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**Qualifications**

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- Jun 2012 – Mar 2016    Ph.D. in Science.  
Thesis title: “New approaches to investigate the seasonal growth dynamics in forests”. (Supervisor: S. Arndt)  
The University of Melbourne, Melbourne, Australia.
- Jun 2013 – Aug 2014    Specialist Certificate (First Class Honours) in Teaching for Graduate Researchers.  
The University of Melbourne, Melbourne, Australia.
- Apr 2006 – Mar 2011    M.Sc. (Distinction) in Geography.  
Thesis title: “Greenhouse Gas Flux Comparisons between Lawns in the Denver Urban Area and in an Adjacent Natural Tallgrass Prairie in the Rocky Mountain Front Range”. (Supervisor: J. Loeffler)  
The University of Bonn, Germany.
- Sep 2003 – Apr 2006    Meteorology, The University of Bonn, Germany (German intermediate diploma / B.Sc.).

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**Professional employment**

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- May 2016 – present    Postdoctoral Fellow in Biosphere-Atmosphere Flux Ecology Research and Teaching. Western Sydney University - Hawkesbury Institute for the Environment, Richmond, Australia. (Supervisor: E. Pendall)
- Apr 2014 – Mar 2016    Research employee at the Wombat Flux Research Site for maintenance of flux tower, automated soil chamber system and FTIR, LiDAR scanner network, sap flux and dendrometer network.  
The University of Melbourne, Melbourne, Australia.
- Aug 2015 – Dec 2015    Teaching assistant for exam invigilation.  
The University of Melbourne, Melbourne, Australia.
- Dec 2014 – Dec 2015    Research employee at the Victorian Dry Eucalypt TERN-SuperSite to maintain sensors, coordinate and supervise field data acquisition and data submission to TERN-Supersite network.  
The University of Melbourne, Melbourne, Australia.

Mar 2014	Research assistant to support field data acquisition. The University of Melbourne, Melbourne, Australia.
May 2014	Teaching assistant to supervise practical exercises and excursion to the flux tower. Course FRST90016: Trees in a Changing Climate. The University of Melbourne, Melbourne, Australia.
Jul 2011 – Mar 2012	Event management assistant to organize and co-ordinate workshops, seminars and conferences for the energy, gas and water industry. DVGW Service & Consult GmbH, Bonn, Germany.
Jan 2006 – Jun 2011	Event management assistant in the accounting and marketing departments. EW Medien und Kongresse GmbH, Bonn, Germany.
Jul 2010 – Nov 2010	Research volunteer in the Water Resources Division to coordinate and supervise field data acquisition and analysis in the lab. United States Geological Survey, Denver, USA.
Jun 2009 – Nov 2009	Internship in the Water Resources Division to assist with field data acquisition and data analysis in the lab. United States Geological Survey, Denver, USA.

### **Career objective**

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I have established myself as an expert in the discipline of micrometeorology with a passion to combine methods in atmospheric science, remote sensing and ecology to examine the exchange of carbon, water and energy fluxes, soil biogeochemistry and greenhouse gas cycling across a variety of managed and natural ecosystems. I am now seeking a position in which I can apply my knowledge, experimental skills and proficiency to globally pressing questions around the impact of climate change and climate extremes on ecosystem properties and biosphere-atmosphere interactions. I am an energetic and passionate teacher, and I find it especially rewarding when I can help students gain confidence in critical thinking, quantitative skills and writing ability. Obtaining a lectureship in the School of Earth Sciences would allow me to combine my research with my teaching interests in a stimulating university setting.

### **Research accomplishments**

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I have published eight peer-reviewed papers in the highest ranked journals within my field; five more are currently in review. My research shows how extreme climate events can lead to forest mortality and modify energy distribution and matter cycling. I further quantified the effect of surface heterogeneity and climate variability on ecosystem carbon budgets and suggested an approach to compensate for these, which enables scientists to more accurately relate ecosystem responses to local climate. I am collaborating with scientists in the USA to implement my analytical methods into flux data processing software for the National Ecological Observation Network (NEON) and for LI-COR Biosciences. I am competent in operating high-tech sensors and electronic equipment in the field and analysing 'Big Data' sets in order to demonstrate local

to global dynamics of carbon, water and energy cycling. I further developed novel approaches to decipher the impact of climate variability and climate extremes on the carbon allocation dynamics in forests, for which I incorporated novel terrestrial remote sensing techniques in my field setups and established robust quality control approaches that are on the forefront of automated monitoring systems.

