**Unlocking mysteries of the atmosphere**

An ESA satellite to measure Earth’s winds from space is being launched later this year. Aeolus [PRON: A-O-LUS] will - for the first time - be able to give scientists a global view of wind patterns from space, to improve weather and climate forecasts. Data from the satellite will complement information on the atmosphere being provided by Europe’s new Sentinel satellites.

A-roll contains Aeolus clean room and animation, soundbites from ESA’s Aeolus Project Scientist, footage of the DLR aircraft used to test the instrument, and interviews with DLR scientist and Head of the Ozone group at Deutscher Wetterdienst.

[A-ROLL]

**[Gen+Title Unlocking mysteries of the atmosphere @ 10:00:00]**

**[10:00:10]**

Aeolus being tested from:

<http://www.esa.int/esatv/Videos/2017/05/Aeolus_mastering_winds/Aeolus_deployment_of_solar_array_in_cleanroom>]

**[**Aeolus animation from: <http://www.esa.int/esatv/Videos/2017/05/Aeolus_mastering_winds/Aeolus_flyaround_animation_-_July_2017_-_ESA> ]

When the European Space Agency mission Aeolus launches later this year it will measure the Earth’s winds from space for the first time. Since little is known about the effect of wind on a global scale, these measurements will help scientists make better climate predictions as well as increase our understanding of the Earth’s atmosphere and weather.

**[10:00:31 Anne Grete Straume, Aeolus Project Scientist, ESA]**

*"At the moment we are limited, in that we don't have many wind measurements everywhere. This is actually one of the biggest challenges in forecasting today, is to get the wind right.”*

[Anemometer cutaway]

*"And that's where the satellite measurements come in, and this mission, which will provide wind measurements from the ground to far up in the atmosphere, all over the globe, to help the modellers do better.”*

**[10:00:54 Animation wind measurements]**

Once launched, the Aeolus satellite will measure winds in the lower part of the Earth’s atmosphere at 10 to 30,000 metres above our heads - a region which has so far produced little wind data.

**[10:01:07 Anne Grete Straume, Aeolus Project Scientist, ESA]**

“*What's very unique unique about this mission is actually that as soon as we have the data quality up and running and it’s good it will be injected into the weather forecasts. And people in all the European countries will see that back in an improved weather forecast.”*

**[10:01:24 DLR hangar set-up shots]**

There is only one instrument on the satellite - the light detection and ranging system, Lidar. It was developed at the German Aerospace Centre DLR and has been tested and calibrated on the aircraft.

**[10:01:37 Oliver Reitebuch, Lidar Scientist, German Aerospace Centre DLR]**

*"You can measure with Aeolus the wind profile globally. You can measure it in the tropics, where we don't have any wind observations today. You can measure it over the oceans. We don't have any radio sonde launches, balloon launches, over the oceans. And a wide part of the Earth are oceans. And you can measure it in Antarctica, in the Arctic, where all the climate changes is going on.”*

**[10:02:00 Sentinel 5P integration and launch 13 October 2017 from:**

[**http://www.esa.int/esatv/Videos/2017/10/Sentinel-5P\_services/Extra\_Footage**](http://www.esa.int/esatv/Videos/2017/10/Sentinel-5P_services/Extra_Footage)

**and**

[**http://www.esa.int/esatv/Videos/2017/10/Sentinel-5P\_services/Extra\_Launch**](http://www.esa.int/esatv/Videos/2017/10/Sentinel-5P_services/Extra_Launch)

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Information on wind from Aeolus will supplement measurements of pollution and ozone levels from Sentinel-5P. The satellite was launched a few months ago as part of the European Commission’s Copernicus Earth Observation programme.

**[10:02:16 KNMI weather room & ozone hole animation. Source: NASA ozone watch]**

Sentinel-5P's Tropomi instrument was developed in the Netherlands and could clear up the mystery of whether our planet's ozone layer is on the road to recovery after harmful CFC gases were banned in 1989.

**[10:02:30 Weather station set-up shots]**

These satellites will add to data collected around the world including from atmospheric measurements by weather balloons…such as this one in Germany.

**[10:02:43 Wolfgang Steinbrecht, Head of Ozone Group, Deutscher Wetterdienst]**

*"So we know climate is changing, what we do not know in detail is what it means for different regions. So, will we get warmer summers here? Probably. Will we get more rain? We already don't know that. How's it going to change in different parts of the atmosphere, what will be the effects of that? What we're trying to do is provide the solid data, together with the satellites, that will tell us how the atmosphere is changing.”*

**[10:03:05 Aeolus animation]**

Satellite technologies will help unlock the mysteries of the Earth’s climate and - crucially - provide a clearer picture of the future of our planet.

**[10:03:16 Image Ends] [10:03:24 GENERIC Ends]**

[B-ROLL]

**[10: 03:16]**

1. Anne Grete Straume, Aeolus Project Scientist, ESA

Soundbites X2 (1 interior, 1 exterior. English)

**[10:05:13]** **Setup shots for Anne Grete Straume, exterior GVs**

2. Exterior views of KNMI, Utrecht, weather sensors and Anne Grete walking in the gardens

**[10: 06:26]**

3. Oliver Reitebuch, Lidar Scientist, German Aerospace Centre DLR

Soundbites x2 (English)

**[10: 08:22]** **Setup shots for Olivier Reitebuch, DLR exterior GVs**

4. DLR Oberpfaffenhofen exterior, Falcon research aircraft of DLR

**[10: 10:04]**

5. Wolfgang Steinbrecht, Head of Ozone Group, Deutscher Wetterdienst

Soundbites X1

**[10: 10:49]** **Setup shots for Wolfgang Steinbrecht**

6. Preparation of the weather balloon and sensor, the 'sonde' at the HohenPeissenberg observatory indoor laboratory. Release of weather balloon

**[10:12:40 Image Ends] [10:12:44 GENERIC ends]**