Vartika Singh

Research Career

2014- present: Scientist C

2008- 2013: Scientist B

2008: Birbal Sahni Research Associate

2007-2008: Senior Research Fellow

2005-2007: Junior Research Fellow

Qualifications

Ph.D. Geology, University of Lucknow

M.Sc. Geology, University of Lucknow

B.Sc. Geology & Botany, Lucknow University

Research

My study involves the use of microfossils including dinoflagellates, Thecamoebians, diatoms, phytoliths, organic matter, palynofacies analysis. These are extremely useful in palaeoenvironmental reconstruction and are considered robust proxies in solving palaeoecological problems. I have conducted field work in the extreme environmental conditions of Polar Regions (Arctic and Antarctic) to closely study the rapidly changing climatic conditions.

Specific research interests and activities

- Conducted field work in the High Arctic region of Ny-Alesund, Svalbard as a selected member of the Indian Scientific Expedition to the Arctic, 2016.
- Novel study of Thecamoebians and dispersed organic matter from the Permian-Triassic Guryul Ravine Section Kashmir, India. Most notable is the presence of thecamoebians which have never been reported from any PTB section globally. This has provided important insights into the causes and life during the biggest mass extinction event.
- Lateral transport of Antarctic diatoms from the Antarctic region to the SW Indian Ocean.
- Study of vegetation & Quaternary sediments of Ny-Alesund, Svalbard (High Arctic) during the Indian Arctic Summer Expedition 2012.
- Siliceous sediments of Southern Indian Ocean and Southern Ocean surrounding Antarctica

- Study and collection of Quaternary sediments during the 28th Indian Scientific Expedition to Antarctica.
- Dinoflagellate cysts based reconstruction of North Atlantic Warm Current during the Late Pleistocene of Svalbard.
- Quaternary to modern dinoflagellates of India and Polar regions.
- Phytoliths in the study of palaeovegetation pattern, monsoon and human civilization.

Deputation and Training undertaken

- Rifle training course in Ny-Alesund, Svalbard, Norway, 2016.
- Deputation for the Indian Scientific Expedition to the Arctic, July-August, 2016.
- Workshop on Phylogenetic Biology by Prof. R Geeta, Botany Department, Delhi University, Delhi, (March 2-4, 2015).
- Workshop on Acritrachs, 7-10 January 2014 in the BSIP by Dr. Shuhai Xiao, Professor of Geology, Department of Geo-sciences, Virginia Tech, USA.
- Course work on the Paleosols conducted by Prof. Gregory J. Retallack, University of Oregon, USA, 4 -11, November 2013.
- Training Programme and field work on Late Cenozoic Dinoflagellate Cysts, by Prof. Martin J. Head, Brock University, Canada, BSIP, 2012.
- Rifle training course by the Norwegian Kings Bay company at Ny-Alesund, Svalbard, Norway to carry out field work and sample collection outside the protected zone, for protection against polar bears, 2012.
- Deputation for the Indian Arctic Expedition Summer phase, July-August, 2012.
- Deputation to attend the 99th Session of the Indian Science Congress and the special session on Women in Science, January, 2012.
- Deputation to attend the GEO India 2011 conference, Greater Noida.
- Training programme on sedimentology and Sequence Stratigraphy, BSIP, 2009.
- Deputation to attend the GEO India 2008 conference, Greater Noida.
- Deputed for the 28th Indian Scientific Expedition to Antarctica for a period of three months from December, 2008 – March, 2009. Visited Larsemann hills and Schirmacher Oasis regions of East Antarctica and collected water and sediment samples from fresh water, coastal and marine environments.
- Pre-Antarctic Expedition training at the Mountaineering and Skiing Institute, Indo-Tibetan Border Police Force (ITBP), Auli, Utatrakhand, India, 2008.

Awards & Recognition

National

- Selected as team member of the **Indian Scientific Expedition to the Arctic in 2016 and 2012.**
- Selected as a team member for the **28th Indian Scientific Expedition to Antarctica in 2008.**

- **Birbal Sahni Research Associate, 2008** under the Institute's new thrust area of Polar Research.
- 2007, **Best Poster Prize** in the **XXI Indian Colloquium on Micropalaeontology and Stratigraphy**, BSIP, Lucknow, India.

International

- Selected as a **Scientific Reviewer for the International Climate Literacy and Energy Awareness Network, (CLEAN)** Funded by the National Science Foundation (NSF) and National Oceanic & Atmospheric Administration (NOAA), USA.
- **Invited** to deliver a talk on, Biological Response of Late Quaternary Glaciation and Sea Level Conditions from Svalbard, Norway: Evidence from Raised Beach Sediments, at the Nova Scotia 2010- **Joint Meeting of AASP-CPC-CAP, Nova Scotia, Canada.**
- 2005, **Best Abstract award** by the International **PAGES-Past Global Changes** (core project of IGBP, funded by the U.S. and Swiss National Science Foundations and NOAA) Committee, Bern Switzerland.
- **Invited** to deliver talk at the **PAGES Second Open Science Meeting**, **Beijing, China**, 2005.

