

SPACE DEBRIS SYMPOSIUM (A6)
Measurements (1)

Author: Dr. Mark A. Skinner
Boeing, United States, mark.a.skinner@boeing.com

Dr. Steve Gregory
The Boeing Company, United States, sgregory58@gmail.com

Dr. Thomas Kelecyc
Boeing Integrated Defense Systems, United States, thomas.m.kelecyc@boeing.com

Dr. Ray Russell
The Aerospace Corporation, United States, Ray.W.Russell@aero.org

Dr. Richard Rudy
The Aerospace Corporation, United States, richard.j.rudy@aero.org

Mr. Daryl Kim
The Aerospace Corporation, United States, Daryl.L.Kim@aero.org

Dr. Rita Cognion
Oceanit Laboratories, Inc., United States, rcognion@oceanit.com

FURTHER OBSERVATIONS AND ANALYSIS IN THE THERMAL IR AND VISIBLE OF
GRAVEYARD ORBIT OBJECTS**Abstract**

There exists a population of defunct satellites in the so-called graveyard orbit, at altitudes several hundred kilometers above the geo-stationary arc. These drifting, non-station-kept objects have a variety of ages and sizes, and exhibit behavior quite different from operational, station-kept objects in the geo-stationary arc. In addition, new objects are now appearing in this volume of space in and around the geo-stationary arc and graveyard orbit. These objects may be pieces of other objects or previously uncatalogued objects. In trying to understand the geo environment, studies of all of these types of objects are important to pursue, and we are taking advantage of every opportunity to do so with as many sensors, wavelengths, spatial, and spectral resolutions as we have at our disposal.

Previous work* presented an interesting preliminary set of results on one such object, COSPAR 1994-047a (“DirecTV-2”), a communications satellite retired from active service in April 2007 to an orbit 320 km higher than GEO, taken with the Broadband Array Spectrograph System (BASS), in both the IR (3-13 m), as well as the visible. We presented interesting light-curves in both wavebands that appeared to be related to each other, albeit in complex rather than simple ways. We have conducted further observations and analyses of data on this object. We describe our methods, the data collected, our analysis approach and results, and our future plans.