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GEOTRACKER - A WORLDWIDE OPTICAL NETWORK FOR SPACE SITUATIONAL AWARENESS

Abstract

With the continuous growth of space applications, the number of objects in orbit is increasing dramatically. Space Situational Awareness has become a necessity to insure safe operation of space assets.

Since 2008 ArianeGroup has been developing capabilities for Space Surveillance and Tracking.

Since 2017, a network of optical stations with world-wide coverage has been deployed and operated. It performs tracking of objects in GEO/MEO/LEO orbits and provides optical angular measurements allowing orbit determination and feeding ArianeGroup own catalogue of space objects.

This catalogue allows the provision of collision warning, special analyses of space event, and alert generation to customers. Orbit refinement can then be performed on demand through the network.

With this Optical sensor network, ArianeGroup has the capability to provide data or services to government and private sector operational users of space assets.

This paper describes the system architecture, station design, performances, catalogue current status and possible capabilities in the context of space debris.