VGOS VLBI Intensives between MACGO12M and WETTZ12M for the rapid determination of UT1-UTC

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Abstract. The rapid and highly accurate determination of the Earth's phase of rotation, expressed through the difference between UT1 (Universal Time 1) and UTC (Coordinated Universal Time), is one of the key products of geodetic Very Long Baseline Interferometry (VLBI).To ensure low latency, dedicated 1-hour-long VLBI Intensive sessions are observed daily.Due to the upgrade of the VLBI infrastructure to the next generation VLBI Global Observing System (VGOS), VGOS Intensives are now operationally observed as well.So far, three VGOS baselines have been utilized for VGOS Intensives:one between KOKEE12M (K2, Hawaii) and WETTZ12M (Ws, Germany), one between MACGO12M (Mg, Texas) and WETTZ12M, and one between ONSA12NE/ONSA12SW (Oe/Ow, Sweden) and Ishioka (Is, Japan).In this work, we focus on the Mg-Ws baseline and compare its performance with K2-Ws and other Intensive observing programs.Although the Mg-Ws baseline is approximately 20 % shorter compared to K2-Ws (8271 km compared to 10072 km, projected on the equatorial plane), similar precision of UT1-UTC estimates of 2-5 mus has been achieved.This is remarkably better compared to non-VGOS Intensives that typically have a precision of around 20 mus.We will highlight how the good performance of Mg-Ws can be explained.First of all, the number of observations was significantly increased to around 90 scans per hour.Furthermore, the scheduling approach was adjusted to derive better results.This includes a rapid change of high and low elevation scans, as well as a special focus on observing sources located at the corners of the mutually visible sky.Finally, we will give an outlook on our plans to further improve the VGOS Intensive performance.This includes an increase in bandwidth and a joint analysis of the VLBI Intensives with a GNSS network using the Bernese software.