

## **Slovak Astronomers built a first Central Pacific meteor observation system (AMOS).**

In Bratislava, Slovakia. October 15, 2018.

Astronomers from Comenius University in Bratislava (CU) have installed and commissioned their original astronomical system AMOS (All-sky Meteor Orbit System) on the summits of dormant volcanoes of Haleakala and Mauna Kea, right next to the world renowned astronomical telescopes.

The AMOS system was developed at the Astronomical and Geophysical Observatory of Comenius University in Modra for a systematic monitoring of the night skies and orbit determination of meteors. Since 2007, when the first prototype of AMOS has started its daily operations and three other AMOS stations joined the network in Slovakia, AMOS grew into a world-wide network. In 2015, two AMOS stations were commissioned on Canary Islands and in 2016, two stations were added in the Chilean desert of Atacama. AMOS is patented, was awarded by a golden medal at Invento 2013 exhibit of inventions and innovations.

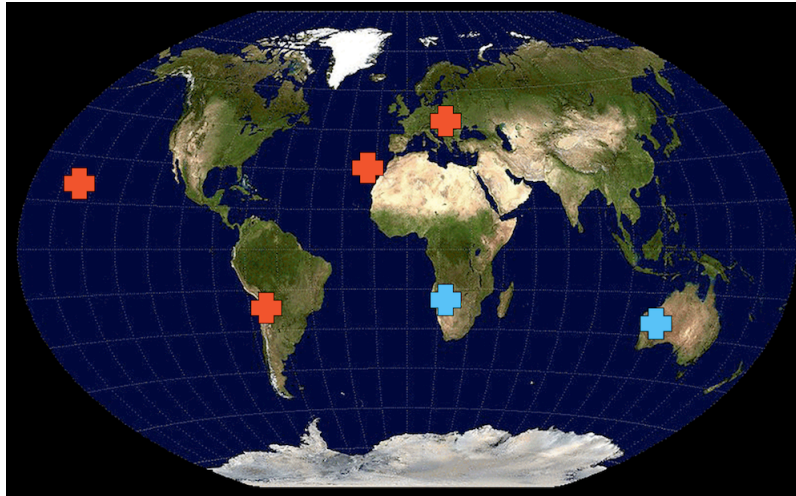
AMOS provides scientific data on meteoroids – small pebbles that enter the Earth’s atmosphere seen as falling stars (meteors) and indirectly on their parent bodies - asteroids and comets. “We placed AMOS at the astronomical observatories at 3000 and 4200 meter elevations above the sea level in Hawaii, because of excellent observing conditions that increase the detection efficiency of AMOS and the fact that the Central Pacific has not been covered by any meteor detection system so far. We are building a world-wide detection network that would provide complex data on influx of meteoroid particles onto Earth and Hawaii was the next step. Detailed temporal fluxes of meteoroid particles are important for research as well as for the protection of assets like satellites around the Earth”, said the Associate Professor Juraj Tóth, PhD, an astronomer at Faculty of Mathematics, Physics and Informatics (FMPI) at CU, one of the inventors of AMOS and the project Principal Investigator.

Installation of AMOS in Hawaii was preceded by a journey of Dr. Tóth to Hawaii in January 2018, where he initiated a collaboration with the Institute for Astronomy (IfA) of University of Hawaii at Manoa where he presented the AMOS project and its results. With his former student and colleague, Dr. Peter Vereš of Harvard-Smithsonian Center for Astrophysics (CfA) and with the support of Dr. Robert Jedicke (IfA Hawaii) they visited observatories on Haleakala and Mauna Kea and investigated ideal location for AMOS installation. After application for permits, the permits were granted in March 2018 and the cameras were subsequently shipped to Hawaii. The installation was performed in September 2018 by our colleagues Dr. Pavol Zigo and Jaroslav Šimon, with the assistance of Dr. Peter Vereš and Klára Baloghová.

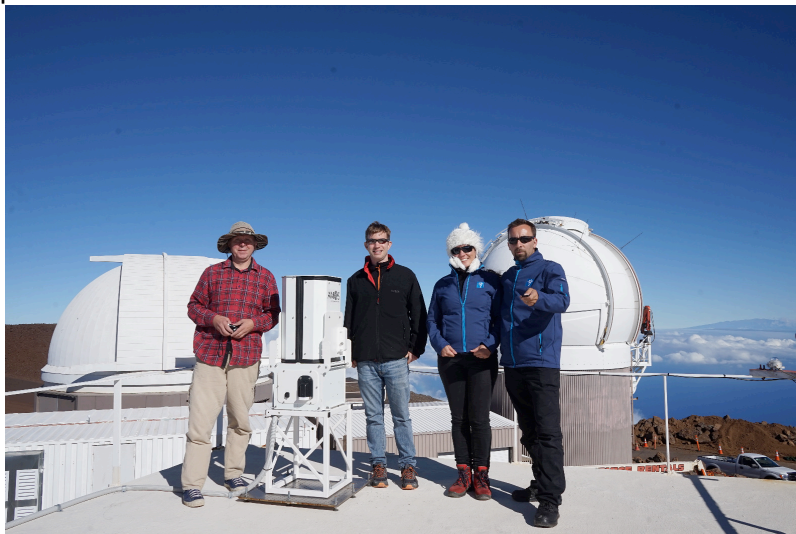
Next generation of AMOS system was invented and constructed with the support of Slovak grant agency APVV-0517-12 and APVV-16-0148 projects.

