

# MARRICK BRAAM (Version September 2024)

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## PROFESSIONAL EXPERIENCE

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2024/09 - Now	CSH Postdoctoral Fellowship Center for Space and Habitability, University of Bern
2022/02 – 2024/06	Tutor in Earth's Atmospheric Composition The University of Edinburgh
2020/09 – 2024/06	Marie Curie joint PhD Fellow The University of Edinburgh & KU Leuven Part of MSCA-ITN CHAMELEON
2019/10 – 2020/07	Tutor in Astrobiology & Calculus University of Groningen

## EDUCATION

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2020/09 – 2024/06	<b>Joint PhD in Geosciences, Astronomy &amp; Astrophysics</b> Thesis: 'The Atmospheric Chemistry of Earth-like Exoplanets: a 3-D Perspective' Supervisors: Prof P.I. Palmer & Prof. L. Decin The University of Edinburgh, Edinburgh, UK KU Leuven, Leuven, BE
2018/09 – 2020/07	<b>Master of Science in Astronomy</b> Thesis: 'Chemical trends in hot Jupiter atmospheres' University of Groningen, Groningen, NL
2014/09 – 2017/07	<b>Bachelor of Science in Astronomy</b> Thesis: 'The Habitability of Exoplanets' University of Groningen, Groningen, NL

## PUBLICATIONS

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3. Braam M., Palmer P.I., Decin L., Cohen M., Mayne N.J., Stratospheric dayside-to-nightside circulation drives the 3-D ozone distribution on synchronously rotating rocky exoplanets, 2023, *Monthly Notices of the Royal Astronomical Society*, 526, 1
2. Braam M., Palmer P.I., Decin L., Ridgway R. J., Zamyatina M., Mayne N. J., Sergeev D. E., and Abraham N. L., 2022, Lightning-induced chemistry on tidally-locked Earth-like exoplanets, *Monthly Notices of the Royal Astronomical Society*, 517, 2
1. Braam M., van der Tak F.F.S., Chubb K.L., and Min M., 2021, Evidence for chromium hydride in the atmosphere of hot Jupiter WASP-31b, *Astronomy & Astrophysics*, 646: A17

## CO-AUTHOR:

2. De Luca, P., Braam M., et al., The impact of Ozone on Earth-like exoplanet climate dynamics: the case of Proxima Centauri b, 2024, submitted to *Monthly Notices of the Royal Astronomical Society*
1. Ridgway, R.J., et al. (inc Braam, M.), 2023, 3D modelling of the impact of stellar activity on tidally locked terrestrial exoplanets: atmospheric composition and habitability, *Monthly Notices of the Royal Astronomical Society*, 518, 2

## SEMINARS

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The Atmospheric Chemistry of Earth-like Exoplanets Public PhD Defence, <i>KU Leuven, Belgium</i>	2023/11
3-D circulation and ozone on synchronous exoplanets NASA GISS Astrobiology talk, <i>NASA GISS, NY (virtual)</i>	2023/11
3-D atmospheric chemistry of Earth-like exoplanets in resonant orbits EAPS Planetary Lunch Seminar, <i>MIT, Cambridge, MA, USA</i>	2023/10
The atmospheric chemistry of non-oxygenated terrestrial exoplanets LCLU Coffee Talk, <i>University of Cambridge, Cambridge, UK</i>	2023/07
3-D coupled climate-chemistry simulations of terrestrial exoplanets Astrophysics Seminar, <i>University of Exeter, Exeter, UK</i>	2022/11
Lightning-induced chemistry on tidally-locked Earth-like exoplanets Met Office Seminar, <i>UK Met Office, Exeter, UK</i>	2022/06
Lightning-induced chemistry on tidally-locked Earth-like exoplanets Yuk Lunch Seminar, <i>California Institute of Technology, CA, USA</i>	2022/05
Lightning-induced chemistry on tidally-locked Earth-like exoplanets Astrophysics Seminar, <i>University of California Irvine, CA, USA</i>	2022/05
Chemical trends in hot Jupiter atmospheres Seminar Exoplanets Group, <i>SRON, Utrecht, Netherlands</i>	2020/06

## TALKS AND POSTERS

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Habitable environments and 3D atmospheric chemistry on rocky exoplanets in spin-orbit resonances Contributed talk: Unique 2024, Copenhagen, Denmark	2024/08
Observability of 3-D atmospheric dynamics and chemistry of rocky exoplanets in 1:1 and 3:2 spin-orbit resonances Contributed talk: Rocky Worlds III, Zürich, Switzerland	2024/01
3-D circulation and ozone on synchronous exoplanets Contributed talk: UKEXOM23, London, UK	2023/08
3-D circulation and ozone on synchronous exoplanets Poster: Sagan Workshop, Pasadena, USA	2023/07
3-D circulation and ozone on synchronous exoplanets Poster: Exoclimates VI, Exeter, UK	2023/06
Stratospheric dayside-to-nightside circulation and nightside ozone maxima on tidally-locked exoplanets Contributed talk: EGU23, Vienna, Austria	2023/04
Orbital effects on 3-D atmospheric chemistry of Earth-like exoplanets Contributed talk: UK Exoplanet Meeting, Edinburgh, UK	2022/09
Lightning chemistry on tidally-locked exoplanets Contributed talk: Rocky Worlds II, Oxford, UK	2022/07
Lightning chemistry on tidally-locked exoplanets Poster: Exoplanets IV, Las Vegas, Nevada	2022/05
Lightning chemistry on tidally-locked exoplanets Poster: AGU Fall Meeting 2021 (virtual)	2021/12
Chromium hydride on WASP-31b: using HST and JWST Poster: EAS Meeting 2021 (virtual)	2021/07
Lightning-induced chemistry on Habitable Zone Exoplanets Contributed talk: Scottish Exoplanet and Brown Dwarf Meeting 11 (virtual)	2021/04

## TALKS AND POSTERS (CONTINUED)

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Lightning-induced chemistry on Exoplanets	
<i>Contributed talk: Global Change Symposium, Edinburgh, UK (virtual)</i>	2020/12
The Habitability of Exoplanets	
<i>Contributed talk: PEPSci meeting, Groningen, NL</i>	2019/07

## STUDENT SUPERVISION

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Elias Esquenet & Milo Jacobs, KU Leuven, BSc Physics	
Lightning-induced chemistry on exoplanets with continents	2023/09 – 2023/12
Ellery Gopaoco, University of Cambridge, Summer project	
Prebiotic chemistry on M-dwarf exoplanets	2022/07 – 2022/09

## EXTRACURRICULAR ACTIVITIES

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Referee for MNRAS	2023-Now
Organiser Exoburgh group meetings	2022-2024
Organising committee CHAMELEON ESR retreats	2022-2024
Teacher training in Belgium on exoplanet clouds and lightning	2022-2023
Student editor at NTvN (Dutch magazine of Physics)	2019-2020
Organising committee Astronomy on Tap Groningen	2019-2020
Volunteer at Blaauw Observatory Groningen	2019-2020
Observing run at Isaac Newton Telescope, La Palma	2019/05

## ADDITIONAL SKILLS

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	Native: Dutch & Frisian
LANGUAGE PROFICIENCY:	Fluent: English
	Basic: German & Spanish
PROGRAMMING SKILLS:	Python, Fortran, R