Title: VLBI Multi-Platform Imaging Radar

Invention: This technology is a methodology for using multi-static, long baseline interferometry imaging radar with balloon CubeSat satellites for the tracking, imaging, and classification of space objects, particularly objects that are in geosynchronous Earth orbit (GEO).

Background: Since the launch of Sputnik in 1957, mankind has progressively added more satellites, and consequently more debris, into Earth’s orbit. As of 2013, NASA has tracked over 500,000 pieces of debris larger than the size of an average marble, and this number is constantly increasing. The amount of satellites and debris have posed a problem with the ability to track and image objects, especially those that are small. Traditional techniques for tracking these satellites are not sufficient enough to provide high-resolution images and small objects are often missed. This technique improves on a previously disclosed VLBI imaging technique (UA18-117) to better measure objects in geosynchronous Earth orbit, or those objects that do not move relative to the ground-based array.

Applications:

- High-resolution imaging of near-Earth objects (NEO)
- Characterization of NEOs
- High-resolution imaging and characterization of GEO objects

Advantages:

- Provides high-resolution images
- Potential to support improvements in tracking and predicting NEO flight paths
- Potential support mitigation of space debris

Licensing Manager:

Contact John Geikler
Asst. Director, Physical Science Licensing

johng@tla.arizona.edu
(520) 626-4605
John Geikler
JohnG@tla.arizona.edu
(520) 626-4605

Inventors
Christopher Walker
Professor, Astronomy