**EXOMARS ROVER: CONCEPT TO REALITY**

**A ROLL SCRIPT (FINAL)**

**SUGGESTED WEB CUE:** Since arriving in orbit around Mars, the joint ESA and Russian ExoMars mission Trace Gas Orbiter (TGO) has been studying trace gases in the Martian atmosphere. Back on Earth, engineers and scientists on Earth are busy preparing for the next ExoMars launch - a Mars rover in 2020.

Several prototype ExoMars rovers have been constructed at Airbus Defence and Space in Stevenage, England, UK, using a specially built Mars Yard facility and clean room. Now that a landing site has been chosen, the rover is being tested in a simulated Martian landscape to ensure that it will be able to navigate the terrain and become the first rover to search for direct evidence of past and present life on Mars.

VT STARTS: 10:00:00

FILM STARTS: 10:00:10

**10:00:10**

[ANIMATION ROVER; CREDIT: ESA]

The European ExoMars rover from concept…

**10:00:15**

[THE AIRBUS DEFENCE AND SPACE MARS YARD, UK]

… to reality. Here at the Airbus Defence and Space Mars Yard in the UK, engineers are building prototype rovers. This one is called Bruno. It’s semi-autonomous and will be able to cover four kilometres at a top speed of two centimetres per second.

**10:00:34**

[INSET CLIP: Paul MEACHAM, Lead Systems Engineer, Airbus]

*"Bruno is pretty much the same as the ExoMars rover will look like. He has got on him all the sensors and the actuators you use to drive the rover by itself, starting with these two cameras at the top of the mast. They allow the rover to see in 3D, in much the same way we do, and identify the rocks and slopes in front of it and then analyse if any are outside of his capabilities.”*

**10:00:57**

[EXOMARS ANIMATION]

The rover’s instruments will examine the atmosphere and there’s also a drill that can bore down to two metres deep.

**10:01:06**

[MARS STILLS, CREDIT: IRSPS/TAS, NASA/JPL-Caltech/Arizona State University]

After several scientific meetings about the mission and its destination, scientists chose a former lake - in an equatorial region called Oxia Planum - as a landing site

**10:01:23**

[INSET CLIP: Håkan SVEDHEM, ExoMars TGO Project Scientist, ESA]

“*Oxia Planum is really one of the most interesting places to go with a lander to investigate. In particular, with the drill cores you can take up and do analysis of the surface material and subsurface material.”*

**10:01:31**

[AIRBUS CLEAN ROOM]

In order to search for life every component and instrument, arriving from labs across Europe, is sterilised in this purpose-built clean room before assembly.

**10:01:42**

[EXOMARS ANIMATION}

The rover’s wheels may have the same flexibility as rubber but they’re metal – because rubber is organic and might contaminate any evidence of life.

**10:01:53**

[Abbie HUTTY, ExoMars Delivery Manager, AIRBUS]

*"I think that we've got the best instruments that we possibly can on board to be able to detect life. The big thing is having the drill, so that we can actually get to the depths that we think that life would still be both alive if it could be, and recognisable even if it wasn't (alive). That's the big thing that nobody has ever really done before.”*

**10:02:05**

[EXOMARS LAUNCH ANIMATION]

In fact, the ExoMars rover will launch in 2020, a joint mission between ESA and Russia, will be first rover to directly search for life.

**10:02:17**

[INSET CLIP: Daniel RODIONOV, ExoMars Project Scientist, Russian Space Research Institute]

*“Yes, naturally, I hope that Exomars will find traces of the existence of organic compounds on the surface of Mars. And, of course, Exomars is exactly the mission that should do this, it was designed for this."*

"Да, естественно, я надеюсь, что "Экзомарс" найдёт следы существования органических соединений на поверхности Марса. И, естественно, "Экзомарс" - это именно та миссия, которая должна это сделать, она проектировалась для этого."

**10:02:29**

[ANIMATION EXOMARS TRACE GAS ORBITER AND ROVER ON MARS]

ESA and Russia already has its ExoMars Trace Gas Orbiter around the planet. The orbiter is sniffing the Martian atmosphere for gases like methane that might be linked to biological or geological activity. When the rover lands in 2021, a new phase of discovery will begin.

**10:02:52**

[End Subject]

10:02:56

[GEN ENDS]

**ExoMars Rover: Concept To Reality**

**B-ROLL**

**10:02:52**

**Håkan Svedhem**

**ExoMars TGO Project Scientist, ESA**

**[ENGLISH]**

“Oxia Planum is really one of the most interesting places to go with a lander to investigate in particular with the drill cores you can take up, doing analysis of the surface material and subsurface material. Because of the variety of minerals there, and because of the old history, and all elements are there we believe that possibly could have been ingredients to life in the early Martian days. And there has been water in the past and addition it is quite a safe place to go and land because we know that the surface is safe for landing. It's located on a low level, so that the spacecraft has a lot of atmosphere to go down through and slow down, and has time to react and respond before it lands.”

**“**Methane is of course, has this connection to previous or present life. As we know on the Earth, most of the methane is produced by living organisms. We don’t expect really today living organisms on Mars but, in case there have been in the past, they can be buried in the ground, it can be released episodically. However, it can also be of geological origin. So there are many things we have to understand in this. But methane is a very important thing; now that we see that we don't see anything, we have to explain why don't we see it."

**10:04:27**

**Paul Meacham**

**Lead Systems Engineer, AIRBUS**

**[ENGLISH]**

"We're not allowed to use rubber, because it's an organic material, and if we're trying to detect life on Mars we don't want to it detect something we've brought with us. So instead we have to get that sort of same rubber compression, the squidginess in a metal wheel, which is exactly what these flexible wheels do."

**10:04:52**

**Daniel Rodionov**

**ExoMars Project Scientist**

**Russian Space Research Institute**

**[RUSSIAN]**

"Да, естественно, я надеюсь, что "Экзомарс" найдёт следы существования органических соединений на поверхности Марса. И, естественно, "Экзомарс" - это именно та миссия, которая должна это сделать, она проектировалась для этого."

**10:05:14**

**ExoMars 2020 Animation**

**Credit: ESA**

Animation of the ExoMars rover on the surface of Mars, using its drill and retrieving a sample; and the ExoMars Trace Gas Orbiter spacecraft (TGO) in orbit around the planet.

**10:06:51:14**

**Airbus Mars Yard, UK**

The Airbus Defence and Space Mars Yard in Stevenage, UK. In this purpose built facility for the prototype ExoMars rovers - and the real thing - Paul Meacham is watching the Rover navigate simulated Martian sand and rocks.

**10:11:50**

**Airbus ExoMars Rover Clean Room GVS**

Airbus, UK clean room in Stevenage for building the ExoMars rover and sterilising instruments and parts that arrive here from across Europe.

**10:13:05:00**

**GEN ENDS**