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Is Space R&D Truly Fostering A Better World For Our Future? (2)

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THE HRE SCIENCE DATA CENTER: A NEW ENTITY FOR STORING, VALORISING AND
PUBLISHING THE DATA COMING FROM ESA EXPERIMENTS.

Abstract

The ESA Human and Robotic Exploration Directorate (HRE) has been in charge, for many years now, of supporting the development of research and technologies in space. This includes the sponsoring of investigations belonging to a large variety of research fields (e.g. human research, biology, physical sciences, radiation) performed in different platforms, not only in the International Space Station (ISS) but also in parabolic flights, drop towers, bedrests and other future exploration missions to come (e.g. Lunar Gateway, Moon Surface, Mars).

Up to now, due mainly to the heterogeneity of the investigations, the management of the generated data has been very dependent on the nature of their science discipline. Historically, there has not been a complete system for storing and making accessible the results of these HRE investigations. Furthermore, these data seldom easily reach the global science community, usually remaining only available to the

science team that conducted the investigation. This situation represents a weakness with respect to recording and analysing the impact of the previous science programmes. In the future, HRE intends to ensure the accessibility and usability of the data for the benefit of the science community and the global public.

Over the last two years, HRE has moved towards establishing a systematic archiving process for all its activities related to historical, present and future missions. Seeking for synergy with the in-house ESA Science Data Centre located at European Space Astronomy Centre (ESAC), HRE has commissioned the Spanish User Support and Operations Centre (E-USOC) to set up the dedicated HRE Science Data Center (HRE-SDC). Located in Madrid, the HRE-SDC is an entity tasked to organise the (long-term) preservation of all existing HRE datasets and to ensure that all future HRE datasets can be distributed to the scientific community with a high quality service. The experience of the E-USOC in operating microgravity experiments together with the deep knowledge of ESAC in archiving science data has resulted in a successful collaboration which has already taken its first steps.

Within this paper an overview of the different entities and processes involved in the investigations data management is first given, having the HRE-SDC as the heart of those processes. Also, the state-of-art and the first achieved results, as the archive development, the HRE Data Archive (HREDA) web portal development and the archiving, dissemination and valorisation of a first set of experiments are presented in the article.