



Dr. Harisingh Gour Vishwavidyalaya
(A Central University)
Sagar, MP



Department of General & Applied Geography
(DST-FIST Supported Department)

Organizing
Capacity Building Programme
(Online Workshop)

on

Application of Remote Sensing and GIS in the
Earth Observation and Geoscience Studies
(2nd - 4th September 2021)

Targeted Participants: Faculty, Ph. D. Scholar and PG Student.
Note: Registration is free until 31st Aug, 2021

Register here: <https://forms.gle/P9ShwpUGCEjMzBA9>

Patron

Prof. J. D. Ahi

Vice Chancellor

Dr Harisingh Gour Vishwavidyalaya
(A Central University), Sagar

Co-Patron

Prof. R.P.Mishra

Head

Department of General & Applied Geography

Prof. K.K.N. Sharma

Dean

School of Applied Sciences

Chief Guest

Dr. I. M. Bahuguna

Deputy Director

Earth, Ocean, Atmosphere, Planetary Sciences &
Applications Area (EPSA)
Space Application Centre (SAC), ISRO,
Ahmedabad

Keynote Speakers

Prof. Milap Chand Sharma

Centre for the Study of Regional Development,
Jawaharlal Nehru University
New Delhi

Prof. B. S. Mipun (Head)

Department of Geography,
North Eastern Hill University (NEHU),
Shillong

Dr. B. R. Thakur

Department of Geography
Himachal Pradesh University
Shimla

Organisers

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Organising Committee Members

Dr. Pawan Kumar Sharma

Dr. R. B. Anuragi

Dr. Satheesh C.

Dr. Hemant Patidar

About the Department:

The Department of General & Applied Geography is one of the oldest department in central India, established in 1953. The pioneer faculties of the department were Prof Mackim, Prof G.R. Gayer, Prof S.M. Ali., Prof N.P. Ayyar and Prof V.C. Mishra. The department has a glorious history of producing geographical knowledge in the domain. The department has produced research of international repute, published in international journals such as Nature, Science, Elsevier, Springer etc. Being located in central India, the department holds prominent stature in the region. Recently, the department has been supported by DST under FIST Level-I program. The department has a Remote Sensing and GIS Lab and possesses all advanced instruments for teaching and research. The department has meritorious, experienced and devoted faculties, consisting of one Professor and six Assistant Professor. Prof R.P. Mishra is the Head of the Department, presently. The department offers Ph.D., MSc/MA and BSc/BA programs. Population Research Centre (PRC), Ministry of Health and Family Welfare, Govt. of India, New Delhi is an integral part of the department. To know more about the department, please visit the departmental website given below.

<http://www.dhsgsu.edu.in/index.php/en/departments01/general-applied-geography>

About the University:

The Dr Harisingh Gour Vishwavidyalaya (A Central University), formerly known as Sagar University. The university was established in 1946 by the noble single donation by Sir Hari Singh Gour, a member of the Constituent Assembly that framed India's Constitution. He was a great legal luminary, an educationist and the founder Vice Chancellor of this University. In the year 2009, it was promulgated as a Central University by an act of the Parliament. The university was accredited by NAAC and earned Grade – A in 2nd (2007) and 3rd cycle (2015). The university is situated on a picturesque landscape with lush green campus, spread over an area of 1318 acres. The university comprises 36 departments working under 11 schools. Approximately, 6000 students from various parts of the country pursue their studies under various UG/PG and PhD programs. The university has adopted Choice Based Credit System (CBCS) for teaching and learning. <http://www.dhsgsu.edu.in/index.php/en/>

About the Programme:

In recent decades, remote sensing and GIS have evolved as a vital necessity in the form of tools and techniques to give the real-time solution for a range of emerging geo-environmental problems. RS & GIS have played important role in the monitoring of issues related to water resources (including cryosphere), flood, drought, pollution, agriculture, forestry etc. The application of these techniques is not only useful in earth observation but also extends support in effective administration and defense. Therefore, capacity building in the field of RS & GIS would certainly benefit learners to find out the real-time solutions for the various problems faced by society. The target participants will be exposed to recent trends and techniques used in the domain. They will be further exposed to work on Open/paid GIS softwares along with large open geospatial data repository. Moreover, the workshop would also be beneficial for the participants for their academic and professional career. The present program is particularly themed on the uses of RS & GIS in the fields of cryosphere, fluvial processes, environmental monitoring and assessment of land use/cover changes. Besides learning vibrant techniques in the domain, all the successful participants would earn an e-certificate. Registration for the program is free until 31st Aug 2021.

