Dr. Manil Maskey

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Dr. Manil Maskey is a highly accomplished Senior Research Scientist and Project Manager with consistent track record at NASA, as well as a respected leader in the geoscience community. His contributions to Earth science spans development of strategic initiatives, data-centric artificial intelligence innovation, and the impactful open-source infrastructure, all aimed at fostering global collaboration and enhancing data accessibility. Dr. Maskey's research integrates AI-driven methodologies, cloud-native data platforms, novel visualization techniques, and machine learning applications in Earth science, reshaping how Earth science data is processed, visualized, and analyzed. As a key figure in the IEEE Geoscience and Remote Sensing Society (GRSS), Dr. Maskey has established influential working groups and forged impactful collaborations with leading private sector companies and international partners. His extensive publication record reflects his commitment to advancing data science within Earth science. A strong advocate for education and outreach, Dr. Maskey has launched workshops, summer schools, and webinars to connect academia, industry, and the public, promoting the role of technology in advancing Earth sciences.

Experience

Data Science Officer **|** Science Research and Projects Division **|** NASA MSFC **|** Jul 2024 - Present
Data Science & Innovation Lead **|** Office of Chief Science Data Officer **|** NASA HQ **|** 2023 - 2024
Senior Research Scientist and Project Lead **|** IMPACT **|** NASA MSFC **|** 2016 - 2024
Program Officer **|** Earth Science Data Systems **|** NASA HQ **|** 2019 - 2023
Manager **|** Global Hydrometeorology Resource Center **|** NASA MSFC **|** 2018 – 2022
Research Scientist I-VI **|** ITSC **|** University of Alabama in Huntsville **|** 2005 – 2016
Software Engineer **|** NCR/Teradata **|** 2000 – 2002

Education

University of Alabama in Huntsville	Computer Science	Ph.D.	2019
University of Alabama in Huntsville	Computer Science	M.S.	2005
Fairmont State University	Computer Science	B.S.	2000
Fairmont State University	Mathematics	B.S.	2000

Awards & Honors

IAF Special Award in Space for Climate Protection | 2023
NASA Silver Achievement Medal | 2022
NASA Group Achievement Award for Cloud Migration | 2021
NASA Group Achievement Award for COVID-19 Dashboard | 2020
NASA MSFC Innovation Award for AI-driven Hurricane Intensity Estimation | 2019

Appointments and Professional Service

Chair | Earth Science Informatics (ESI) Technical Committee | IEEE GRSS | 2019–2021
Co-Chair | Earth Science Informatics (ESI) Technical Committee | IEEE GRSS | 2021–2023
Chair | Earth Science Informatics (ESI) Technical Committee | IEEE GRSS | 2023–Present
Co-chair | NITRD Big Data Interagency Working Group
Member of the Steering Committee | National Artificial Intelligence Research Resource Program

Member, AGU Fall Meeting Planning Community
Adjunct Faculty, University of Alabama in Huntsville Atmospheric Science Department
Co-Chair, OGC Augmented Reality Markup Language 2.0
Senior Member, IEEE

Professional Society Memberships

Institute of Electrical and Electronics Engineers (IEEE)
Association for Advancement of Artificial Intelligence (AAAI)
American Geophysical Union (AGU)
IEEE Geoscience and Remote Sensing Society (GRSS)
European Geosciences Union (EGU)

Major Accomplishments

Chaired a source evaluation board for Commercial Smallsat Data Acquisition (CSDA) Program.

Demonstrated Geospatial AI Foundation Model during the White House Demo Day, where the audience included the President of the United States.

Developed AI strategy for the Earth Science Data Systems program.

Led the development of the first NASA SMD Artificial Intelligence Ethical best practices and guidelines.

Led the development COVID-19 Earth observation dashboard in collaboration with ESA and JAXA.

Co-developed the CSDA Program's strategy.

Managed full lifecycle of ROSES ACCESS 2019 solicitations.

Led the migration of NASA DAAC to the commercial cloud.

Led the development of the Deep Learning-based hurricane intensity estimation tool.

Led the development of Visualization, Exploration, and Data Analysis (VEDA)

Led the development of the US Greenhouse Gas Center.

Designed and developed the Field Campaign Explorer - interactive visual exploration tool for airborne data.

Designed and developed services as part of integrated system for the Southeastern University Research Association (SURA) Coastal Ocean Observing and Prediction (SCOOP).

