

Project name : The Commensal Radio Astronomy FAST Survey (CRAFTS)

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CRAFTS is a fully open, commensal, service survey, which aims to cover the full FAST sky in drift scan mode. With the 19 beam tilted to a certain angle, each drift scan covers about 21' in DEC. Combined with the proper shift and stacking, CRAFTS achieves super-Nyquist (1.3' spacing in DEC) and even sampling of the sky, which produces unprecedented imaging quality and survey efficiency. Enabled by our novel and proprietary high-cadence CAL injection technique, CRAFTS can simultaneously take four independent data streams, namely, Galactic HI (10 MHz band), extra-galactic HI (400 MHz full band), pulsar search, and transient (FRB/SETI). One-pass coverage of the FAST sky will require about 5500 hours. In the next five years, the priority will be given to DEC -14 to +5.5. The survey team promises to deliver CRAFTS data with the basic calibration (i.e. Tsys applied to the data header) and high-cadence CAL signal processed. Any interested colleague can still join the survey and get access to raw and level 1 data immediately after data taking. The high-cadence CAL technique is not limited to drift-scan mode. We encourage anyone who wishes to reap the benefit of either effective sky coverage or commensality to try out the high-cadence mode. Upon request, the survey team will provide the pipeline or carry out the basic calibration for you, with no prerequisite authorship request. Our goal is to preserve the potential to combine all data taken in CRAFTS mode into a coherent set when they become public. For more detailed technical description, current coverage, survey membership, confirmed pulsar discoveries, etc., please refer to <https://crafts.bao.ac.cn> and Li et al. 2018 (<https://ui.adsabs.harvard.edu/abs/2018IMMAG..19..112L/abstract>).