We acknowledge the institutional help and local support of:

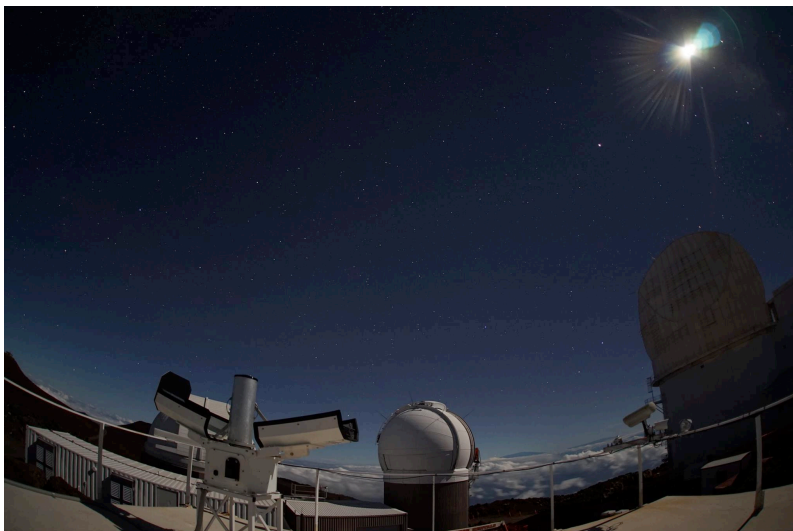
Institute for Astronomy, University of Hawaii at Manoa  
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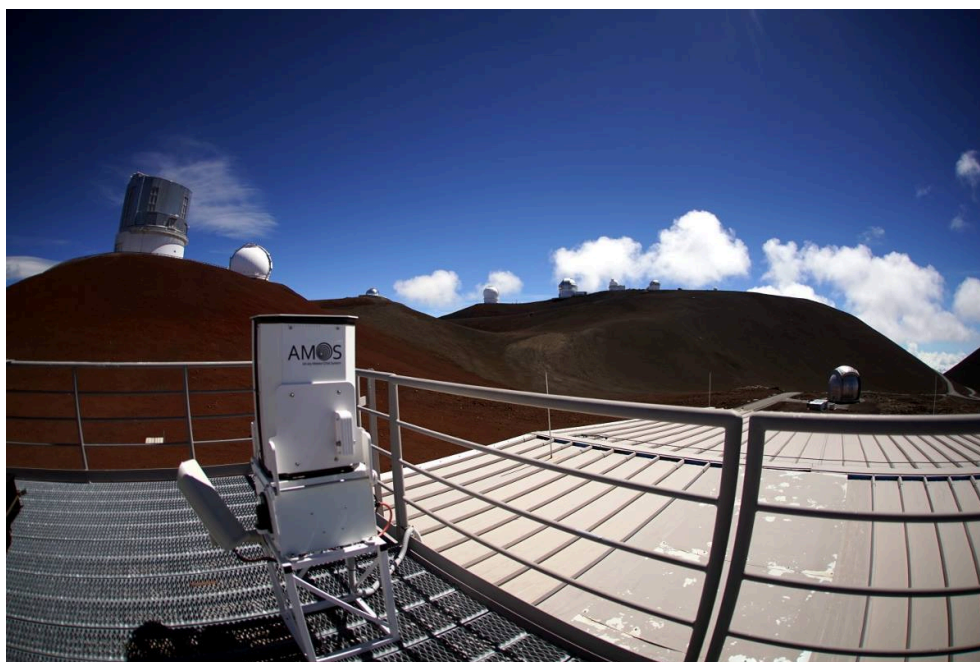
Global network of the AMOS system. Red crosses depict locations of 10 working AMOS stations, blue crosses the planned locations-



The AMOS system being installed at Haleakala, on Maui. The installation crew consists of Dr. Zigo, Dr. Veres, Baloghová and Šimon (left to right). Mauna Kea is seen in the right background. Two domes in the background belong to Pan-STARRS telescopes.



AMOS system in operation at night at Haleakala. The dome in the background (center) is Pan-STARRS1, the right-most dome belongs to DKIST telescope.



AMOS system installed at Mauna Kea. Telescopes Subaru, Keck and others are in background.