

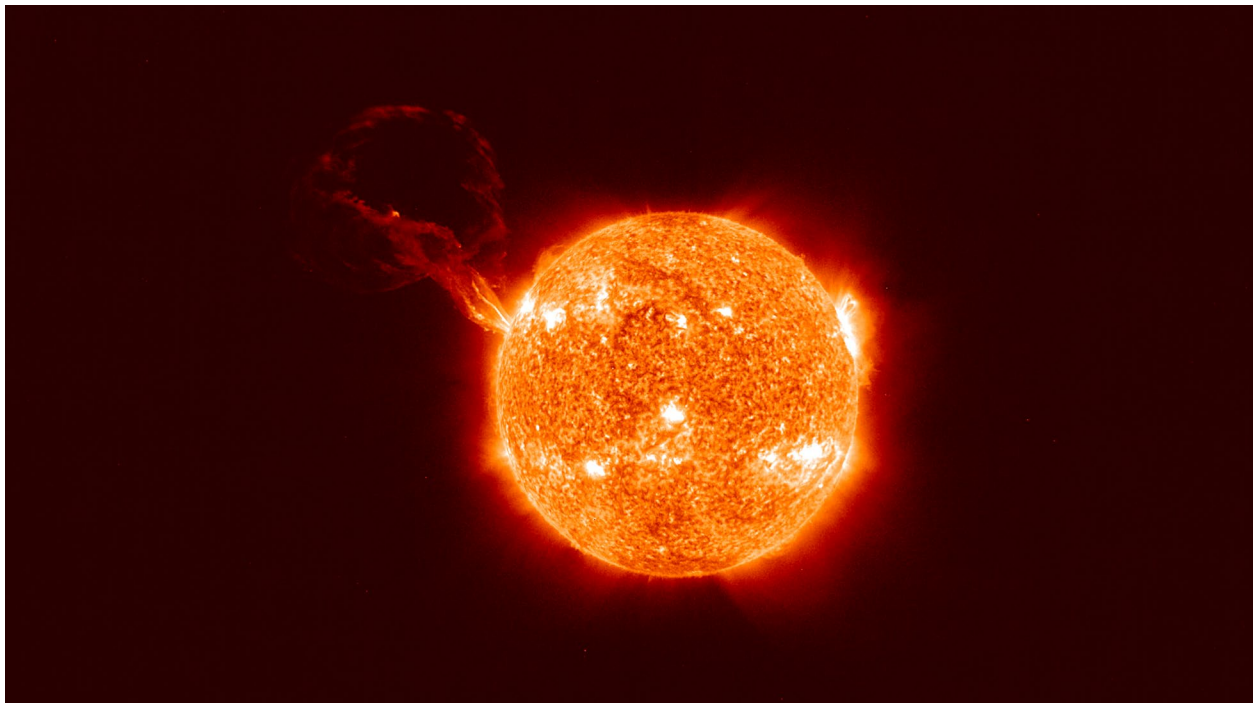
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Research in Graubünden

Insights into Solar Research

An astronomer and physicist talks about his work

Krzysztof Barczynski, an Instrumental Scientist at the Physical Meteorological Observatory Davos (PMOD) and ETH Zurich, recently received a grant from the Canton of Graubünden. “I was really surprised when I received the news,” Barczynski says with a smile. “It was only the second or third letter I’ve received by post here at PMOD.” He adds, “It is a great honor that our work at PMOD is being recognized in this way. This award is thanks to the collaboration of the entire team.”



Massive Solar Eruption Observed with Solar Orbiter EUI in February 2022. Image Credit: Solar Orbiter/EUI Team

As an Instrumental Scientist in PMOD’s Solar Physics group, Barczynski works on the ESA-NASA mission “Solar Orbiter”. This space mission aims to explore the mysteries of the Sun and gain a better understanding of its dynamic processes. Two of the instruments on board the Solar Orbiter come from Davos, including the Extreme Ultraviolet Instrument, which captures high-resolution images of the Sun in the ultraviolet spectrum. “These images reveal solar structures that cannot be seen from Earth because the ozone layer blocks most extreme UV rays,” Barczynski explains. His role is to ensure the quality of the collected data.

In addition to the Solar Orbiter mission, Barczynski is also involved in two other space missions: Solar-C and M-Matisse. Solar-C, led by the Japanese Space Agency JAXA with support from ESA and NASA, sees Barczynski acting as a scientific advisor, ensuring smooth communication between scientists and engineers. “Solar-C will have two instruments. One is similar to the Extreme Ultraviolet Instrument, while the other, the Solar Spectral Irradiance Monitor (SoSpIM), is small but powerful. SoSpIM, which is being built in Davos, can

observe the Sun in two wavelengths and conduct fifteen measurements per second,” reports Barczynski. The Solar-C mission is currently in the design phase, with a launch planned for 2028.

The M-Matisse mission, currently competing with two other projects for selection by ESA, aims to study the Martian atmosphere and its interactions with solar activity. “Mars, like Earth, has an atmosphere mainly composed of CO₂. Its condition is highly dependent on solar activity. The planned instrument will study the conditions in the Martian atmosphere and capture images of Mars. However, to truly understand how solar activity affects the climate on Mars, we need another spacecraft to simultaneously monitor the Sun,” Barczynski explains. He is part of a team of researchers from various European countries working to convince ESA of the mission’s importance.

Alongside his demanding scientific work, Barczynski loves to observe the starry skies of Davos on clear nights—a hobby that is particularly close to his heart.

Krzysztof Barczynski and Daniela Heinen



Graubünden forscht 2024

On November 8 and 9, 2024, the Academia Raetica will host the ninth conference “Graubünden forscht” at the Davos Congress Center. On Saturday, November 9, 2024, the public is invited to gain insight into the diverse research activities in the canton at the “Mittag der Forschung” (Science Noon) and experience science up close. For details, visit www.gr-forscht.ch.

Text translated with the support ChatGPT (<https://chat.openai.com>)

Krzysztof Barczynski.

Image: Academia
Raetica