ExoMars: European robotic mission to Mars

June 2 2010

ExoMars Rover moving off the Lander. Image: ESA

A development model of the Mars Rover, called Bridget, was on display at the University of Leicester today providing invited schoolchildren as well as staff and students with an exciting glimpse into the shape of things to come.

The event coincides with celebrations marking the 50th anniversary of space research at the University of Leicester.

Scientists from the University of Leicester are involved in five instruments on board the ExoMars mission, including building the hardware for three of the instruments on board the craft. The ExoMars mission is one of the key missions under the remit of the newly formed UK Space Agency.

ExoMars (Exobiology on Mars) is a European-led robotic mission to Mars, developed by the European Space Agency (ESA) and NASA. It is part of ESA's Aurora programme for robotic exploration of the Solar System and its aim is to further characterise the chemical, geological and possible biological environment on Mars in preparation for robotic missions and then human exploration. Data from the mission will also provide invaluable input for broader studies of exobiology - the search for life on other planets.

The mission to Mars also has enormous Earth-bound applications with spin-offs in collaboration with industry bringing environmental benefits as well as technologies that can be applied in the fields of health and crime detection.

Professor Sims said: "ExoMars is a key mission in exploration of the planet Mars. It will attempt to gather samples from a depth 1-2m below the surface where they are protected from radiation and oxidants thought to exist on the surface - both of which would destroy/heavily degrade complex organic compounds.

"The mission gives the University, and the Space Research Centre(SRC) team in particular, the opportunity to explore the chemistry and mineralogy of Mars as well as look at the possibility of life on Mars in the distant past, or even today, and at the same time create world-class science. Because of its innovative work in space instrumentation, which builds upon the SRC expertise in imaging detectors and its interdisciplinary work on sensor systems, the University is providing several instruments.

"This is a truly exciting opportunity to explore Mars and look for extra-terrestrial life and on Friday 4 June, we are announcing the University of Leicester teams preparing for the ExoMars Flight Model Build programme."

Following construction of prototypes and confirmation of the mission by ESA, University of Leicester teams will start to gear up for the design and build of the various test models of the instruments and the build of the flight instruments due to be delivered in 2014.Both local industry in the East Midlands and key UK companies will be involved in the build of these instruments.

Professor Sims added: "The University of Leicester and the UK has a major international role in this key mission. The work associated with the ExoMars mission will be a major part of the University's Space Research Centre programme until launch of the mission in 2018 and after that, with operations and 'new science' on the surface of Mars from 2019.

"For the last 50 years at the University of Leicester, we have been exploring the Universe via astronomy; since 1993 the Earth and since 1995 the planets and Mars in particular. In 2018 the University will contribute instruments to the ExoMars mission that will attempt to answer the question of past or present life on Mars."

Professor Sims added that the University of Leicester's space research fed directly into postgraduate research as well as impacting on undergraduate education and on outreach programmes in schools, colleges and the wider community. The pioneering work of the University in Physics and Astronomy also led to the creation of the National Space Centre in Leicester.

Professor Sims said: "Given its major roles in the Mercury Bepi-Colombo mission and ExoMars Leicester is becoming known as one of the European leaders in planetary instrumentation. We now have thriving postgraduate research in planetary science and particularly Mars. There is an indirect link to undergraduate courses e.g. Space and Planetary Instrumentation, Life in the Universe."

Provided by University of Leicester