

Prakhar Misra

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Keywords: Remote sensing applications, Land-use change, Urbanization and emission inventory, Biomass burning, Urban air pollution, Social sensing, Low-cost portable sensors, Deep learning, Google Earth Engine, Open data

Experience

- 2020/3 - **Research Institute of Humanity and Nature, Researcher.**
present Interdisciplinary study towards clean air, public health and sustainable agriculture: case of crop residue burning in India
- 2019/10 - **Institute of Industrial Science, The University of Tokyo, Project Assistant Professor.**
2020/3
- 2018/08 - **Institute of Industrial Science, The University of Tokyo, Project Researcher.**
2019/10 Researching agromet cross comparison and validation for rice crop outlook in Thailand
- 2015/10 - **Sony Computer Science Laboratories, Tokyo, Japan, Research Assistant.**
2016/12 Analyzed energy exchange efficiency in '[Open Energy System](#)' for decentralized PV grid
- 2013/09 - **Inductis, New Delhi, India, Consultant.**
2015/02 Predictive modelling of unsecured credit risk using financial Big Data for Barclays Bank. Awarded 'Best Team' and 'Star Performer'
- 2011/05 - **Bharat Petroleum Corporation Limited, Mumbai, India, Technical Assistant.**
2011/06 Performed energy audit and feasibility study for solar-wind powered renewable energy plant

Education

- 2015–2018 **PhD in Civil Engineering (Remote Sensing), The University of Tokyo, Japan,**
Title: Analyzing Impact of Socio-economic Growth and Land-use Change on Urban Air quality in India, GPA 3.7/4. Advisor: Dr. Wataru Takeuchi.
- 2008–2013 **B.Tech.-M.Tech (Dual degree) in Civil Engineering, Indian Institute of Technology, Kanpur (IIT Kanpur), India,**
Title: Multi-resolution Segmentation Based Classification of Polarimetric SAR Imagery, MTech CPI 8.8/10, BTech CPI 6.7/10. Advisor: Dr. Onkar Dikshit.

Peer-reviewed publications

- Rahman M., Avtar R., Yunus A.P., Dou J., Misra P., Takeuchi W., ... & Kharrazi A. Misra P., Takeuchi W.; Assessing Population Sensitivity to Urban Air Pollution Using Google Trends and Remote Sensing Datasets. *Int. Arch. Photogramm. Remote Sens. Spatial Inf. Sci.*, XLII-3/W11, 2020.
- Misra P., Takeuchi W.; Assessing Population Sensitivity to Urban Air Pollution Using Google Trends and Remote Sensing Datasets. *Int. Arch. Photogramm. Remote Sens. Spatial Inf. Sci.*, XLII-3/W11, 2020.
- Misra P., Imasu R., Takeuchi W.; Impact of Urban Growth on Air Quality in Indian Cities Using Hierarchical Bayesian Approach. *Atmosphere*, Vol 10(9), 2019.
- Minh H.V.T., Avtar R., Mohan G., Misra P., Kurasaki M.; Monitoring and Mapping of Rice Cropping Pattern in Flooding Area in the Vietnamese Mekong Delta Using Sentinel-1A Data: A Case of An Giang Province. *ISPRS International Journal of Geo-Information*, Vol 8(5), 2019.
- Misra P., Avtar R., Takeuchi W.; Comparison of digital building height models extracted from AW3D, TanDEM-X, ASTER and SRTM digital surface model over Yangon city. *Remote Sensing*, Vol 10(12), 2018.
- Misra P., Fujikawa A., Takeuchi W.; Novel Decomposition Scheme for Characterizing Urban Air Quality with MODIS. *Remote Sensing*, Vol 9(8), 2017.
- Misra P., Takeuchi W.; Air Quality Analysis Using Nighttime Light for Indian Urban Regions. *Malaysian Journal*

