**ROSETTA’S ONGOING LEGACY - A ROLL**

SUGGESTED WEB COPY: Rosetta’s operational mission ended on September 2016 but for the scientists and instrument teams the mission is far from over. Scientists have only scratched the surface analysing the amount of data produced by the mission. As this information is scrutinised, new discoveries are made, including a surprise final extra image taken by the OSIRIS camera during the spacecraft’s controlled descent onto the comet.

TAPE STARTS: 10:00:00

VT STARTS: 10:00:10

10:00:10

[INT. AND EXT. SHOTS CARSTEN GUTTLER AND HOLGER SIERKS AT MAX PLANCK INSTITUTE FOR SOLAR SYSTEM RESEARCH]

Models of the Rosetta spacecraft, Philae lander and comet 67P in the foyer of the Max Planck Institute for Solar System Research, in Germany, are a constant reminder of the mission’s success for many of those who work there. There’s even a reminder outside the building too. Understandable, perhaps, since three of Rosetta’s science instrument teams - COSAC, COSIMA and OSIRIS - are based here.

10:00:38

[STILLS COMET 67P/CHURYUMOV-GERASIMENKO AND GVS ROSETTA MISSION CONTROL ROOM, EUROPEAN SPACE OPERATIONS CENTRE (ESOC), DARMSTADT, GERMANY, 30th SEPTEMBER 2016]

OSIRIS consisted of two cameras that sent back unforgettable images of the comet. While the operational mission ended in September 2016, ESA and NASA are working with the instrument teams to archive the highest quality data, ensuring Rosetta’s legacy. At the same time, the science community is analysing this data. In doing so, they’re discovering new aspects about the comet’s behaviour – be it surface erosion, transportation of dust or geological processes, such as the appearance of fractures or craters.

10:01:12

[INSET CLIP: CARSTEN GÜTTLER

OSIRIS SCIENCE MANAGER, ESA ]

*“I think the nicest discovery was when, on our OSIRIS full team meeting, one of our colleagues was showing, was flipping two images, one before and one after image, and he said there’s a crater, and it disappeared. And then we were looking at it, looking at it, looking at it, and then Holger said, ‘wait there’s another crater that just appeared’. So it was like live when we are seeing the image somebody detected a change, and you really have to flip between images and you really have to look very careful because some of them are very, very subtle.”*

10:01:43

[STILL IMAGES COMET 67P AND GIF; ANIMATION ROSETTA LANDING]

Not all the changes were subtle. Outbursts of dust and gas caused the movement of enormous boulders across the surface, in this case by around 15 metres. And a recent scientific paper revealed a dramatic cliff collapse - exposing a shiny white material of, most likely, ice. Then, while analysing the data from the camera’s final descent on board the Rosetta spacecraft, there was an unexpected surprise.

10:02:12

[INSET CLIP: HOLGER SIERKS

OSIRIS PRINCIPAL INVESTIGATOR, ESA]

*“The last image transmitted from Rosetta was not the last. It was the last but one. It was the last that came down in one piece.”*

10:02:21

[INSET CLIP: HOLGER SIERKS]

*“We see this elongated stretch over here. We are blurred but we are at 80m above surface. It’s really gets going down at warp speed now. And we get image by image higher end resolution and then resolution end, also we get sharp. And that’s the last complete image we shared at the day of landing because this was what popped up on the screen. This is the last image of Rosetta while this was the very last that we reconstructed from a few telemetry packets that we found on our servers and said, wow this could be an image there.”*

10:03:01

[INSET CLIP: HOLGER SIERKS]

*“This is the last image of OSIRIS from Rosetta, transferred to ground reconstructed from the limited telemetry, so the few packets we have got. Its true size. It’s a metre by a metre on the surface of our wonderful nucleus. You can imagine this is its true size. You can really grab the stuff from the surface. You can imagine your feet in here standing on the surface of our comet.”*

10:03:32

[GVS ROSETTA SCIENCE WORKSHOP, ROME, JUNE 2015]

And all the data from Rosetta’s instruments is helping to evolve our knowledge of cometary science.

