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Press release

Julius-Maximilians-Universität Würzburg
Robert Emmerich

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Würzburg University Telescope is Tracking Asteroids

Researchers and students from the University of Würzburg are tracking asteroids with a telescope on the Hubland Campus. The measurements are very welcome in the USA.

A team from the Professorship for Space Technology at the University of Würzburg and the student association WüSpace have been observing asteroids flying past Earth for several weeks. The telescope required for this is located on the roof of the geography building on the Hubland Campus. It is characterised by the fact that it can follow the trajectory of even smaller objects particularly quickly and precisely.

'We use the images to determine the speed, trajectory and distance of the asteroids to Earth,' says Tobias Neumann, a research assistant in Professor Hakan Kayal's team. The researchers pass the data they obtain on to the Minor Planet Center (MPC) in Cambridge, Massachusetts, in the USA. So far, they have reported 257 measurements from 34 separate asteroids.

Würzburg now got Registered at the Minor Planet Center

As a global centre for small bodies in the solar system, the Minor Planet Center brings together all observations and measurements of asteroids around the world. The aim is to better estimate the size of asteroids and calculate their trajectories through our solar system more accurately. This can help to avoid collisions with satellites.

The data from Würzburg has made an impression in the USA: 'Just four days after our first observations, the MPC assigned us the observatory code D69 for our telescope,' says Tobias Neumann happily. This means that the data supplied meets the centre's high-quality criteria. Now, the Würzburg telescope is officially one of the more than 2,500 observatories that have been registered at the MPC to date. These include professional large-scale facilities as well as amateur astronomers.

Telescope for Student Projects

The super-fast and precise telescope that has made this success possible has been built up at the Hubland Campus since the beginning of 2024. Hakan Kayal's team acquired it as part of the KI-SENS project to support aerospace teaching as well as research.

In the KI-SENS project, the aerospace computer science students organised in the WüSpace association have used AI algorithms to teach the telescope to recognise small moving objects in the sky and predict their trajectory so that it can track the objects. This enables the tracking of asteroids and other celestial bodies to be improved in the future.

James Webb Space Telescope Observed

Just a few days ago, the team managed to observe the James Webb Space Telescope. It is around 21 metres long and is located 1.4 million kilometres from Earth, which is around 3.6 times further away than the moon. The Webb Space Telescope is used by the US, European and Canadian space agencies to investigate the formation and development of galaxies and black holes, among other things.

‘Our telescope was built to observe satellites and other objects up to 1,000 kilometres away from Earth,’ says Tobias Neumann. The fact that it has now even been able to track the much more distant James Webb Space Telescope demonstrates its high performance.

Of Strategic Importance for the Professorship

The Würzburg telescope is also of strategic importance for other projects at the Professorship for Space Technology, such as the NEAlight project. In this project, Kayal's team is investigating the feasibility of small satellite missions to study asteroids and planetary defence. In the future, the telescope can also be connected and integrated into projects for observing space debris.

contact for scientific information:
Prof. Dr. Hakan Kayal, hakan.kayal@uni-wuerzburg.de

URL for press release: https://wuespace.de/ Würzburg Student Association WüSpace

URL for press release: https://www.informatik.uni-wuerzburg.de/raumfahrttechnik/ Professorship for Space Technology of the University of Würzburg

URL for press release: https://www.informatik.uni-wuerzburg.de/raumfahrttechnik/projekte/abgeschlossene/ki-sens/ Project KI-SENS

URL for press release: https://www.informatik.uni-wuerzburg.de/raumfahrttechnik/projekte/aktive/nealight/ Project NEAlight

The telescope on the roof of the Geography building on the Hubland Campus of the University of Würzburg.
Tobias Herbst
University of Wuerzburg