Conference publications

- Misra P., Takeuchi W., Imasu R.; Brick Kiln Detection in North India with Sentinel imagery using Deep Learning of Small Datasets. *40th Asian Conference of Remote Sensing*, Daejeon, South Korea, 2019.
- Misra P., Takeuchi W.; Assessing population sensitivity to urban air pollution using Google Trends and remote sensing datasets. *40th Pecora21/ISRSE38*, Baltimore, Maryland, USA, 2019.
- Sovisoth E., Thakur V.B., Nagai K., Misra P., Takeuchi W.; Estimation of the bridge construction year in Cambodia by the analysis of LANDSAT satellite data. *3rd ACF Symposium*, Sapporo, Japan, 2019.
- Misra P., Takeuchi W.; Use of Google Trends for Assessing Sensitivity of Population to Urban Air Pollution. *26th International Symposium on Remote Sensing*, Taipei, Taiwan, 2019.
- Arbain A., Imasu R., Misra P., Takeuchi W.; Estimating PM_{2.5} Emission from Brick Kiln Industry over Northern India with Numerical Model and Remote Sensing Observation. *EGU General Assembly*, Vienna, Austria, 2019.
- Misra P., Takeuchi W.; Analyzing perception of urban air pollution using Google Trends and satellite datasets. *27th Institute of Industrial Science Forum Proceedings*, Tokyo, Japan, 2019.
- Misra P., Takeuchi W.; A Novel Technique For Estimating Expansion Of Residential, Commercial And Industrial Regions In Indian Megacities. *17th International Symposium on Urban Safety Of Mega Cities In Asia*, Hyderabad, India, 2018.
- Misra P., Imasu R., Takeuchi W.; Land-use Change Impacts on Urban Air Quality in India using Hierarchical Bayesian Approach. *39th Asian Conference of Remote Sensing*, Kuala Lumpur, Malaysia, 2018. **Best Paper Award Finalist**
- Ochi S., Misra P., Takeuchi W.; Spatiotemporal Distribution Of Hotspot / Wildfire In Southeast Asia Using Remote Sensing Data. *39th Asian Conference of Remote Sensing*, Kuala Lumpur, Malaysia, 2018.
- Misra P., Takeuchi W.; Hierarchical Bayesian approach to estimate land-use change impacts on urban air pollution in India. *26th Institute of Industrial Science Forum Proceedings*, Tokyo, Japan, 2018. **Best student Award**.
- Misra P., Takeuchi W.; Digital Surface Model (DSM) datasets for built-height estimation over Indian cities. *24th International Symposium on Remote Sensing*, Nagoya, Japan, 2017.
- Misra P., Takeuchi W.; Comparison of ASTER and AW3D derived Digital Surface Model datasets for built structure height estimation over Yangon city, Myanmar. *25th Institute of Industrial Science Forum Proceedings*, Tokyo, Japan, 2017.
- Misra P., Takeuchi W.; Assessing Impact of Economic Activities on Urban Air Quality in India by Nightlight and Atmospheric Measurement Datasets. *37th Asian Conference of Remote Sensing*, Colombo, Sri Lanka, 2016.
- Misra P., Takeuchi W.; Air Quality Analysis Using Nighttime Light for Indian Urban Regions. *8th IGRSM International Conference and Exhibition on Geospatial & Remote Sensing*, Kuala Lumpur, Malaysia, 2016.
- Misra P., Takeuchi W.; Analysis Of Air Quality In Indian Cities Using Remote Sensing And Economic Growth Parameters. *36th Asian Conference on Remote Sensing*, Manila, Philippines, 2015.

Report

- Misra P.; Clean Air and Imagined Sustainability: The case of India. *Aakash Newsletter*, Vol. 1(1) 2020.
- Misra P., Sharma R.; India's GAGAN (GPS-aided GEO augmented navigation) adds a new dimension to navigation. *GIM International*, Vol. 27(2) 2013.

Presentation and seminars

- Misra P, Takeuchi W.; Public interest in air quality and its impact varies with baseline exposure: Google Trends and Remote Sensing based analysis *22nd CReS Symposium on Environment Remote Sensing*, Chiba University, Chiba, Japan. (2020/02/20)
- Misra P; Remote Sensing for Urban Studies Mapping Land-use for Emission Inventories in Developing Countries (invited) *Young Sustainability Symposium*, Hokkaido University, Sapporo, Japan. (2020/02/03)
- Misra P, Takeuchi W; Mapping Drivers of Urban Air-pollution in Indian Cities using Remote Sensing (invited) *Sakura Science Exchange Program*, Shibaura Institute of Technology, Tokyo, Japan. (2019/11/20)
- Misra P, Takeuchi W; Monitoring Land-use Drivers of Urban Air Pollution and its Response using Remote Sensing and Social Sensing *Data-based Society Creation Symposium 2019*, Tokyo, Japan. (2019/09/01)

