ESA Highlights 2017

With the year 2018 approaching rapidly and 2017 coming to a close, the European Space Agency ESA can look back on a fruitful year. It has been a year dominated by the ESA astronauts in the ISS, the launch of more Sentinel satellites and the first launch of a small Geo satellite.

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| Image | Text |
| **10:00:00:00** | **TITLE: Highlights 2017** |
| 10:00:10:00* EXT. ISS from Space – unknown date – NASA
* INT. T.Pesquet inside ISS – 2017 –ESA
* EXT. T.Pesquet EVA – 2017 – ESA
* INT. T.Pesquet inside ISS – 2017 –ESA
* EXT. Soyuz with T.Pesquet landing – Kazachstan – 2017 – ESA
* INT. outside Soyuz Capsule with P.Nespoli – 2017 – ESA
* INT. P.Nespoli inside ISS – 2017 –ESA
* EXT. Outside ISS Soyuz docking – 2017 –ESA
* INT. inside Soyuz Capsule with P.Nespoli – 2017 – ESA
* INT. GV`s constructing of Orion service module – Airbus Defence and Space Facility, BREMEN– Feb 2017 – ESA
* ANIMATION. Orion Capsule in flight – 2016 – NASA
* EXT. GV`s ESA astronauts survival training - China – 2017 - ESA
 | In January 2017, French ESA astronaut Thomas Pesquet started the year with a successful **spacewalk.** The first of two Extra Vehicular Activities during his **long duration mission** aboard the International Space Station **ISS**. The 10th French astronaut performed a hundred scientific experiments during his 196 days stay in space and shared many of these with the public. In June Pesquet safely returned to earth.The following month **Italian ESA Astronaut, Paolo Nespoli**, returned to the ISS for his **3rd mission** in space. Like Thomas he performed **many scientific experiments** in several fields such as biology, human physiology and technology demonstrations. He returned on the 14th of December.To send its astronauts to space ESA is now reliant on the Russian Soyuz capsules but **new possibilities in human spaceflight** are being prepared.For instance with **Orion**, NASA’s future manned spacecraft. For this capsule ESA is developing a key element, the **service module** which was presented in Bremen in February.Soon ESA astronauts might also fly aboard **a Chinese capsule.** In August ESA astronauts Samantha Cristoforetti and Mathias Maurer already shared a **survival training** with their Chinese taikonaut colleagues. |
| 10:01:42:23* EXT. Soyuz Launchpad with SmallGEO – Kourou, French-Guiana - Jan 2017 – ESA
* ANIMATIONS. SmallGEO in orbit – 2016 –ESA
* ANIMATIONS. SmallGEO deployments of solar panels – 2016 –ESA

10:02:14:14* INT. Galileo Cleanroom FitCheck – Europe Spaceport, Kourou French Guiana – 23/10/2017 – ESA
* INT. Galileo initial services announcement – Brussels, Belgium – EC – 15/12/2016
* COMPILATION. Initial services illustration– 2016 – ESA
* EXT. ARIANE 5 LAUNCH – Europe Spaceport, Kourou French Guiana – 12/12/2017 – ESA
* ANIMATIONS. Galileo constellation, Galileo sat in orbit – 2017 –ESA

