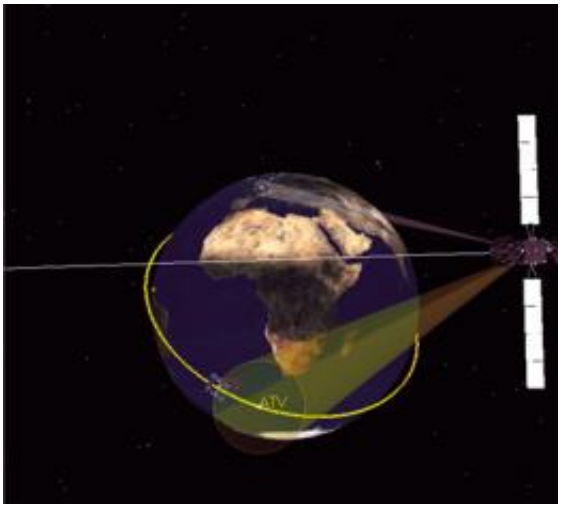
When Artemis talks, Johannes Kepler listens

January 27 2011



Artemis will provide communications between Johannes Kepler and the ATV Control Centre (ATV-CC) in Toulouse, France. Hovering some 36 000 km above the equator at 21.4ºE, Artemis will route telemetry and commands to and from the control centre whenever the satellite sees the International Space Station or ATV. During every ATV-2 orbit, there is close to 40 minutes of continuous contact. Credit: ESA

After Ariane 5 lofts ATV Johannes Kepler into space on 15 February, ESA's Artemis data relay satellite will be ready for action.

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International Space Station or ATV. During every ATV-2 orbit, there is close to 40 minutes of continuous contact.

ESA's Redu site in Belgium houses the Artemis mission control centre and a Ka-band ground terminal with a 13.5 m-diameter dish antenna. The task of communicating with Johannes Kepler will be shared between Artemis and NASA's Tracking and Data Relay Satellite System (TDRSS).
The first ATV mission was also supported by Artemis, in 2008. Working in parallel with TDRSS, Artemis was used as the main relay while ATV was attached to the Station and provided back up for commands and telemetry during rendezvous, docking, undocking and reentry.

Credits: ESA/J.Huart

Artemis will again provide dedicated support to ATV throughout the free-flying phase of its mission up to the docking with the Station. TDRSS is the backup to Artemis during the attached phase, while Artemis will back up TDRSS during the other phases and in emergency situations.

Such was the case on 11 September 2008, when the Artemis Mission Control Centre provided emergency support to ATV-1 after Hurricane Ike closed down the NASA Johnson Space Center in Houston, Texas.

“As Artemis also provides support to ESA’s Envisat’s Earth observation satellite, the Mission Control Centre ensures there will be no conflicts between the two satellites,” explained Benoit Demelenne, Head of Redu's Spacecraft Operations Unit in charge of the Artemis users’ schedule.

“The experience gained during the ATV-1 mission has been fruitful in preparing us for this mission.”

In July, Artemis will mark 10 years in space. The satellite has three main purposes:

• provide inter-orbit satellite communication using advanced S- and Ka-band radio links and laser technology;
• for Europe's EGNOS satnav system broadcast enhanced GPS and Glonass signals for use by civilian safety-critical transport and navigational services;
• provide voice and data communications between mobile terminals in remote areas of Europe and North Africa, as well as in the Atlantic.

“After 10 years, Artemis has demonstrated ESA and European industry expertise in performing its mission,” said Franco Ongaro, head of ESA’s Telecom Technologies, Products and Systems department.

“Artemis is not only the precursor of the European Data Relay Satellite in terms of satellite service delivery but a demonstrator of new communication techniques.

Provided by European Space Agency