

Josef Bisits

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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
• 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