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An improved toolset for aircraft safety and sky condition monitoring at Metsähovi SLR-station

Metsähovi Geodetic Fundamental Research Station in Southern Finland is located near the Helsinki International Airport and another small airport for recreational aircrafts. Hence major care needs to be taken for aircraft safety. Use of an active radar is prohibited at the premises due to an astronomical radio telescope near the SLR and a new VGOS system which will be built 100 meters from the SLR. We use two independent ADS-B receivers for air traffic monitoring: Kinetic SBS-3 and AirNav RadarBox. Here we present a preliminary comparison of the performance of the two systems at Metsähovi. For additional visual image around the telescope pointing we have installed on top of the telescope a high sensitivity surveillance CCD camera with an adjustable FOV. In addition we have developed a visual aid tool for the operator by using a realtime allsky-image of Metsähovi sky, ADS-B information, and satellite orbit information to give the operator a good picture of the current observing conditions, e.g., which satellites are visible in cloud-free areas of the sky. To help in scheduling and budgeting observations through the year we use statistical cloudiness measurements from Boltwood II CloudSensor which shows good relation with the cloudiness index derived from MODIS data. In this presentation we show the current developments at Metsähovi SLR station for aircraft safety and for optimizing operations.