**Envisat 20-year anniversary**

**Twenty years ago, on the first of March 2002, ESA launched a new satellite to monitor our planet from space: Envisat. This research mission, which carried 10 instruments, would become a beacon for the development of future Earth observation satellites. In orbit for 10 years, double its projected lifespan, this flagship mission provided science with a wealth of data on the health of our planet and climate change – a treasure trove of data that is still used today. Thanks to the Heritage Space Programme, ESA ensures these precious data are preserved and made accessible for future generations.**

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| Image | Text |
| 10:00:00:00 | **TITLE:** |
| 10:00:08:00  Splitscreen:   * SMOS Animation – unknown date [credit: ESA] / Sentinel-1 Animation – unknown date [credit: ESA/ATG medialab]/ Sentinel-6 animation – unknown date [credit: ESA/ATG medialab] / Senitnel-5P Animation – unknown [credit: ESA/ATG medialab] /   Sentinel-2 animation – unknown [credit: ESA/ATG medialab]/  Envisat animation – unknown date [credit: ESA] | **For ESA’s Earth Observation Programmes, the first of March 2022 is a special day as it marks the 20th anniversary of the launch of one of the most important European Earth Observation satellites ever: Envisat.** |
| 10:00:21:11   * Soundbites Simonetta Cheli, Director of Earth Observation, ESA – ESRIN, Frascati, Italy - 8/02/2022 [credit: ESA] | **Simonetta Cheli: Director Earth Observation, ESA:**  Envisat is the father of all the missions we have, it had such an important legacy in Earth observation, and we still have it today as a reference model. |
| 10:00:29:16   * ASAR development, Design – Matra Marconi Space UK – unknown date [credit: ESA] – 2shots * ERS in cleanroom – ESTEC, Noordwijk, The Netherlands– unknown date [credit: ESA] * Envisat in cleanroom – unknown date [credit: ESA] * Envisat in cleanroom – ESTEC, Noordwijk, The Netherlands– 1997 [credit: ESA]- 2shots * Envisat tilt timelapse – ESTEC, Noordwijk, The Netherlands– 1997 [credit: ESA]- 2shots * Envisat Structure Model rotating shots – ESTEC, Noordwijk, The Netherlands– 1997 [credit: ESA] | **Envisat was developed during the 90’s as a research mission and succeeded ESA’s ERS missions. It was built to the monitor the health of our planet using a range of different instruments. In the spirit of the day, ESA chose to develop one large and versatile satellite with many different capabilities instead of a series of smaller specialised craft. And it showed… Envisat, which was approximately the size of a bus and weighed over 8 tonnes, is, to this day, the biggest Earth observation satellite ever launched.** |
| 10:01:04:16   * Soundbites Henri Laur, Former Envisat Mission Manager, ESA– ESRIN, Frascati, Italy - 10/02/2022 [credit: ESA] * Ariane 5 assembly building – Europe Spaceport, Kourou, French-Guiana – unknown date [credit: ESA/CNES] | **Henri Laur, Former Envisat Mission Manager, ESA:**  Envisat, was by far and still by far the biggest Earth Observation satellite that we have launcher. So at that time we needed basically the biggest launcher and it was already in Ariane 5. |
| 10:01:14:14   * Envisat launch Ariane 5 – Europe Spaceport, Kourou, French-Guiana – 01/03/2022 [credit: ESA/CNES] * ASAR, Model array – Matra Marconi Space UK – unknown date [credit: ESA] – * Sciamachy assembly and testing – Dornier GmbH, Germany – unknown date [credit: ESA] – 2shots * Envisat Central electronics sub-Assembly testing – Alenia Spazio S.p.A., Italy – unknown date [credit: ESA] * Platform Equipment Bay Assembly and testing – Dornier GmbH, Germany – unknown date [credit: ESA] * Envisat ASAR animation – unknown date [credit: ESA] * Envisat animation – unknown date [credit: ESA] | **Envisat carried 10 different innovative instruments to provide measurements of our atmosphere, land, oceans and ice. These instruments included a radar, an altimeter and several optical and infrared instruments. Whether they were totally novel or improved versions of earlier instruments, all were at the cutting edge of technology – revealing new insights our home planet and how it is changing.** |
| 10:01:41:22   * Soundbites Henri Laur, Former Envisat Mission Manager, ESA– ESRIN, Frascati, Italy - 10/02/2022 [credit: ESA] * Envisat image of Larsen C – 02/03/2007 [credit: ESA [CC BY-SA 3.0 IGO](http://www.esa.int/spaceinvideos/Terms_and_Conditions)] * Envisat image of Larsen C – 25/04/2007 [credit: ESA] | **Henri Laur, Former Envisat Mission Manager, ESA:**  They were all surprising. You see, we have seen so much, with Envisat that I barely remember. But already within the commission commissioning phase, for example, using the SAR imaging instrument, which can see through clouds or during the night, we saw an extra ordinary event. We saw the break-up of an ice-shelf in Antarctica. Its name was Larsen C, and that was extraordinary to be able to see that which was difficult to see before with those... particular optical because it's often cloudy there or night. But we could see that, I think it was the second month of the commission phase and show that to the world. |
