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## PRESS RELEASE

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### **HAYABUSA2 MISSION SAMPLES FROM ASTEROID RYUGU ARRIVE BACK ON EARTH**

On the night of 5 to 6 December 2020, samples collected from asteroid Ryugu by the Hayabusa2 space probe operated by JAXA landed back on Earth inside Australia's Woomera outback desert range after a journey of nearly one year. This is a landmark achievement for the world scientific community, marking the first time that fragments from a primitive carbonaceous asteroid have been returned for analysis on Earth. Preliminary analyses in Japan will be followed by more in-depth investigation by international science teams. Hayabusa2 touched down on the asteroid in February and July last year for a few seconds, long enough to fire a small impactor and kick up surface material for collection.

CNES, the French national scientific research centre CNRS and French universities will now be contributing to sample analysis in two ways:

- During the preliminary analysis phase in Japan, samples will be curated in line with the plan set out by the Hayabusa-2 Sample Allocation Committee (HSAC). MicrOmega, the hyperspectral microscope developed by the IAS space astrophysics institute and delivered by CNES, will be a key asset for this initial sample classification and preliminary analysis phase once Hayabusa2's sample container is opened. It will enable non-destructive, contactless analysis of sample materials to determine their texture and composition. It is housed inside the sample storage room built by JAXA for the Hayabusa2 mission and will be operated by a joint French-Japanese team.
- The subsequent detailed analysis phase will be organized by an international committee involving 20 French research scientists from CNRS laboratories working on the multidisciplinary international science team. No fewer than seven laboratories—CRPG, IJCLab, IAS, IMPMC, IPAG, IPGP and UMET<sup>1</sup>—are on this team.

Like OSIRIS-REx, MMX and MSR, Hayabusa2 is a mission designed to collect and return extraterrestrial samples to Earth for analysis with highly sophisticated instruments that can't be carried on deep-space missions. Such missions yield invaluable information that would be impossible to obtain in situ. France is a prime partner on a number of international partnership missions to analyse samples of celestial bodies, to which it is contributing its world-renowned know-how and expertise.

Hayabusa2 is a sample return mission to asteroid Ryugu led by the Japan Aerospace Exploration Agency (JAXA). The French-German MASCOT lander on Hayabusa2 was developed and built by the German space agency DLR, in close collaboration with CNES. The lander's scientific instruments were developed by DLR,

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<sup>1</sup> CRPG Earth and planetary sciences laboratory (CNRS/University of Lorraine), Irène Joliot-Curie laboratory of the physics of the two infinities (CNRS/Paris-Saclay University), IAS space astrophysics institute (CNRS/Paris-Saclay University), IMPMC mineralogy, materials physics and cosmochemistry institute (CNRS/MNHN/Sorbonne University), IPAG planetology and astrophysics institute in Grenoble (CNRS/Grenoble Alpes University), IPGP Earth physics institute in Paris (CNRS/University of Paris), UMET materials and transformations research unit (CNRS/University of Lille/ENSC Lille/INRAE).

the IAS space astrophysics institute (CNRS/Paris-Sud University) and Braunschweig University of Technology (TUB). MASCOT and its experiments were operated and controlled by DLR with support from CNES and in constant communication with JAXA.

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