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UrtheCast – The System of Systems for Dynamic EO Monitoring

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URTHECAST is a multinational industrial initiative that tasks, downloads, processes and commercially exploits a medium resolution multispectral sensor and high-resolution wide area motion colorful video camera.

URTHECAST's Earth Observation imaging system includes a pair of multispectral color cameras installed on the ISS. The High-Resolution Camera (HRC-Iris) is mounted on a pointing platform and capturing 1m-class high-definition (HD), full color motion imagery of areas measuring approximately 5.5 km x 3.6 km. The nadir pointing, push-broom Medium-Resolution Camera (MRC-Theia) produces a continuous ribbon of 4-channel, multispectral 6m-class imagery. The acquired data are downlinked to a global network of antennas and backhauled to the URTHECAST cloud-based processing system and dissemination services. The resulting imagery and video are streamed in near real time to the URTHECAST web platform or delivered to customers as special order products.

URTHECAST daily MRC collection capability is approx. 29 million sq km while the HRC capacity is envisaged to generate approximately 2.5 terabytes of data per day, the equivalent of about 270 full resolution ~90 second movies.

The UrtheCast new Generation cameras include a dual Optical sensor (video & push-broom focal planes) and dual-band (X and L) Synthetic Aperture Radar payload.

Video will be of half-meter colour (.40cm after super-imposition) and push-broom will be 1 meter of 6-band multispectral.

SAR payload will simultaneously record in both L and X bands, with the L-band in full quad pole (HH, HV, VH, VV, at 5m) and the X-band in single pole (HH or VV, at 1.5m or at <1m in spotlight mode).

The new system will be installed at NASA's Node 3 segment in late 2016.

ISS is flying at 400km orbiting the earth 15 times/day and covering areas fallen into a geographic zone from 51.5 degrees north to 51.5 degrees south.

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