**Lavanya Ashokkumar**
Postdoctoral Research Associate

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## Academic qualifications

**PhD - Glaciology and Remote sensing** 2012 – 2017
Department of Geography, College of Science, Swansea University SA2 8P, UK
Thesis: Understanding long-term glacier dynamics in the Himalayas using satellite remote sensing. Advisors: Prof Adrian Luckman, Prof Bernd Kulessa.

**Master of Science – Remote sensing** 2010 – 2012
Department of Civil Engineering, Anna University, Chennai, India
Thesis: Improved band selection and fusion of hyperspectral image data. Advisor: Prof Sanjeevi Shanmugam. CGPA: 9/10

**Bachelor's in engineering (Geo-Informatics)** 2003 – 2007
Department of Civil Engineering, Anna University, Chennai, India
Thesis: Location based services: An open source approach for GIS
Advisor: Prof Thirumalaivasan. CGPA: 8.5/10

## Publications

- **Ashokkumar**, Lavanya and Harig, Christopher (2020). 21st century estimates of mass loss rates from glaciers in the Gulf of Alaska and Canadian Archipelago using a GRACE constrained glacier model. *The Cryosphere*. https://www.the-cryosphere-discuss.net/tc-2019-325 (revise and submit)
- **Ashokkumar, L**., Harig, C, Luckman, A, Kulessa, B (2020). Contrasting patterns of dynamic response to climate, inferred from 145 glaciers. *Journal of Glaciology*. (submitted).
- **Ashokkumar**, Lavanya (2017). PhD thesis. Recent variability in Himalayan glacier dynamics using remote sensing. Swansea University, UK.
- **Ashokkumar**, L., & Shanmugam, S. (2014). Hyperspectral band selection and classification of Hyperion image of Bhitarkanika mangrove ecosystem, eastern India. Proceedings Volume 9239, Remote Sensing for Agriculture, Ecosystems, and Hydrology XVI; 923914. https://doi.org/10.1117/12.2067483
- **Lavanya, A**., & Sanjeevi, S. (2013). An improved band selection technique for hyperspectral data using factor analysis. Journal of the Indian Society of Remote Sensing, 41(2), 199-211.
- Suresh Kumar R., **Lavanya A.,** Vani K. and Sanjeevi S. (2012). Fusion based approach for automatic lunar-crater detection. Acta Futura: Journal of Advanced Concepts, 5, 163–172.
- **Lavanya, A**., Sanjeevi, S. and Vani, K. (2011). Hyperspectral Data Mining – A Feature Selection Technique for Mineral Abundance Mapping on the Lunar Surface. AI in Space: Intelligence beyond planet earth, IJCAI 2011, Spain.

- Tamililakkiya, V, Vani K, **Lavanya A**, Anto M, (2011). Linear and non-linear feature extraction algorithms for lunar images. Signal & Image Processing.
- Suresh Kumar, R., **Lavanya, A**., Vani, K. and Sanjeevi, S. (2011). Texture Based Automatic Lunar-crater Detection and Mapping in Chandrayaan - 1, Image Data. AI in Space; Intelligence beyond planet earth, IJCAI 2011, Spain.

## Publications – In progress

- **Ashokkumar**, Lavanya and Harig, Christopher (2020). Global glacier mass loss rates under CMIP6 climate scenarios. (In progress)
- **Ashokkumar**, Lavanya., Harig, Chris and Holt, Jack (2020). Assessing the future mass loss rates from tidewater glaciers in Alaska using laser altimetry. AGU Earth surface. (In progress).

## Non-peer reviewed proceedings

- **Ashokkumar** and Harig (2018). Regionally variable mass loss rates in Alaska and Canadian Archipelago under recent climate scenarios. Northwest Glaciologists Meeting, Oregon State University, Oct 2019. (Oral)
- **Ashokkumar** and Harig (2018). Regionally variable mass loss rates in Greenland estimated from GRACE and their link to observed and modelled climate. AGU Fall Meeting, Washington DC, Dec 10 – 14, 2018.
- **Ashokkumar**, Lavanya; Luckman, Adrian and Kulessa, Bernd (2015). Glacier dynamics in the Himalayas over the last four decades using satellite remote sensing. International Symposium on Glaciology in High-Mountain Asia. March 2015. (Oral)
- **Lavanya Ashokkumar**, Adrian Luckman and Bernd Kulessa (2014). Spatial and temporal dynamic change in Karakoram glaciers, IGS British branch meeting, Bristol, 2014.
- **Lavanya Ashokkumar**, Adrian Luckman and Bernd Kulessa (2013). Analysis of glacier velocities across Karakoram Himalayas over the past decade using Landsat 7–8, IGS British branch meeting 2013, Loughborough UK.
- **Lavanya.A,** Sanjeevi.S and Vani. K. (2012). "Dimensionality Reduction of lunar hyperspectral data using Band Index and separability measures". Proceedings of National Symposium on Signal and Image Processing. Gandhigram Rural University. (Oral)
- **Lavanya, A**., & Suganya, B. (2005). "Rehabilitation of wastelands in a drought prone area using remote sensing"**.** *AGNI 2005*. Awarded the Best Student paper. Anna University, India. (Oral).

