

Dr Johanna M. Vos

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| Professional Appointments | American Museum of Natural History <i>Postdoctoral Fellow</i> | 2018 – Present |
| Education | Institute for Astronomy, University of Edinburgh, UK <i>PhD in Astronomy</i> Thesis: “Characterising Weather and Rotation on Substellar Worlds” Advisor: Dr Beth A. Biller | 2014-2018 |
| | Trinity College Dublin, Ireland <i>BA (Mod) Physics with Astrophysics</i> Graduated with First Class Honours | 2010-2014 |
| Grants & Awards | Hubble Space Telescope General Observer Grant, <i>STSci</i> Cool Stars Travel Grant Principal’s Go Abroad Fund, <i>University of Edinburgh</i> Exoclipse Travel Grant Principal’s Career Development Scholarship, <i>University of Edinburgh</i> First-Class Book Prize, <i>Trinity College Dublin</i> | 2019 2018 2018 2017 2014 2011, 2012, 2013 |
| Telescope Time | A case study for JWST: Disentangling auroral and cloud variability in early L dwarfs <i>Hubble Space Telescope (16 orbits) & Very Large Array (27.6 hr), PI</i> | 2019 |
| | Mapping Atmospheric Structures in Brown Dwarfs <i>Gemini/IGRINS, 20.2 hr, PI</i> | 2019 |
| | 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>Hubble Space Telescope (5 orbits) & Spitzer Space Telescope (17.6 hr), Co-I</i> | 2016 |
| | The First Search for Exoplanet Weather <i>ESO New Technology Telescope, 29 nights, PI</i> | 2014-2017 |

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| Selected Invited / Conference Talks | Characterising Cool Atmospheres with Variability Monitoring <i>Invited Seminar, NASA/Goddard Space Flight Center, MD, USA</i> | 2020 |
| | Young L Dwarf Variability in the Mid-IR <i>Contributed talk, American Astronomical Society Meeting 235, Honolulu, HI, USA</i> | 2020 |
| | Probing the Turbulent Atmospheres of Young Giant Planet Analogs <i>Invited Talk, BDEXOCON, University of Delaware, USA</i> | 2019 |
| | Weather and Rotation on Substellar Worlds <i>Seminar, Dublin Institute for Advanced Studies, Ireland</i> | 2019 |
| | Variability on Young Brown Dwarfs <i>Contributed Talk, Other Worlds Laboratory, UC Santa Cruz, CA, USA</i> | 2019 |
| | 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 <i>Dissertation Talk, American Astronomical Society Meeting 233, Seattle, WA, USA</i> | 2019 |
| | Weather Patterns on Exoplanet Analogs <i>Plenary Talk, Cool Stars 20, Boston, MA, USA</i> | 2018 |
| | The Viewing Angle of Exoplanet Analogues Influences Their Observed Colours and Amplitudes <i>Contributed Talk, Exoclipe, Boise, ID, USA</i> | 2017 |
| | Testing the Effect of Viewing Angle on the Observed Properties of Brown Dwarfs and Exoplanet Analogues <i>Contributed Talk, Scottish Exoplanet and Brown Dwarf Meeting, University of Edinburgh, UK</i> | 2017 |
| | The First Search for Weather Patterns on Exoplanet Analogues <i>Invited Talk, European Southern Observatories, Santiago, Chile</i> | 2017 |
| Teaching & Mentoring | NSF Research Experiences for Undergraduates (REU), AMNH <i>Advised: Allison McCarthy (University of Alabama)</i> <i>Chambliss Astronomy Achievement Award Student Prize at AAS 235</i> | 2019 |
| | Science Research Mentoring Program, AMNH <i>Research mentor for three high-school students each year</i> | 2019-Present |
| | After School Program, AMNH <i>Astronomy Instructor</i> | 2019-2020 |
| | University of Edinburgh <i>Head Teaching Assistant</i> | 2014-2018 |
| | Maths for Physics, Introductory Astrophysics, Physics Experimental Lab, Observational Astronomy Lab | |
| Selected Outreach Activities | Westport Astronomical Society <i>Speaker, "The Brown Dwarf - Exoplanet Connection"</i> | 2019 |
| | BridgeUP: STEM <i>Speaker, "Weather and Rotation on Extrasolar Worlds"</i> | 2019 |
| | StemEast, UK & Ireland | 2014-2018 |

STEM Ambassador

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| Royal Observatory of Edinburgh Winter Talk Series <i>Speaker</i> , “The Exoplanet - Brown Dwarf Connection” | 2018 |
| Women are Boring <i>Contributor</i> , “Searching for Weather Patterns on Free-Floating Worlds” | 2018 |
| Pint of Science Festival <i>Speaker</i> , “Whatever the Weather” | 2017 |
| Edinburgh University Science Magazine <i>Contributor</i> , “Fingerprints From the Birth of the Universe” | 2017 |
| Kickstart Summer Programme <i>Workshop Leader</i> | 2015-2016 |

