European Sample Return missions and the curation in Europe of material returned from Space

S. S. RUSSELL[1], C. L. SMITH[1], A. HUTZLER[2], A. MENEGHIN[3], J. BRUCATO[3], L. FERRIERE[2], M. GOUNELLE[4], F. WESTALL[5], L. BERTHOUD[6], M. GRADY[7] AND THE EURO-CARES CONSORTIUM

[1]Natural History Museum Cromwell Road, SW7 5BD, London, UK; sarr@nhm.ac.uk
[2]Natural History Museum, Burgring 7, A-1010 Vienna, Austria
[3]INAF Astrophysical Observatory of Arcetri, Firenze, Italy
[4]Museum National d'Histoire Naturelle, 57 rue Cuvier, 75005 Paris, France
[5]CNRS-CBM, rue C. Sadron, 45071 Orléans, France
[6]TAS UK, Coldharbour Lane, Bristol, BS16 1EJ, UK
[7]Open Unversity, Milton Keynes, MK7 6AA, UK

Characterising material from space is a strength among Europeans, although we have no sample return missions scheduled. We have a long history, stretching back over 250 years, of curating meteorites and more recently have participated in missions from other space agencies.

EURO-CARES is a project to roadmap a European Sample Curation Facility (ESCF) for curation of sample return mission material from Mars, Moon, and asteroids. It was funded by the EC H2020 COMPET-8 program and is a three year project running from January 2015 to December 2017. While there have already been projects to investigate the curation of extraterrestrial sample return material in Europe, EURO-CARES is unique in being neither country-specific nor mission-specific.

We can learn from sample return missions led by other nations that have successfully collected material from the surface of the Moon and asteroids and from the tail of a comet. In contrast, a sample return mission to Mars requires new curation protocols, especially since such samples will have clear planetary protection constraints. We are considering all aspects of sample curation, from landing site selection on Earth, transport to the facility, best possible design of the facility and methods for initial characterisation. Furthermore we are planning what analogue materials may be necessary during all phases of sample return mission, and how best to engage the public with our work.

More details of the project can be found in our website: www.euro-cares.eu.

Acknowledgement: This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No 640190.