s first close encounter with our home star, the launch of the first Artemis mission working to bring humans back to the Moon, and first images from the James Webb Space Telescope.

Let’s take a look at the highlights and accomplishments of the European Space Agency during 2022.

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| 10:00:00 | ESA leader |
| 10:00:08 | Title: ESA Highlights 2022 |
| * Aerial establishing shot ESTEC; Noordwijk, the Netherlands – unknown date ©ESA * ESA astronaut announcement event; Berlin, Germany – Nov 2022 ©ESA * Vega-C inaugural flight launch; Kourou, French Guiana – 2022 ©ESA/CNES/Arianespace * View of Orion capsule and ESM near the Moon – Dec 2022 ©ESA/NASA * GV Cosmic Kiss spacewalk – 2022 ©ESA/NASA * Animation Solar Orbiter approaching the Sun – unknown date ©ESA * Animation Solar Orbiter facing the Sun – unknown date ©ESA * Solar Orbiter images and video’s – May 2022 ©ESA/NASA (3shots) * JWST launch on Ariane 5; Kourou, French Guiana – Dec 2021 ©ESA/CNES/Arianespace * JWST decoupling in space – Dec 2021 ©ESA/CNES/Arianespace * JWST animation – 2021 ©ESA/ATG Medialab * Video tarantula nebula by JWST – 2022 ©ESA/NASA/CSA * Video pillars of creation by JWST – 2022 ©ESA/NASA/CSA * Infrared deep space image by JWST – 2022 ©ESA/NASA/CSA * Animation GAIA spacecraft – unknown date ©ESA/ATG Medialab * Animated GAIA third data release images – 2022 ©ESA (3shots) | As 2022 slowly comes to a close the European Space Agency ESA can look back at a fruitful year of many ‘firsts’ for space in Europe.  In science, 2022 saw Solar Orbiters first encounter with our home star on March 26th. From within Mercury’s orbit and with this spacecraft’s instruments all working together for the first time Solar Orbiter returned spectacular imagery and a wealth of scientific data back to earth.  Just like Solar Orbiter another joint ESA/NASA mission passed an important milestone. After its launch in December 2021 on top of an Ariane 5 the brand-new James Webb space telescope reached the sun-earth L2 Lagrange point and started operations. Since then, Webb has provided humankind with breathtaking images of planets, distant and nearby galaxies and also the deepest, sharpest infrared image of the distant Universe so far.  2022 was also another important year for the Gaia mission which saw its full third data release ever further developing the most complete multi-dimensional map of the Milky Way. This Data release contained improved information about almost 2 billion stars, solar systems objects and extragalactic sources. |
| 10:01:30:06   * ECSAT establishing shot; Harwell, UK – unknown date ©ESA * ECSAT flags; Harwell, UK – unknown date ©ESA * Eurostar Neo animation – unknown date ©Airbus Defense & Space * Falcon 9 launch of Eutelsat Hotbird 13F – 2022 ©SpaceX * GV’s of Eutelsat Hotbird 13F – 2021-2022 ©Airbus Defense & Space (6 shots) * Eurostar Neo animation – unknown date ©Airbus Defense & Space * MTG-I1 in cleanroom – 2022 @ESA (2shots) * Animation MTG in orbit – unknown date @EUMETSAT | Working for the benefit of Europeans and citizens across the world is core business for ESA and developing new satellite platforms is part of this mission.  In 2022 the first satellite based on the Eurostar Neo telecommunications platform was launched. The Eurostar Neo Satellite platform was developed under and ESA partnership project with Airbus Defence and Space. It was designed to foster innovation in telecommunications satellites and keep Europe at the forefront of the telecom market with commercially viable and easily adaptable satellite platforms.  Also providing an invaluable service to the people in Europe is the Meteosat third generation satellite MTG-I1 which was launched on December 13. This Meteosat satellite is the result of the longstanding partnership between ESA and EUMETSAT and it will carry two imagers: an advanced flexible combined imager and, another first for Europe, a lightning imager. |
