**Sentinel-6: charting sea level**

**In an IAGB cleanroom in Ottobrunn, Germany, the latest Copernicus Sentinel satellite is ready for final testing. Designed and built to chart changing sea level, this is the first of two identical Sentinel-6 satellites that will orbit Earth consecutively, continuing the time series of sea level measurements that started with ocean topography missions in the 1990s. This mission is of vital importance as records show that global sea level has been rising since 1993 and that this rise is even accelerating. In light of climate change which will be the sole focus of the COP-25 United Nations Climate meeting in Madrid in December 2019, the safety of people and the wellbeing of our planet, we need to monitor the sea level very closely. Sentinel-6, which will take on this task, is a collaboration between ESA, the European Commission, EUMETSAT, NASA and NOAA. Its launch is planned for 2020 on a Falcon 9 from then Vandenberg air force base in Santa Barbara, California.**

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| 10:00:00 | ESA leader |
| 10:00:10 | Title: **Sentinel-6: charting sea level** |
| * INT. Sentinel-6 in cleanroom – IAGB – Ottobrunn, Germany – nov 2019 – ESA (2shots) * Animation. Copernicus satellites rotating around a globe – 2016 – ESA * EXT. View from ISS to Earth – unknown date – ESA * INT. Sentinel-6 in cleanroom – IAGB – Ottobrunn, Germany – nov 2019 – ESA (2shots) | **Ottobrunn, Germany. At this IAGB cleanroom Sentinel-6 is ready for final testing. After which the satellite will be shipped to the US for launch in 2020. Like all the Sentinel satellites, Sentinel-6 is part of the European Union’s Copernicus programme, which is the largest Earth observation programme in the world. But for this satellite, ESA and the EU have joined forces with a number of other partners such as EUMETSAT, NASA and NOAA, benefiting from each’s expertise.** |
| 10:00:45:08   * INT. Sentinel-6 cleanroom – IAGB – Ottobrunn, Germany – nov 2019 – ESA | **Josef Aschbacher – Director of Earth observation programmes, ESA**  So Sentinel-6 is a perfect example of how we are working together with various partners in Europe but also with the Unites States. Sentinel-6 has major contributions of the European Space Agency, the first satellite is funded to the majority by ESA member states but also by the European commission and also by EUMETSAT. And these three partners in Europea together with our respective member states are European cooperation on sentinel-6 in particular. Then we have a very strong cooperation with NASA. NASA is providing about the same amount of funding to the satellite as Europe. They are providing very important aspects, instruments to the satellite itself but they also offer a launcher on their, with their launcher capabilities in the united states. So really Sentinel-6 for me is a model case how we can work together successfully within Europe but also Europe with the united states of America. And I think this is really a success story. |
| 10:01:41:17   * Animation. Senintel-6 360° - unknown date – ESA * INT. Sentinel-6 in cleanroom – IAGB – Ottobrunn, Germany – nov 2019 – ESA (2shots) * EXT. Ocean view with sea level Graph- 2018 – ESA * Arial. NY city – unknown date – videoblocks * Arial. Rotterdam – unknown date – Videoblocks * Timelapse. Tokyo – unknown date – Videoblocks * Animation. Rotating globe with mean sea level rise – unknown date – ESA * EXT. Ocean view - The Azores – 2018 – ESA * Animation. Chart of ocean currents – unknown date – ESA * EXT. Sea-side – The Netherlands – aug 2019 – JW Van Hoof * EXT. Containership – unknown date – Videoblocks * Animation. Sentinel-6 Fly-by – now 2019 – ESA * Animation. Sentinel-3 scanning sea level height – 2017 - ESA | **The Sentinel-6 mission will consist of two identical satellites that are launched sequentially. They each carry a radar altimeter to provide high-precision measurements of ocean topography on a global scale. This information is essential to monitor changes in sea level, one of the key indicators of climate change. With many millions of people living in coastal regions around the world, sea-level rise is a very serious issue. Mapping up to 95 % of Earth’s oceans every 10 days, Sentinel-6 can also be used for operational oceanography. It will offer important information on ocean currents, winds speed and wave height, all of which are extremely important for maritime safety. To properly measure ocean topography and sea-level rise, Sentinel-6 will fly in a particular orbit and its data will be combined with information from other Sentinels to compliment its measurements.** |
| 10:02:44:06   * INT. Sentinel-6 cleanroom – IAGB – Ottobrunn, Germany – nov 2019 – ESA | **Pierrik Vuilleumier – SENTINEL-6 Project Manager, ESA**  Sentinel-6 is on what we call a reference orbit, which is designed to avoid, in particular, the effect of tides on the measurements. So, therefore the orbit is inclined over the equator. It is not the typical polar orbit and being inclined we cover about two-thirds of the complete globe every ten days. This also indicates that we need to have other satellites on the polar orbit to reach complete coverage of the earth and typically the sentinel-3 mission will together with sentinel-6 cover the whole earth. |