| 10:02:17:09   * Envisat Structure Model rotating shots – ESTEC, Noordwijk, The Netherlands– 1997 [credit: ESA] * Envisat animation – unknown date [credit: ESA] 2shots * Animation rotating globe showing Envisat data visualisation – unknown date [credit: ESA] * Animation of atmospheric methane from the Sciamachy instrument on Envisat (2002–12) and the TANSO instrument on Japan’s GOSAT (2009–12) – 04/09/2013 [credit: University Bremen/ESA] * GV Envisat assembly – unknown date [credit: ESA] | **While Envisat was planned to be in orbit for just 5 years, the satellite proved to be extremely robust and it surpassed its expected lifetime by a further 5 years. Doubling its intended life, the mission ended in April 2012 - but its data continue to be used today for research into how our world has changed. Envisat has left an incredible legacy – not only thanks to its science data but also thanks to its technological heritage.** |
| 10:02:48:11   * Soundbites Simonetta Cheli, Director of Earth Observation, ESA – ESRIN, Frascati, Italy - 8/02/2022 [credit: ESA] | **Simonetta Cheli: Director Earth Observation, ESA:**  The Sentinels today are very much operational missions, with data flows feeding the users on a continuous basis for a really long period of time. But they're based on the experience, the expertise and the technology innovation that was actually on board of Envisat. And this is very important for all of us because the legacy of such an important mission is today in everything we do in terms of Earth observation. [23.7s] |
| 10:03:12:24  Splitscreen   * Sentinel-1 Animation – unknown date [credit: ESA/ATG medialab] / Envisat animation – unknown date [credit: ESA] * Senitnel-5P Animation – unknown [credit: ESA/ATG medialab]   OVERLAY   * Envisat animation – unknown date [credit: ESA]**/**   Overview of global carbon dioxide levels from 2003 to 2015 - 13/05/2016- [credit: IUP, Univ. Bremen/SRON/Univ. Leicester/ESA/DLR/JAXA/NIES]**/** Nitrogen dioxide over Europe – 08/10/2004[credit:  University of Heidelberg]**/**  Meris Plankton blooms – 26/08/2011 [credit:  ESA]   * Envisat animation – unknown date [credit: ESA]- 2 shots * Inside Danish Meteorological institute – Copenhagen, Denmark – 31/03/2016 [credit: ESA]- 2 shots * Icebreaker event in Antarctica animation – 05/03/2010 credit: ESA] * INT. VanderSat Offices, Haarlem, The Netherlands – June 2020 – [credit: ESA]- 2 shots * Envisat Radar\_image – 02/05/2010 [credit: ESA, CC BY-SA 3.0 IGO] | **Today, even some of the Sentinel missions, which are key to the EU’s Copernicus programme, carry instruments that are based on those that flew on Envisat.**  **Besides Envisat’s technological heritage, the mission left another very important legacy by way of the wealth of data it accumulated over its 10-year life. The satellite circled Earth over 50,000 times, delivering vast quantities of data and images. This treasure trove of data is still being used by a growing science community, a community that Envisat mission helped create. Today, Envisat still yields new science, helping us to understand long-term changes and the effects of climate change.**  **Importantly, Envisat paved the way for earth observation missions and data to be used operationally – improving daily life, by for example detecting oil spills.** |
| 10:04:15:10   * Soundbites Simonetta Cheli, Director of Earth Observation, ESA – ESRIN, Frascati, Italy - 8/02/2022 [credit: ESA] | **Simonetta Cheli: Director Earth Observation, ESA:**  I think that what is very important is that ESA continues to work on innovation, on technology, on advanced missions, in terms of testing new technologies in Earth observation, this is really in the remit of what we do. And also to improve the way to promote infrastructures, including the idea that digital technologies that can help you use the big volumes of data that we have available and make those accessible to the users. That's also part of what we want to do with a green future accelerator with a digital twin of the Earth, where we will integrate big volumes of data into high computing capabilities and make those available to support not just a monitoring of the state of the art of our planet, but also prediction modelling on climate change and on natural disasters. |
