



**DEPARTMENT OF GEOLOGY (CAS)  
KUMAUN UNIVERSITY NAINITAL**

**CERTIFICATE**

I hereby certify that the work which is being presented in the thesis entitle "SEISMOGENESIS OF THE GARHWAL HIMALAYA AND ITS CORRELATION WITH THE EARTHQUAKE PRECURSORY SIGNATURES: CONSTRAINT FROM RECENT SEISMICITY AND EARTHQUAKE SOURCE CHARACTERISTICS" for the award of the Degree of Doctor of Philosophy in Geology and submitted to the Kumaun University Nainital, is an authentic record of my own work carried out during a period from August 2017 to June 2022 under the supervision of Dr. Naresh Kumar Dhatwalia, Scientist 'E', Department of Geophysics, Wadia Institute of Himalayan Geology, Dehradun and Prof. C. C. Pant, Department of Geology (CAS), Kumaun University, Nainital.

The matter presented in this thesis has not been submitted by me for the award of any other degree of this or any other University/Institution.

**(VAISHALI SHUKLA)**

This is to certify that the candidate has put more than 200 days attendance during the course of her Ph.D. thesis and the above statement made by her is correct to the best of my knowledge.

Prof. Charu C. Pant  
Professor (Retd.)  
Department of Geology (CAS)  
Kumaun University, Nainital

*Forwarded  
to  
Kumaun  
27-07-2022*  
**HEAD**  
Department of Geology  
Kumaun University  
Nainital - 263002

*AKumar  
20/07/2022*

Dr. Naresh Kumar Dhatwalia  
Scientist - 'E'  
Geophysics Group  
Wadia Institute of Himalayan Geology  
Dehradun

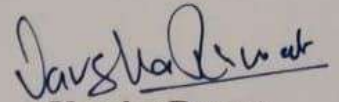
**DR. NARESH KUMAR**  
Scientist  
Wadia Institute of Himalayan Geology  
(GOI, DST)  
33-General Mahadeo Singh Road  
Dehradun

**DEPARTMENT OF GEOLOGY (CAS)  
KUMAUN UNIVERSITY, NAINITAL**

**CERTIFICATE**

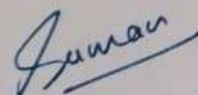
I hereby certify that the work which is being presented in the thesis entitled "CENTENNIAL SCALE VARIATIONS IN THE INDIAN SUMMER MONSOON: A MULTIPROXY RECORD USING DEPOSITS OF BEDNI AND DEORIATAL, GARHWAL HIMALAYA" for the award of the Degree of Doctor of Philosophy in Geology and submitted to Kumaun University, Nainital, is an authentic record of my own work carried out during a period from August, 2018 to April, 2023 under the supervision of Dr. Suman Lata Rawat, Scientist, Wadia Institute of Himalayan Geology, Dehradun and Co-supervision of Dr. B.S. Kotlia, Department of Geology (CAS), Kumaun University, Nainital.

The matter presented in this thesis has not been submitted by me for the award of any other degree of this or any other University/Institution.

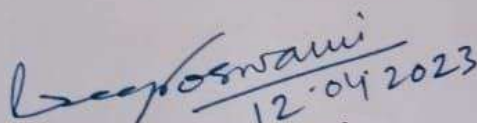
  
Varsha Rawat

This is to certify that the candidate has put more than 200 days of attendance during the course of her Ph.D. thesis and the above statement made by her is correct to the best of my knowledge.

  
Dr. B.S. Kotlia  
Co-Supervisor

  
Dr. Suman Lata Rawat  
Supervisor

Forwarded by

  
12.04.2023  
Prof. Pradeep Goswami  
Head/Convener  
Department of Geology  
D.S.B. Campus, Kumaun University  
Nainital, Uttarakhand  
HEAD  
Department of Geology  
Kumaun University  
Nainital - 263002



**DEPARTMENT OF GEOLOGY (CAS)  
KUMAUN UNIVERSITY NAINITAL**

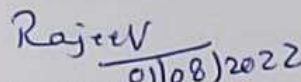
**CERTIFICATE**

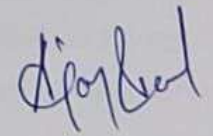
I hereby certify that the work which is being presented in the thesis entitled "**Source mechanisms of earthquakes in Kumaun-Garhwal region, NW Himalaya, India and its seismotectonic implications**" in partial fulfilment of the requirements for the award of the Degree of Doctor of Philosophy in Geology and submitted in the Department of Geology (CAS) of the Kumaun University Nainital, is an authentic record of my own work carried out during a period from 2018 to 2022 under the supervision of Dr. Ajay Paul, Scientist 'F', Department of Geophysics, Wadia Institute of Himalayan Geology, Dehradun and Prof. Rajeev Upadhyay, Department of Geology (CAS), Kumaun University, Nainital.

The matter presented in this thesis has not been submitted by me for the award of any other degree of this or any other University/Institution.

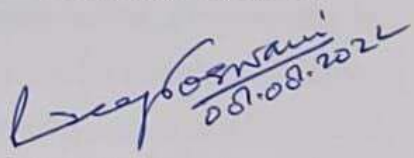
  
(ANIL TIWARI)  
Candidate

This is to certify that candidate has put more than 200 days attendance during the course of his Ph.D. thesis and above statement made by him is correct to the best of my knowledge.

  
01/08/2022  
**Prof. Rajeev Upadhyay (supervisor)**  
Professor  
Department of Geology (CAS)  
Kumaun University  
Nainital (UK)-INDIA

  
**Dr. Ajay Paul**  
Scientist-'F'  
Geophysics Group  
Wadia Institute of Himalayan Geology  
Dehradun (UK)-INDIA

It's pleasure for me to forward the thesis of Anil Tiwari

  
08.08.2022  
**Prof. Pradeep Goswami**  
Head of Department  
Department of Geology (CAS)  
Kumaun University, Nainital (UK)-INDIA