| 10:02:38:05   * Galileo satellite departure at ESTEC; Noordwijk, The Netherlands – 2022 ©ESA (2shots) * Galileo satellite in testroom at ESTEC; Noordwijk, The Netherlands – 2022 ©ESA (3shots) * Galileo satellite departure at ESTEC; Noordwijk, The Netherlands – 2022 ©ESA * Animation Galileo satellite in Orbit – unknown date ©ESA | While 2022 was a year of many firsts there was also a last, as the last of the first-generation Galileo satellites finished its testing at ESTEC. Galileo is the largest European satellite constellation and the most performant satellite navigation system in the world and all of its 34 first generation satellites were tested and validated at ESTEC. While this has been the end of the first generation of Galileo satellites, a second, more powerful and versatile generation is already being developed. |
| 10:03:10:20   * ESA astronaut announcement event; Berlin, Germany – Nov 2022 ©ESA (3 shots) * Neutral Buoyancy Facility at ESA EAC; Cologne, Germany – 2020 ©ESA (2 shots) * ESA promotional video for astronaut recruitment – unknown date ©ESA (3 shots) * GV’s ESA astronauts recruits – 2022 ©ESA | Another new generation ready to rise to the challenge is the new generation of ESA astronauts that have been selected and presented this year. Chosen from among thousands of candidates across ESA’s member states this new class of astronauts will contain five career astronauts, eleven members of an astronaut reserve and the first astronaut with a physical disability. He will take part in a feasibility Project to develop options for the inclusion of astronauts with physical disabilities in human spaceflight and possible future missions.  Over the coming years these astronauts will be trained for spaceflight by the highest standards and then continue space exploration from low-earth orbit to the moon and even beyond. |
| 10:03:33:21   * GV return of Matthias Maurer in SpaceX dragon capsule – 2022 ©ESA/NASA/SpaceX * Matthias Maurer SpaceX dragon capsule splashdown – 2022 ©ESA/NASA/SpaceX * GV’s Matthias Maurer onboard ISS – 2022 ©ESA/NASA (2shots) * GV Cosmic Kiss spacewalk – 2022 ©ESA/NASA (2shots) * Samantha Cristoforetti and Matthias Maurer meet in the ISS – 2022 ©ESA/NASA * GV Samantha Cristoforetti onboard ISS – 2022 ©ESA/NASA * GV Samantha Cristoforetti launch to ISS with Falcon 9 and dragon capsule – 2022 ©ESA/NASA/SpaceX * GV Samantha Cristoforetti spacewalk – 2022 ©ESA/NASA (2 shots) * Samantha Cristoforetti ceremony taking command of the ISS – 2022 ©ESA/NASA * Samantha Cristoforetti SpaceX dragon capsule splashdown – 2022 ©ESA/NASA/SpaceX | While the new generation of Astronauts has been selected the current generation has not been sitting idle over the last year. In May German astronaut Matthias Maurer returned from the ISS after his first long duration mission, Cosmic Kiss. During his mission Matthias participated in 35 European and even more international experiments onboard the ISS. He also performed his first spacewalk in support of assembly, refurbishment, and maintenance work to the International Space Station.  Only a few days before his departure from the ISS he was there to greet his fellow astronaut Samantha Cristoforetti who flew to the ISS for the second time.  She launched to the ISS in late April and also worked on a plethora of scientific experiments. She also performed her first spacewalk to work on the European Robotic Arm, ERA and assumed responsible for all operations of the US orbital segment. Samantha was also responsible for another first, as she became the first European Female astronaut to take up the mantel of commander of the ISS before returning to earth in October ending another long period of near-continuous European presence onboard the ISS. |