Invited Lectures

2010, Antarctica: A Voyage for Science
Department of Botany,
Bappa Shri Narayan Vocational Post Graduate College

2010, Antarctica: Geological Perspective
Department of Geology,
Bappa Shri Narayan Vocational Post Graduate College

2009, Incredible Antarctica
Pioneer Montessori Degree College, Lucknow

Publications (Including abstracts)

Kumar, K., Tewari, R., Agnihotri D., Sharma, A., Pandita, SK., Pillai, SSK., **Singh, V**., Bhat, GD., 2017, Geochemistry of the Permian-Triassic sequences of the Guryul Ravine section, Jammu, and Kashmir, India: Implications for oceanic redox conditions, **GeoResJ** 13, 114–125.

Singh V., Pandita S K., Tewari R., van Hengstum P J., Pillai SSK., Agnihotri D., Kumar K., Bhat GD. 2015, Thecamoebians (Testate Amoebae) Straddling the Permian-Triassic Boundary in the Guryul Ravine Section, India: Evolutionary and Palaeoecological Implications. **PLOS ONE** 10(8): e0135593.doi:10.1371/journal.pone.0135593**.**

Tewari R, Ram-Awatar, Pandita SK, McLoughlin S, Agnihotri D, Pillai SSK, **Singh V**, Kumar K, Bhat GD. 2015, The Permian-Triassic palynological transition in the Guryul Ravine section, Kashmir, India: implications for Tethyan-Gondwanan correlations. **Earth-Science Reviews** 149, 53–66.

Singh V, Singh N. 2015, Study of Entrained Antarctic Diatoms from the Southwest Indian Ocean. **Botanica Pacifica** 4(2). doi: 10.17581/bp.2015.04204.

Singh N., Singh V. 2013, Challenging the fate of Persistent Organic Pollutants. Indian streams research journal 3(5), 1-14.

Reconstruction of North Atlantic warm current using Dinoflagellate cysts: a case study from Ny-Alesund, Svalbard, Norway, 'International Symposium on Cryosphere and Climate Change (C3), Ministry of Defence, Defence R & D Organisation, Snow & Avalanche Study Estt. Manali, Himanchal Pradesh, **2012**.

Siliceous and other dispersed organic matter below CCD in the South Western Indian Ocean: Implications for Oceanography and Global Carbon Cycle, IPY, International Polar Year Conference, Montreal, Canada 22-27, **2012**

Singh, **V**., Farooqui**, A.,** Mehrotra, N. C., Ravindra, R., Singh, D.S., Tewari, R., Jha N. **2011**, Late Pleistocene and Early Holocene Climate of Ny-Alesund, Svalbard (Norway): A Study based on Biological Proxies, **Journal of Geological Society of India**. 78, 109-116.

Biological Response of Late Quaternary Glaciation and Sea Level Conditions from Svalbard, Norway: Evidence from Raised Beach Sediments, Nova Scotia 2010- Joint Meeting of American Association of Stratigraphic Palynologists (AASP)-CPC-CAP (The Palynological Society-GAC Palaeontology Division-Canadian Association of Palynologists) Canada, **2010**.

Late-Quaternary climate of Ny-Alesund Svalbard, A study based on biological proxies, Conference on Climatic Changes during the Quaternary: Special reference to Polar Regions and Southern Ocean at National Centre for Antarctic and Ocean Research Goa, India, **2009**.

Arctic Studies: A Reconnaissance for organic matter and phytoplankton dynamics, Conference on Plant Life Through The Ages, Birbal Sahni Institute of Plaeobotany, Lucknow and The Palaeobotanical Society, **2008**.

Paleo-monsoonal reconstruction using phytoplankton dynamics: A case history from Harshad Estuary, Saurashtra coast, Gujarat, India, DINO-8 Conference Montreal, Canada, **2008**.

Prasad, V., Garg, R., **Singh, V**., Thakur, B. **2007,** Organic matter distribution pattern in Arabian Sea: Palynofacies analysis from the surface sediments off Karawar coast (west coast of India), **Indian Journal of Marine Sciences**, 36(4), 399 – 406.

Singh, V., Prasad, V and Chakraborty, S. **2007**, Phytoliths as indicators of monsoonal variability during mid–late Holocene in mainland Gujarat, western India, **Current Science**, 92(12), 1754-1759.

Phytoplankton dynamics of the Harshad estuary, Gujarat, XXI Indian Colloquium on Micropalaeontology and Stratigraphy, BSIP, Lucknow, India, **2007**.

Palynofacies study a tool for Paleomonsoonal variability: A case study from Harshad estuary Saurashtra, Dimond Jubilee International Conference, BSIP, Lucknow, India, **2006**.

Phytoliths indicators of monsoonal variability during Late mid Holocene in Mainland Gujarat, Western India**,** PAGES Second Open Science meeting, Beijing, China, **2005**.

Report: ***Arctic studies: An integrated approach for Quaternary Palaeoclimate Reconstruction.*** **2008**

(Based on the samples collected during the First Indian Scientific Expedition to the Arctic Region)