

# **A Brief Report on ISPRS Summer School**

**July 6-10, 2015**

**Dehradun (India)**

## **Introduction**

The International Society for Photogrammetry and Remote Sensing (ISPRS) Technical Commission-VI (TC-VI) organised a Summer School at Dehradun (India) during July 6-10, 2015 on the following 3 themes:

- Online Sharing of Geospatial Data, Algorithm & Model [Focal Point: Wuhan University, China];
- Open Source GIS [Focal Point: Indian Institute of Remote Sensing, Dehradun, India]; and
- Research and Teaching Methodologies for Master and PhD students [Focal Point: Siberian State University of Geosystems and Technologies, Russia].

Indian Institute of Remote Sensing (IIRS), a Unit of Indian Space Research Organisation (ISRO), Dehradun (India) was the host institution.

## **About the Courses**

### ***Online Sharing of Geospatial Data, Algorithm and Model***

The course provided an overview of the cutting-edge achievements of a geospatial service platform and trained the participants with online tools for geospatial data processing and scientific research through lectures and hands-on-practice sessions. The topics covered during the course are: online geospatial data resources; practical skills of web services; OGC Web Service standards and implementation; publishing geospatial data online; mashup mapping with online geospatial data services; publishing online processing services (algorithm); OGC Catalogue services and online platform for sharing geospatial data, algorithm and model using Geosquare. The course started with an inaugural lecture on the topic "Big data in Smart City" by Prof. Deren Li

of Wuhan University (China) and Co-Chair, ISPRS Working Group-VI/6 (WG-VI/6). The time-table is provided in Annexure-1.

Total 28 participants from different parts of India attended the course. Prof. Huayi Wu of Wuhan University and Chair, ISPRS WG-VI/1 was the coordinator of the course. He along with Dr. Zhipeng Gui of Wuhan University delivered all the course content.



*Photographs of the inaugural (top) and valedictory (bottom) functions of the course 'Online Sharing of Geospatial Data, Algorithm and Model'*

## ***Open Source GIS***

The course focused on various components of geoinformatics like geospatial database creation, management, analysis, visualization and dissemination using Free and Open Source Software for Geoinformatics (FOSS4G). The topics covered during the course are: Overview of GIS, FOSS4G & OGC's initiatives; database creation & analysis in QGIS; spatial databases & SQL Queries Formulation; Plugin development in QGIS, WebGIS and GeoWeb services; 3D geo-visualization; mobile application including real-time data collection and location-based services; spatial data infrastructure; and a couple of demonstrations on ISRO's Earth Observation Gateway "Bhuvan Portal" ([www.bhuvan.nrsc.gov.in](http://www.bhuvan.nrsc.gov.in)) and indigenously developed close range photogrammetry based 3D GIS software "Trivim." The course started with an inaugural lecture on the topic "Geospatial Technologies and Applications" delivered by Dr. S.P.S. Kushwaha, Dean (Academics), IIRS. The time-table is provided in Annexure-2.

The course was attended by 27 participants, of which 26 were from India and 1 from Nepal. Dr. Sameer Saran of IIRS, Dehradun (India) coordinated this course. The faculty list is available in Annexure-2.



*Group photograph of the course 'Open Source GIS'*

### ***Research and Teaching Methodologies for Master and PhD students***

The focus of the course was to impart research and teaching skills to the beginners and help improve the quality of their Research and Teaching techniques. The course content was focused towards Research and University Teaching Methodologies. The topics include: writing a thesis proposal; organizing a Master thesis; academic writing; pedagogics as science; advice to beginning teachers; basic rules of an educational course development; skills of a public speech; and Research and teaching technologies. The course structure was designed in a way that the learning of Research and Teaching Methodologies can move from mugging-up syndrome to fun-practical method; from authoritative teaching process to an experimental process, from memorizing to brainstorming, from clearing the examination to feedback learning, from knowledge transfer to knowledge creation, from competitive learning to collaborative and active learning and teaching. The course started with an inaugural lecture on the topic "Geospatial Technologies and Application" delivered by Dr. S.P.S. Kushwaha, Dean (Academics), IIRS. The time-table is provided in Annexure-3.

The course was attended by 26 participants from different parts of India. Dr. Igor Musikhin of Siberian State University of Geosystems and Technologies, Russia and Chair ISPRS WG-VI/4 was the coordinator and the core faculty of the course.