In addition to contributing eddy covariance data sets from six flux towers locations across managed and natural ecosystems, I am an active participant and a leader in micrometeorological data processing workshops within the national and international flux community. Furthermore, I have combined eddy covariance data with chamber measurements to assess the impact of land conversion on carbon, nitrous oxide and methane fluxes and to establish greenhouse gas budgets under the CO<sub>2</sub>-equivalent framework. My research typically produces large datasets that are an integral part of global-scale 'Big Data' networks quantifying how climate dynamics and climate extremes shape ecosystem processes. My data have been downloaded over 800 times in the last two years for incorporation in large-scale synthesis studies, showing that my research addresses globally relevant questions in atmospheric sciences, climate change science and ecology.

## **Teaching philosophy**

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I completed a Specialist Certificate in Teaching for Graduate Researchers at the University of Melbourne in 2014, where I received an excellent theoretical and practical basis on the fundamental principles of effective university teaching and curriculum design for learning in higher education. This course largely shaped my teaching philosophy on the necessity to transfer knowledge through student-guided learning approaches, which I implement through an interactive and engaging lecturing style that features a diverse set of hands-on activities during class. Whether these involve writing, analysing data, discussing articles or collaborating on projects, peer-to-peer learning is an effective way of generating knowledge in an interactive setting, and evermore useful to help transitioning students from individuals to collaborators. Furthermore, I enjoy experimenting with innovative teaching approaches and see great opportunities when incorporating online communication technologies to enrich the student learning experience. In addition, my cross-disciplinary background provides broad exposure to different ideas, approaches and ways of thinking across many disciplines within the Earth Sciences, which stimulates creativity and independent thinking to form well-rounded student experiences.

I had many chances to apply my theoretical knowledge to develop high quality, innovative subject material into practice when preparing and delivering lectures, tutorials and practicals for undergraduate and postgraduate levels. I developed lectures on the theory and application of atmospheric measurements within university classes and micrometeorological workshops, supervised four practical units and designed two tutorials. I have contributed to the undergraduate units "Biological adaptation to climate change" and "Ecosystem carbon accounting", and to the graduate units "Ecosystems in a changing world" and "Trees in a changing climate". Thus, my teaching experience focuses on transferring the knowledge and tools needed to understand and measure the impacts of climate change and extreme events on ecosystem dynamics, which has also been the core of my research focus. My teaching philosophy has a strong foundation with the principles taught in the University of Melbourne-based specialist certificate and aligns very well with the Melbourne Model, which makes me an ideal candidate for a Lectureship at the University of Melbourne.

## Publications

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### *In preparation:*

- A. Griebel**, D. Metzen, M.M. Boer, E. Pendall. Using a paired tower approach to attribute differences in carbon, water and energy fluxes to vegetation properties. For submission in *Agricultural and Forest Meteorology*.
- A. Griebel**, C. Maier, C.V.M. Barton, D. Metzen, A. Renchon, M.M. Boer, E. Pendall. Mistletoe infection suppresses water regulation of host trees during extreme events. For submission to *Global Change Biology*.

### *Internal and external review:*

- A. Griebel**, D. Metzen and E. Pendall: Global synthesis of carbon budget uncertainties resulting from heterogeneities within flux footprints. For submission to *Nature Climate Change*.
- A. Griebel**, L. T. Bennett, D. Metzen, E. Pendall, P. N. J. Lane, S. K. Arndt: Carbon and water dynamics of a temperate eucalypt forest indicate minimal vulnerability of productivity to temperature and moisture stress. *Journal of Geophysical Research – Biogeosciences*.
- D. Metzen, G. Sheridan, R. Benyon, P. Bolstad, **A. Griebel**, P.N.J. Lane. Forest structure and transpiration patterns along a gradient of energy and water-availability. For submission in *Hydrology and Earth System Sciences*.
- A.C. Bennett, **A. Griebel**, L.T. Bennett, R. Trouve, S.K. Arndt. What the flux? Eddy covariance validation using inventory and growth models. For submission to *Agricultural and Forest Meteorology*.
- M.G. De Kauwe, B. Medlyn, J. Drake, A. Pitman, Anna Ukkola, **A. Griebel** et al. Examining the evidence for sustained transpiration during heat extremes. Journal and author order to be determined.

