



Faculty Details Proforma



Title	Dr.	First Name	Shyam	Last Name	Ranjan	Photograph
Designation	Assistant Professor					
Address	Department of Environmental Science					
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Email	shyam.ranjan@sbs.du.ac.in					
Web-Page						
Educational Qualifications						
Degree	Institution				Year	
Ph.D.	Climate and Environmental Physics, Physics Institute, University Of Bern, Bern, Switzerland				2013	
M.Sc.	School Of Environmental Sciences, Jawaharlal Nehru University, New Delhi, India				2009	
B.Sc.	HD Jain College, Veer Kunwar Singh University, Ara, Bihar				2005	
Career Profile						
Institution		Designation			Duration	
Shaheed Bhagat Singh College (Morning), Delhi University, New Delhi		Assistant Professor			Nov 2023 - ..	
Climate and Environmental Physics, Physics Institute, University of Bern, Switzerland		Postdoctoral			Nov. 2022- Nov.2023	
Centre For Earth Sciences, Indian Institute of Science, Bangalore, India.		Project Associate			Aug.2022- Sep.2022	
School Of Environmental Sciences, Jawaharlal Nehru University, New Delhi, India.		CSIR Pool Scientist			July 2019- July2022	

School Of Environmental Sciences, Jawaharlal Nehru University, New Delhi, India	AGU Celebrate 100 Grant fellow	May 2019-June 2019
School Of Environmental Sciences, Jawaharlal Nehru University, New Delhi, India	DST Young Scientist	Oct.2015- Mar 2019
School Of Environmental Sciences, Jawaharlal Nehru University, New Delhi, India	Research Associate III	Apr.2015-Sep.2015
Central University Of South Bihar, Gaya	Visiting Faculty	Apr. 2014- May 2014
Climate and Environmental Physics, Physics Institute, and Oeschger Centre for Climate Change Research University of Bern, Switzerland	Postdoctoral	Nov. 2013- Dec. 2013
Areas of Interest / Specialization		
Water stable isotopes and chemical tracers, Himalayan Glaciers, Hydrological cycle, Paleoclimate, Speleothem, Water Resources & its management, Air mass Trajectory model.		
Papers Taught		
River and Wetland Ecosystem		
Research Guidance		
Publications Profile		
<p>(1) Shyam Ranjan and Markus.C. Leuenberger (2021). Comparison of three measurement principles on water triple oxygen isotopologues. <i>Frontiers In Earth Sciences</i>. doi: 10.3389/feart.2021.598061.</p> <p>(2) Shyam Ranjan, AL Ramanathan, Tirumalesh Keesari, Virendra B. Singh, Naveen Kumar, Manish Pandey, Markus.C. Leuenberger (2021). Triple Water Vapour–Isotopologues Record from Chhota Shigri, Western Himalaya, India: A Unified Interpretation based on $\delta^{17}O$, $\delta^{18}O$, δD and Comparison to Meteorological Parameters. <i>Frontiers In Earth Sciences</i>, 1-16.</p> <p>(3) Markus.C. Leuenberger and Shyam Ranjan (2021). Disentangle kinetic from</p>		

equilibrium fractionation using primary ($\delta^{17}\text{O}$, $\delta^{18}\text{O}$, δD) and secondary ($\Delta^{17}\text{O}$, dex) stable isotope parameters on samples from the Swiss precipitation network. *Frontiers In Earth Sciences*, doi: 10.3389/feart.2021.598061.

