

Four years of ICRF3 source positions

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Precise astronomical reference frames are extremely important for a wide variety of applications in the broader community, including astronomical observations and navigation, to name a few. ICRF3 is the third realization of the International Celestial Reference Frame, created from the combined international efforts of nearly 40 years of VLBI radio observations of thousands of quasars. In the time since the adoption of ICRF3 in August 2018, many additional astrometric and geodetic observations have been carried out, allowing for a regular cadence of global solutions which estimate updated earth orientation parameters as well as celestial reference frame source positions. In this work, we examine shifts in the long-term observed positions as well as the combined solved radio positions of ICRF3 sources over the past three years, derived from VLBI global solutions.

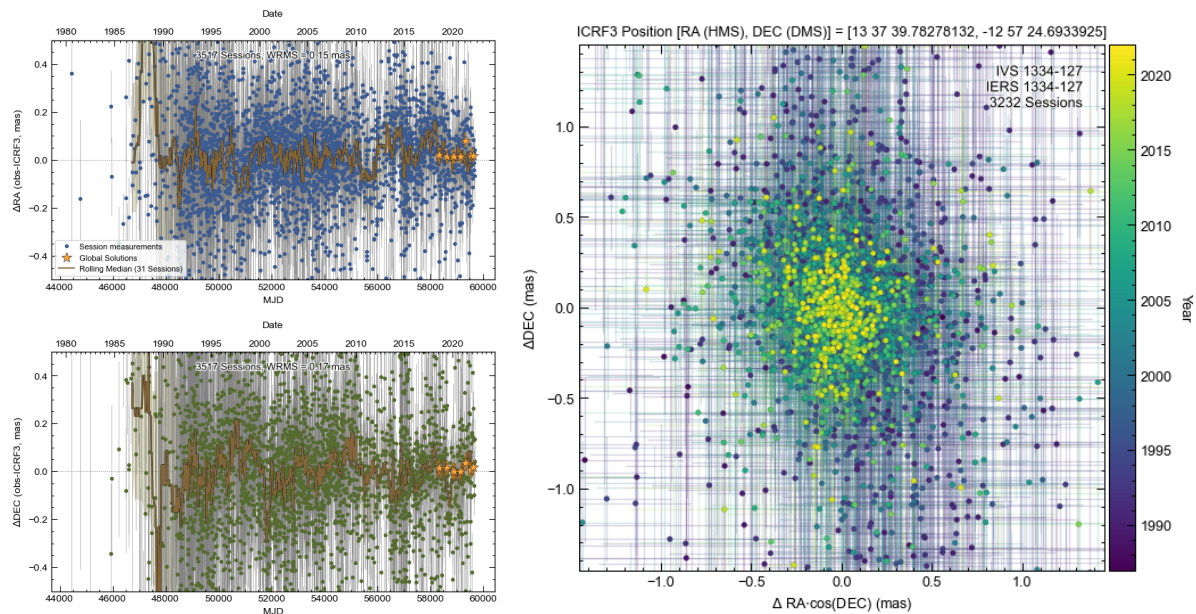


Figure 1. Left: Example time series of R.A. and decl. offsets from ICRF3, for source 1334-127. Right: The same time series plotted in offset sky coordinates.

References

- [1] Charlot, P., “The third realization of the International Celestial Reference Frame by very long baseline interferometry”, *Astronomy and Astrophysics*, vol. 644, 2020. doi:10.1051/0004-6361/202038368.
- [2] Fey, A. L., “The Second Realization of the International Celestial Reference Frame by Very Long Baseline Interferometry”, *The Astronomical Journal*, vol. 150, no. 2, 2015. doi:10.1088/0004-6256/150/2/58.