

Josef Bisits

School of Mathematics and Statistics,
University of New South Wales.

Phone number: +61 400 348 389
Email: jbisits@gmail.com
Website: jbisits.github.io/
LinkedIn: [josef-bisits-066253123](https://www.linkedin.com/in/josef-bisits-066253123)
GitHub: github.com/jbisits
ORCID: [0000-0002-6340-4470](https://orcid.org/0000-0002-6340-4470)

EDUCATION

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- University of New South Wales** Sydney
• PhD candidate, supervisor Associate Professor Jan Zika, in the School of Mathematics and Statistics. 2022–current
 - University of New South Wales** Sydney
• Bachelor of Science (Advanced Mathematics) (Honours) Class 1, major in applied mathematics. 2016–2021
 - University of Sydney** Sydney
• Bachelor of Music (Performance), major in double bass performance. 2007–2010

PUBLICATIONS

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- Bisits, J. I., Zika, J. D. & Evans, D. G. Does Cabbeling Shape the Thermohaline Structure of High-Latitude Oceans? *Journal of Physical Oceanography* **54**, 2419–2430. doi:[10.1175/JPO-D-24-0061.1](https://doi.org/10.1175/JPO-D-24-0061.1) (12 Dec. 2024).
 - Bisits, J. I., Stanley, G. J. & Zika, J. D. Can We Accurately Quantify a Lateral Diffusivity from a Single Tracer Release? *Journal of Physical Oceanography* **53**, 647–659. doi:[10.1175/JPO-D-22-0145.1](https://doi.org/10.1175/JPO-D-22-0145.1) (2 Feb. 2023).

CONFERENCE PROCEEDINGS

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- Bisits, J. I. *Does cabbeling shape the thermohaline structure of high-latitude oceans?* in *Gordon Research Seminar on Ocean Mixing* (June 2024). Oral presentation.
 - Bisits, J. I. *Does cabbeling shape the thermohaline structure of high-latitude oceans?* in *Australian Meteorological and Oceanographic Society annual conference* (Feb. 2024). Oral presentation.
 - Bisits, J. I. *Can we accurately quantify a lateral diffusivity from a single tracer release?* in *XVIII General Assembly of the International Union of Geodesy and Geophysics (IUGG)* (July 2023). Oral presentation.
 - Bisits, J. I. *Can we accurately quantify a lateral diffusivity from a single tracer release?* in *Australian Meteorological and Oceanographic Society annual conference* (Nov. 2022). Oral presentation.
 - Bisits, J. I. *The effects of cabbeling on mixing and energetics in polar oceans* in *Australian Antarctic Research Conference* (Nov. 2024). Poster presentation.
 - Bisits, J. I. *The effect of non-linear processes on mixing* in *Gordon Research Conference on Ocean Mixing* (June 2024). Poster presentation.
 - Bisits, J. I. *Does cabbeling shape the thermohaline structure of high-latitude oceans?* in *Physics of the Ocean Summer School* (July 2023). Poster presentation.
 - Bisits, J. I. *Can we accurately quantify a lateral diffusivity from a single tracer release?* in *Australian Centre for Excellence in Antarctic Science workshop* (Nov. 2022). Poster presentation.

RESEARCH EXPERIENCE

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- Research assistant** Sydney
• Assisted Associate Lecturer Simon Lloyd in historical water quality data analysis and modelling: 2022
 - processing and analysing data used to develop the ‘riverwatch model’ - a predictive water quality model.
 - Collaboration with Water Research Centre, UNSW** Sydney
• Recreational water quality in urban rivers: 2020
 - provided initial and ongoing advice regarding spatial and temporal analysis of water quality and meteorological data.

PROGRAMMING SKILLS

My programming language of choice is **julia**. Some packages I am involved with are:

- `TwoLayerDirectNumericalShenanigans.jl`, `OceanRasterConversions.jl`, `RasterHistograms.jl` (author);
- `PassiveTracerFlows.jl` (developer); and
- `FourierFlows.jl`, `GeophysicalFlows.jl` (contributor) amongst others.

I am also fluent with , ,  and **L^AT_EX**.

TEACHING

- **Mathematics** University of New South Wales
Tertiary mathematics tutoring: 2021–Current
 - Mathematics Drop in Centre;
 - Mathematics 1A (MATH1131), Mathematics 1B (MATH1231/1241)
 - Numerical Methods and Statistics (MATH2089); and
 - Fluids, Oceans, and Climate (MATH3261—5285).
- **Double bass** Sydney
Private and ensemble double bass tuition in Sydney. 2017–2022

PROFESSIONAL ACTIVITIES

- **Peer Review**
Journal of Geophysical Research: Oceans. Ongoing

ORCHESTRAL EXPERIENCE

- **Sydney Symphony Orchestra** Sydney
Regular casual double bassist: 2009–Current
 - full time contract musician for 2015 season and September 2017–September 2018; and
 - Sydney symphony fellowship 2010.
- **Australian Chamber Orchestra** Sydney
Regular casual double bassist: 2013–Current
 - emerging artist in 2013.
- **Opera Australia Orchestra** Sydney
Regular casual double bassist. 2016–Current
- **Tasmanian Symphony Orchestra** Tasmania
Casual double bassist. 2013–2018
- **Ulster Orchestra** Belfast
Double bassist: Winter 2012
 - held a trial for double bass section leader.
- **Southbank Sinfonia** London
Double bassist: 2011–2012
 - principal double bassist; and
 - twice appeared as a solo double bassist.

OUTREACH

- **Helper for Girls do the Maths!**, *University of New South Wales*. 2022, 2023
- **Helper for Experience UNSW Science day**, *University of New South Wales*. 2022
- **Climate @ maths display for UNSW open day**, *University of New South Wales*. 2022, 2023
- **Helper for uDASH work experience workshop**, *University of New South Wales*. 2022

SCHOLARSHIPS AND AWARDS

- Michael Tallis Research travel award. 2023
- Australian Government Research Training Program Scholarship. 2022–2025
- School of Mathematics and Statistics research scholarship top-up. 2022–2025
- Australian Centre for Excellence in Antarctic Research PhD student. 2022–2025
- Corina d'Hage string scholarship. 2008–2010
- Michael Bannigan scholarship for academic achievement. 2010
- Winner of Sydney Youth Orchestra concerto competition. 2006

REFERENCES

- **Associate Professor Jan Zika**, *University of New South Wales, Sydney*. Email: j.zika@unsw.edu.au
- **Associate Lecturer Simon Lloyd**, *University of New South Wales, Sydney*. Email: s.lloyd@unsw.edu.au
- **Dr Geoff Stanley**, *Banting Postdoctoral Fellow, University of Victoria, Canada*. Email: gstanley@uvic.ca