Book Chapters

Maskey, M., et al., Dashboard for Earth Observation, Advances in Scalable and Intelligent Geospatial Analytics: Challenges and Applications, 2023. CRC Press.

Maskey, M., et al. (2011). OOSTethys/Oceans IE Service Registry Based on Catalog Service for Web. In P. Zhao & L. Di (Eds.), Geospatial Web Services: Advances in Information Interoperability (pp. 97–117). Hershey, PA, USA: IGI Global.

Conover, H., Maskey, et al. (2010). SCOOP Data Management: A Standards-Based Distributed Information System for Coastal Data Management. In L. Di & H. K. Ramapriyan (Eds.), Standard-Based Data and Information Systems for Earth Observation (pp. 93–111). Springer Berlin Heidelberg.

Ramachandran, R., Maskey, M., et al. (2008). ADaM Services: Scientific Data Mining in the Service Oriented Architecture Paradigm. In W. Dubitsky (Ed.), Data Mining Techniques in Grid Computing Environments. Wiley Publication.

Maskey, M., et al. (2014). Database Systems for Healthcare Applications. In Applied Clinical Informatics for Nurses. Jones & Bartlett Learning.

Twilley, R. R., Maskey, M., et al. (2014). Simulation Management Systems Developed by the Northern Gulf Coastal Hazards Collaboratory (NG-CHC): An Overview of Cyberinfrastructure to Support the Coastal Modeling Community in the Gulf of Mexico. In C. W. Finkl & C. Makowski (Eds.), Remote Sensing and Modeling: Advances in Coastal and Marine Resources (pp. 365–394). Springer International Publishing.

Recent Journal Articles

Cavallaro G., Maskey, M., et al. (2024) High Performance and Disruptive Computing in Remote Sensing: The Third Edition of the School Organized by the HDCRS Working Group of the GRSS Earth Science Informatics, Journal IEEE Geoscience and Remote Sensing Magazine, 12(1).

Maskey, M. (2023) Rethinking AI for Science: An Evolution From Data-Driven to Data-Centric Framework Journal Perspectives of Earth and Space Scientists, 4(1).

Gurung, I., Maskey, M. (2023) Tropical cyclone wind speed estimation: A large-scale training data set and community benchmarking, Journal Earth and Space Science, 3(1).

Maskey, M., et al., (2023) A Summer School Session on Mastering Geospatial Artificial Intelligence: From Data Production to Artificial Intelligence Foundation Model Development and Downstream Applications, in IEEE Geoscience and Remote Sensing Magazine, 11(3).

Ramachandran, R., Maskey, M., et al. (2022) Investigating Different Data-Traceability Approaches to Prevent Data Swamps, Journal IEEE Geoscience and Remote Sensing Magazine, 10(3).

Cavallaro, G., Maskey, M., et al., (2022) High-Performance and Disruptive Computing in Remote Sensing: HDCRS—A new Working Group of the GRSS Earth Science Informatics Technical Committee, in IEEE Geoscience and Remote Sensing Magazine, 10(2).

M. Maskey, et al. (2021) A Data Systems Perspective on Advancing AI, Eos, 102(2).

Le Roux, J., Maskey, M., et al. (2021) Exploring the use of PlanetScope data for particulate matter air quality research, Journal Remote Sensing, MDPI, 13(15).

Maskey, M. (2021) Advancing Machine Learning Tools for Earth Science Workshop, Journal IEEE Geoscience and Remote Sensing Magazine, 9(2).

Maskey, M. (2020) Deepti: Deep-learning-based tropical cyclone intensity estimation system, IEEE journal of selected topics in applied Earth observations and remote sensing, vol. 13.

Lang, T., Maskey, M., et al. (2020) Three years of the Lightning Imaging Sensor onboard the International Space Station: Expanded Global Coverage and Enhanced Applications, Journal of Geophysical Research, 125(16).

Pullman, M., Maskey, M., et al. (2019) Applying deep learning to hail detection: A case study, IEEE Transactions on Geoscience and Remote Sensing, 57(12).

Pradhan, R., Maskey, M., et al. (2018) Tropical Cyclone Intensity Estimation Using a Deep Convolutional Neural Network. IEEE Transactions on Image Processing, 27(2).

Miller, J. Maskey, M., et al. (2018) Detection of transverse cirrus bands in satellite imagery using deep learning, Computers and Geosciences, vol. 118.