### *Published in peer-reviewed journals:*

- A. Renchon, **A. Griebel**, C.A. Williams, B. Medlyn, R.A. Duursma, C. Barton, C. Maier, M.M. Boer, P. Isaac, D. Tissue, V. Resco de Dios, E. Pendall: Upside-down fluxes down-under: CO<sub>2</sub> net sink in winter and net source in summer in a temperate evergreen broadleaf woodland. *Biogeosciences*, 15(12), 3703-3716.
- K. Mallick, E. Toivonen, L. Trebs, E. van Gorsel, J. Cleverly, D. Eamus, H. Koivusalo, S.K. Arndt, **A. Griebel**, J. Beringer, M. Evboe (2018). Bridging thermal remote sensing and physically based evapotranspiration modelling: a critical evaluation of ecohydrological controls in Australian ecosystems across an aridity gradient. *Water Resources Research* (54). <https://doi.org/10.1029/2017WR021357>.

- A. Griebel**, D. M. W. Watson, E. Pendall (2017). Mistletoe, friend and foe: Synthesizing ecosystem implications of mistletoe infection. *Environmental Research Letters*, 12, 115012.
- A. Griebel**, L. T. Bennett, S. K. Arndt (2017). Evergreen and ever growing – Stem and canopy growth dynamics of a temperate eucalypt forest. *Forest Ecology and Management* 389: 417-426.
- J. Beringer, L. B. Hutley, I. McHugh, S. K. Arndt, D. Campbell, H. A. Cleugh, J. Cleverly, V. R. de Dios, D. Eamus, B. Evans, C. Ewenz, P. Grace, **A. Griebel**, V. Haverd, N. Hinko-Najera, A. Huete, P. Isaac, K. Kanniah, R. Leuning, M. J. Liddell, C. Macfarlane, W. Meyer, C. Moore, E. Pendall, A. Phillips, R. L. Phillips, S. M. Prober, N. Restrepo-Coupe, S. Rutledge, I. Schroder, R. Silberstein, P. Southall, M. S. Yee, N. J. Tapper, E. van Gorsel, C. Vote, J. Walker, T. Wardlaw (2016). An introduction to the Australian and New Zealand flux tower network - OzFlux. *Biogeosciences* 13(21): 5895-5916.
- E. van Gorsel, S. Wolf, J. Cleverly, P. Isaac, V. Haverd, C. Ewenz, S. K. Arndt, J. Beringer, V. R. de Dios, B. J. Evans, **A. Griebel**, L. B. Hutley, T. Keenan, N. Kljun, C. Macfarlane, W. S. Meyer, I. McHugh, E. Pendall, S. M. Prober, R. Silberstein (2016). Carbon uptake and water use in woodlands and forests in southern Australia during an extreme heat wave event in the "Angry Summer" of 2012/2013. *Biogeosciences* 13(21): 5947-5964.
- A. Griebel**, L. T. Bennett, D. Metzen, J. Cleverly, G. Burba, S.K. Arndt. (2016). Effects of inhomogeneities within the flux footprint on the interpretation of seasonal, annual, and interannual ecosystem carbon exchange. *Agricultural and Forest Meteorology*, 221, 50-60.
- A. Griebel**, L. T. Bennett, D. S. Culvenor, G. J. Newnham, S. K. Arndt (2015). Reliability and limitations of a novel terrestrial laser scanner for daily monitoring of forest canopy dynamics. *Remote Sensing of Environment*, 166, 205-213.

### Conference presentations

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- A. Griebel**, C. Maier, C.V.M. Barton, D. Metzen, A. Renchon, M.M. Boer, E. Pendall (2017). Mistletoe infection alters the transpiration flow path and suppresses water regulation of host trees during extreme events. American Geophysical Union Fall Meeting, 11-15 Dec. 2017, New Orleans, USA.
- (Invited) **A. Griebel**, P. Isaac, J. Beringer, J. Cleverly, I. McHugh, C. Ewenz (2017). Insights from alternative flux processing approaches. Eddy4R workshop, American Geophysical Union Fall Meeting, 12 Dec. 2017, New Orleans, USA.
- H. Andrews, **A. Griebel**, E. Pendall (2017). Aboveground disturbance controls on belowground processes: does mistletoe parasitism alter biogeochemical cycling in Australian eucalypt woodlands? AGU virtual poster session.
- A. Griebel**, C. Maier, C.V.M. Barton, D. Metzen, A. Renchon, M.M. Boer, E. Pendall (2017). Mistletoe infection alters the transpiration flow path and suppresses water regulation