- Misra P, Takeuchi W; Brick kiln detection around New Delhi using Sentinel 2 with Deep Learning: Distribution and Drivers *NASA LCLUC SARI International Regional Science Meeting*, Johor Bahru, Malaysia. (2019/07/24)
- Misra P, Takeuchi W; Comparison of Remote Sensing derived KBDI with in-site Soil-moisture in Thailand. *JAXA-GISTDA mini workshop on drought monitoring*, Bangkok, Thailand. (2019/05/17)
- Misra P; Observations from Mapping PM2.5 in Indian Cities using Low-cost sensor. *1st IITK-UTokyo Workshop on PM2.5 Mapping using Low-cost Sensors*, Kanpur, India. (2019/02/06)
- Misra P, Takeuchi W; Role of satellite for monitoring urban air quality. *1st IITK-UTokyo Workshop on PM2.5 Mapping using Low-cost Sensors*, Kanpur, India. (2019/02/07)
- Misra P; GEE as educational tool in Civil Engineering. *Google Earth Engine Year-end Meetup in Tokyo*, Tokyo, Japan. (2018/12/26)
- Misra P, Takeuchi W; Impact assessment of socio economic development on urban air quality in Indian megacities *NASA LCLUC SARI International Regional Science Meeting*, Chiang Mai, Thailand. (2017/07/17)

Workshops and training organized

- 2019 **NASA SARI Remote Sensing Land Use change and Climate Impacts in Coastal Zone Regional Science Training, Phuket, Thailand** Blue Carbon Mapping and Coastal Zone studies using GEE (12/17)
- 2019 **5th International Conferences of Indonesian Society for Remote Sensing (ICOIRS), Bandung, Indonesia** Cloud based satellite image processing: Introduction to GEE (09/17)
- 2019 **Suranaree University of Technology, Nakhon Ratchaseema, Thailand** Air quality monitoring and mapping with portable devices (05/15)
- 2019 **4th Open Science Meeting, Global Land Program, Bern, Switzerland** Hands-on-training session on evaluating three-dimensional urban expansion in mega cities in Asia (04/27)
- 2019 **26th International Symposium on Remote Sensing - ISPRS TC-W/8 Tutorial, Taipei, Taiwan** Remote Sensing Applications using Google Earth Engine (04/18)
- 2019 **1st IITK-UTokyo Workshop on PM_{2.5} Mapping using Low-cost Sensors, IIT Kanpur, India** Citizen science workshop for mapping geolocated individual exposure to PM 2.5 using low-cost devices. (02/05–02/07)
- 2019 **27th IIS Forum, The University of Tokyo, Tokyo, Japan** Classifying Landsat8 imagery using Google Earth Engine (03/07–03/08)
- 2018 **Indian Institute of Technology-BHU, Varanasi, India** Classifying Landsat8 imagery using Google Earth Engine and demonstration of portable PM_{2.5} sensors (06/04)
- 2018 **26th IIS Forum, The University of Tokyo, Tokyo, Japan** Google Earth Engine for Landsat imagery classification (03/07–03/08)

Teaching

(*team-teaching, +teaching-assistant)

- 2019, '18, '17 **Remote sensing (3713-089)***, *The University of Tokyo*.
- 2019/01 **Satellite Image Processing for Remote Sensing Applications***, *Seoul National University*.
- 2013/01 **Precision Remote Sensing (CE676)⁺**, *IIT Kanpur*.
- 2012/08 **Environmental Quality and Pollution (CE361)⁺**, *IIT Kanpur*.

Fellowship and grants

- 2020 Asia Pacific Grant for Young Researcher, Finalist
- 2019 Tateishi Science and Technology Foundation, JPY 397,000
- 2019 International research meeting dispatch grant (IIS), JPY 365,000; (Declined)
- 2015 Japanese Government (MEXT) Scholarship; tuition and stipend
- 2009 Incentive Scheme for Meritorious Children by State Bank of India; stipend
- 2006 National Talent Search (NTSE) Scholarship by Government of India; stipend

Technical skills

Programming Python, R, JS, C, SQL, VBA, SAS
Tools Google Earth Engine, QGIS, SNAP, ArcGIS, ENVI, TerraScan, GDAL

Professional service

Reviewer MDPI Remote Sensing; MDPI Atmosphere; T&F International Journal of Remote Sensing, Elsevier Resources Conservation and Recycling; Springer Sustainability Science

Social service

2016-'17 Vice-president, University of Tokyo Indian Students' Association
2016/07 Global Health Entrepreneurship Program for improving health in Onagawa, Miyagi
2015/05 Student volunteer, Empowerment Program Ibaraki High School, Mito City
2014-'15 SPOC, NGO for underprivileged Udayan Care, Gurgaon, India
2009-'10 Student guide, Institute Counselling Service, IIT Kanpur

References

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