Curriculum vitae with track record

Personal information

First name, Surname:	**Tarkeshwar Singh.** 		
Date of birth:	1st September 1987	Sex:	Male
Nationality:	Indian		
Researcher unique identifier(s) (ORCID, Researcher ID, etc.):	ORCID ID: https://orcid.org/0000-0002-0902-539X		
URL for personal website:	https://www.nersc.no/staff/tarkeshwar-singh		

Education

Year	Faculty/department - University/institution - Country
2018	PhD thesis at Centre for Atmospheric Sciences, Indian Institute of Technology (IIT) Delhi, India (22/03/2018). Thesis Title: "*A Global-Regional Data Assimilation System for Indian Subcontinent Monsoon Region*"
2011	Master of Technology (M.Tech.) in *Atmospheric-Oceanic Science and Technology* at Centre for Atmospheric Sciences, Indian Institute of Technology (IIT) Delhi, India. Thesis Title: "*Impact of spatial and temporal resolution on simulated precipitation using COSMO-CLM Model"*
2009	Master of Science (M.Sc.) in **Physics** at Department of Physics and Astrophysics, University of Delhi, New Delhi, India.

Positions - current and previous

Year	Job title – Employer - Country
2020-	Researcher at NERSC, Bergen, Norway
2017-	Project Scientist-C at NCMRWF, Ministry of Earth Sciences, Noida, India
2011-	Senior Research Fellow (SRF) at Centre for Atmospheric Sciences, IIT Delhi, New Delhi

Track record

My expertise spans oceanography, atmospheric science, and data assimilation. My research focuses on advancing climate models and enhancing their predictive capabilities. Accurate climate prediction is of profound societal importance, and I address this challenge by integrating observational data with numerical model simulations using state-of-the-art data assimilation techniques. I apply advanced assimilation methods across multiple Earth system components, including the ocean, atmosphere, and marine biogeochemistry. My main contributions include developing an atmospheric data assimilation system for the LMDZ GCM to improve Indian summer monsoon reanalysis and prediction, and a flexible data assimilation framework that constrains model parameters to enhance ocean biogeochemical simulations in NorESM. My current work includes advancing an Ocean-Connected Supermodel that couples multiple Earth System Models to improve seasonal-to-decadal predictions (in prep.). I have also developed an ensemble-based coupled data assimilation system for EC-EARTH3 to improve the climate prediction (in prep.).

Peer-Reviewed Publications

- **T. Singh,** Francois Counillon, Jerry Tjiputra, and Yiguo Wang. "A Novel Ensemble-Based Parameter Estimation for improving Ocean Biogeochemistry in an Earth system model." *Journal of Advances in Modeling Earth Systems* 17, no. 2 (2025): https://doi.org/10.1029/2024MS004237
- **T. Singh,** Counillon F, Tjiputra J, Wang Y, and Gharamti ME (2022) "Estimation of Ocean Biogeochemical Parameters in an Earth System Model Using the Dual One Step Ahead Smoother: A Twin Experiment". *Front. Mar. Sci.* 9:775394. doi: 10.3389/fmars.2022.775394
- Soni, A. K., Tripathi, J. N., Tewari, M., Sateesh, M., & Singh, T. (2023). Future projection of drought risk over Indian Meteorological Subdivisions using bias-corrected CMIP6 scenarios. Atmosphere, 14(4), 725.
- Tewari, M., Kishtawal, C.M., Moriarty, V.W., Ray, P., **Singh, T.,** Zhang, L., Treinish, L. and Tewari, K., (2022). "Improved seasonal prediction of harmful algal blooms in Lake Erie using large-scale climate indices." *Communications Earth & Environment-Nature*, 195. https://doi.org/10.1038/s43247-022-00510-w

- **T. Singh,** U. Saha, V. S. Prasad, M. Das Gupta (2020), "Assessment of newly-developed high resolution reanalyses (IMDAA, NGFS and ERA5) against rainfall observations for Indian region" Atmospheric Research, 259, 105679.
- **T. Singh** (2020). **"**Development of an ensemble data assimilation system with LMDZ5 AGCM for regional reanalysis". *Climate Dynamics (https://doi.org/10.1007/s00382-020-05147-z).*
- Saha, U., **T. Singh**, P. Sharma, M.D. Gupta, M.D. and V.S. Prasad (2020). **"**Deciphering the extreme rainfall scenario over Indian landmass using satellite observations, reanalysis and model forecast: Case studies". *Atmospheric Research*, p.104943.
- Mittal, R., M. Tewari, C. Radhakrishnan, P. Ray, **T. Singh** and A. Nickerson (2019). "Response of tropical cyclone Phailin (2013) in the Bay of Bengal to climate perturbations". *Climate Dynamics, https://doi.org/10.1007/s00382-019-04761-w*
- Bhardwaj A., TN Krishnamurti, Om Prakash Sharma, Akhilesh Mishra and **T. Singh** (2018). "Monsoon Precipitation Forecast Using a Suite of Mesoscale Models". *International Journal of Earth and Atmospheric Sciences. Jakraya Publication, 2349-9222*
- **T. Singh**, R. Mittal and M. V. Shukla, (2017). "Validation of INSAT-3D temperature and moisture sounding retrievals using matched radiosonde measurements". *International Journal of Remote Sensing, 38(11), 3333-3355 (DOI:10.1080/01431161.2017.1294776)*
- **T. Singh**, R. Mittal, & H. C. Upadhyaya (2015). "Ensemble Adjustment Kalman Filter Data Assimilation for a Global Atmospheric Model." *Lecture Notes in Computer Science, vol 8964. Springer, Cham (DOI: 10.1007/978-3-319-25138-7_26)*

Fellowships and awards

- Qualified joint **CSIR-UGC** test for Junior Research fellowship (**JRF**) and eligibility for Lectureship (**NET**, Jun-2009) and secured 163 All India rank in physical sciences organized by Council of Scientific & Industrial Research (CSIR), government of India.
- Qualified Graduate Aptitude Test for Engineering (**GATE**, 2009) in physics organized by the Ministry of Human resource development (MHRD), Govt. of India, and received GATE scholarship from July-2009 to June-2011 for M. Tech. program.
- Received **DAAD-IIT Master Sandwich Scholarship** to do M.Tech thesis work at Karlsruhe Institute of Technology (KIT), Germany from Sep-2010 to May-2011.
- Received Senior Research Fellowship (**SRF**) from Space Application Centre, ISRO sponsored project during Sep-2011 to May-2015 period.

- Received Senior Research Fellowship (**SRF**) from the Ministry of Earth Sciences (MoES), Government of India, sponsored project during the Jun-2015 to Nov-2015 period.

11/08/2025

Tarkeshwar Singh