- (4) Chander Singh, Anand Kumar, Satyanarayan shashtri, Alok Kumar, Javed Mallick, Amit Singh, Ram Avtar, Ravi Prakash Singh, Pankaj Kumar, **Shyam Ranjan** (2021). Geochemical modeling to infer genetic origin of groundwater and associated health risks in desertic aquifers. *Groundwater for Sustainable Development*, doi: <https://doi.org/10.1016/j.gsd.2021.100569>
- (5) Naveen Kumar, AL Ramanathan, Aman Arora Mohd Soheb Arindan Mandal Parmanand Sharma, **Shyam Ranjan** (2020). Study of Isotopic Seasonality to Assess the Water Source of Proglacial Stream in Chhota Shigri glaciated basin, Western Himalaya. *Hydrological Processes*, 1-16.
- (6) **Shyam Ranjan**, AL. Ramanathan, Virendra Bahadur Singh (2019). Extreme Climate Event Footprint at Delhi, India: A Comparison of Last One Decade Meteorological Conditions. *Journal of Climate change* 5(1), 33-40.
- (7) Manoj Kumara, AL. Ramanathan, Abhijit Mukherjee, Ravi Sawlani and **Shyam Ranjan** (2019). Delineating sources of groundwater recharge and carbon in Holocene aquifers of the central Gangetic basin using stable isotopic signatures. *Isotopes in Environmental and Health Studies* 2-18.
- (8) Naveen Kumar, AL. Ramanathan, Tirumalesh, S. Chidambaram, **Shyam Ranjan**, Sohaib Achha, martin Tranter, (2018). Tracer based estimation of temporal variation of water sources in glacier catchment: an insight from supra and sub-glacial environment. *Hydrological Science Journal*. 63(11):1717-1732, DOI .10.1080/02626667.2018.152638.
- (9) Virendra Bahadur Singh, AL. Ramanathan, Thupstan Angchuk, Naveen kumar, Mohd Soheb, Arindan Mandal, Kalyan Biswal, **Shyam Ranjan**, Pramod Kumar (2018). Meteorological Characteristics of the Chhota Shigri Glacier, Lahaul-Spiti Valley, Himachal Pradesh, Northern India. *Journal of Climate Change*, 4(1): 23-31.
- (10) Manoj Kumara, AL. Ramanathan, **Shyam Ranjan**, Virendra Bahadur Singh, Naveen Kumar, Shailesh Kumar Yadav, M. Someshwar Rao, Susie Ritch, Prosun Bhattacharya (2018). Groundwater evolution and its utility in upper Ganges-Yamuna Alluvial plain of Northern India, India: Evidence from solute chemistry and stable isotopes. *Groundwater for Sustainable Development*, 7, 400-409.
- (11) Virendra Bahadur Singh, AL. Ramanathan, A.K. Keshari, **Shyam Ranjan**, Naveen Kumar and Shailesh Kumar Yadav (2018). Climatic influence on hydrogeochemistry of meltwater draining from Chhota Shigri glacier, Himachal Pradesh, India. *Journal of Climate Change*, 4(1): 23-31.
- (12) Banajarani Panda S. Chidambaram, N. Ganesh, V. S. Adithya, K. Pradeep, U.

Vasudevan, A. L. Ramanathan, **Shyam Ranjan**, M. V. Prasanna, K. Paramaguru (2017): A study on mountain front recharge by using integrated techniques in the hard rock aquifers of southern India. *Environment, Development and Sustainability*, DOI 10.1007/s10668-017-9987-8.

- (13) Banajarani Panda S. Chidambaram, N. Ganesh, V. S. Adithya, K. Pradeep, U. Vasudevan, A. L. Ramanathan, **Shyam Ranjan**, M. V. Prasanna, K. Paramaguru (2017): Study on the hourly dynamics of the coastal surface water flux along the vellar river mouth, Tamilnadu coast-A geochemical approach. *Journal of applied geochemistry*.19 (4), 451-456.
- (14) M.F Schibig, M. Steinbacher, B. Buchmann, I. T van der Laan-Luijkx, S. Van der Laan, **S. Ranjan**, and M.C. Leuenberger (2015): Comparison of continuous in-situ CO₂ observations at Jungfraujoch using two different measurement techniques. *Atmospheric Measurement Technique*. 8 (57-68). <https://doi.org/10.5194/amt-8-57-2015>.
- (15) Alok Kumar, AL Ramanathan, Shashi Prabha, RK Ranjan, **S Ranjan**, and Gurmeet Singh (2012): Metal Speciation studies in the aquifer sediments of Semria Ojhapatti, Bhojpur district, Bihar. *Environmental Monitoring and Assessment*, doi: 10.1007/s10661-011-2168-6.

Book Chapter

- **Shyam Ranjan**, Manish Pandey, and Rahul Raj (2022). Hydrological changes in the Arctic, the Antarctic, and the Himalayas: a synoptic view from the cryosphere change perspective
- M. Pandey, Y. Ra, A. Arora, U.K. Shukla, **S. Ranjan** (2021): Structural Control on the Landscape Evolution of Son Alluvial Fan System in Ganga Foreland Basin. *Advances in Remote Sensing for Natural Resource Monitoring*; Wiley. 189-246.

