

OzFlux newsletter - #2 winter 2024

Welcome to the winter 2024 issue of the OzFlux newsletter

Read the latest information and news from the Australian and New Zealand flux community below!

Message from the OzFlux Director

OzFlux has two new members on the FLUXNET Community Council (FCC) for the next couple of years. Samantha Grover and Stefan Arndt have been elected to serve as OzFlux representatives on the FCC, which meets monthly. The FCC will advance new initiatives in education, data development, and community building, and be responsible for various activities such as reviewing and rewarding Secondment Program applications. The FCC has expressed a big thank you to Caitlin Moore and Rose Cleverly who were OzFlux representatives for the last couple of years.

FLUXNET aims to prepare a new FLUXNET dataset that should be released in 2025. The last dataset that was released is the FLUXNET 2015 dataset, last updated in 2020. Thus, it is timely to prepare a new dataset as the FLUXNET data are probably some of the most accessed flux datasets globally. The preparation of the dataset will be discussed at the Ameriflux meeting in early September and Peter Isaac and Stefan Arndt will attend the meeting.

The new contracts for the TERN Ecosystem Processes platform are slowly progressing and hopefully draft contracts can be sent out shortly.

OzFlux steering committee

Meet below the current members of the OzFlux steering committee that meets every month:

Director – Stefan Arndt

Chair – Elise Pendall

Associate Director – Nina Hinko-Najera

Deputy Chair – Samantha Grover

Secretary – Mark Hovenden

Communications – Caitlin Moore

Industry engagement – Lindsay Hutley

Early Career Representative – Charuni Jayasekara

Data Manager – Peter Isaac

Aotearoa NZ Representative – Johannes Laubach

OzFlux Conference and Data Workshop 2024 – Abstract Submission and Registration Now Open

This year the OzFlux Conference and data workshop is headed west, to Perth, WA.

Whether you're new to the OzFlux community, a long-time member, or not a member but interested to hear more about what we do, there's something for everyone at OzFlux's annual Conference and Data Workshop event.

The Data Workshop: 11th to 15th November 2024.

The format will be a blend of lectures on specific eddy covariance topics, hands-on data processing including how to use [PyFluxPro](#), as well as opportunities to meet with and learn from instrument manufacturers.

There will also be a one-day information session on how to prepare your flux data for processing with **ONEFlux** and submission to a **FLUXNET data product**.

Secure your spot at this year's [data workshop](#)

The Conference: 18th to 20th November 2024.

The conference will bring together talks from a range of topics related to eddy covariance and its real-world applications in research and beyond. The third day of the conference will include a field trip to one of the WA flux towers sites.

Register, submit an abstract and get more information for [the conference](#)

Network news – site updates

Wombat flux

The Wombat Flux tower is operational again! All flux sensors have been installed in May and are measuring nicely. The soil sensors were installed a few weeks later but Wombat is back!

Tumbarumba

The Tumbarumba tower is inching closer to completion. The tower structure itself is now completed and is an impressive freestanding mini-Eiffel tower with a walk-up staircase and a platform at the top – very convenient compared to the nail biting 30 cm wide tower that was there before. We had delays with the container and power system delivery and thus, Tumba is not yet operational. We will have two shipping containers on site that will house the remote-area battery system, and we had sustained delays in the delivery and installation of the containers. Without containers no battery system, without battery system we cannot install and test the sensors. Winter conditions are making truck access difficult, and we are hopeful that we can complete the installation in spring.

Dookie

The Uni Melbourne team will install two new agricultural flux towers at the Dookie campus of the University, which is an agricultural farm. The flux towers will be installed in long-term plots as part of a DAFF funded Future Drought Fund project. The long-term trials will test and compare different farming systems (intensive cropping, mixed farming, grasslands) and their responses to drought. The flux towers will complement on the ground measurements on productivity, biomass allocation and soil carbon.

Alpine Peatland

The Alpine Peatland tower and RMIT University's Soil-Atmosphere-Anthroposphere Lab have hosted Torben Callesen from the Tree Ecophysiology and Ecosystem group at the Free University of Bozen-Bolzano, Italy. During his 6 month visit, Torben worked with the SAAL team and his Italian supervisor Montagnani Leonardo to explore lateral flow at the Alpine Site, conducting a qualitative experiment with helium balloons, inspired by Peter Isaac, and installing a 2nd 3D sonic anemometer at 1.3m. Analysis of the Alpine Peatland lateral flow data will progress as part of Torben's PhD and in collaboration with Leonardo's exploration of lateral flow at a number of sites in the European Alps.

Yarramundi: Carbon flux responses to pasture management

We have been operating two eddy covariance towers at sites with contrasting pasture management in the warm temperate climate and low-nutrient alluvial soils at Yarramundi, near Sydney, Australia, since late 2019. The improved pasture was sown with C3 grasses and legumes and is occasionally irrigated and intensively grazed. The unimproved pasture is dominated by naturalized C4 grasses and invasive species and is extensively grazed. Across four years, annual NEP for the improved pasture averaged 26% higher compared to the unimproved one (112 vs. 89 g C m⁻² y⁻¹), but this was not significant (paired t-test, n=4 years). Sensible heat fluxes were higher from the unimproved pasture, especially during hot/dry periods. Model predictions are being improved by validating representation of productivity by C3 and C4 species and carbon allocation to roots and crowns. This work contributes to enhancing environmental sustainability in managed grasslands with near-real-time forecasting ability for grazing and irrigation management.

Please send any site updates you have to caitlin.moore@uwa.edu.au to be included in the next newsletter

OzFlux in press – story about Matt N from the NT

In case you missed it, one of our highly esteemed technicians, Matt Northwood from the NT, featured in some top-end news that showcased Matt's efforts in keeping the territory flux towers running. The story is available on [CDU website](#).