## Work experience

**Postdoctoral Research Associate** Mar 2018 – present
University of Arizona, Tucson AZ
Modeling the mass balance of glaciers using GRACE satellite gravimetry.

**Postdoctoral Researcher (Visitor status)** June 2017 – Feb 2018
Department of Geography, College of Science, Swansea University SA2 8P, UK
Time series analysis of glacier surge mechanism using Sentinel-1 dataset.

**Research Associate** Nov 2012 – May 2017
Swansea University SA2 8P, UK

**Teaching assistant** Oct 2016 – Dec 2016
GEG236: The Earth from Space: Monitoring Global Environmental Change
GEG208: Introduction to Geographic Information Systems
GEG111: Geographical Writing Skills and Personal Development Planning
GEG236: Approaches to Physical Geography – Talk about preparing for the undergrad dissertation

**Lecturer** June 2012 – Oct 2012
Sree Sastha Institute of Engineering and technology, Chennai, India
Courses taught: Basic civil engineering, engineering mechanics, computer programming and surveying laboratory.

**Junior Research Fellow** 2010 – 2011
Anna University, Chennai 600025, India

- Worked on the project titled 'Feature extraction of lunar features using multi-sensor image fusion approaches', funded by the **Space application centre (ISRO, India**).
- Major task included algorithm development for image fusion for better spatial interpretability and extraction of lunar features
- Processing of hyperspectral image dataset.

**Maternity break** 2008 - 2009

**Software developer** 2007 –2008
Cognizant technology solutions, Chennai, India

**GIS Intern** 2006 – 2007
Red planet consulting, Chennai, India
Developed a stand-alone mobile application using open source GIS application
Efficient use of Dijkstra's algorithm to provide shortest path to the nearest hospital

## Awards and grants

- Postdoc speed talk competition, University of Arizona. First place. March 2020 ($2000).
- Travel support by NASA and UW (**$1500**) for ICESat-2 Cryospheric Science Hackweek, University of Washington, Seattle, July 2019.
- Chevening Scholarship for dissertation writing and support – 2015 ($10000)
- **Commonwealth Scholarship and Fellowship** for PhD in Remote sensing, Commonwealth commission at the UK and MHRD, India (2012–2016). Funding for 3.5 years. (**$20000** annually)
- Travel Grant (**£750**) by the International Glaciological society for the International Glaciological Symposium in High Mountain Asia, Nepal, March 2015.
- Travel Grant for Young Scientist (~ $1000) awarded by the Council of Scientific and Industrial Research (CSIR), Government of India for the Conference 'AI in Space: Intelligence beyond planet earth', Spain, June 2011.
- Master Research funded by Indian space Research organization (ISRO- DOS), PLANEX for the project "Developing tools and techniques for lunar information extraction using multi-sensor image fusion". (Funding for 1 year).

## Professional Membership

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| Member of Geological Society of America | 2020 - present |
| Member of American Geophysical Union | 2018 – present |
| Member of International Glaciological Society, UK | 2013 – 2017 |
| Member of Indian Society of Remote Sensing | 2011 - 2012 |

## Science outreach, leadership and service

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| 2020 | SARSEF – Judge for Special Science category award for high school category, Tucson - invited<br>ARCUS – Judge for Travel award for indigenous students<br>AWG – Mentorship co-coordinator |
| 2019 - present | Member of Association of Women Geoscientists, Southern Arizona Chapter.<br>Board member of USAPECS (US Association of Polar Early Career Scientists<br>Board member of IARPC Early Career group<br>SARSEF – High School category judge in Earth science.<br>Sam Hughes Elementary School – Judge/ organizer for the selection of best science projects. |
| 2012 – 2017 | PhD Commonwealth Scholar, Wales regional network member. |
| 2006 – 2008 | Member of Geoinformatics Engineer, Anna University. |

- Presentation, Science talks, active participation and member of Commonwealth Wales Regional Networks, UK (2012 – 2016).
- Talk on 'Mass balance and glacier velocities in the Himalayas', College of Science Lecture series, Swansea University. March 2016. (Oral)
- Talk on 'Tracking the dynamic nature of the Himalayan glaciers using Remote sensing' at Postgraduate Research Conference, Cardiff University, June 2014. (Oral)
- Seminar on 'Recent techniques in remote sensing and GIS' at B.S. Abdur Rahman Crescent University, Chennai (2012) (Invited).