

Rendezvous with a comet

Kathrin Altwegg explored previously unknown worlds with the space probe Rosetta. At the 2018 Alpine Symposium [Alpensymposium], she held a presentation about how the Sunrise network helped her accomplish that.

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Kathrin Altwegg at the 2018 Alpine Symposium – Sunrise was one of the event's presenting partners.

"Patience is the most important thing in my job," says Kathrin Altwegg. Until recently, the congenial native of Bern was professor of space exploration and planetary science at the University of Bern. During the Rosetta space probe mission, which ran for more than two years, she and her team were responsible for the **scientific measurements** taken by the instrument ROSINA.

What was unusual about this task? Her tools were floating 500 million kilometers away in deep space. "You cannot quickly execute commands across that distance," Kathrin Altwegg explains. "It took **45 minutes** to send a signal up to Rosetta, and the return signal wasn't any faster. So we always had to wait at least 90 minutes before we found out whether our commands had been properly executed."

For the 66-year-old, this extremely complex mission was the project of her life – because Rosetta was supposed to explore the vicinity of the comet Chury in order to answer important **questions about the development of our solar system**. For example, researchers searched for materials that matched those on Earth.

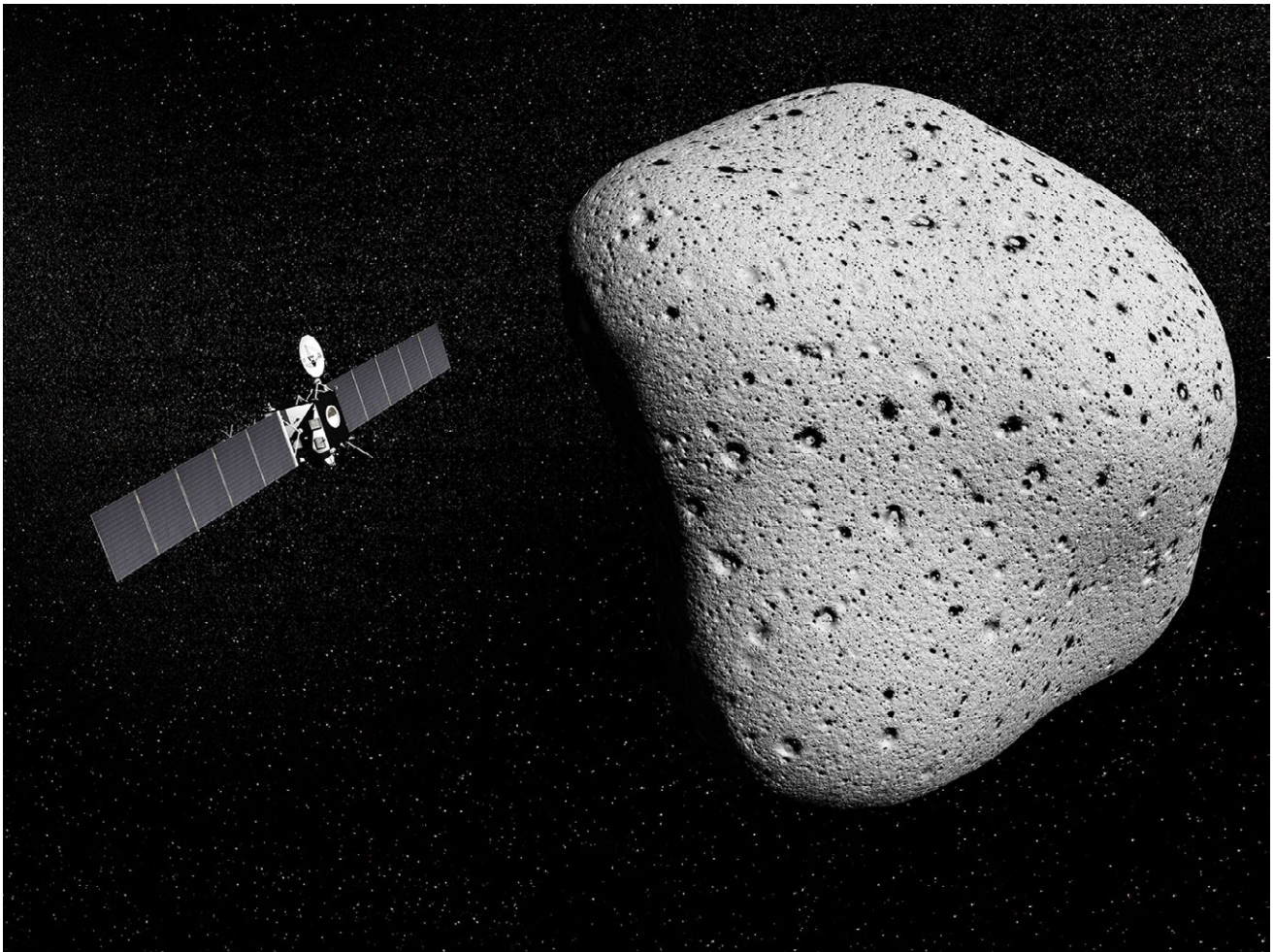
"Every day, you feel that you are part of something that is making history," says Kathrin Altwegg. "You are measuring things that nobody has ever measured before, and that are older than the solar system."

"You are measuring things that are older than the solar system."

- Kathrin Altwegg

Excitement, anticipation and uncertainty were her constant companions for over two years while the probe gathered data near the comet Chury. "The rare weekends that I was able to spend at our **vacation home in Trogen (AR)** were all the more important," Kathrin Altwegg remembers.

But even when she was working there in solitude, the professor needed to be reachable around the clock so she could intercede if there were problems. "Sunrise is the only network that works in that remote region. Thank goodness! Because it gave me a lot of flexibility." It allowed Kathrin Altwegg to use her laptop to communicate with deep space **from the stone table in her garden.**



Rosetta and the comet Chury (3D visualization).

The commands were routed via Rosetta headquarters in Darmstadt, and then forwarded to Australia. From there, they traveled the remaining **500 million kilometers** up to Rosetta. "This communication is so good, it's simply fantastic. Provided there isn't a thunderstorm in Australia at the time," laughs Kathrin Altwegg.

They bid farewell to the space probe and all the instruments on board with a **planned crash** onto comet Chury in 2016. To date, only five percent of the approximately two million measurements taken by ROSINA have been evaluated. There is still work to do for at least the next ten, maybe even twenty years. But Kathrin Altwegg is done: She has been enjoying retirement and her house in Appenzell since the mission ended.