10:03:39

[INSET CLIP: MATT TAYLOR

ROSETTA PROJECT SCIENTIST, ESA]

*“We’re going to refine our ideas of what the comet is, where the comet came from and encapsulate that within our ideas of how the solar system formed and the complexity of the dataset that we have also allows us to be more complex in our ideas and our theories and that is the beauty of Rosetta and we’re starting to see that happening now, that we’re really able to hone down our ideas of how comet formed…*

10:04:03

[ANIMATION SOLAR SYSTEM FORMATION]

*(OOV)…how that fits in with the evolution of the solar system and that’s going to continue.”*

10:04:10

[ENDS]

**Rosetta’s Ongoing Legacy - BROLL**

TC 10:04:15

HOLGER SIERKS

OSIRIS PRINCIPAL INVESTIGATOR, ESA

MAX PLANCK INSTITUTE FOR SOLAR SYSTEM RESEARCH

[ENGLISH]

*“A fun aspect was the last image transmitted from Rosetta was not the last. It was the last but one. It was the last that came down in one piece. And we checked the telemetry flow of the spacecraft and found out that, oh, there are a few packets more, this could be an image and let’s have a look at what it is. And we found the very last image from Rosetta that we also want to share.”*

HOLGER SIERKS

OSIRIS PRINCIPAL INVESTIGATOR, ESA

[ENGLISH]

Sierks describes, in English and out of vision, the images obtained as the Rosetta spacecraft descended towards its final resting place, at the end of the operational mission on September 30th 2016, into a pit called Ma’at Pit D on comet 67P.

*"And now that’s a sequence taking with the narrow angle camera that provides a very nice three dimensional view of the pit structure, of pit D. We also see this wall collapse material and now we’re slewing away. We’re slewing a bit around this to capture the surface. We end up here within an altitude of 1500 metres. Pixel resolution is 3 cms per pixel so it’s really hi-res."*

TC 10:05:32

HOLGER SIERKS

OSIRIS PRINCIPAL INVESTIGATOR, ESA

[GERMAN]

Sierks explains, in German, how the final image released at the end of the Rosetta mission was not the last one after a new image was discovered.

TC 10:06.55

CARSTEN GÜTTLER

OSIRIS SCIENCE MANAGER, ESA

MAX PLANCK INSTITUTE FOR SOLAR SYSTEM RESEARCH

[ENGLISH]

*“But what I found the most exciting is the overall picture, like putting things, putting the puzzle together and linking this to the origin of the Solar System, to the origin of this comet and trying to really understand the bigger picture.”*

TC 10:07:24

CARSTEN GÜTTLER

OSIRIS SCIENCE MANAGER, ESA

MAX PLANCK INSTITUTE FOR SOLAR SYSTEM RESEARCH

[GERMAN]

Güttler explains, in German, how studying a comet provides a bigger picture of the origin of the Solar System.

TC 10:08:15

MATT TAYLOR

ROSETTA PROJECT SCIENTIST, ESA

[ENGLISH]

*“We’re going to refine our ideas of what the comet is, where the comet came from and encapsulate that within our ideas of how the Solar System formed and the complexity of the dataset that we have also allows us to be more complex in our ideas and our theories. And that is the beauty of Rosetta and we’re starting to see that happening now, that we’re really able to hone down our ideas of how comet formed, how that fits in with the evolution of the Solar System and that’s going to continue.”*

*“We’ve surpassed all of our expectations. Basically this comet is massively complex. It is a playground for scientists and that is something that we’ll be able to enjoy for many years and, what’s important, new scientists will be able to play with this data as well.”*

TC 10:09:14

MAX PLANCK INSTITUTE FOR SOLAR SYSTEM RESEARCH

EXT GVS

Exterior GV shots of the Max Planck Institute for Solar System Research in Göttingen, Germany.

TC 10:10:19

HOLGER SIERKS AND CARSTEN GÜTTLER

SET UP SHOTS

Set up shots of Holger Sierks, the OSIRIS camera principal investigator, ESA, with Carsten Güttler, the OSIRIS science manager, ESA, at the Max Planck Institute for Solar System Research in Göttingen, Germany.

TC 10:11:27

HOLGER SIERKS, extra clip