- of host trees during extreme events. OzFlux annual meeting, 12-14 Nov. 2017, Sydney, Australia.
- A. Griebel** (2017). Flux footprints. OzFlux data processing workshop, 6-10 Nov. 2017, Sydney, Australia.
- A. Griebel**, L.T. Bennett, S.K. Arndt (2016). Growing up with stress – carbon sequestration and allocation dynamics of a broadleaf evergreen forest. European Geophysical Union General Assembly, 17-22 April 2016, Vienna, Austria.
- A. Griebel**, L.T. Bennett, D. Metzen, J. Cleverly, G. Burba, S.K. Arndt (2015). Effect of non-homogeneity in flux footprint on the interpretation of seasonal, annual, and interannual ecosystem carbon exchange. American Geophysical Union Fall Meeting, 14-18 Dec. 2015, San Francisco, CA., USA. **Student presentation award winner.**
- S.K. Arndt, L.T. Bennett, D.S. Culvenor, G.J. Newnham, **A. Griebel** (2015). VEGNET – a novel terrestrial LiDAR scanner for daily monitoring of canopy dynamics. American Geophysical Union Fall Meeting, 14-18 Dec. 2015, San Francisco, CA., USA.
- A. Griebel**, L.T. Bennett, D. Metzen, J. Cleverly, G. Burba, S.K. Arndt (2015). Effects of inhomogeneities in flux footprints on the interpretation of seasonal, annual, and interannual ecosystem carbon exchange. OzFlux annual meeting, 16-18 Nov. 2015, Hobart, Australia.
- N. Kljun, **A. Griebel**, E. van Gorsel (2015). Footprint Modelling for Flux Towers. OzFlux workshop, 9-13 Nov. 2015, Hobart, Australia.
- A. Griebel**, L.T. Bennett, D.S. Culvenor, G.J. Newnham, S.K. Arndt (2015). Seasonal growth dynamics of temperate eucalypt forests. DELWP Science Symposium, 4-6 Nov. 2015, Melbourne, Australia.
- A. Griebel**, L.T. Bennett, S.K. Arndt (2015). Inescapable variation - Effects of a non-homogeneous flux tower footprint on seasonal carbon fluxes in a temperate forest. European Geophysical Union General Assembly, 12-17 April 2015, Vienna, Austria.
- A. Griebel**, L.T. Bennett, S.K. Arndt (2015). Unravelling carbon allocation dynamics in an evergreen temperate forest. European Geophysical Union General Assembly, 12-17 April 2015, Vienna, Austria.
- A. Griebel**, L.T. Bennett, D.S. Culvenor, G.J. Newnham, S.K. Arndt (2014). Reducing uncertainties in long-term LAI dynamics with a novel terrestrial LiDAR sensor (VEGNET). XXIV IUFRO World Congress, 5-11 Oct. 2014, Salt Lake City, Utah, USA.
- A. Griebel**, Bennett L. T., Arndt S. K. (2014). Long-term crown and structural dynamics of the Wombat Forest. OzFlux annual meeting, 29 Sep. - 1 Oct. 2014, Alice Springs, Australia.
- N. Hinko-Najera, **A. Griebel**, B. Fest, J. Najera-Umana, S.J. Livesley, S.K. Arndt (2014). Wombat SuperSite. OzFlux annual meeting, 29 Sep. - 1 Oct. 2014, Alice Springs, Australia.

**A. Griebel**, Bennett L. T. and Arndt S. K. (2013). Do seasonal growth patterns explain carbon and water fluxes? Graduate Research Conference, 30-1 Nov. 2013, Dookie, Australia.

**A. Griebel**, Bennett L. T., Arndt S. K. (2013). Do seasonal growth patterns explain carbon and water fluxes? OzFlux annual meeting, 8-10 July 2013, Cairns, Australia.

**A. Griebel**, D.E. Anderson, K.M. Powell, T.S. Thienelt, A. Bott, J. Löffler (2011). Greenhouse Gas Flux Comparisons between Lawns in the Denver Urban Area and in an Adjacent Natural Tallgrass Prairie in the Rocky Mountain Front Range. International Workshop on Urban Climate and Weather: Observation and Modeling, 12-15 July 2011, Beijing, China.

D.E. Anderson, K.M. Powell, G. Szanko, C. Mladinich, S. Curry, **A. Griebel**, T.S. Thienelt (2010). Carbon Sequestration Rates and the Energy Balance of Turf in the Denver Urban Ecosystem and in an Adjacent Native Grassland Under Contrasting Management. American Geophysical Union Fall Meeting, 13-17 Dec. 2010, San Francisco, CA., USA.

D. E. Anderson, K. Moore Powell, R. Kroodsmma, **A. Griebel**, L. Nelson, E. Stieve, S. Norris, (2009) Estimates of Biogenic Greenhouse Gas Flux Components in the Denver Urban Ecosystem. American Geophysical Union Fall Meeting, 13-18 Dec. 2009, San Francisco, CA., USA.

