James Freeburn

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Research Employment History

November 2025 – Present — **Postdoctoral Researcher,** University of Sydney and ARC OzGrav

July 2025 – October 2025 — **Postdoctoral Researcher,** University of North Carolina at Chapel Hill.

Education

Nov 2021 – July 2025 — **Ph.D., Swinburne University,** Centre for Astrophysics and Supercomputing.
Thesis title: *Unraveling the Mysteries of Gamma-ray Bursts with Fast-cadenced Optical Imaging*
Principal Supervisor: Prof. Jeffrey Cooke

Feb 2017 – Oct 2020 — **BAdvSc (Hons), University of Queensland,** School of Mathematics and Physics.
Thesis title: *Calibrating Galaxy Metallicity Tracers*
Principal Supervisor: Dr. Sarah Sweet

First Author Publications

1. **Freeburn, James** et al. **Feb. 2025**. "GRB 220831A: a hostless, intermediate gamma-ray burst with an unusual optical afterglow". In: *MNRAS* 537.2, pp. 2061–2078. DOI: 10.1093/mnras/staf147. arXiv: 2411.14749 [astro-ph.HE].
2. **Freeburn, James** et al. **July 2025**. "Identification and photometric classification of extragalactic transients in the Vera C. Rubin Observatory's Data Preview 1". In: *arXiv e-prints*, arXiv:2507.22864, arXiv:2507.22864. DOI: 10.48550/arXiv.2507.22864. arXiv: 2507.22864 [astro-ph.HE].
3. **Freeburn, James** et al. **July 2024**. "A fast-cadenced search for gamma-ray burst orphan afterglows with the Deeper, Wider, Faster programme". In: *MNRAS* 531.4, pp. 4836–4851. DOI: 10.1093/mnras/stae1489. arXiv: 2405.11949 [astro-ph.HE].

Research Interests

- Fast optical transients.
- Gravitational waves and multi-messenger astronomy.
- Gamma-ray bursts and their afterglows.
- Radio transients and variables.

Awarded Telescope Time as Principal Investigator

2024B
- **5 hours,** Australian National University 2.3m WiFeS
  Spectroscopic Follow-up of Fast Transients from ZTF
- **6 hours,** Los Cumbres Observatory 2m MuSCAT3
  Unveiling the Optical Nature of an Unusual Radio Binary

Invited Talks

28 July 2025 — **Workshop talk,** Rubin Community Workshop, USA.

Invited Talks (continued)

27 Aug 2024 — **Colloquium,** LSST Transients and Variable Stars collaboration telecon, international.
9 Aug 2024 — **Colloquium,** OzGrav telecon, Australia.
2 Feb 2024 — **Conference Talk,** Transients Down Under, Australia.
24 Jan 2024 — **Colloquium,** Pontificia Universidad Católica de Valparaíso, Chile.
23 Jan 2024 — **Colloquium,** European Southern Observatory, Santiago, Chile.

Professional Memberships

Jan 2022 – Present — ARC Centre for Excellence for Gravitational Wave Discovery (OzGrav).
July 2024 – Present — ASKAP Variables and Slow Transients (VAST) Collaboration.
July 2025 – Present — Global Relay of Observatories Watching Transients Happen (GROWTH) Collaboration.
Rubin Transients and Variable Stars Science Collaboration
September 2025 – Present — The Public AEON Spectroscopic Survey for Transient Astronomy

Miscellaneous Experience

August 2025 – Present — **Student Mentor**, University of North Carolina.
Aug 2023 – Aug 2024 — **Colloquium Organiser**, Swinburne University.
Aug 2022 – Aug 2023 — **Code of Conduct Committee**, Swinburne University.
Jun 2022 – Jun 2023 — **Work Experience Supervisor**, Swinburne University.
May 2022 – May 2023 — **Social Coordinator**, Swinburne University.

Skills

Coding — C, C++, IDL, LaTeX, Python, R, SQL.
Data Analysis Techniques — Integral field spectroscopy, machine learning, Markov-Chain Monte-Carlo methods, photometry, supercomputing.
Observing Experience — Victor M. Blanco Telescope DECam, Keck Telescope LRIS, Anglo-Australian Telescope 2dF/AAOmega, Australia Telescope Compact Array, Murriyang Parkes Radio Telescope.

Other Employment History

Aug 2018 – May 2025 — **Infantry Soldier,** Australian Army Reserve.
Jan 2021 – Oct 2021 — **Data Analyst,** Queensland Curriculum and Assessment Authority.