**The SOVA mission could be the largest Czech satellite in history**

**Brno, 5th September 2023 – Czech company OHB Czechspace is developing the SOVA satellite, which could be the largest domestic satellite in history. Its weight would surpass even the last large Czech satellite Magion 5. The SOVA mission aims to refine climate models to better predict extreme weather events such as torrential rains, storms, strong winds and tornadoes, making it easier to respond to climate change. OHB Czechspace, in collaboration with scientists from the Czech Academy of Sciences and other Czech companies, is developing the satellite for the European Space Agency (ESA) as part of the Czech Republic's Ambitious Projects Programme.**

27 years since the launch of the last large Czech satellite, Magion 5, the Czech Republic has a chance to launch its own science mission again. The SOVA satellite could be the largest Czech satellite, weighing around 180 kg. It should enter orbit in 2028 and operate there for at least 2 years. It seeks to study processes in the atmosphere, called gravity waves, which affect climate and weather around the world. The measurements would take place in the middle and upper atmosphere, between 60 and 300 km above the Earth’s surface.

The mission is called "SOVA", which stands for Satellite Observation of waVes in the Atmosphere. The aim is to use the data to develop more accurate climate models used by climatologists and meteorologists. This would allow them to better predict extreme weather events such as torrential rains, storms or strong winds affecting agriculture, flooding and soil erosion.

*"In addition, monitoring waves and disturbances in the upper atmosphere and ionosphere could potentially find applications in future tsunami warning systems. This is because earthquakes, tsunamis, convective storms, etc. generate upward propagating atmospheric waves. Atmospheric waves created by tsunamis could thus be detected in the upper atmosphere before the tsunami hits the coast, if the epicentre is far enough away from the coast,"* explained Jaroslav Chum from the Institute of Atmospheric Physics of the Czech Academy of Sciences.

The mission will help improve forecasts of upcoming tornadoes and turbulences in aviation. It will also be useful for measurements of disturbances in the ionosphere that can degrade the accuracy of navigation systems, including GPS.

*"OHB Czechspace is led by a consortium of national and international partners. In its role as the main contractor of the study, it is responsible not only for the design of the satellite itself, but also for its assembly, testing and arrangement of the launch vehicle in cooperation with Spacemanic from Brno, and the subsequent operation of SOVA in space,"* said Jakub Ševeček, mission project manager of OHB Czechspace.

*"The main partners in the scientific part of the mission are scientists from the Czech Academy of Sciences, namely from the Institute of Atmosphere and the Institute of Nuclear Physics, supported by scientists from the German research institute DLR. The main contributors to the development of the satellite are mainly Czech companies, led by the Czech Aerospace Research Centre (VZLÚ), which is responsible for the control of the satellite and its communication with the ground, and ESC Aerospace, which develops software for both the control of the satellite and the optical instruments,"* added Jakub Ševeček.

The optical instruments are being developed jointly by Meopta and OHB System, with Meopta being responsible for the manufacture, assembly and finalisation of the two cameras in the implementation phase of the project, as the main supplier of the SOVA mission payload. The ground station will be provided by GroundCom, a start-up company from Brno.

OHB Czechspace will become so-called "mission prime" following the execution of the SOVA mission. This means that the company will be responsible for the entire mission - from the construction of the satellite, through its testing, launch into orbit and communication with Earth, to data processing and analysis. OHB Czechspace could become the first space company that would be able to do this in the Czech Republic. Even in Europe, there are only a few companies that could be labelled as mission prime. Most companies have the task to build only the satellite itself or part of it, and the rest of the work is usually handled by the European Space Agency (ESA).

*"Phase A was successfully completed a few weeks ago to test the feasibility of the entire mission. The initial design needs to be tested through a series of analyses ranging from orbit calculations, calculations of battery capacity or signal strength for communication with the ground station, to compatibility with the chosen launch vehicle. The most suitable design is then selected from several design options. We are now in the B1 phase, during which the chosen design is further developed in greater detail based on the results of the analyses. This will result in a preliminary design of the mission (satellite) with a clear form of all systems and functions,"* said Ondřej Krepl, author of the project from OHB Czechspace.

In September, the SOVA mission and other projects under the Czech Republic's Ambitious Projects Programme will be evaluated. The programme was created by the Czech Ministry of Transport together with ESA and aims to build the Czech Republic's capacity to develop and produce its own space missions. Currently, several Ambitious Projects are being prepared under the programme, which will be evaluated by the Czech ESA delegation in September and a few of them will be selected for implementation. The actual implementation phase of the selected projects must not exceed €30 million, the missions will be financed from the resources of the Ministry of Transport of the Czech Republic.

**OHB Czechspace**

OHB Czechspace is based in Brno and is a member of the technology group OHB SE. It focuses on the supply of satellites, satellite adapters and ground support equipment. The company has been awarded a number of contracts under ESA programmes, in addition to the Hera planetary defence mission, it is also working on the nuclear electric propulsion programme for space missions (RocketRoll), the Plato exoplanet research mission and the CO2M mission to measure carbon dioxide in the atmosphere. More information can be found at  https://www.ohb-czech.cz

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