**ESA’s 20 years on the ISS [RH final]**

This month marks the 20th anniversary of the first European mission to the International Space Station (ISS).

On 19 April 2001, Italian ESA Astronaut, Umberto Guidoni launched to the ISS on space shuttle Endeavour for a mission that included installing the Canadarm2 robotic arm and transferring scientific equipment and experiments.

Since then, there have been a further 26 European missions to the ISS and three ESA astronauts have served as commander. ESA astronauts Thomas Pesquet and Matthias Maurer will both launch to the ISS this year.

The ISS has hosted more than 3000 scientific experiments and is providing vital insights on the effects of long duration spaceflight for future human missions to the Moon and Mars.

A-roll includes newly-digitised archive of Umberto’s flight and new interviews with astronaut and head of the European Astronaut Centre, Frank De Winne (via zoom), and Nicole Buckley, SciSpace Team leader, ESA (in-person filming at ESTEC).

B-roll includes additional soundbites (also in French and Dutch), further archive and new footage of ESA astronauts Thomas Pesquet and Matthias Maurer during training for their forthcoming missions.

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| **Picture** | **Script** |
| 10:00:06 ISS exterior GVs | The International Space Station – ISS – humanity’s outpost 400 kilometres above the Earth. |
| 10:00:16 Inside ISS astronauts living and working | A partnership between the US, Russia, Europe, Japan and Canada…for twenty years, there have always been astronauts and cosmonauts living and working on board.  |
| 10:00:27 STS-100 highlights10:00:56 ISS exteriors from 2001 | [Upsound of Umberto intro]On the 19th of April 2001, Italian ESA Astronaut, Umberto Guidoni [PRON: GEED-OWN-EE] became the first European astronaut to visit the ISS.[Shuttle launch and interior]His mission included helping to install the Canadian robotic arm and transferring scientific equipment and experiments.Back then, the ISS consisted of just a few modules. |
| 10:01:02 Move through interior shots into Cupola views  | Today, the station is more than a hundred metres long and the area for living and working is larger than a six-bedroom house…with two bathrooms, a gym, and even a bay window with an unsurpassed view.In 2009, Frank De Winne became the first European commander of the ISS… |
| 10:01:19 Frank De Winne Head of ESA Astronaut Centre | *We have learnt an awful lot in these 20 years of the International Space Station, how to build the biggest infrastructure, technological infrastructure, in space that has ever been built, how to do science, how to do operations sustainably for 20 years with humans in space.*  |
| 10:01:40 ESA astronauts doing experiments on the ISS10:02:00 ESA astronauts doing medical experiments etc | Over that time, this microgravity laboratory has hosted more than 3000 scientific experiments.With benefits to Earth and future space exploration, research ranges from studies in materials science and pharmaceuticals, to investigations of plant growth and even asteroid mining.With most astronauts spending six months on the station, scientists also have a better understanding of how humans adjust physically to microgravity, and mentally to the challenges of isolation far away from home.   |
| 10:02:13 Nicole Buckley, SciSpace Team leader, ESA | *The International Space Station provides an environment where scientists can continually study how humans adapt to space. We have engineers and scientists working together to understand how materials adapt in the space environment. And all this information is going to be critical. If you're going to be very far from Earth without any chance of bringing things with you. And you have to be completely self-sufficient on a mission and perhaps future habitation on other planets far away from Earth.* |
| 10:02:46 Gateway and lunar animations[To find, search ‘gateway’ in ESA videos for professionals]Moon surface animation from above into Mars 10:03:01 [Mars material from:<https://mars.nasa.gov/resources/25583/nasas-perseverance-mars-rover-landing-in-most-difficult-site-ever-attempted/>] | ESA is working with its international partners on Gateway – a new space station in orbit above the Moon. Future plans for human exploration include landing astronauts on the lunar surface and establishing a habitat…before eventually following our robot pioneers on a crewed mission to Mars. All these ambitions build on the knowledge acquired over more than 20 years of building and operating the ISS. |
| 10:03:13 Frank De Winne Head of ESA Astronaut Centre | *And I think the best is yet to come, because as of now, we will have permanently seven people on board of the International Space Station. We will have much more crew time available to do science and technology. A lot of companies now are interested in flying their own research to the ISS.*  |
| 10:03:33 Matthias and Thomas training10:03:46 Thomas spacewalk | Almost exactly 20 years after Umberto’s mission – ESA astronaut Thomas Pesquet is preparing to launch to the ISS. He will be followed later this year by Matthias Maurer [PRON: MAT-EE-AS MOW-RER]. These missions will add to our knowledge of science and long duration spaceflight…as humans venture further from Earth. |

**B-ROLL**

**10:04:03:19**

**Frank De Winne, Head of ESA Astronaut Centre**

Soundbites in English

*It's important for ESA as a partner that we are not only recognised for our technological achievements, for our scientific achievements, but also for our operational capabilities, because, of course, going forward to exploration beyond low Earth orbit, a lot will also depend on the operations that we are able to conduct. And of course, being able to take the commandership of the International Space Station is merely a symbol of all the technological and all the operational achievements that we are able to accomplish. So it's really a tribute to the entire operations team that I could take this responsibility in 2009, but that this now becomes more and more a regular event, that ESA astronauts can also take command of the International Space Station.*

