Shenzhou-8: Safe touch-down with German SIMBOX experiments

18 November 2011

Successful conclusion of the first German-Chinese project in human space flight

On 17 November at 19:38 local time (12:38 CET), the Chinese spacecraft Shenzhou-8, carrying the German SIMBOX experiment, landed on schedule in the Gobi desert in Inner Mongolia, completing a successful 17-day mission. SIMBOX, which contains 17 biological and medical experiments, was retrieved by a helicopter crew. “Figuratively speaking, SIMBOX has been a leap over the Great Wall that has opened up a completely new partnership in human spaceflight for Germany,” said Gerd Gruppe, Executive Board member of the German Aerospace Center (Deutsches Zentrum für Luft- und Raumfahrt; DLR) responsible for Space Administration. “Our new partnership with China provides German scientists with additional research opportunities in space. I do not see this as a competition with our proven long-term cooperation partners, the United States and Russia, but rather as a complement.”

The equipment has now arrived and been opened at the Payload Integration Test Centre of the Chinese General Establishment of Space Science and Application in Beijing. After what is referred to as the checkout of the samples, DLR’s SIMBOX project manager, Markus Braun, was highly satisfied: “SIMBOX has worked wonderfully. Once the samples have been brought to their respective laboratories, the participating scientists will start to evaluate them.” Seven research institutes from Germany are involved in SIMBOX.

During the mission, plants, nematodes, bacteria, and human cancer cells were exposed to the weightlessness and cosmic radiation of space for two and a half weeks. The experiments addressed biological and medical issues of fundamental importance. Scientists from the universities of Erlangen, Hohenheim, Magdeburg, Tübingen, Hamburg, and Freiburg, as well as from the Charité Berlin took part in the studies.

In addition to six German experiments, two were run in cooperation with China. Researchers from the universities of Erlangen and Wuhan examined material and energy flows in a closed miniature ecosystem populated by algae and snails. In the second German-Chinese experiment, scientists from Hamburg University and the Institute of Biophysics at the Chinese Academy of Sciences in Beijing crystallised medically relevant proteins in microgravity. Researchers hope to find important starting points for developing substances to attack antibiotic-resistant bacteria and the vector-borne parasites that cause malaria.

Under the Shenzhou (Divine Craft) programme, the core of China’s manned space flight, the Chinese space agency CMSEO (China Manned Space Engineering Office) cooperated with another nation for the first time. On behalf of the Federal Ministry of Economics and Technology (BMWi), DLR Space Administration was responsible for coordinating and managing Germany’s share of the project. The SIMBOX apparatus was built by Astrium in Friedrichshafen. This unmanned flight of the Shenzhou spacecraft to the first module of the future space station, ‘Tiangong’ (Palace in the Sky) was a field trial for China’s future in human spaceflight.

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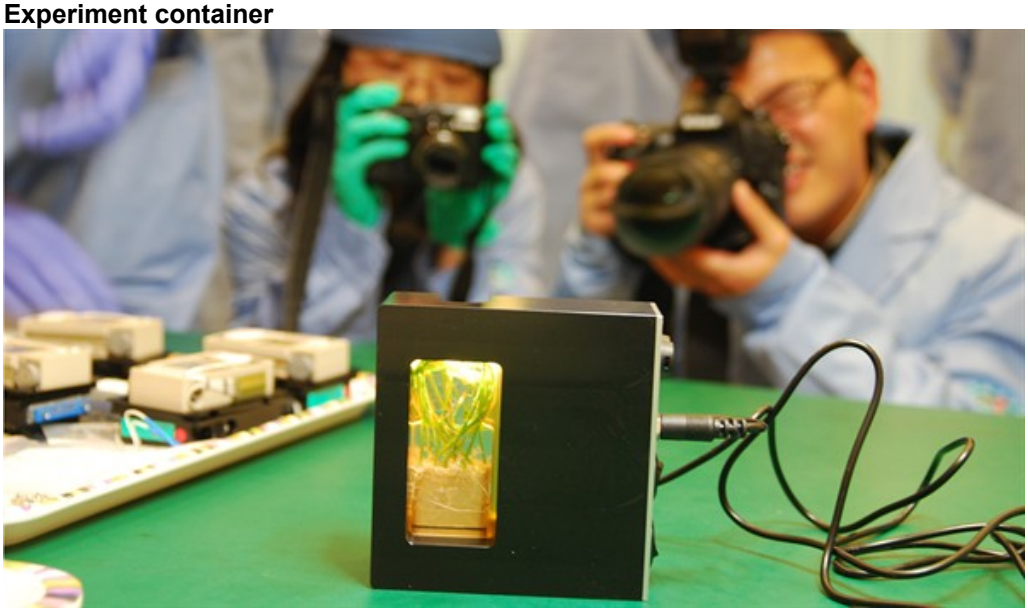
Experiment container



One of the experiment containers was removed from the SIMBOX apparatus. The data will be processed and evaluated by the experts in the coming days.

Credit: DLR.

SIMBOX back on Earth

Back to Earth: SIMBOX was transported from the landing site to the Chinese Organization of Space Science (Gessa). In this image, the excited German and Chinese project managers remove the cover of the apparatus.

Credit: DLR.

German and Chinese scientists open the SIMBOX apparatus

The German and Chinese scientists involved in the development of the SIMBOX apparatus. The smartphone-sized container holding the 17 experiments can now be removed.

Credit: DLR.

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