| 10:05:03:18   * Earthview – 2021 [credit: ESA] * Artist impression, CIRM [credit: Thales Alenia Space] * Artist impression, Cristal[credit: airbus Defense & Space] * Artist impression, ROSE-L [credit: Thales Alenia Space] * the-flooding-water-closed-the-chaudiere-bridge-and-set-records-for-water-levels-in--SBV-334539463-HD [credit: Storyblocks] * brush-fire-burning-on-the-savanna-SBV-300733322-HD [credit: Storyblocks] * Aerial. field near Haarlem, The Netherlands – June 2020 [credit:ESA] * Artist impression, FLEX [credit: Thales Alenia Space] * Artist impression, Biomass[credit: airbus Defense & Space] * Artist impression, EarthCARE[credit:ESA] * Envisat LEAF to Hydra – ESTEC, Noorwijk, The Netherlands – unknown date [credit:ESA] * Comparing surface deformation data -08/06/2015 [credit: Contains Copernicus data (2015)/ESA/IREA-CNR, [CC BY-SA 3.0 IGO](http://www.esa.int/spaceinvideos/Terms_and_Conditions)] * Envisat animation – unknown date [credit: ESA]   Music: The Supervisor.com   * CCAF Upbeat Corporate Inspire A.wav * CCCA Designed To Inspire B.wav | **Observing Earth from space is now more important than ever and ESA shows its ambitions to further upgraded space-enabled capabilities for a Green Future and for Rapid and Resilient crisis response. ESA continues to monitor our planet, building satellites to deliver scientific and operational data for the benefit of society. Envisat was a precursor to ESA’s world-class position as a provider of Earth observation data, leaving behind an impressive legacy and time series of data that will still benefit generations to come.** |
| **10:05:44:05** | **ESA OUTRO** |
| **10:05:56:13** | **END of A-roll** |
| **BR001**   * Soundbites Simonetta Cheli, Director of Earth Observation, ESA – ESRIN, Frascati, Italy - 8/02/2022 [credit: ESA] | **Soundbites Simonetta Cheli, Director of Earth Observation, ESA – ESRIN, Frascati, Italy - 8/02/2022 - ENGLISH**  **Simonetta Cheli** [00:00:06] [00:00:06]Envisat's legacy is enormous, if we think that it was launched 20 years ago today, the Sentinels, there are eight up and running are based a lot on the heritage of Envisat. In fact, if you think Sentinel-1 with the radar instrument on board is based on the experience of Envisat. Sentinel-3 the same and also Sentinel-5P, which looks at the quality of the air, is based on instruments which are actually on board of mission Envisat. [24.6s]  **Simonetta Cheli** [00:00:34] It continues a lot today, I would say, like Sentinel Zero, because now you have a whole family of sentinels, which are based on a research mission. Envisat was a research mission and as many research missions was supposed to end, whereas it didn't end, it did give a legacy in terms of preparing for future operational missions like those in the context of the Copernicus family. [00:00:57]The Sentinels today are very much operational missions, with data flows feeding the users on a continuous basis for a really long period of time. But they're based on the experience, the expertise and the technology innovation that was actually on board of Envisat. And this is very important for all of us because the legacy of such an important mission is today in everything we do in terms of Earth observation. [23.7s]  **Simonetta Cheli** [00:01:24] [00:01:24]Envisat was after year one and year two an important mission because it had a variety of instruments. It was looking at different elements related to the environment and the state of our planet. It was looking, in fact, that sea level rise, was looking a forest, land monitoring, agriculture. And in that respect, it's a mission that has contributed a lot to supporting the development of what we call the essential climate variables. Those variables that are in the context of the United Framework Convention on Climate Change, essential parameters of information that we need to have, to know what is the state of our environment. So Envisat and the heritage that Envisat has given us, which is still available in terms of data in the archives, is contributing and complementing the data available today to those climate variables. [48.0s]  **Simonetta Cheli** [00:02:16] ESA's ambition is to have new initiatives of a long term in terms of time. Of many partners, involvement of big relevance and beyond just the space, purely space domain so involving actors from different sources, involving industry, scientists, institutions that can support priorities which are political priorities also of Europe. This is the case of the Green Future accelerator, whereby the agency is trying to promote an initiative which involves different axes from the user community, the environmental actors, the industry, everybody that is supposed to implement the objectives of the Green Deal and also the objective of decarbonisation of Europe until 2050. So in the Green Future Accelerator, you have a data component, you have an infrastructure component, you have an innovation technology component, but everybody has to work together on a new governance scheme that is still to be set in place. But putting all resources only on the Earth observation side, what we do have today is the biggest wealth of data in Europe.  **Simonetta Cheli** [00:03:24] Envisat was a way to engage the user community. On one side, we had the scientist using the data from the Envisat mission, but on the other side, we also developed many, years many, many projects with real users who were integrating those remote sensing data coming from the Envisat Mission and other missions of third parties into what they needed: products, services that were tailored to their needs. So Envisat was not only a precursor in terms of a research mission, but also helped to create a real user community and get them aware of the potential of using the Earth observation data for supporting everybody's needs and requirements.  **Simonetta Cheli** [00:04:06] I think that what is very important is that ESA continues to work on innovation, on technology, on advanced missions, in terms of testing new technologies in Earth observation, this is really in the remit of what we do. And also to improve the way to promote infrastructures, including the idea that digital technologies that can help you use the big volumes of data that we have available and make those accessible to the users. That's also part of what we want to do with a green future accelerator with a digital twin of the Earth, where we will integrate big volumes of data into high computing capabilities and make those available to support not just a monitoring of the state of the art of our planet, but also prediction modelling on climate change and on natural disasters.  **Simonetta Cheli** [00:04:59] I'm convinced that we wouldn't be in Earth observation today in general in Europe, but worldwide if we didn't have Envisat.  **Simonetta Cheli** [00:05:09] I was part of the team supporting theEnvisat launch, I remember it was in the middle of the night because I was not in Kourou, but was here in ESRIN near the centre of Earth observation of ESA. We organised the launch event, it was three in the morning and the excitement was unbelievable. Many years of work going into that few minutes of lift-off, with a lot of risk associated to that because a big satellite over 24 metres, many instruments on board, a lot of investments. And we were so happy, the joy, the enthusiasm and also the team spirit because we were connected to ESOC, which was the Operation Control Centre. We were connected to Kourou. We were connected to all the scientists in Europe and the industry that had worked in building that satellite. And that was an incredible feeling, which I still remember.  **Simonetta Cheli** [00:06:02] Climate models need very long term datasets, so normally you speak about 30 years datasets and you need data of similar type from similar instruments. So Envisat started all that because with many different instruments looking at many different variables. Sea level rise, humidity of the terrain, coverage in terms of forest coverage, quality of the air, it did all that and it's something that really helped in developing the climate variables, the integration of those data and also the awareness of the benefits that those data could give much beyond the space community and much beyond our scientific community, but to the whole people working in the climate sector.  **Simonetta Cheli** [00:06:48] Envisat is the father of all the missions we have, it had such an important legacy in Earth observation, and we still have it today as a reference model. |
| **BR002**   * Soundbites Simonetta Cheli, Director of Earth Observation, ESA – ESRIN, Frascati, Italy - 8/02/2022 [credit: ESA] | **Soundbites Simonetta Cheli, Director of Earth Observation, ESA – ESRIN, Frascati, Italy - 8/02/2022 – FRENCH**   * **Simonetta Cheli** [00:05:00]: On the Heritage of Envisat * **Simonetta Cheli** [00:41:17]: Envisat contributions to long term datasets and observing climate variables |
| **BR003**   * Soundbites Simonetta Cheli, Director of Earth Observation, ESA – ESRIN, Frascati, Italy - 8/02/2022 [credit: ESA] | **Soundbites Simonetta Cheli, Director of Earth Observation, ESA – ESRIN, Frascati, Italy - 8/02/2022 – ITALIAN**   * **Simonetta Cheli** [00:05:00]: On the Heritage of Envisat * **Simonetta Cheli** [00:30:04]: Envisat contributions to long term datasets and observing climate variables |
