

First demonstration of trajectory based RFI subtraction on real radio interferometry data

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Radio Frequency Interference (RFI) is a growing problem in radio astronomy. As of October 2024, more than 13,000 satellites are orbiting Earth, with the number steadily increasing due to the deployment of large-scale satellite constellations such as Starlink. Methods to address RFI are therefore essential. In novel work we have successfully performed trajectory based RFI subtraction on real radio astronomy data contaminated by a Starlink satellite. The method used, known as TABASCAL (Trajectory Based RFI Subtraction and Calibration), has been in development for several years and has demonstrated its capabilities of RFI subtraction on simulated data. Now, for the first time, TABASCAL has been applied to real data provided by the EDA2 telescope, an SKA-low analogue. The results show the effective removal of the Starlink satellite and a correct prediction of the astronomical sources. This first real-world demonstration marks a significant milestone in mitigating RFI.

Primary authors: FINLAY, Chris (UNIGE); TOLLEY, Emma (EPFL); THUMS, Huckleberry (EPFL)

Presenter: THUMS, Huckleberry (EPFL)

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