**Refereed
Publications**

1. A MEASUREMENT OF THE WIND SPEED ON A BROWN DWARF
Allers, K. N.; **Vos, J. M.**; Biller, B. A.; Williams, P. K.G. *Science*, 368, 6487, 169-172, 2020.
2. SPITZER VARIABILITY PROPERTIES OF YOUNG GIANT PLANET ANALOGS
Vos, J. M.; Biller, B. A.; Allers, K. N.; Faherty, J. K.; Liu, Michael C.; Eriksson, S.; Best, W. M. J.; Metchev, S.; Radigan, J.; Allers, K. N.; Janson, M.; Buenzli, E.; Dupuy, T. J.; Bonnefoy, M.; Manjavacas, E.; Brandner, W.; Crossfield, I.; Deacon, N.; Henning, T.; Homeier, D.; Schlieder, J., submitted to *The Astronomical Journal*, 2020.
3. A SEARCH FOR VARIABILITY IN EXOPLANET ANALOGUES AND LOW-GRAVITY BROWN DWARFS.
Vos, J. M.; Biller, B. A.; Bonavita, M.; Eriksson, S.; Liu, Michael C.; Best, W. M. J.; Metchev, S.; Radigan, J.; Allers, K. N.; Janson, M.; Buenzli, E.; Dupuy, T. J.; Bonnefoy, M.; Manjavacas, E.; Brandner, W.; Crossfield, I.; Deacon, N.; Henning, T.; Homeier, D.; Kopytova, T. Schlieder, J., *Monthly Notices of the Royal Astronomical Society*, 483:480-502, 2019.
4. VARIABILITY OF THE LOWEST MASS OBJECTS IN THE AB DORADUS MOVING GROUP.
Vos, J. M.; Allers, K. N.; Biller, B. A.; Liu, M. C.; Dupuy, T. J.; Gallimore, J. F.; Adenuga, I. J.; Best, W. M. J., *Monthly Notices of the Royal Astronomical Society*, 474(1):10411053, 2018.
5. SIMULTANEOUS MULTIWAVELENGTH VARIABILITY CHARACTERIZATION OF THE FREE-FLOATING PLANETARY-MASS OBJECT PSO J318.5–22.
Biller, B. A.; **Vos, J. M.**; Buenzli, E.; Allers, K.; Bonnefoy, M.; Charnay, B.; Bézard, B.; Allard, F.; Homeier, D.; Bonavita, M.; Brandner, W.; Crossfield, I.; Dupuy, T.; Henning, T.; Kopytova, T.; Liu, M. C.; Manjavacas, E.; Schlieder, J., *The Astronomical Journal*, 155(2):95, 2018.
6. THE VIEWING GEOMETRY OF BROWN DWARFS INFLUENCES THEIR OBSERVED COLORS AND VARIABILITY AMPLITUDES
Vos, J. M.; Allers, K. N.; Biller, B. A., *The Astrophysical Journal*, 842(2):78, 2017.
7. VARIABILITY IN A YOUNG, L/T TRANSITION PLANETARY-MASS OBJECT
Biller, B. A.; **Vos, J. M.**; Bonavita, M.; Buenzli, E.; Baxter, C.; Crossfield, I. J. M.; Allers, K.; Liu, M. C.; Bonnefoy, M.; Deacon, N.; Brandner, W.; Schlieder, J. E.; Dupuy, T.; Kopytova, T.; Manjavacas, E.; Allard, F.; Homeier, D.; Henning, T., *The Astrophysical Journal Letters*, 813(2):16, 2015.

**Selected White
Papers &
Research Notes**

1. ASTRO2020 SCIENCE WHITE PAPER: THE L/T TRANSITION
Vos, J. M.; Allers, K.; Apai, D.; Biller, B.; Burgasser, A. J.; Faherty, J.; Gagne, J.; Helling, C.; Morley, C.; Radigan, J.; Showman, A.; Tan, .; Tremblin, P., *Bulletins of the American Astronomical Society*, 2019.
2. A TOOL AND WORKFLOW FOR RADIO ASTRONOMICAL PEELING IN CASA
Williams, P. K. G.; Allers, K. N.; Biller, B. A.; **Vos, J. M.**, *Research Notes of the American Astronomical Society*, 3, 110, 2019.
3. ASTRO2020 SCIENCE WHITE PAPER: MAPPING ULTRACOOOL ATMOSPHERES: TIME-DOMAIN OBSERVATIONS OF BROWN DWARFS AND EXOPLANETS
Apai, D.; Biller, B.; Burgasser, A.; Girard, J. H.; Gizis, J. E.; Karalidi, T.; Kraus, Ad. L.; Lew, B. W. P.; Manjavacas, E.; Marley, M.; Miles-Paez, P. A.; Morley, C. V.; Radigan, J.; **Vos, J. M.**; Zhou, Y., *Bulletins of the American Astronomical Society* 2019.
4. ASTRO2020 SCIENCE WHITE PAPER: BROWN DWARFS AND DIRECTLY IMAGED EXOPLANETS IN YOUNG ASSOCIATIONS
Faherty, J.; Allers, Katelyn; Bardalez Gagliuffi, D.; Burgasser, A. J.; Gagne, J.; Gizis, J.; Kirkpatrick, J. D.; Riedel, A.; Schneider, A.; **Vos, J. M.**, *Bulletins of the American Astronomical Society* 2019.