Registration Link: <https://forms.gle/P9ShwpUGCEjMzBA9s>

Resource Persons:

Dr. Sanjay Deswal, Assistant Professor, Deptt. of Geography, Govt. College, Dujana, Haryana.
Dr. Rajesh Kumar, Assistant Professor, Deptt. of Geography, Sikkim University, Gangtok, Sikkim.
Dr. Abira Dutta Roy, Assistant Professor, Deptt. of Geography, BZSM Mahavidyapith, Bankura University, W.B.
Dr. Prasenjit Acharya, Assistant Professor, Deptt. of Geography, Vidyasagar University, W.B.
Dr. Vikram Sharma, Assistant Professor, Deptt. of Geography, BHU, Varanasi, U.P.



Department of General Applied Geography

Report of the Workshop

With the kind permission of all of you, I would like to present the report of these three days' online workshop. The program started with the inaugural program which was followed by an Inaugural lecture by Dr. I. M. Bahuguna Ji Deputy Director, Earth, Ocean, Atmosphere, Planetary Sciences & Applications Area (EPSA), Space Application Centre (SAC), ISRO, the venerated keynote speakers Prof. Milap Chand Sharma Sir, CSRD, JNU, Prof. B. S. Mipun Sir (Head), Department of Geography, NEHU. Hod of geography Prof RP Mishra formally welcome all the distinguished guests and briefed them about the department. In the inaugural ceremony of the program our honorable vice chancellor madam prof j.d. ahi elaborated to the participant about the program. The inaugural lecture given by Dr. I M Bahuguna was focused on the application of rs and gis in land, ocean, and atmospheric monitoring. He elaborated in detail that how the scientific community is advancing in the field of cryospheric, oceanic, and air quality monitoring. He also highlighted the recent development made in ISRO in the field of RS and GIS. That was an immensely relevant lecture for the participants that how the ISRO and SAC id leading ahead in the geoinformatics domain.

The keynote lecture was delivered by Prof Milap Chand Sharma from CSRD, JNU New Delhi on 'Unfolding Pages for Assessing Earth Dynamics from the Heavens Above: The Churning Unlimited' the lecture was mainly focused on the glacial and periglacial landscape of Himalaya. the lecture highlighted how the repetitive and synoptic capabilities of remote sensing and geospatial data handling capacity of gis have prompted research in the most inaccessible areas of the Himalayas. however, he also focussed that ground verification is also an important part when we are relying on geoinformatics technology. That lecture was particularly important to understand the present scenario of the dynamic environment in the

Himalayas. the catastrophic events such as a flash flood of Kedarnath, the recent incident of bursting a glacier in Chamoli district and the resultant flash flood and extreme weather events such as cloud burst remind us that better monitoring through rs data and better management of that data in GIS environment could help us to lessen the impact of such incidents in the future.

