



## Ultra-rapid EOP determination with VLBI

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In 2007 the Geospatial information Authority of Japan (GSI) and the Onsala Space Observatory (OSO) started a project aiming at determining the earth rotation angle, usually expressed as dUT1, in near real-time. In the beginning of this project dedicated one hour long one-baseline experiments were observed periodically using the VLBI stations Onsala (Sweden) and Tsukuba (Japan). The strategy is that the observed VLBI-data are sent in real-time via the international optical fibre backbone to the VLBI-correlator at Tsukuba where the data are correlated and analyzed in near-real time, producing ultra-rapid dUT1 results. An offline version of this strategy has been adopted in 2009 for the regular VLBI intensive series INT-2 involving Wettzell (Germany) and Tsukuba. Since March 2010 the INT-2 is using real-time e-transfer, too, and since June 2010 also automated analysis. Starting in 2009 the ultra-rapid approach was applied to regular 24 hour long VLBI-sessions that involve Tsukuba and Onsala, so that ultra-rapid dUT1 results can be produced already during ongoing VLBI-sessions. This strategy was successfully operated during the 15 days long CONT11 campaign. In 2011 the ultra-rapid strategy was extended to involve a network of VLBI-stations, so that not only dUT1 but also the polar motion components can be determined in near real-time. Initially, in November 2011 a dedicated three-station session was observed involving Onsala, Tsukuba and Hobart (Tasmania, Australia). In 2012 several regular 24 hour long IVS-sessions that involved Onsala, Tsukuba and HartRAO (South Africa) were operated with the ultra-rapid strategy, and in several cases also Hobart was added as a fourth station. For this project we use the new analysis software c5++ developed by the National Institute of Information and Communications Technology (NICT). In this presentation we give an overview of the UREOP-project, describe the recent developments, and discuss the obtained results.