




Educational Workshop Series

**Three-Day Workshop on
Assessing Environmental Change Using Satellite Data
(For 12-14 year olds | Class 6-8 students)**

Learn	<ol style="list-style-type: none"> 1. Tools and techniques to assess environmental changes using remotely sensed data from satellites 2. Spatial data visualization using open source GIS software 3. Techniques to highlight issues such as urban expansion, changes in forest cover, melting of glaciers, natural and man-made disasters in India and the world
Organized by	<ul style="list-style-type: none"> • Exciting Science Group • Venture Center – a Technology Business Incubator
Co-sponsored by	
Anchor Faculty	Dr Rahul Chopra – Chair of Centre for Earth and Environment and Associate Professor at FLAME University, Pune
VC Organization Team	Shraddha Gargatti : Senior Associate –Exciting Science Group Gayatri Kshirsagar : Associate – Exciting Science Group Shiv Tripathi : ICT – Venture Center
For whom	<ul style="list-style-type: none"> • Children: 12 to 14 year olds (currently enrolled between Class 6 to 8) • Maximum 21 seats 15 seats (for those who bring their own laptops) 06 seats (reserved for children from municipal school) Booking schedule : First-come-first-serve
When	Thursday, 12 May 2016 -Saturday, 14 May 2016; 10 am-12:30pm
Where	E Class Room, Venture Center, NCL Innovation Park Dr. Homi Bhabha (Pashan) Road, Pune-411008
Contact	For registrations and queries: Ms Shraddha Gargatti Venture Center, 100, NCL Innovation Park, Dr. Homi Bhabha Road, Pune – 411008; Phone: +91-20-64011025 Email: outreach@excitingscience.org
Cost	<ul style="list-style-type: none"> • Free. Prior registration and booking of seat required. • Seat is booked against refundable deposit * of Rs 500. (*See detailed terms on receipt coupon) • Children MUST bring their own laptops (preferably Windows OS) with enabled USB ports (for software installation) for the workshop • A photocopy of the participant’s school ID card to be submitted during registration.

Introduction

In this workshop, participants will be introduced to methods of assessing changes in our environment using data from satellites. We will use open source Geographic Information Systems (GIS) software (<https://grass.osgeo.org/>) and examine issues such as growth and expansion of cities in India, changes in forest cover in India and other parts of the world, natural and man-made disasters, melting of glaciers due to climate change, amongst others.

We hope to impress upon the participants the vast scale on which our environment is changing in a relatively short period of time and the advantages of using satellite data to assess these changes.

At the end of the workshop, participants will learn

1. Sources of free satellite data such as data from the LANDSAT series of satellites, data disseminated by NASA and USGS
2. Methods of spatial data visualization to highlight environmental change using open source GIS software
3. To create posters that demonstrate large scale changes in our environment

NOTE:

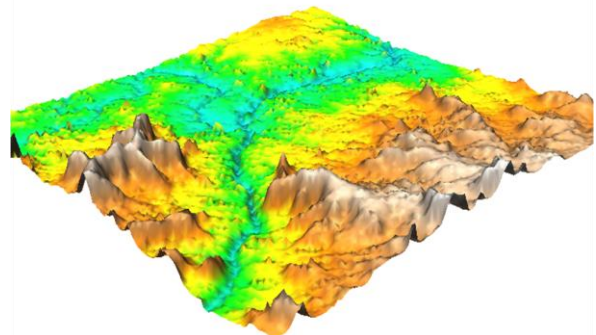
NO PRIOR BACKGROUND KNOWLEDGE NEEDED OTHER THAN FAMILIARITY WITH THE USE OF A COMPUTER

Course Outline

The workshop will include a brief introduction to spatial data and its applications. We will use examples that show changes to our environment on very large scales and how data from satellites are especially useful to recognize such changes. Participants will be introduced to spatial data, sources of open satellite data, open source GIS software and methods of data visualization and data analyses. The workshop will focus on hands-on learning and participants will create several maps that show environmental change over time in India and the world. Examples include rapid growth of cities in India such as Pune, Chandigarh, Jaipur, Puducherry; changes in green cover due to increased urbanization; deforestation in the Amazon and Papua, Indonesia; Melting of glaciers due to climate change such as the loss of ice cover at Kilimanjaro; natural and man-made disasters such as the fire at Deonar landfill in Mumbai; amongst others. A snapshot of the images which participants will make during the workshop:



Fire at Deonar Landfill, Mumbai and smoke from the fire over the city



3-D elevation map of Pune

Schedule

Time	Session title	Lead	Venue at Venture Center
12 May 2016	INTRODUCTION TO THE WORKSHOP		
0915-1000	Registration		Foyer
1000-1010	Introduction to the faculty and workshop	GK	E Classroom
1015-1115	Introduction to the workshop. What is spatial data and how can we use it to assess environmental change. Sources of satellite data Open source GIS software to be used in the workshop- GRASS GIS Assistance with software installation and satellite data used in the workshop	RC	E Classroom
1115-1130	Break		Foyer Area
1130-1230	EXAMPLE OF THE USE OF SATELLITE DATA TO ASSESS ENVIRONMENTAL CHANGE Steps to familiarize participants with GIS software including data import and techniques for data visualization.	RC	E Classroom
13 May 2016	ENVIRONMENTAL CHANGE IN INDIA AND THE WORLD.		
1000-1115	VARIOUS THEMES TO DOCUMENT ENVIRONMENTAL CHANGE IN INDIA AND THE WORLD. Examples include Documenting Urban Expansion in India Pune, Jaipur, Puducherry, Jodhpur over a period of approximately 20 years Disasters: Fire at Deonar Landfill, Mumbai 27 January 2016 Deforestation: Papua, Indonesia Jabalpur, India Shrinking Glaciers: Kilimanjaro, Africa Agricultural Practices: Greening of the Saudi Desert	RC	E Classroom
1115-1130	Break		Foyer Area
1130-1230	VARIOUS THEMES TO DOCUMENT ENVIRONMENTAL CHANGE IN INDIA AND THE WORLD CONTINUED	RC	E Classroom
14 May 2016	DIGITAL ELEVATION DATA AND 3-D VISUALIZATION		
1000-1115	DIGITAL ELEVATION DATA AND 3-D VISUALIZATION TECHNIQUES	RC	E Classroom
1115-1130	Break		Foyer Area
1130-1230	Poster making session that demonstrate large scale changes in our environment	RC	E Classroom
1230-1300	Workshop feedback, certificate distribution	ESG team	E Classroom

ANCHOR FACULTY:



Dr Rahul Chopra

Rahul Chopra is the Chair of the Centre for Earth and Environment and Associate Professor in Earth and Environmental Studies at FLAME University, Pune. His research interests are multidisciplinary and include the use of satellite derived remotely sensed and in-situ data to evaluate our changing environment; field based geological and environmental studies, and the use of high resolution chemical analyses instruments and data to study various earth and environmental processes. Additionally, he is also interested in developing programs, curriculum, and teaching resources in Environmental Sciences and Studies.

Course includes

- Lectures; Spatial data visualization using GIS software; Data import and data visualization techniques
- Poster making session that demonstrates large scale changes in our environment
- Certificate of Participation issued by Exciting Science Group
- Workshop includes soft drink during the break at Foyer Area



About the Organizers



About Exciting Science Group

The Exciting Science Group comprises of scientists from two of Pune's best research institutions, NCL and IISER-Pune. This initiative is aimed at conveying the excitement of science and technology to school students. The motivation behind our programme is to attract the brightest talent from the next generation towards careers in science and technology, since it will be these students who will drive tomorrow's science and innovation based economy.

For more information, visit: www.excitingscience.org



About Venture Center

Entrepreneurship Development Center (Venture Center) – a CSIR initiative – is a Section 25 company hosted by the National Chemical Laboratory, Pune. Venture Center strives to nucleate and nurture technology and knowledge-based enterprises by leveraging the scientific and engineering competencies of the institutions in the Pune region in India. The Venture Center is a technology business incubator supported by the Department of Science & Technology's National Science & Technology Entrepreneurship Development Board (DST-NSTEDB). Venture Center's focuses on technology enterprises offering products and services exploiting scientific expertise in the areas of materials, chemicals and biological sciences & engineering.

For more information, visit <http://www.venturecenter.co.in/>

About the Sponsors






About Forbes Marshall Foundation

As an organization, Forbes Marshall has a long history of serving the communities it operates in; playing the role of a catalyst, enabling successful social change. Building on those experiences, the Forbes Marshall Foundation was set up, with the objective of supporting projects and communities, located outside of Pune, India. The Foundation's core principle is to "give" in a manner, which promotes sustainability of a project. The three core grant making priority areas are education, health - with a particular focus on neglected areas of health; and research, which would foster more enlightened and informed giving.

Their core belief is that every human being deserves to be respected and valued, irrespective of his or her life circumstances and background. This belief informs the work we do and the partnerships we seek with other organizations. For more information, visit:

http://www.forbesmarshall.com/fm_micro/FMFoundation/

	<p>About Praj Foundation</p> <p>Praj Foundation was established in 2004 to give expression to the sensitivities of Praj employees and family members towards societal responsibilities. While this was already happening in the Company, Praj Foundation helped put all its social impact activities under one roof with a clearly stated objective. The idea was to create areas of focus within the ambit of its social activities that would best reflect the strengths of the company.</p> <p>For more information, visit: http://www.praj.net/praj-foundation.html</p>
	<p>Persistent Foundation and its members are committed to help our neighborhood community areas. It's a collaborative effort and needs support from community and citizens who are aware of social issues and are striving to solve those. The Foundation encourages everyone to be a part of this movement and contribute to the change.</p> <p>For more information, visit: http://www.persistentfoundation.org/</p>
	<p>The Nag Foundation is a public charitable trust that was established by K. K. Nag Pvt. Ltd in 1989 with the initial purpose of promoting Art and Culture in Pune and providing a platform for Pune artists to display their work and reach discerning buyers. The Nag Foundation played a very major role in popularizing art in Pune and many of the best known artists of the city attribute their initial success to the opportunities that were afforded to them by the Foundation. Now that Pune has a vibrant art scene, with several Art galleries and exhibitions, the Company felt that the Nag Foundation had fulfilled its initial mandate of promoting Art and Culture in Pune and decided to redirect its activities to other areas. The Foundation is now used primarily as the vehicle through which the Company conducts its Corporate Social Responsibility initiatives.</p> <p>For more information, visit: http://kknag.com/nag-foundation/</p>