

[ID20] Phase Solution Analysis for the Simultaneous Dual Frequency VLBI Observation

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We present the results of the phase solution analysis for the first simultaneous dual-frequency VLBI observation using VERA (VLBI Exploration of Radio Astrometry). The visibility phases at 22GHz for NRAO512 and 43GHz for 3C345 show rapid variations due to the atmospheric fluctuation coming from the water vapors. The connected phases, which are corrected the 2π ambiguity, clearly show the non-dispersive characteristic of atmosphere. This confirmation gives a good possibility for the multi-frequency phase referencing. The differential phases, phase differences between the 43GHz phase to the transferred 22GHz phase, however, show some distinct tendency of drift and sinusoid. We analyzed various factors which could have an effect on the VLBI phase stability and present these results.

[ID21] Novel Ray Tracing Simulation for GOCI In-Orbit Imaging and Radiometric Performance Verification

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The geostationary ocean color imager (GOCI) is one of three payloads of COMS that KARI is currently developing for studying the Korean coastal water environmental condition such as red tides. We report the progress of the integrated optical model development for GOCI in-orbit performance verification. The Sun is modeled as the emitting source and the curved Earth surface section of 2500 km x 2500 km including the Korean peninsular and the sea is defined as a target scattering surface. From its geostationary orbit, the GOCI optical system observes the reflected light from the scattering surfaces with varying reflectance following the changes in environmental parameters such as Chlorophyll concentration. The integrated end-to-end optical ray tracing was then used to estimate the GOCI in-orbit imaging and radiometric performances. The detailed computational technique including geometric and radiometric scaling, simulation results and its implications to the on-going GOCI development are presented.