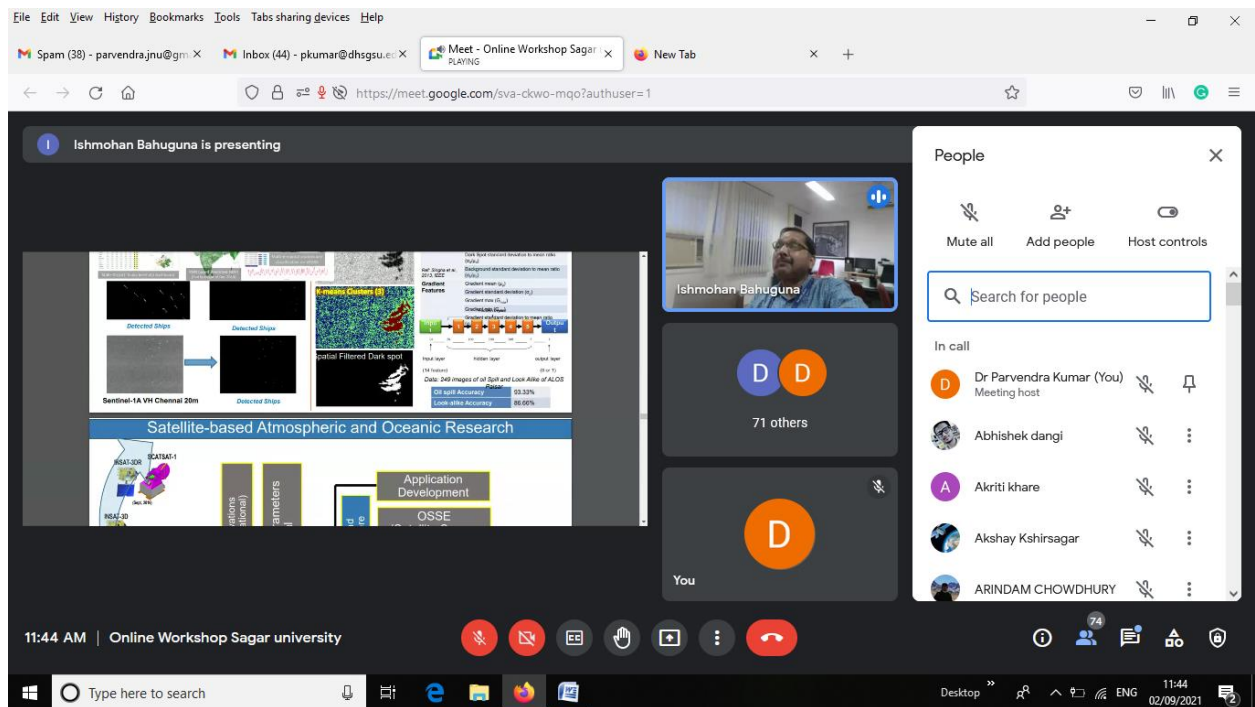
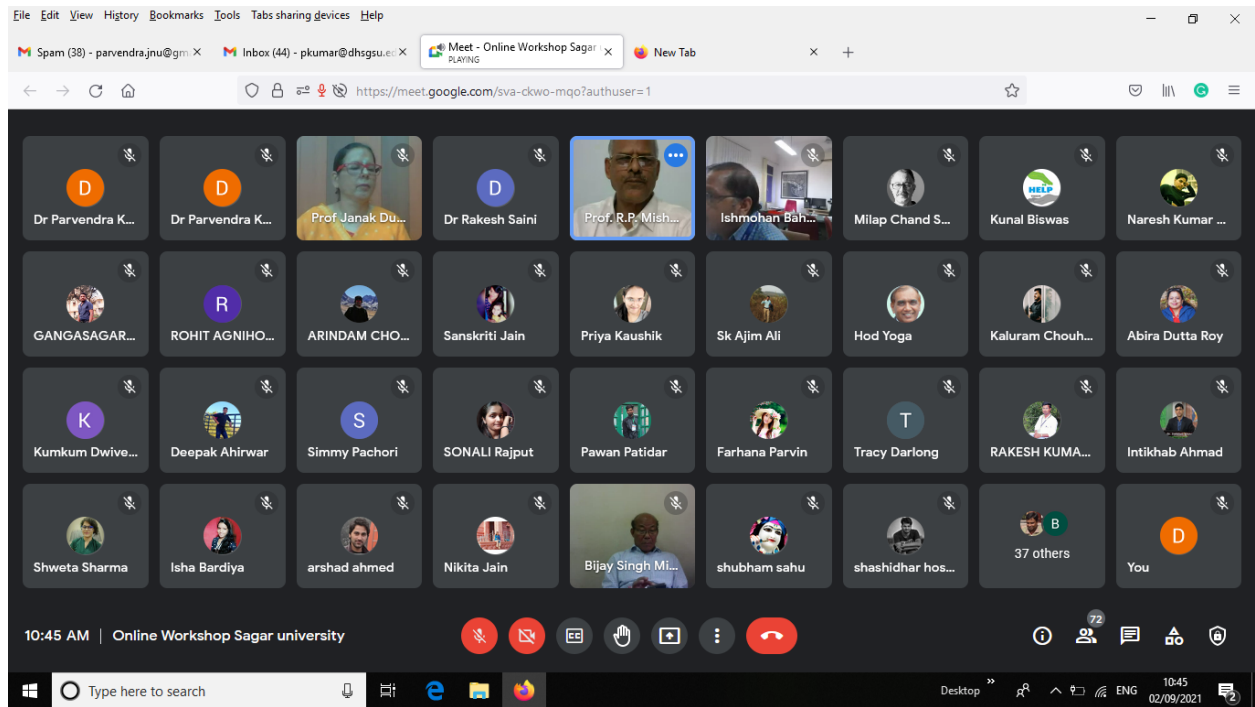
The next keynote lecture was delivered by Prof. B.S. Min (Head), Department of Geography, North-Eastern Hill University (NEHU), Shillong on Recent trends and advances in remote sensing and GIS” he highlighted that how ISRO is developing new platforms and new techniques in the field of remote sensing. He also elaborated that how India is leading in the field of rs and gis and resultant even other countries are relying on India. In the last few years, only India has launched many foreign satellites through its Indian-made satellite launchers.

The second day of the workshop started with a lecture on Execution of Land use Land cover mapping using QGIS” with hands-on practice by Dr. Abira Dutta Roy, Bankura University, W.B. the lecture was a particularly interesting one for the participants because QGIS is an open software and available freely to the users. Dr. Abira signified the need for Land use Land cover mapping and then told about the types of classification based on the objectives of the users. She also shared multimedia links of the same exercise with the participants. The whole session was an interactive one. In the current scenario of fastly changing land dynamics due to increasing population pressure on the limited resources, such types of learning in the RS and GIS environment are really helpful for the better management and betterment of society.

