Space-based platform asteroid orbit determination and collision warning

Song yezhi
Shanghai astronomical observatory, Center for Astro-geodynamics Research, China (syz@pmo.ac.cn)

The risk of asteroids impacting the earth is a common space security issue facing human beings. Since the ground-based monitoring network cannot cover the space area comprehensively, there are cases of celestial body out of monitoring. In response to this problem, this report studies the space-based platform's monitoring system, and calculates its performance for orbit determination and monitoring of small celestial bodies. For small celestial bodies that are not in the catalog, the initial orbit determination needs to be performed before the orbit improvement. In addition, this paper proposes a method based on Fibonacci search method to quickly predict the impact location of asteroids.