

## **Masat-1 captured the first Hungarian satellite photographs from space**

**Masat-1, the First Hungarian Satellite made history again when it captured the first satellite space photographs on 8 March 2012 This first photo shows the southern section of the African continent. The next photos were made of Australia and Antarctica, in a quality and quantity unprecedented in the Cubesat realm.**

Besides their sole beauty, these photos also demonstrate the careful planning and execution of the satellite's operation, proving that even within the tight mass and energy constraints of Masat-1 it is possible to capture space images.

Masat-1 is the first Hungarian satellite, designed and built by students and lecturers of the Faculty of Electrical Engineering at the Budapest University of Technology and Economics in cooperation with the Hungarian Space Office and various domestic companies. The satellite, measuring 10x10x10 cm and weighting 1 kg, was launched by the Vega launch vehicle of the European Space Agency (ESA). The satellite has been operating flawlessly since the launch of 13 February 2012, steadily transmitting data to the primary ground control station (Budapest University of Technology) and the secondary ground control station (Érd, Hungary). In addition to these domestic control stations, more than 120 radio amateurs have received the satellite worldwide. Their total contribution to the success of the mission exceeds 200 000 data packets.

The on-board camera of Masat-1 has a mass of about two Euro coins. The maximal resolution is 640x480 pixels. A width of 1 pixel corresponds to a distance of 1 to 10 kilometres on the photos recorded.

The flawless operation of the passive attitude control system made it possible to capture photographs ahead of schedule, but with this passive system only the Southern Hemisphere of the Earth may be targeted by the camera. As the first month of the mission passed, almost every mission objective was fulfilled. The flawless run of the satellite opens a new scientific and technological horizon for experiments which we plan to perform in the coming months.

There is an increasing demand for Earth observation satellites worldwide both from the public and the private sector, as such spacecraft can capture on-demand, high resolution, up to date images of a specific area of the Earth's surface. The captured images might be used for disaster relief operations, weather forecast services, crop yield estimation and tracking of agricultural operations, civil transport and cartography applications and also defence purposes.

There are multiple concepts on the use of Masat-sized small Earth observation satellites. As the design and launch costs are reduced, such satellites provide an exceptionally attractive opportunity for civil and scientific purposes.

The long-term aim of Masat-1 as the first, smallest satellite in a series of satellites is to demonstrate on a small scale all on-board subsystems necessary for bigger satellites to carry out scientific or technological missions.

A possible future mission for the next satellite is Earth observation. Such mission implies a flawless operation of all on-board subsystems (energy conversion and distribution, on-board computer, RF communication, attitude control), which was again demonstrated by the photographs taken by Masat-1.

*A selection of photographs and their description may be found on the following page. More photographs and the latest pictures can be found on our website.*

**Press contact:**

BME Faculty of Electrical Engineering and Informatics

**Dallos Györgyi** PR consultant

e-mail: [dallos@mail.bme.hu](mailto:dallos@mail.bme.hu)

Phone: 00 36 1 463 1595

*More information for the press:*

<http://cubesat.bme.hu/en/sajto>

*Project website:*

<http://cubesat.bme.hu/en>

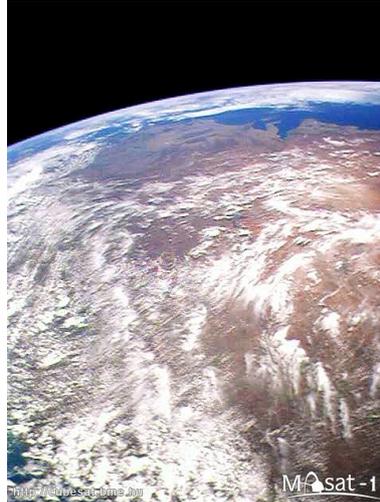
**Masat-1 First Photographs Taken During Flight**

Full-size photos may be downloaded from the address:

[http://cubesat.bme.hu/data/sajtokozelemeny/2012\\_03\\_14\\_Masat-1\\_Urfelvetelek.zip](http://cubesat.bme.hu/data/sajtokozelemeny/2012_03_14_Masat-1_Urfelvetelek.zip)



Madagascar and the cloud-covered Indian Ocean at the bottom of the picture.



The Australian continent, with the continent's southern shore near the horizon.



Cloudy Antarctic Ocean.



The first Earth photograph of Masat-1 depicts South Africa.



The southern shore of Western Australia.



The first photograph, which has proven that the Masat-1 camera is capable of operating in space.

**Capture date and time for each photograph**

- |    |                     |                   |                      |
|----|---------------------|-------------------|----------------------|
| 1: | 2012.03.09-11.19.29 | UTC+1 (Budapest), | Madagascar           |
| 2: | 2012.03.12-04.07.13 | UTC+1 (Budapest), | South-East Australia |
| 3: | 2012.03.12-05.52.21 | UTC+1 (Budapest), | South-West Australia |
| 4: | 2012.03.08-13.09.57 | UTC+1 (Budapest), | Africa               |
| 5: | 2012.03.08-13.14.10 | UTC+1 (Budapest), | Antarctic Ocean      |
| 6: | 2012.03.08-12.40.27 | UTC+1 (Budapest), | Sun                  |