BUSINESS INNOVATION SYMPOSIUM (E6)
Entrepreneurship and Investment for Commercial in-Space Activities (2)

Author: Dr. Nicholas Waltham
Rutherford Appleton Laboratory, United Kingdom, nick.waltham@stfc.ac.uk

Mr. Scott Larson
Canada, slarson@urthecast.com
Mr. Nigel Morris
Rutherford Appleton Laboratory, United Kingdom, n.morris@rl.ac.uk
Mr. Ian Tosh
Rutherford Appleton Laboratory, United Kingdom, ian.tosh@stfc.ac.uk
Mr. Kevin Middleton
Rutherford Appleton Laboratory, United Kingdom, kevin.middleton@stfc.ac.uk
Dr. George Tyc
UrtheCast Inc., Canada, gtyc@urthecast.com
Mr. Carlos Alonso
MDA Systems Ltd, Canada, calonso@mdacorporation.com

URTHECAST: CHANGING OUR VIEW OF EARTH

Abstract

UrtheCast Inc. will assemble, launch, and operate the world's first ever continuous high definition, streaming video of the Earth from space. Two cameras will be mounted on the outside of the Russian module of the International Space Station and downlink the imagery and video they record to ground stations on the Earth. Once on Earth, that data will be processed into a high definition video feed that is streamed to users on the Internet, to television channels, and to smart phones. One camera will provide medium resolution colour and near-infrared image strips with a 40 km swath and ground pixel size (ground sampling distance) of 5.4 m. The second camera will contain a 14M pixel RGB Bayer-filtered image sensor and will be mounted on a precision-steerable platform that can point at a target scene and record high definition video for durations of typically 60-120 seconds. The field of view of this camera will be 5 km x 3.4 km with a ground pixel size of 1.1 m. Data from the cameras will be compressed within an on-board data handling unit before being downlinked to a global network of ground stations and fed into the UrtheCast ground segment. The user experience with the UrtheCast platform will feel like a blend between a video version of GoogleEarth and YouTube. It will provide a new and unique way to experience world events, social activities, and the Earth in general on the web. The site will allow users to track the location of the International Space Station, anticipating when it will pass over a particular geographic location. As a result, users will be able to time their outdoor events around the recording schedule of the cameras. There will be a huge geo-tagged on-line image and video archive that users will be able to access and interact with. Users will be able to select a geographical location, access images and videos, zoom in and out and "virtually" steer the camera from side to side, scroll back in time to see how events have evolved and observe what is happening in the local community. They will also be able to contribute their own geo-tagged content to the web platform, thereby furthering the experience for all. The unique functionality of the UrtheCast website will spark creativity, inspire unique user events from around the world and provide excitingly new environmental, educational and social benefits.