10:02:46:05* ANIMATION. Copernicus Graphic – 2017 – ESA
* INT. GV`s Sentinel-2B in cleanroom
* ANIMATION. Sentinel-2 in orbit – unknown date – ESA
* EXT. Rokot launch Plesetsk of Sentinel-5P – 13/10/2017 - ESA
* ANIMATION. Sentinel-5P in orbit – 2017 – ESA
* ANIMATION. Globe and tracegasses – 2017 –ESA
* EXT. GV`s factories and their expulsion – 2016 – EURONEWS
* ANIMATION. Globe with Ozone concentrations – 2017 – ESA
* INT. GISAT offices, -people working and maps – Prague, Czech Republic – 13/02/2017 - ESA
* EXT. Ondřej Bačina Farm – views, machines, people – Czech Republic – 13/02/2017 – ESA
 | January 2017 also saw the **first launch** of a **SmallGEO** satellite. SmallGEO is a new telecommunications platform for a wide range of payloads and missions. This first flight was based on a **Public-Private Partnership** between ESA, industry partner OHB and an operator, Hispasat. SmallGEO offers a framework to develop cutting edge technologies while also answering to telecom market demands.With each passing year the Galileo programme moves forward. Galileo Initial services have been operational for a year and independent measurements show that the European civilian satellite navigation system is now the **best in the world**. In December an Ariane 5 launched **4 more Galileo satellites** to further expand the constellation. Today it is comprised of 22 satellites and **should be completed in 2018**.For Earth Observation and the Europe's **Copernicus** programme, **2 more Sentinel satellites** were launched in 2017. In March, **Sentinel-2B** was sent aboard a Vega from Kourou. Paired up with its twin brother, Sentinel-2A, the satellites are **monitoring  land cover, vegetation and water pollution** from space. In October **Sentinel-5P** was launched on a Rokot from Plesetsk. It is now **monitoring air pollution in our atmosphere**. providing information about tracegases such as methane, carbon monoxide, aerosols and ozone. These gasses affect the air we breathe and are part of the ozone layer which shields our planet. The Copernicus data is freely available to the scientific community and can be used for a large portfolio of applications.  |
| 10:03:40:01* ANIMATION. LISA Pathfinder – Unknown date – ESA
* ANIMATION. Illustration of Gravitational Wave and universe – Unknown date –ESA

10:04:01:08* ANIMATION. Cassini-Huygens Spacecraft fly by Saturn. – unknown date –NASA
* EXT. GV`s of Saturn – unknown date – ESA
* ANIMATION. Cassini-Huygens Huygens landing on Titan – unknown date –NASA
* ANIMATION. Cassini fly by and dive through saturns rings – 2017 - NASA

10:04:35:15* EXT. Sputnik launc and animation – 4/10/1957 - Soviet Space Archive
* EXT. Yuri Gagarin Launch- 12/04/1961 – Soviet Space Archive

10:04:50:20* EXT. Drone footage of ELA 4 – Kourou, French Guiana – 2017 – ESA
* INT. testing of Ariane 6 Vince Booster – 2017 – ArianeGroup Holding
* ANIMATION. Ariane 6 Launch – 2016 -ESA
 | 2017 was an important year as well for ESA’s scientific missions as it saw the end of **Lisa Pathfinder.** This mission demonstrated the technology needed to detect **gravitational waves**. This offers a fresh perspective on astronomy with **a new way of looking at our universe.**Another science mission that came to an end was **Cassini Huygens**, an ESA-NASA mission launched in 1997. Cassini **explored Saturn and its moons during 13 years** collecting an impressive set of scientific data with fantastic images of Saturn and its surroundings. With Huygens ESA made the first landing of a probe on Titan, one of Saturn’s moons. In September Cassini made its grand finale diving through Saturns rings to be vaporised in the planet’s atmosphere.2017 marked also **the 60th anniversary** of the **Sputnik** launch. This soviet spacecraft was the first satellite in orbit and signified the start of the space age. A venture which is far from over! For **ESA the future is being prepared** in **Kourou**. The launch pad for ESA’s new **Ariane 6** launcher is well advanced. Meanwhile tests are ongoing in Europe with a launch targeted for July 2020. Another leap for ESA to come. |
| **10:05:08:10** | **B-ROLL** |
| * EXT. ISS from Space – unknown date – NASA
* EXT. T.Pesquet EVA – 2017 – ESA
* INT. T.Pesquet inside ISS – 2017 –ESA
 | **Thomas Pesquet****Aboard ISS and EVA Footage** |
| 10:07:16:13* EXT. Sputnik launc and animation – 4/10/1957 - Soviet Space Archive
* EXT. Yuri Gagarin Launch- 12/04/1961 – Soviet Space Archive
 | **Sputnik Launch and Yuri Gagarin** |
| 10:08:29:08* ANIMATION. Orion Capsule an ESM – 2016 – NASA
 | **Animation Orion Capsule and Service Module ESM** |
| 10:10:13:11* ANIMATION. Cassini-Huygens– 2017 –NASA
 | **Animation Cassini-Huygens** |
| 10:12:44:04* ANIMATION. SmallGEO – 2016 –ESA
 | **Animation SmallGEO** |
| **10:13:40:07** | **END** |