*If in the future we want to venture out further beyond LEO and eventually do a trip to Mars, we will need to learn to operate for a long time in space. The ISS has contributed significantly to that. We have now 20 years of sustainable human exploration in low earth orbit. We have had several missions of one year and more are to come. But we need to do more, of course. In the future we will need to be more autonomous. The ISS is still very dependent on ground control and on all the people working on the ground. When we fly to Mars the crew will need to be more independent. And also here, ISS can play a role because we can start simulating that on board of a real spacecraft.*

*The space station has been an incredible technological achievement. But more than just the technological achievement, is the achievement of all the people that work in this programme who continuously reinvent the programme itself. When I first flew in 2002, there was no talking about commercialisation of the space station, about commercial crew transportation, SpaceX did not even exist. And yet we are here 20 years later and we are living in a total different world of operations and utilisation of the International Space Station. And I think the best is yet to come, because as of now, we will have permanently seven people on board of the International Space Station. We will have much more crew time available to do science and technology. A lot of companies now are interested and fly their own research to the ISS.*

**10:07:21:07**
**Frank De Winne, Head of ESA Astronaut Centre**

Soundbites in Dutch

**10:09:01:07**
**Frank De Winne, Head of ESA Astronaut Centre**

Soundbite in French

**10:09:49:13**
**Nicole Buckley, SciSpace Team leader, ESA**

Additional Soundbites in English

*When we look at the science that's done in the space station, it's benefited us on Earth in a lot of different ways. And I think one is a very basic way and that it's given the opportunity to science as scientists are throughout the world, to think about science in a different way when we think about life as we know it. One fundamental property of all life has been gravity. And one of the first things scientists do is they think, oh, what happens if we take gravity away? And on the International Space Station, we're allowed to do experiments that study just that for long periods of time so we can study the effect of gravity on things, on people, and then sometimes we can combine that with the effects of radiation. We can also look at when we think about future space missions, we know that it's going to take a while to get to Mars and it's going to take some time to get further. So the International Space Station has given us an opportunity to see what happens when humans are in a space environment or in a microgravity environment where they're in freefall for long periods of time. And this is really important. So we understand the effect of the lack of gravity on humans. We also understand what it's like to be confined in a small environment for long periods of time. And we're starting to understand just the kind of technology we need in order to create safe travel for humans and also to address some of the challenges of robotic missions far from Earth.*

*For example, there are some small points that they actually can lead to great consequences in space. One issue that some European scientists worked on is that, first of all, we know that astronauts, after they've been in space for a long time, it's like their sense of taste changes a bit. And the longer they're up there, the more they crave spicier foods or saltier foods. So they start adding more salt to their meals. Well, one of the things that happens as they increase their salt ingestion is that it changes the PH of their blood. It makes it a little bit more acid, not a lot, but just a little bit. And so the body adapts to this acidity by trying to raise the PH just a little bit by providing calcium that comes from our bones. So they actually have increased disolving of the bones to get that calcium to bring that PH up, but at the same time, we're also seeing that because they don't use their bones very much, because in a microgravity environment, you don't have to fight gravity to stand up straight, that they're already experiencing some bone loss. So we're starting to see that. Because of this, we're starting to see that this change of taste results in an increase in salt consumption that can actually speed the bone loss in space. So here we're seeing two different effects and we know here on Earth. We now know that perhaps the salt increased salt consumption isn't just a cardiovascular effect, but it could have a perhaps contribute to bone loss and osteoporosis in humans here on Earth. And we didn't really see that effect until we went to space.*

*The International Space Station provides a platform that we have humans that can act as subjects, but also operators of science. And it's also the only platform that we've had where scientists have the opportunity to do an experiment, see the results and come back and prepare another experiment, and if something doesn't work or if there's they have a second opportunity and, unfortunately, we don't see that with other missions.*

**10:13:50:10**
**Nicole Buckley, SciSpace Team leader, ESA**

Soundbites in French

**10:18:03:16**
**Thomas Pesquet and Shane Kimbrough, EVA Jan 2017**

**10:18:47:06**
**ISS Exteriors**

**10:21:00:20**
**STS-100 mission April 2001**

Italian ESA Astronaut, Umberto Guidoni and launch, cockpit, ISS at the time

**10:23:49:15**
**ISS interiors**

Recent footage from inside the ISS showing science experiments and astronauts moving, exercising, inside Cupola

**10:26:06:13**
**Medical tests and monitoring inside the ISS**

**10:26:27:09**
**Thomas Pesquet and Matthias Maurer during training at EAC, Germany**

Recent training prior to Thomas’ April 2021 launch

**10:27:52:11**

**END B-ROLL**

**10:28:02:04**

**END**