#### **Awards and Recognition (total: \$130,500.00)**

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2018	Conference Travel and Training Fund 2018 (\$2,130 Hawkesbury Institute for the Environment, Western Sydney University)
2017	Soil Biology and Genomics theme funds (\$1,900 Hawkesbury Institute for the Environment, Western Sydney University)
2017	Conference Travel and Training Fund 2017 (\$2,525 Hawkesbury Institute for the Environment, Western Sydney University)
2016	Outstanding Student Paper Award (Biogeosciences Section, AGU Fall Meeting 2015, \$450 meeting registration fee waiver and \$150 book voucher)
2015 – 2016	Studentship (\$4,200 The University of Melbourne)
2015	Faculty of Science Travelling Scholarship (\$2,400 Faculty of Science, The University of Melbourne)
2014	SF Ponds Travelling Scholarship (\$1,500 School of Forest and Ecosystem Science, The University of Melbourne)
2014	OzFlux Travel Grant (\$500 OzFlux National Ecosystem Research Network)



2013	MSLE research grant (\$4,500 Melbourne School of Land and Environment, The University of Melbourne)
2012 – 2016	International Postgraduate Research Scholarship (IPRS; fee remission + other benefits, Department of Education and Training of the Australian government)
2012 – 2015	Australian Postgraduate Award (\$25,000 p.a., Department of Education and Training of the Australian government)
2012 – 2015	RHD Studentship (\$10,000 p.a., Department of Environment, Land, Water and Planning)
2010	DAAD Scholarship for Internships abroad (€3,800 German Academic Exchange Service)

## **Service and Leadership**

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### *Conference, workshop and session organization:*

2018 - current	ECR workshop series (Lead organizer)
2017	TERN-SuperSites meeting on 15 <sup>th</sup> Nov. 2017 (Host and co-organizer)
2017	TERN-OzFlux conference from 13-14 <sup>th</sup> Nov. 2017 (Host, co-organizer and moderator)
2017	TERN-OzFlux field trip to the Cumberland Plain flux tower and TERN-SuperSite on 12 Nov. 2017 (Co-organizer and moderator)
2017	TERN-OzFlux data processing workshop from 6-10 Nov. 2017 (Host, co-organizer and moderator)
2014	Conference session on: Conceptual frames and research strategies for integrated studies of adaptation to drought. XXIV IUFRO World Congress, 5-11 Oct. 2014, Salt Lake City, Utah, USA. (Co-organizer and Moderator)

### *Outreach:*

2018	Podcast episode: “Mistletoe and Mortality”, <i>Science in a cup</i> .
2017	News article: “The mistletoe of the future could kill more trees” <i>Environmental Research Web</i> , 19 Dec. 2017. <a href="http://environmentalresearchweb.org/cws/article/news/70735">http://environmentalresearchweb.org/cws/article/news/70735</a> (last visited 17 Jan 2018)



- 2017 Press Release: “Mistletoe is “kiss of death” to drought-stressed trees”. *AGU press office*, 11 Dec. 2017. <https://news.agu.org/press-release/agu-fall-meeting-mistletoe-is-kiss-of-death-to-drought-stressed-trees/> (last visited 17 Jan 2018, reprinted by e.g. Science Newline, Technology breaking news, Scimex and others)
- 2017 Organization and hosting of the OzFlux annual meeting from 6-15 Nov. 2017, which included the OzFlux data processing workshop, the OzFlux field excursion, the OzFlux conference and the TERN-Supersites meeting.
- 2016 – present External science communicator for TERN-SuperSites (Steering Committee member)
- 2015 Presentation at DELWP Science Symposium on “Seasonal growth dynamics of temperate eucalypt forests”, 6 Nov.2015, Melbourne, Australia.
- 2013 Newspaper article: “Lasers check the pulse of Wombat Forest”. *The Age & Sydney Morning Herald*, 25 May 2013. <http://www.smh.com.au/national/lasers-check-the-pulse-of-wombat-forest-20130524-2k6wv.html> (last visited: 25 May 2015)

*Referee for the following journals:*

Global Change Biology, New Phytologist, Agricultural and Forest Meteorology, Journal of Geophysical Research – Biogeosciences, Ecosystems

*Professional organisations and networks:*

- Woman in Science Western Sydney (WSWS, since 2017)
- Sapfluxnet (since 2017)
- The University of Melbourne Alumni (since 2016)
- Dendroglobal (since 2015)
- European Geosciences Union (since 2015)
- American Geophysical Union (since 2015)
- FluxNet (since 2015)
- TERN-OzFlux (since 2012)