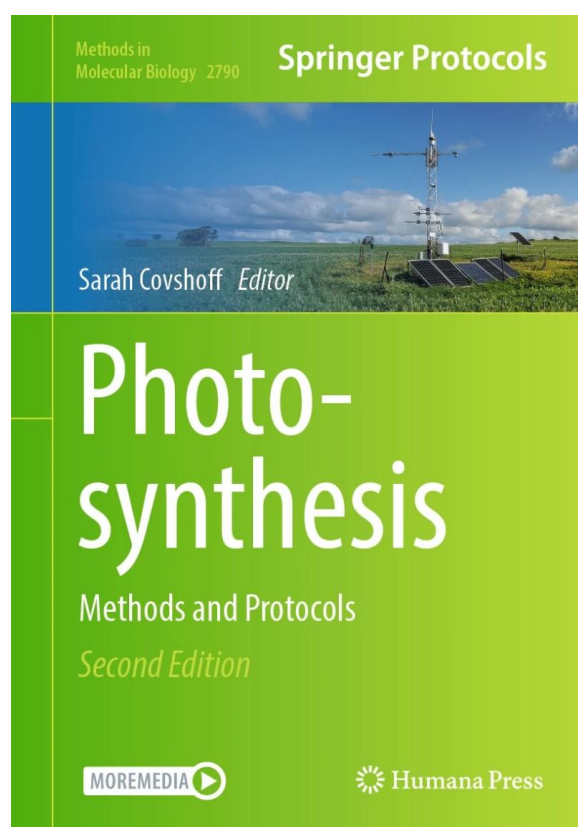
The story also made it into the [NT News](#) print media (subscription required). Great work Matt and team!

New EC book chapter: *A beginner's guide to Eddy Covariance: methodology and its applications to photosynthesis*

Recently published in a new edition of the popular textbook 'Photosynthesis: Methods and Protocols', was a new chapter titled "[A beginner's guide to eddy covariance: methodology and its applications to photosynthesis](#)"

The chapter was authored by Caitlin Moore and Anne Griebel, who completed their PhDs at the same time as part of the OzFlux community. The pair wrote the chapter with the broad aim of providing an introductory and practice-oriented starting point for researchers new to eddy covariance.

Also pictured on the cover of the textbook is the UWA Ridgefield Farm flux tower - an OzFlux and TERN affiliated site. More information and downloads are available on the [Springer website](#).



Photosynthesis: Methods and Protocols (Humana Press)
textbook featuring eddy covariance chapter.

Early career researcher news

An important part of the OzFlux community are its talented and enthusiastic early career researchers (ECR). Each newsletter will feature a story from an ECR who has worked with OzFlux data to further their research. If you'd like to feature, please contact the OzFlux Communications Office, Caitlin Moore (caitlin.moore@uwa.edu.au), or ECR Representative Charuni Jayasekara (s3739359@student.rmit.edu.au) for further details.

This issue, meet Yi Yu – a PhD student under an academic collaboration between the Australian National University (ANU) and the Commonwealth Scientific and Industrial Research Organisation (CSIRO). Yi is interested in using data-driven methods to better understand fine-scale land-atmosphere interactions in the context of climate extremes (e.g., drought and heatwave). His PhD project explored the role of land surface temperature in improving spatiotemporal predictability of soil moisture-related stress in vegetation. He also worked on an ANU-CSIRO Himawari-8 project which aims at developing best-practice geostationary data products for enhanced sub-daily monitoring of Australia's ecosystems.

Yi recently had a paper published in Remote Sensing of Environment, which developed a geostationary Himawari land surface temperature (LST) product and corrected for diurnal error variations. The longwave radiation flux data from OzFlux played a vital role in evaluating their developed product. Access [Yi's article](#).

Yi was also recently selected as a top-10 finalist (out of more than 375 submissions) for a Best Student Paper Competition at the [IEEE International Geoscience and Remote Sensing Symposium \(IGARSS\) 2024](#). IGARSS is one of the most well-known remote sensing conferences and Yi will present his research that was performed at the Yanco agricultural region. See details of [his paper and the competition](#).



Yi Yu (left) and Dr. Brendan Malone (right; CSIRO senior research scientist) installing some solar-powered wireless soil moisture sensors in a field trip at Shepparton, Victoria.

Upcoming meetings

OzFlux Conference and Data Workshop, Perth, WA – Registrations and Abstract Submissions NOW OPEN

Data Workshop: 11th to 15th November 2024

[Register](#)

Conference: 18th to 20th November 2024

[Register](#)

[Submit abstracts](#)

Key dates:

Abstract submission opens: Monday 26th August 2024

Registration opens: Monday 26th August 2024

Abstract submission final deadline: Friday 4th October 2024

Program announced: Friday 18th October 2024

Registration closes: Friday 1st November 2024

Oz Flux conference: 18th - 20th November 2024

AmeriFlux 2024 annual meeting

Berkeley, San Francisco, USA, 4-6 September

For more information see the [2024 AmeriFlux Annual Meeting web page](#)

ICOS Science Conference 2024

Versailles, France 10-12 September

For more information see the [ICOS Science Conference 2024 website](#)

International Conference on Research Infrastructures (ICRI 2024)

Brisbane, QLD 3rd – 5th December 2024

For more information see the [ICRI 2024 website](#)

Ecological Society of Australia annual meeting (ESA 2024)

Melbourne, Australia 9-13 December 2024

For more information see the [ESA 2024 website](#)

American Geophysical Union annual meeting (AGU24)

Washington DC, USA, 9-13 December 2024

For more information see the [AGU24 website](#)