| 10:04:44:20   * GV’s Artemis-I launch at Kenedy Space Center; Cape Canaveral FL, USA - Nov 2022 ©NASA (6 shots) * GV’s Orion capsule and ESM in space; - Dec 2022 ©ESA/NASA (2 shots) * GV’s Orion capsule spalshdown; - Dec 2022 ©ESA/NASA | But there is more exciting news for human spaceflight in the effort for humankind to return to the moon. On November 16th NASA’s new Artemis launcher took off with a mighty roar and soared towards the moon for the first time. This first flight had been postponed a few times but now the Orion capsule and the European Service Module ESM could make their first voyage. With the ESM Europe has made a tangible contribution to the Artemis programme as it provides power for the Orion capsule and propel it along its orbit around the moon.  This launch was the first integrated test flight for the new launcher, and it was a resounding success for both NASA and ESA after years of development. Thanks to international cooperation and the pooling of resources and knowhow the moon is once more within the reach of humankind. |
| 10:05:30:00   * Animation establishing shots Vega-C launchpad; Kourou, French Guiana – 2022 ©ESA * Zefiro-9 3rd stage assembly at Vega launch pad; Kourou, French Guiana – May 2022 ©ESA/CNES/Arianespace (2 shots) * GV’s Vega-C inaugural flight liftoff – 13 July 2022 ©ESA/CNES/Arianespace (3 shots) * Animation Vega-C inaugural flight – 2022 ESA/ATG Medialab (4 shots) * Animation Vega-C + Space Rider in space – 2022 ESA (2 shots) * Animation Vega-C inaugural flight – 2022 ESA/ATG Medialab * Ariane 6 in gantry; Kourou, French Guiana – 2022 ©ESA/CNES/Arianespace * Ariane 6 integrated tests; Kourou, French Guiana – 2022 ©ESA/CNES/Arianespace * Ariane 6 mating timelapse Kourou, French Guiana – 2022 ©ESA/CNES/Arianespace (2shots) * Vinci engine test; Lampoldshausen Germany – 2022 ©ESA (2Shots) | But Europe also continues to expand its launcher portfolio and Europe spaceport in Kourou was home to the inaugural flight of the new Vega-C launcher in July. Vega-C is the continuation of the Vega series and provides a more powerful and more versatile lightweight launcher than its predecessor Vega. Its power comes from the new P120-C solid rocket motor and the versatility is provided by the AVUM+ upper stage which allows for different payloads from ridesharing to send the reusable Space Rider into orbit.  With Vega-C Europe continues to be a key-player in the competitive launcher market but also the new Ariane 6 launcher will help cement this well-earned reputation.  The development and testing of Ariane 6 continues to progress and at its new launch base with moving gantry the first integrated tests have started. Meanwhile the Ariane 6 upper stage was hot-fire tested at the DLR facility in Lampoldshausen Germany. |
| 10:06:39:17   * ESA Ministerial council 2022; Berlin, Germany – Nov 2022 ©ESA (4 shots) * Aerial establishing shot ESTEC; Noordwijk, the Netherlands – unknown date ©ESA * Animation Solar Orbiter approaching the Sun – unknown date ©ESA * GV Matthias Maurer onboard ISS – 2022 ©ESA/NASA * GV Juice in cleanroom – 2022 ©ESA * Animation Space Rider in space – 2022 ©ESA (2 shots) * Aerial shot deep-space antenna; New Norcia, Western Australia – 2018 ©ESA * GV Orion capsule and ESM in space - Dec 2022 ©ESA/NASA * GV Euclid roll-out at Thales-Alenia; Cannes, France – 2022 ©ESA * GV Cosmic Kiss spacewalk – 2022 ©ESA/NASA * GV ISS – unknown date ©ESA/NASA * ESA flag ©ESA | For ESA to continue all of these ground-breaking projects it relies on the continued support of its member states. At the ministerial conference in Paris last November the member states confirmed their trust in the European Space Agency and backed ESA’s ambitions with a 17% budget increase. Emboldened by this support the European Space Agency can look towards the future with confidence; leading the way in scientific advancement, serving the global community with space-based projects beneficial to the planets we all live on, exploring space and our universe, and providing independent access to space for Europe for many years to come. |
| **10:07:21:14** | **B-ROLL** |
|  | **Solar Orbiter animations**  ©ESA |
| 10:07:48:15 | **Impression of Vega-C’s first journey to space**  2022  © ESA/ATG Medialab |
| 10:09:55:22 | **Ariane 6: mating of fairing timelapse**  2022  Europe Spaceport - Kourou, French Guiana  © ESA |
| 10:12:11:16 | **MTG-I1 liftoff**  13 December 2022  Europe Spaceport - French Guiana  © ESA/CNES/Arianespace |
| 10:16:25:18 | **Vinci Engine hot-fire test**  2022  Lampoldshausen - Germany  © ESA |
| **10:18:32:04** | **ESA OUTRO** |
| **10:18:44:02** | **END** |