

# Josef Bisits

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

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

## EDUCATION

---

- 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

---

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

## CONFERENCE PROCEEDINGS

---

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

## RESEARCH EXPERIENCE

---

- Research assistant** Sydney  
• Historical water quality data processing and analysis to develop a predictive water quality model. 2022
- Collaboration with Water Research Centre, UNSW** Sydney  
• Provided initial and ongoing advice regarding spatial and temporal analysis of water quality and meteorological data. 2020

## PROGRAMMING SKILLS

---

My programming language of choice is . 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  $\text{L}^{\text{A}}\text{T}_{\text{E}}\text{X}$ .

## 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, full time contract musician in 2015 and September 2017–September 2018. 2009–Current
- **Australian Chamber Orchestra** Sydney  
Regular casual double bassist, emerging artist in 2013. 2013–Current
- **Opera Australia Orchestra** Sydney  
Regular casual double bassist. 2016–Current
- **Tasmanian Symphony Orchestra** Tasmania  
Casual double bassist. 2013–2018
- **Ulster Orchestra** Belfast  
Held a trial for double bass section leader. Winter 2012
- **Southbank Sinfonia** London  
Principal double bassist, twice appeared as a soloist. 2011–2012

## 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

---

- Best applied mathematics talk at UNSW School of Mathematics and Statistics postgraduate conference. 2024
- 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](mailto:j.zika@unsw.edu.au)
- **Associate Lecturer Simon Lloyd**, *University of New South Wales, Sydney*. Email: [s.lloyd@unsw.edu.au](mailto:s.lloyd@unsw.edu.au)
- **Dr Geoff Stanley**, *Banting Postdoctoral Fellow, University of Victoria, Canada*. Email: [gstanley@uvic.ca](mailto:gstanley@uvic.ca)