

Dr Johanna M. Vos

Postdoctoral Fellow
American Museum of Natural History
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Current Position	American Museum of Natural History <i>Postdoctoral Fellow</i>	2018 – Present
Education	Institute for Astronomy, University of Edinburgh <i>PhD in Astronomy</i> Thesis: “Characterising Weather and Rotation on Substellar Worlds” Advisor: Dr Beth A. Biller	2014-2018
	Trinity College Dublin <i>BA (Mod) Physics with Astrophysics</i> Graduated with First Class Honours Thesis: “Sunspots and Solar Flares: The Role of Flows” Advisor: Dr Peter T. Gallagher	2010-2014
Research Interests	Atmospheres of brown dwarf and giant exoplanets Cloud-driven variability Young brown dwarfs as exoplanet analogs	
Awards	Cool Stars Travel Grant <i>August 2018</i> Principal’s Go Abroad Fund <i>University of Edinburgh, June 2018</i> Exoclipse Travel Grant <i>August 2017</i> Principal’s Career Development Scholarship <i>University of Edinburgh, 2014–2018</i> First-Class Book Prize <i>Trinity College Dublin, 2011, 2012, 2013</i>	
Telescope Time Awarded	Spatial Cloud Map of a Planetary-Mass Companion <i>Spitzer Space Telescope Director’s Discretionary Time, 33.1 hr, PI</i>	2019
	Weather and Rotation of Young Brown Dwarfs <i>Spitzer Space Telescope Medium Program, 70 hr, PI</i>	2018
	Rotational Velocities of Exoplanet Analogs <i>NASA Gemini/GNIRS and IRTF/iSHELL program, 10 nights, PI</i>	2016-2018
	Wind Speeds on Extrasolar Worlds <i>Spitzer Space Telescope, 30.8 hr & Very Large Array, 33 hr, Co-I</i>	2016-2018
	Exometeorology: Characterising Weather on a Young, Free-Floating Planet <i>Simultaneous Hubble and Spitzer observations, 17.6 hr, Co-I</i>	2016
	The First Search for Exoplanet Weather <i>ESO New Technology Telescope, 29 nights, PI</i>	2014-2017
Presentations	Weather and Rotation on Substellar Worlds <i>Seminar, American Museum of Natural History, NY, USA</i>	2019
	Detecting Weather Patterns on Low-Gravity Brown Dwarfs	2019

	Oral Presentation, AAS 233, Seattle, WA, USA	
	Weather Patterns on Exoplanet Analogs	2018
	Plenary Talk, Cool Stars 20, Boston, MA, USA	
	The Viewing Angle of Exoplanet Analogues Influences Their Observed Colours and Amplitudes	2017
	Contributed Talk, Exoclipe, Boise, ID, USA	
	Testing the Effect of Viewing Angle on the Observed Properties of Brown Dwarfs and Exoplanet Analogues	2017
	Contributed Talk, Scottish Exoplanet and Brown Dwarf Meeting, University of Edinburgh, UK	
	The First Search for Weather Patterns on Exoplanet Analogues	2017
	Invited Talk, European Southern Observatories, Santiago, Chile	
	The First Search for Exoplanet Weather	2016
	Poster, UK Exoplanet Meeting, University of Exeter, UK	
	Poster, Cool Stars 19, Uppsala University, Sweden	
	The First Search for Exoplanet Weather	2015
	Contributed Talk, Scottish Exoplanet and Brown Dwarf Meeting, St Andrews, UK	
Workshops Attended	Multi-Dimensional Characterization of Distant Worlds	
	University of Michigan, October 2018	
	Other Worlds Laboratory	
	University of California, Santa Cruz, July 2019	
Teaching Experience	Student Research Mentoring Program, AMNH	2018-Present
	Mentor	
	The Student Research Mentoring Program (SRMP) offers high-school students the opportunity to join ongoing research with scientists at the American Museum of Natural History. I meet with three students twice a week to work on a research project. At the end of the year my students will present a poster, give a research talk and prepare a scientific paper on their project.	
	After School Program, AMNH	2019-Present
	Instructor	
	Stars – An after school research course for high-school students in NYC.	
	University of Edinburgh	2014-2018
	Teaching Assistant	2014-2015
	Maths for Physics	
	Introductory Astrophysics	
	– TA duties included leading tutorials and workshops as well as grading assignments.	
	Head Teaching Assistant	2015-2018
	Physics Experimental Lab	
	Observational Astronomy Lab	
	– In addition to regular duties, as Head TA I maintained and developed new and existing lab experiments. I also co-supervised a senior undergraduate student, who developed supporting resources for the lab.	