| **BR004**   * Soundbites Henri Laur, Former Envisat Mission Manager, ESA– ESRIN, Frascati, Italy - 10/02/2022 [credit: ESA] | **Soundbites Henri Laur, Former Envisat Mission Manager, ESA– ESRIN, Frascati, Italy - 10/02/2022 – ENGLISH**  **Henri Laur** [00:00:05] I am Henru Laur. I am currently the head of the division of Mission Management and Product Quality in Earth Observation. And 20 years ago, I was the Envisat mission manager.  **Henri Laur** [00:00:20] I was responsible of the mission once it would be in operation, meaning that the project manager is the responsibility of the mission during the development phase and basically he's in charge of the development of the satellite, the launch itself and the first months of the satellite life, which we call the commissioning phase and at the end of the commissioning phase, the responsibility of the mission is transferred from the project manager to the mission manager, so myself. For Envisat at that time, the project manager was a Jacques-Louis who did a lot of activities at ESA.  **Henri Laur** [00:01:03] Envisat was totally the intent. It depends on what we talk about, if we talk about hardware the satellite was certainly the biggest Earth observation satellite that we have ever developed in Europe, not only at ESA, in Europe. Now, if we talk on the other aspect, which is the data, the user community it has been instrumental to further developed many user communities, not only in science, but in many operational pre-operations. Envisat has been a big step forward, both in terms of hardware in space and ground with the user community, which have really developed during the time of Envisat.  **Henri Laur** [00:01:45] I would say the origin of Envisat is in the 80s, and it was somewhat following the first the grandfather, the ERS-1 and ERS-2 Satellite, which were already satellite embarking few instruments and Envisat was a step forward in making even bigger, bigger satellite with more instruments on board. So at that time, it was not the logic of today to have the smallest possible satellite. But the biggest one of having many instruments onboard, which could work in synergy. And that was the logic of the 80s. And then in the 90s, we have developed that logic. So with all the difficulties in developing a very large and big satellite up to the launch 20 years ago in 2002.  **Henri Laur** [00:02:37] On satellite development there were certainly many challenges because we had really to have a satellite with a nine to 10 instrument on board, make them all work. Uh, that's not particularly easy. It's also the volume of the satellite and the weight of the satellite was an issue. It was eight tons or even little bit more where it was 8.2 tonnes so the mass was an issue. And all what was needed to run the satellite, the power and so on. And then on ground. We have many issues as well because on ground we had to be able to control the satellite, but above all, manage all the data from all those instruments. Several were rather new instruments or be able to extract meaningful information from that instrument, those instruments. So there were challenges a little bit everywhere and obviously all of that was in a constrained budget. But I would say cost budget is also today the rule.  **Henri Laur** [00:03:37] Uh, so, uh, as I said, Envisat, was by far and still by far the biggest Earth Observation satellite that we have launcher. So at that time we needed basically the biggest launcher and it was already in Ariane 5. So the launch of Ariane 5 was well prepared. I have to say that, we were all nervous because the launch, the previous launch of Ariane 5 so the launch before Envisat was with another ESA satellite called Artemis, which was basically a I would say a data relay satellite, which, by the way, Envisat was supposed to use. And the launch of Artemis didn't go well. Basically, the Artemis was launched, but not at the right orbit injection and a lot of difficulties. So there were anomalies with Ariane 5 as far as I remember. So we had to wait that those anomalies were understood and corrected to resume the launch of Ariane 5 and that was with Envisat. But still there were no, they were really the stress was there because. By the fact that Envisat was embarking all earth observation hope for Europe. We were on that Ariane 5 which unfortunately an issue the launch before. So I was quite stressed during the night of the launch.  **Henri Laur** [00:05:11] So, Julie, the project manager is always at the launch place, Kourou obviously for Ariane 5, so part of the team was in Kourou. Another part of the team was at the satellite operations at ESOC in the Darmstadt, in Germany. But because ESRIN was really the place where the data will come and where the mission managers are located, I decided to stay at ESRIN. So for me that night, because it's a day launch, was an ESRIN night and I remember... really, a crowd attending that lounge here at ESRIN. A lot of people were interested and a lot of colleagues and the families and friends were there. So it was really a rooms full. And as I said, a lot of I would say stress, but it did go well, basically it did go well. I would say even very well because the satellite was injected at a perfect orbit, meaning that we are not to consume the onboard hydrogen to place Envisat at the right orbit. It was perfect, and the project manager was extremely happy, rightly because he knew that the hydrogen on board Envisat that would be an issue for the for the lifetime of the satellite. So it went very, very well in that launch.  **interviewer** [00:06:35] And how long was the lifetime supposed to be?  **Henri Laur** [00:06:38] The lifetime was supposed to be five years. Which still was a progress as the generation before the ERS, which was only three years, so Envisat was five years. And we did the double. We managed to operate Envisat for 10 years.  **Henri Laur** [00:06:55] It meant a lot. Really, it meant a lot because, uh, those data, if you want were already existing in a pretty binary way on the ice, it was a preliminary. But Envisat it was improving the measurement in many aspects larger swaths, more resolution. We were also having new instruments, so we are really bringing a lot of new data. And at the same time some continuation. So that was really the the first aspect. The other aspect is that at the same time, we have develop with the ESA colleagues here at ESRIN, a programme, I would say, of Envisat application, which we were already anticipating, what will we see in Copernicus. And we were calling that the GMES service element, which was an ESA programme, and those GMES service elements have really used, deeply Envisat data and ERS-data, but especially Envisat data, so to really create pre-operational services in Europe, which are now continued by the Copernicus services. So you see those two aspects, the satellite with plenty of data and at the same time, an application programme to develop the usage it, in particular with pre-operational services.  **Henri Laur** [00:08:17] Uh, we, uh, we had a new atmospheric chemistry instrument in particular, Sciamachi, which is a strange name, but it was really a powerful instrument where we measure for the first time the air pollution that now people are used to see with Sentinel-5 precursor. We were measuring other atmospheric chemistry elements or aspects with two other instruments called gomos and, mypas. Then we had basically instruments like the SAR instrument or altimeter as well, which were really improved versus the version on the ERS. The radar instrument, the radar imaging instrument, SAR instrument instrument radar imaging instrument on Envisat that was a much larger swaths could cover much more areas of the Earth. And therefore we had much more data for scientists and pre-operational applications. The same for the altimeter, radar altimeter. Then we had the new instrument called MERIS, which is optical, but having a very large swaths, uh, of if I remember well, 1500 kilometres, almost a daily coverage, that was also new. And the instrument measuring the sea surface temperature and land surface temperature called AATSR and improved verions again versus ERS. Those two instruments, MERIS and AATSR and also the altimeter are today, if you will continued even an improved way by Sentinel-3. The SAR instrument is continued by Sentinel-1. So all those instruments were either improved or new but for sure they are all babies, all of them.  **Henri Laur** [00:09:58] They were all surprising. You see, we have seen so much, with Envisat that I barely remember. But already within the commission commissioning phase, for example, using the SAR imaging instrument, which can see through clouds or during the night, we saw an extra ordinary event. We saw the break-up of an ice-shelf in Antarctica. Its name was Larsen C, and that was extraordinary to be able to see that which was difficult to see before with those... particular optical because it's often cloudy there or night. But we could see that, I think it was the second month of the commission phase and show that to the world. [36.6s] Still talking about the SAR instrument onboard Envisat, we, unfortunately I would say, the SAR instrument saw a major oil spill in 2002, at the end of 2002, off the coast of Spain. In Galicia was the Prestige tanker and in one image of Envisat, we had a perfect image of the whole spill, which was really impressive because it was the first time we see such gigantic oil spill arriving to the European coast in Spain. And that image went almost the day after on the front page of El Pais, basically the most famous Spanish newspaper. That has impressed a lot of people and actually that has helped the even, the creation of the European Maritime Safety Agency in Lisbon. That was when it was realised that the satellite data could be really extremely valuable to follow oil spills and also activities maritime.  **Henri Laur** [00:11:40] Ah yes more than ever, more than ever, because especially for long term studies, you need to make a comparison. I mean, generally in climate, the usual scale climate is 30 years. So you need to have a measurements of 30 years to start to make really conclusion on the evolution of the climate and Envisat arrived at a time where we started to have measurement in the 80s already with some satellite, US satellites or a few European satellites like Meteosat, then in 90s, the ERS but Envisat in 2000's, was already at the end of the first 30 years. Basically, it gave you know a perspective with the previous satellites on evolution and particularly the climate change evolution that was spectacular. We could see (unintelliggeble) with Envisat the diminution of the, I would say, the sea ice coverage, particularly in Arctic. We could also see if I talk about ice, the glaciers retreat compared to the images of the end of the 80s or the 90s. We could also, we could see as well the sea surface temperature slightly increasing as well, at global scale. The air pollution I've mentioned, they are what else we have seen also the effect, especially with MERIS, uh, phytoplankton measurement. Also the forest coverage, the tropical forest coverage where we could see also that diminuation, you know, again, not only the two years of research, but before, thanks to the measurements started with ERS in the early nineties or the American Landsat in the eighties. So Envisat arrived at the time to compete if you want the first 30 years of satellites and was really instrumental to demonstrate that the change was there, really even bigger than we are thinking at a global scale?  **Henri Laur** [00:13:39] It has obviously increased the demands, you know, more data, more users. This is spectacular. The demand does increase in terms of also reliability, uh, reliability means the data shall arrive, shall arrive fast and shall arrive with good quality, fast and good. That's clear. At the start, of earth observation the fast and good was less needed if you want. But now it's really needed. We have obviously the earth scientists who continue to use the data, but we have really many operational services relying on the data of our satellites. On Envisat, Sentinel, on the meteo satellites operated by EUMETSAT, behind we have public services which need those data and we see right now unfortunately, at 20 years after, we have unfortunately a major anomaly of one of our Sentinel Sentinel 1B. It just doesn't work since one month we have a problem in the in the power supply unit, meaning that we have part of the data of Sentinel-1, so part of the radar imaging data missing and we see everybody very anxious about that, because they are needed in particular, the sea-ice services. We are now in winter, we are in February 2022, so the Sea Ice service has a lot of activity. If I think the Baltic Sea or the polar seas, basically the Arctic polar seas, suddenly they have half of the data not available because of the Sentinel-B anomaly. And obviously they need that data, so we need to find a solution with them using data from other partners or using data from commercial missions. But that's when you see really how it is important when you have suddenly an anomaly and data not available. That's when you realise that you have a lot of users and today those users are very frustrated. Unfortunately.  **Henri Laur** [00:15:38] Now, I would like to say that obviously that Envisat is the result of a collective work. Within ESA, obviously, a lot of colleagues have spent their life on preparing Envisat or operating Envisat and to they still make sure that Envisat data arrives to the parcels still arrive to the user. It Is a collective work from industry obviously at delivered in space and on ground and is a major achievement for Europe. It is also a collective support from the member states of Europe. And they have always been supportive. Encouraged us to tackle all the possible issues that we have with our satellites in particular, Envisat, so Envisat has been certainly, I would say, a major. A major challenge for ESA and the major reward also for ESA and that's also for the staff, who have worked on it, it was tough and rewarding. |
| **BR005**   * Soundbites Henri Laur, Former Envisat Mission Manager, ESA– ESRIN, Frascati, Italy - 10/02/2022 [credit: ESA] | **Soundbites Henri Laur, Former Envisat Mission Manager, ESA– ESRIN, Frascati, Italy - 10/02/2022 – FRENCH**   * **Henri Laur** [00:00:05]: Name, title and role in the Envisat programme * **Henri Laur** [00:00:21]: The challenge of Envisat * **Henri Laur** [00:01:03]: The benefits and results of Envisat * **Henri Laur** [00:27:03]: Envisat as father of the Sentinel satellites |
| **BR006** | **Envisat at ESTEC**  **1997 - ESTEC, Noordwijk, The Netherlands**  **Credits: ESA** |
| **BR007** | **Envisat Animations**  **Unknown date**  **Credits: ESA** |
| **TC OUT 43’47”** | **END** |