| 10:03:23:20   * INT. Sentinel-6 in cleanroom – IAGB – Ottobrunn, Germany – nov 2019 – ESA (2shots) * Chart sea level trends – unknown date – ESA * Animation. Ocean view with Historical missions – 2019 – esa / videoblocks * Animation. Ice Sheet changes – 2019 – ESA * Animation. Rotating globe and climate change initiative – unknown date -ESA * Images of Paris Climate conference – 2016 – unknown source | **At an orbit altitude of around 1300 km Sentinel-6’s lifespan is limited to five years. But by flying both satellites consecutively the mission will provide data for over a decade. It will continue the long-term datasets on sea-surface height that have been gathered since the 1990s by the French Topex-Poseidon and the Jason missions. It is crucial to continue these measurements for climate research as they offer insight into the causes and effects of sea-level rise. Benefiting citizens across the globe and providing information to face future challenges.** |
| 10:04:03:10   * INT. Sentinel-6 cleanroom – IAGB – Ottobrunn, Germany – nov 2019 – ESA | **Guido Levrini – Copernicus space segment programme manager, ESA**  Sentinel-6 and Copernicus in general benefits not only the citizens of Europe but the citizens all over the world. If you would ask what is the most important challenge for the next generation, for our children, probably the single most important political question we will have to face is how to live on a planet where the resources become scarce and becomes limited due to the population growth. And therefore monitoring the resources controlling the resources is not just an academic exercise but really something which is a political priority for everyone. Especially when you look further into the future, to the next generation. |
| 10:04:50:05   * EXT. Ocean view - The Azores – 2018 – ESA (2shots) * INT. Sentinel-6 in cleanroom – IAGB – Ottobrunn, Germany – nov 2019 – ESA (2shots) | **With water covering two-thirds of our planet, monitoring our oceans with Senitnel-6 from space is a necessity. The mission is also an important addition to the world’s largest and most integrated Earth observation programme, Copernicus, which plays a key role in taking the pulse of the planet we all call home.** |
| **10:05:20:12** | **B-roll** |
| * INT. Sentinel-6 cleanroom – IAGB – Ottobrunn, Germany – nov 2019 – ESA | **Josef Aschbacher – Director of Earth observation programmes, ESA – English**   * Role of Sentinel-6 within the Copernicus programme * Benefit of two consecutive satellites |
| 10:07:38:14   * INT. Sentinel-6 cleanroom – IAGB – Ottobrunn, Germany – nov 2019 – ESA | **Josef Aschbacher – Director of Earth observation programmes, ESA – German**   * Role of Sentinel-6 within the Copernicus programme * Cooperation between different partners for Sentinel-6 * Benefit of two consecutive satellites |
| 10:11:30:02   * INT. Sentinel-6 cleanroom – IAGB – Ottobrunn, Germany – nov 2019 – ESA | **Pierrik Vuilleumier – SENTINEL-6 / Jason-CS Project Manager, ESA - English**   * Objective of Sentinel-6 * Importance of measuring Sea Level * Sentinel-6 second objective – atmospheric measurements for weather forcast applications * Historical instruments but also a step forward * Consecutive sentinel-6 satellites |
| 10:15:24:13   * INT. Sentinel-6 cleanroom – IAGB – Ottobrunn, Germany – nov 2019 – ESA | **Pierrik Vuilleumier – SENTINEL-6 / Jason-CS Project Manager, ESA - French**   * Objective of Sentinel-6 * Sentinel-6 Launched with Falcon 9 * Importance of measuring Sea Level |
| 10:17:47:08   * INT. IAGB Lobby – IAGB – Ottobrunn, Germany – nov 2019 – ESA | **Guido Levrini – Copernicus space segment programme manager, ESA – English**   * Objective of Sentinel-6 * Sentinel-6 monitoring oceans for climate * Further development of the Copernicus programme * 6 new families of sentinels |
| 10:20:45:01   * INT. IAGB Lobby – IAGB – Ottobrunn, Germany – nov 2019 – ESA | **Guido Levrini – Copernicus space segment programme manager, ESA – Italian**   * Objective of Sentinel-6 * Copernicus measuring many and diverse parts of the earths system * Further development of the Copernicus programme   6 new families of sentinels |
| 10:22:58:20   * INT. Sentinel-6 cleanroom – IAGB – Ottobrunn, Germany – nov 2019 – ESA | **Sandra Kaufmann - Director of Earth Science Division, NASA – English**   * NASA Contributions to Sentinel-6 and cooperation * Partnership between ESA and NASA * Oceanographical cooperation from a historical perspective – importance of the mission * Why cooperation is needed |
| 10:25:26:14   * INT. IAGB Lobby – IAGB – Ottobrunn, Germany – nov 2019 – ESA | **Alain Ratier - Director-General, EUMETSAT - English**   * Role of EUMETSAT in Sentinel-6 programme * Objectives of Sentinel-6 * Ocean forecasting * Impact of oceans on meteorology and the role of Sentinel-6 * Sentinel-6 orbit and continuation of time-series |
| 10:29:04:02   * INT. IAGB Lobby – IAGB – Ottobrunn, Germany – nov 2019 – ESA | **Astrid Koch - Senior Expert Copernicus Programme,**  **European Commission – English**   * Copernicus programme and services * What Copernicus services are offered * Ocean service and Sentinel-6 * Expanding the Copernicus programme further in the future – such as a CO2 mission |
| 10:32:31:20   * INT. Sentinel-6 cleanroom – IAGB – Ottobrunn, Germany – nov 2019 – ESA | **GV’s of Sentinel-6 in IAGB cleanroom** |
| **10:39:18:01** | **ESA CREDITS** |
| **10:39:27:12** | **END** |