Service	<i>Referee</i> , The Astrophysical Journal	
	<i>Astrophysics Seminar Organizer</i> , American Museum of Natural History	
	<i>Astronomy Representative</i> , Postgraduate Forum, The University of Edinburgh	
	<i>Astronomy Postgraduate Committee Member</i> , The University of Edinburgh	
Outreach Activities	StemEast, UK & Ireland	2014-2018
	<i>STEM Ambassador</i>	
	As a STEM Ambassador I gave talks and workshops in secondary schools around Ireland and Scotland about astrophysics research and studying STEM subjects at university.	
	Royal Observatory of Edinburgh Winter Talk Series	2018
	<i>Speaker</i> , “The Exoplanet-Brown Dwarf Connection”	
	Women are Boring	2018
	<i>Contributor</i> , “Searching for Weather Patterns on Free-Floating Worlds”	
	Pint of Science Festival	2017
	<i>Speaker</i> , “Whatever the Weather”	
	Edinburgh University Science Magazine	2017
Refereed Publications	<i>Contributor</i> , “Fingerprints From the Birth of the Universe”	
	Kickstart Summer Programme	2015-2016
	<i>Workshop Leader</i>	
	Kickstart is a programme designed to give secondary students a taster of what university has to offer. In the summers of 2015 and 2016 I led a workshop covering some of the topics involved in a physics degree.	
	Edinburgh International Science Festival	2015
	<i>Event Assistant</i>	
	Managed the University of Edinburgh family programme at the Edinburgh International Science Festival at the National Museum of Scotland.	
	Johanna M. Vos , Beth A. Biller, Mariangela Bonavita, Simon Eriksson, Michael C. Liu, William M. J. Best, Stanimir Metchev, Jacqueline Radigan, Katelyn N. Allers, Markus Janson, Esther Buenzli, Trent J. Dupuy, Mickaël Bonnefoy, Elena Manjavacas, Wolfgang Brandner, Ian Crossfield, and Joshua Schlieder. “ <i>A Search for Variability in Exoplanet Analogues and Low-Gravity Brown Dwarfs.</i> ” <i>Monthly Notices of the Royal Astronomical Society</i> , 483:480-502, 2019.	
	Johanna M. Vos , Katelyn N. Allers, Beth A. Biller, Michael C. Liu, Trent J. Dupuy, Jack F. Gallimore, Iyadunni J. Adenuga, and William M. J. Best. “ <i>Variability of the lowest mass objects in the AB Doradus moving group.</i> ” <i>Monthly Notices of the Royal Astronomical Society</i> , 474(1):10411053, 2018.	
	Beth A. Biller, Johanna M. Vos , Esther Buenzli, Katelyn Allers, Mickaël Bonnefoy, Benjamin Charnay, Bruno Bézard, France Allard, Derek Homeier, Mariangela Bonavita, Wolfgang Brandner, Ian Crossfield, Trent Dupuy, Thomas Henning, Taisiya Kopytova, Michael C. Liu, Elena Manjavacas, and Joshua Schlieder. “ <i>Simultaneous Multiwavelength Variability Characterization of the Free-floating Planetary-mass Object PSO J318.5-22.</i> ” <i>The Astronomical Journal</i> , 155(2):95, 2018.	
	Johanna M. Vos , Katelyn N. Allers, and Beth A. Biller. “ <i>The Viewing Geometry of Brown Dwarfs Influences Their Observed Colors and Variability Amplitudes.</i> ” <i>The Astrophysical Journal</i> , 842(2):78, 2017.	

Beth A. Biller, **Johanna M. Vos**, Mariangela Bonavita, Esther Buenzli, Claire Baxter, Ian J.M. Crossfield, Katelyn Allers, Michael C. Liu, Mickaël Bonnefoy, Niall Deacon, Wolfgang Brandner, Joshua E. Schlieder, Trent Dupuy, Taisiya Kopytova, Elena Manjavacas, France Allard, Derek Homeier, and Thomas Henning. “*Variability in a young, L/T transition planetary-mass object.*” *Astrophysical Journal Letters*, 813(2):16, 2015.

White Papers

Johanna M. Vos, Katelyn Allers, Daniel Apai, Beth Biller, Adam Burgasser, Jacqueline Faherty, Jonathan Gagné, Christiane Helling, Caroline Morley, Jacqueline Radigan, Adam Showman, Xianyu Tan, Pascal Tremblin “*Astro2020 Science White Paper: The L/T Transition*”, 2019.

Adam Burgasser, Daniel Apai, Daniella Bardalez Gagliuffi, Cullen Blake, Jonathan Gagné, Quinn Konapacky, Emily Martin, Stanimir Metchev, Peter Plavchan, Ansgar Reiners, Everett Schlawin, Clara Sousa-Silva, **Johanna M. Vos** “*Astro2020 Science White Paper: High-Resolution Spectroscopic Surveys of Ultracool Dwarf Stars & Brown Dwarfs*”, 2019.

Jacqueline Faherty, Katelyn Allers, Daniella Bardalez Gagliuffi, Adam Burgasser, Jonathan Gagné, John Gizis, J. Davy Kirkpatrick, Adric Riedel, Adam Schneider, **Johanna M. Vos** “*Astro2020 Science White Paper: Brown Dwarfs and Directly Imaged Exoplanets in Young Associations*”, 2019.

Adam Burgasser, Isabelle Baraffe, Matthew Browning, Adam Burrows, Gilles Chabrier, Michelle Creech-Eakman, Brice Demory, Sergio Dieterich, Jacqueline Faherty, Daniel Huber, Nicolas Lodieu, Peter Plavchan, R. Michael Rich, Didier Saumon, Keivan Stassun, Amaury Triaud, Gerard van Belle, Valerie Van Grootel, **Johanna M. Vos**, Rakesh Yadav “*Astro2020 Science White Paper: Fundamental Physics with Brown Dwarfs: The Mass-Radius Relation*”, 2019.