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## Ten years – and more to come: unveiling the enigmatic history of Mars

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Engineers and scientists cheered and exchanged 'high fives' when the first images from the German camera system on board ESA's Mars Express spacecraft appeared on the monitors at the German Aerospace Center (Deutsches Zentrum für Luft- und Raumfahrt; DLR) Institute of Planetary Research in Berlin. Today, 10 years later and with 12,600 orbits around their belt, both the High Resolution Stereo Camera (HRSC) and Mars Express are working as reliably and flawlessly as they were on the very first day. For this reason, it is not surprising that ESA has extended its first Red Planet mission until late 2016. Although the mission was launched on 2 June 2003 from the Baikonur Cosmodrome in Kazakhstan, the HRSC had been developed and built by DLR and the German space industry in the 1990s.

At present, the HRSC has recorded about 90 percent of Mars – almost the equivalent of Earth's continental surface – with image resolutions of 10 to 30 metres per pixel. The main objective of the mission is to create a high resolution, colour, three-dimensional global topographic map of Mars. In addition, the images enable the participating scientists to get a more detailed look into the geological past of the planet and its climatic evolution over the course of the past four billion years. This impressive video takes us on a virtual flight over the mouth of the Kasei Valles region. Earlier in the planet's history, enormous amounts of water flowed through the Martian highlands, sculpting these valleys and leaving its trace in the landscape.

### Image processing and the HRSC experiment on Mars Express

The High Resolution Stereo Camera was developed at the German Aerospace Center (Deutsches Zentrum für Luft- und Raumfahrt; DLR) and built in collaboration with partners in industry (EADS Astrium, Lewicki Microelectronic GmbH and Jena-Optronik GmbH). The science team, which is headed by principal investigator (PI) Ralf Jaumann, consists of over 40 co-investigators from 33 institutions and ten countries. The camera is operated by the DLR Institute of Planetary Research in Berlin-Adlershof. The images shown here were generated by the Institute of Geological Sciences at FU Berlin in conjunction with the DLR Institute of Planetary Research in Berlin.

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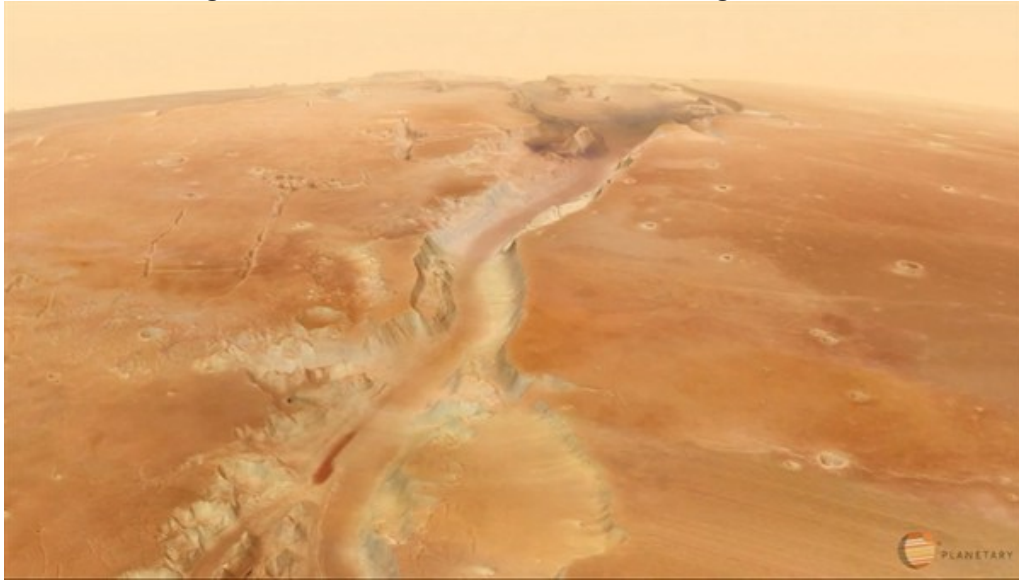
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**Video: Virtual flight over the mouth of the Kasei Valles region**



This impressive video takes us on a virtual flight over the mouth of the Kasei Valles region. Earlier in the planet's history, enormous amounts of water flowed through the Martian highlands, sculpting these valleys and leaving its trace in the landscape.

Credit: ESA/DLR/FU Berlin (G. Neukum).

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