The second session on the same day was about the use of remote sensing and GIS in river morphology by Dr. Rajesh Kumar, Sikkim University, Gangtok, Sikkim.

After telling the basics of remote sensing, GIS, and river morphology, Dr. Rajesh explained the importance of monitoring fluvial processes. Participants were exposed to several sources of data sources for the purpose and method to download the required dataset from the Earth explorer which provides free geospatial data was demonstrated to them. The detailed hydrological analysis was also thought to the participants step by step. The lecture was intended to teach the problems that arise due to river processes such as floods and soil erosion. Considering the flood situations in India, particularly in Eastern UP, Bihar WB, and Assam, the lecture delivered by Dr. Rajesh was of immense importance.

The last lecture of the 2nd day of the workshop was focused on the use of rs and gis in cryospheric studies in the Himalaya By Dr. Sanjay Deswal for MD university, Haryana. He explained how the study of dynamics of the Himalayan cryosphere which is highly accessible due to rugged terrain, became possible with the help provided by RS and GIS. He also explained the process of monitoring glacial lakes which are increasing in numbers and size as well and possess a great threat to the down valley in the form of glacial lake outburst floods such as the Kedarnath flood and the recent incident of Chamoli district of Uttarakhand.



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Ishmoan Bahuguna is presenting

Machine learning based oil spill detection using SAR data

Systematic Workflow to detect dark spot and classification between oil spill and look-alike

Input: Sentinel-1A VH Channel 20m

Output: Detected Ships

Detected Dark spot

Oil spill Accuracy: 90.33%

Look-alike Accuracy: 86.88%

People

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- Dr Parvendra Kumar (You) Meeting host
- Abhilasha lodhi
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Milap Chand Sharma

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Hemant Patidar

Dr Rakesh Saini

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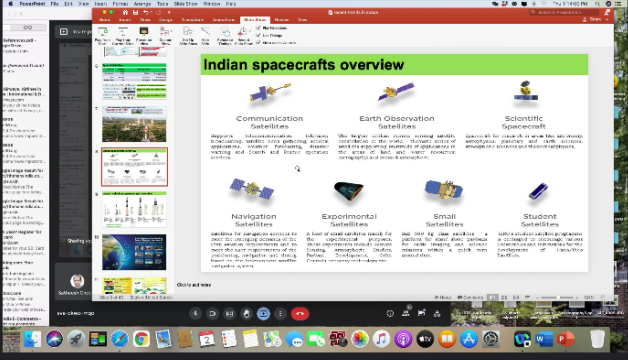
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Bijay Singh Mipun is presenting



Indian spacecrafts overview

Category	Examples
Communication Satellites	INSAT, GSAT, Kartikeya
Earth Observation Satellites	Cartosat, RISAT, EOSAT
Navigation Satellites	IRISAT, IRISAT-2, IRISAT-3
Experimental Satellites	EDUSAT, EDUSAT-2, EDUSAT-3
Small Satellites	SmallSat, SmallSat-2, SmallSat-3
Student Satellites	SmallSat, SmallSat-2, SmallSat-3

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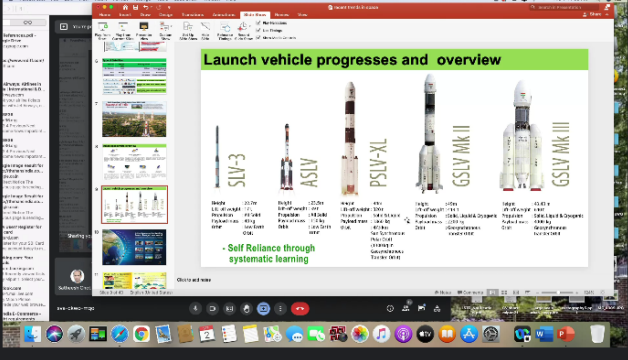
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Bijay Singh Mipun is presenting



Launch vehicle progresses and overview

Vehicle	Height (m)	Weight (ton)	Capacity (ton)	Speed (km/s)	Altitude (km)	Range (km)	Speed of Sound	Altitude of Sound	Speed of Sound	Altitude of Sound
SLV-3	44	17	350	7.8	150	1000	1.2	1.2	1.2	1.2
ASLV	44	17	350	7.8	150	1000	1.2	1.2	1.2	1.2
PSLV-XL	44	17	350	7.8	150	1000	1.2	1.2	1.2	1.2
GSV Mk II	44	17	350	7.8	150	1000	1.2	1.2	1.2	1.2
GSV Mk III	44	17	350	7.8	150	1000	1.2	1.2	1.2	1.2

Self Reliance through systematic learning

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Bijay Singh Mipun is presenting

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BR Thakur is presenting

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