Conference/ workshop Organized

Conference Presentation:

Ranjan S., Hemant Kumar Singh, Yama Dixit, Leuenberger, M.; Stable isotopologues and hydro geochemistry of high-altitude Western Himalayan; Goldschmidt conference July **2023**; Lyon, France. (*Oral*).

Leuenberger M., **Ranjan S.**, Affolter S., Schanda R., and Nyfeler P., New method for high precision measurements of water inclusions in speleothems-based laser absorption spectroscopy and its application; **Developments in Isotope Ratio Measurements for Gas Analysis Workshop**, Oct 2019, Metas, Bern, Switzerland (*Oral*).

M. Leuenberger, **S. Ranjan**, P. Nyfeller, Insights into the new Tracer ¹⁷O-Excess: Results from the Swiss Precipitation Network; Goldschmidt conference August **2017**; Paris, France. (*Oral*).

Ranjan S. and Ramanathan AL.; Advancement in the measurement method of ¹⁷O-

excess: a new tracer in hydrologic cycle; ISAG conference, December **2015**, New Delhi, India. *(Oral)*.

Ranjan, S.; and Leuenberger, M.: $D^{17}O$, $d^{17}O$ and $d^{18}O$ variation in precipitated water at Jungfrauoch (3571 m)- relation to meteorological parameters and low altitude stations; Goldschmidt conference, August **2013** Florence, Italy. *(Oral)*.

Ranjan, S.; Leuenberger, M; Winkler, R.; and Landais A.: Influence of pH on $\delta^{17}O$ using the conventional equilibrium device and a comparison to the CoF3 method; EGU, April **2012**, Vienna, Austria. *(Poster)*.

Ranjan, S.; Leuenberger, M.: $\Delta^{17}O$ determination of Meteoric water by multiple online sample injection; INTRAMIF summer school, August **2011**, Paris, France. *(Poster)*.

Ranjan, S.; and Leuenberger, M.: $\delta^{17}O$ Determination of Meteoric Water; XVIII International Union for Quaternary Research (INQUA) Congress, July **2011** Bern, Switzerland *(Poster)*.

Ranjan, S.; and Leuenberger, M.: Testing of a continuous technique for water isotope determination; European Geosciences Union (EGU), April **2011**, Vienna, Austria *(Poster)*.

Ranjan, S.; Leuenberger, M.; and Landais, A.: Test for an Improved Setup of Continuous $\delta^{17}O$ Determination; INTRAMIF & NCCR summer school, Aug and Sep. **2010**, Grindelwald (Switzerland) and Norwich (U.K.). *(Poster)*.

Ranjan, S.; Leuenberger, M.; and Landais, A.: Mass Independent Fractionation in Tropospheric H₂O: Relation to MIF in Tropospheric CO₂, Radiocarbon & Stratosphere-Troposphere Exchange (STE); the Fifth International Symposium on Isotopomers (ISI), June **2010**, Amsterdam, Netherlands. *(Poster)*.

Conference, summer school attended:

- Goldschmidt conference, Lyon, France. *July 2023*
- National Science Day 2020, New Delhi, India. *Feb 2020*
- National Science Day 2018, New Delhi, India. *Feb 2018*
- National Science Day 2017, New Delhi, India. *Feb 2017*
- On Thin Ice, Arctic, Antarctic and The Himalaya, New Delhi, India. *November 2016*
- ISAG conference, New Delhi, India. *December 2015*
- Goldschmidt conference, Florence, Italy. *August 2013*
- Final INTRAMIF meeting, Florence, Italy. *August 2013*
- 14th Swiss Global Change Day, Bern, Switzerland. *April 2013*
- INTRAMIF annual meeting, Grenoble, France. *August 2012*
- EGU conference, Vienna, Austria. *April 2012*
- INTRAMIF summer school, Paris, France. *August 2011*
- XVIII (INQUA) Congress, Switzerland. *July 2011*
- 10th Informal Conference on Atmospheric and Molecular Science, Copenhagen
- EGU Conference, Vienna, Austria. *April 2011*
- 11th Swiss Global Change Day, Bern, Switzerland. *April 2010*
- Fifth International Symposium on Isotopomers (ISI), Amsterdam, Netherlands.

