Jordan Brook | Curriculum Vitae

240 Swann Road, Taringa, 4068, Queensland, Australia

0425551011 • j.brook@uq.edu.au

Passionate post-graduate student with an interest in weather and climate systems. Strong computational and physical sciences background with research experience in radar meteorology and physical oceanography.

Education

Ongoing Study

- **Doctor of Philosophy, University of Queensland** — **Brisbane**
  Atmospheric Sciences, Collaboration with the Australian Bureau of Meteorology — *2019 – Current*

Academic Qualifications

- **Bachelor of Science (Honours), University of Queensland** — **Brisbane**
  Geographical Sciences Major, GPA: 7.0, Thesis awarded a mark of 98% — *2018*
- **Bachelor of Science, University of Queensland** — **Brisbane**
  Physics and Computational Science Dual Major, GPA: 6.125 — *2015 – 2017*

Academic Awards

- **Australian Postgraduate Award Scholarship (APA)**
  Post-graduate research funding awarded by the Australian Government, — *2019 - Current*
- **University of Queensland Excellence Scholarship**
  Awarded based on academic and leadership achievements, — *2015 – 2018*
- **Dean's Commendation for Academic Excellence**
  Recognising outstanding academic performance, — *2015 & 2018*
- **Australian Students Prize**
  Awarded to the 500 highest achieving secondary school graduates in the country, — *2015*

Research Publications

Accepted

- Downes, S.M., C. Langlais, **J. Brook**, and P. Spence, 2017: *Regional Impacts of the Westerly Winds on Southern Ocean Mode and Intermediate Water Subduction*, J. Phys. Oceanogr., 47, 2521–2530, https://doi.org/10.1175/JPO-D-17-0106.1
- Soderholm, J.S. , K.I. Turner, **J. Brook**, T. Wedd, and J. Callaghan, 2019: *High-Impact Thunderstorms of the Brisbane Metropolitan Area*, Journal of Southern Hemisphere Earth Systems Science, Early online view available at: http://www.bom.gov.au/jshess/docs/2019/Soderholm_early.pdf

In Preparation

- **Brook, J.**, A. Protat, J. Soderholm, J. Carlin, H. McGowan and R. Warren, 2020: *HailTrack - Improving Radar-Based Hailfall Estimates by Modelling Hail Trajectories*, Journal of Applied Meteorology and Climatology (Submitted), https://doi.org/10.5281/zenodo.3697489
- Dowdy, A. , J. Soderholm, **J. Brook**, A. Brown, and H. McGowan, 2020: *Quantifying hail and lightning risk factors based on long-term observations around Australia*, Journal Aim: Geophysical Research Letters

Conference Presentations

- **Brook, J.**, A. Protat, J. Soderholm, H. McGowan, R. Warren, 2019: *HailTrack: Modelling Hail Trajectories Using Weather Radar Data*, 39th AMS Radar Conference, 16 - 20 September, Nara, Japan

- **Brook, J.**, A. Protat, J. Soderholm, J. Carlin, H. McGowan, 2018: *Computationally Estimating Hail Trajectories*, North American Workshop On Hail & Hailstorms, 14 - 16 August, Boulder, CO., USA

Research Experience

- **Industry Funded Research Scientist**
  Industry Partnership between UQ and Guy Carpenter & Company, LLC *Jan 2019 – Jul 2019*
  In this position I took the principal scientific/software development role in developing an Australia-wide, radar-based, thunderstorm climatology for application in the insurance industry.

- **Honours Research Thesis**
  School of Earth and Environmental Sciences, UQ *Feb 2018 – Nov 2018*
  This project was successful in developing a novel approach to short-term hail forecasting to more accurately predict hail damage from weather radar data.

- **University of Queensland Summer Research Scholar**
  School of Earth and Environmental Sciences *Nov 2015 – Feb 2016 & Nov 2017 – Feb 2018*
  Both summer research programs met their project aims; namely, to analyse radar signatures from one of Australia's most damaging hailstorms and to develop an Australian mesocyclone detection algorithm.

- **Antarctic Climate and Ecosystems Research Council**
  Physical Oceanography Research Scholar *Nov 2016 – Feb 2017*
  In this role I worked on global ocean/atmosphere models to determine the effects of climate change on carbon sequestration and subduction in the Southern Ocean.

- **The Bureau of Meteorology**
  Radar Meteorology Work Experience *June – Nov 2016*
  Work experience at the Bureau of Meteorology's Brisbane office involved developing my ability to interpret and analyse radar data.

Relevant Skills and Experience

Technical and Personal Skills

- **Programming Skills:** Proficient in C, Advanced Python, Matlab and Tex, strong parallel programming experience and extensive scientific software development expertise,
- **General Scientific Skills:** Strong scientific writing background, excellent verbal communication skills and wide-ranging experience in spoken and digital presentations.

Notable Software/Model Development

- **'A.I.N.T. - The Australian Identification, Nowcasting and Tracking Algorithm'**
  Principal developer in industry partnership between UQ, BoM and Guy Carpenter, *Jan 2019 – Jun 2019*

- **'HailTrack - A Physical Model to Estimate Hail Trajectories'**
  Honours Thesis - Awarded an overall mark of 98%, *Feb 2018 – Nov 2018*

- **'PyMeso - Mesocyclone Detection Techniques for Australian Supercells'**
  Research project, software available - https://github.com/jordanbrook/PyMeso, *Nov 2017 – Feb 2018*

Academic References

- **Dr. Alain Protat**
  "Radar Science and Nowcasting" Team Leader, The Bureau of Meteorology *alain.protat@bom.gov.au*
- **Dr. Joshua Soderholm**
  Research Scientist, The Bureau of Meteorology *joshua.soderholm@bom.gov.au*
- **Prof. Hamish McGowan**
  Professor, School of Earth and Environmental Sciences, UQ *h.mcgowan@uq.edu.au*