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THE CASE FOR VIDEO IMAGING FROM SPACE

Abstract

Still imagery has a number of limitations in applications related to surveillance, disaster monitoring and news gathering. Video imaging systems have been demonstrated several times over the past decades, but single spacecraft are limited in application as they cannot cover specific target areas on the globe frequent enough. Furthermore, previous video imaging missions have generally lacked the necessary resolution to allow fine scale human activity to be monitored, such as traffic and crowds.

Small satellites have now matured to the point where high resolution video imaging is feasible, with batches of 10's of spacecraft costing the same as a single traditional imaging satellite. Over the past years SSTL has been developing such video imaging mission prototypes, with the launch of Carbonite-1, and the planned launch of Carbonite-2 in 2017.

In the two years since the launch of Carbonite-1, lessons learned from the mission have been fed into the Carbonite-2 mission. Furthermore, the development of video image processing techniques have helped improve data products for target tracking video products to the point where commercial utility can be illustrated. This paper will describe the Carbonite spacecraft, quantifies performance, and discusses typical uses through example data products.