- NCCR Summer School, Grindelwald, Switzerland. *September 2010*
- INTRAMIF Summer School, Norwich, Great Britain. *August 2010*

Training and Workshop

Workshop on, 'Bio-climate Feedbacks of Melting Himalayan Ice Research workshop and Planning Meeting', Jawaharlal Nehru University, New Delhi, India. 09/2017

Workshop on 'Techniques in Hyperspectral Data Analysis and Processing', BHU, Varanasi, India. 06/2017

Workshop on liquid water isotope analyzer PICARRO-CRDS, New Delhi, India. 06/2016

Marketing Yourself' workshop in the 12th researcher meeting, Murten, Switzerland. 06/2013

Personal and professional development' course for one week, UEA, Norwich, U.K. 10/2011

Learned 'Glass blowing technique' at the Physics institute, University of Bern, Switzerland. 03/2011

Earned the credit on stable isotope course, University of Bern, Switzerland. 12/2010

Workshop on Climate change scenario in ETH, Zurich, Switzerland. 03/2010

Training programme on 'Mass spectrometer' Thermo Fischer Company, Bremen, Germany. 01/2010

Invited Lectures

HD Jain college, Veer Kunwar Singh University, Ara, Bihar India. *Feb 2019*

Geoscience Division, Physical research Laboratory, Ahmedabad, India. *Nov. 2016*

Awards and Distinctions

Arctic expedition Scientific member (2019) deputed by Gov. Of India

AGU 100 grant award from AGU, USA (2019)

Marie Curie Fellowship (2009)

Association With Professional Bodies

Geochemical Society

Projects (Major Grants/Collaborations)

Year 2022:

Indo-Swiss Joint Research International Grant, University of Bern Switzerland and IIT-Delhi, India "Continuous monitoring of water vapour isotopes in Western Himalayan region and paleoclimate perspectives" (~40 Million INR) (PI: Prof. Markus Leuenberger, University of Bern, Switzerland)

Status: Ongoing

Role: Conceived the project, wrote the grant, and was employed as a postdoc in this project. Currently voluntarily providing technical support to establish vapour isotope monitoring station at Manali, H.P.

Year 2019:

Council of Scientific and Industrial Research (CSIR) Pool Scientist, funding, New Delhi, India “Delineating the moisture sources at Chandra basin, western Himalaya using a novel tool: water stable isotopologues and Lagrangian trajectory model” (~3 Million INR).

Status. Completed

Role: Conceived the project and wrote the grant

Year 2019:

AGU Celebrate 100 Grant, AGU, USA “The water crisis in urban poor: A public awareness campaign in Delhi slums ” (~1 Lakh INR).

Status. Completed

Role: Conceived the project and wrote the grant

Year 2015:

Department of Science and Technology (DST) Young Scientist funding, India, “Finding the trace of large volcanic events in the high-altitude precipitated water isotopes”, (~3.7 Million INR).

Status. Completed

Role: Conceived the project and wrote the grant

Other Details

Knowledge Exchange experience

Jan 2018	Resource person on Indo-Bhutan Training and workshop on “Isotopes applications”, Jawaharlal Nehru University, New Delhi, India.
July 2016	Taught a course titled, “Isotope Application in water (H ₂ O) resource management” to graduate and undergraduate students funded by the Global Initiative of Academic networks (GIAN) at Jawaharlal Nehru University, New Delhi, India.

- Oct 2010 & 2011 Lab visit (One week), *Laboratoire des Sciences du Climate et de l'Environnement (LSCE), Gif sur Yvette, France.*
- Analysed the high altitude tropospheric H₂O sample through dual inlet IRMS by using liquid He to freeze the converted H₂O into O₂.
- June 2011 Lab visit (One week), *University of East Anglia, Norwich, Great Britain.*
- Exchange the knowledge of improvement of online continuous flow system for measuring the triple oxygen isotopes.
- Sep. 2011 Lab visit (two days) *Joint research Center, ISPRA, Italy.*
- Gained knowledge regarding the application Mass spectrometer in the determination of food and beverages quality. Presented my improved continuous flow technical setup and research project.

Country Visited for Research and Academic Purpose

21 (Twenty-one)