*Group photograph of the course 'Research and Teaching Methodologies for Master and PhD students'*

## **The Participants**

Total 81 students, researchers and professionals participated in the above three courses. Except one participant from Nepal, all the participants were from India.

## **Course Feedback**

All the three courses were well appreciated by the participants in terms of course content, course organisation and delivery, lectures, hands-on-practice sessions, course material and facilities. Overall, the courses were rated as excellent to very good.

## **Venue**

The course on 'Online Sharing of Geospatial Data, Algorithm and Model' conducted by China was organised at Hotel Four Point by Sheraton, Dehradun (India). The other two courses on 'Open source GIS' and 'Research and Teaching Methodologies for Master and PhD students' conducted by India and Russia, respectively, were organised in the campus of Indian Institute of Remote Sensing (IIRS), Dehradun.

## **Funding and Logistics Support**

Major part of the funding was provided by the ISPRS. Partial funding towards registration kit, transport and miscellaneous expenditure related to various logistics support was provided by IIRS, Dehradun. The accommodation to all the participants was provided in IIRS hostel. Indian Society of Remote Sensing (ISRS) supported in providing the seed money for organising the Summer School. CEPT University, Ahmedabad (India); Centre for Space Science and Technology in Asia and the Pacific (CSSTEAP), affiliated to the United Nations, Dehradun (India); and Fayetteville State University (USA) also provided the support required from time to time. The office of Chairman, ISRO and Secretary, Department of Space, Government of India, extended necessary support towards obtaining approvals from Ministry of External Affairs and Ministry of Home Affairs of the Government of India to organise the Summer School.

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Overall Coordinator, ISPRS Summer School  
Indian Institute of Remote Sensing (IIRS), Dehradun, India  
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## ISPRS Summer School

July 6-10, 2015; Dehradun (India)

**Course: Online sharing of geospatial data, algorithm and model [Focal Point: Wuhan University (China)]**

Date	09:30-11:00 hrs	11:30-13:00 hrs	14:00-15:00 hrs	15:30-17:00 hrs	17:00-17:30 hrs
<b>July 6, 2015</b>	Registration & Inauguration (Inaugural Lecture on 'Big Data in Smart City' by Prof. Deren Li, Wuhan University)	L1 1. Sharing of Geospatial Data, Information and Knowledge, Overview of this course 2. Online Geo-Resources	P1 Hands on Practice (Explore Online Geospatial Resources)	L2 XML, HTTP	Wrap up of Day-1
<b>July 7, 2015</b>	L3 SOAP, WSDL, Netbeans	L4 SOAP, WSDL, Netbeans	P2 Hands on Practice (Netbeans Server-side, TCP Monitor)	P3 Hands on Practice (Netbeans Client-side)	Wrap up of Day-2
<b>July 8, 2015</b>	L5 SOA, OWS, WMS, WFS	P4 Hands on Practice (OpenLayer)	L6 Publish Services using GeoServer	P5 Hands on Practice (GeoServer, mashup)	Wrap up of Day-3
<b>July 9, 2015</b>	L7 WPS	P6 Hands on Practice (52North or Degree)	L8 CSW	P7 Hands on Practice (Monitor)	Wrap up of Day-4
<b>July 10, 2015</b>	L9 GeoSquare Introduction	P8 Hands on Practice	Wrap-up & Feedback	Valedictory Function	

L-Lecture; P-Practical; Tea/Coffee Break: 11:00 to 11:30 hrs & 15:00 to 15:30 hrs; Lunch Break: 13:00 to 14:00 hrs

**Coordinator:** Prof. Huayi Wu (Wuhan University, China)

**Faculty:** Prof. Huayi Wu; Dr. Gui Zhipeng (Wuhan University, China)

**ISPRS Summer School**  
**July 6-10, 2015; Dehradun (India)**  
**Course: Open Source GIS [Focal Point: IIRS/ISRO (India)]**

Date	09:30-11:00 hrs	11:30-13:00 hrs		14:00-15:00 hrs	15:30-17:00 hrs	17:00-17:30 hrs
July 6, 2015	Registration & Inauguration (Inaugural Lecture on 'Geospatial Technologies and Applications' by Dr. S.P.S. Kushwaha, IIRS)	L1 Overview of GIS, FOSS4G & OGC's Initiatives (SS)		P1 QGIS Database Creation & Analysis (KP, PAV, MS, KN)		Wrap up of P1 (KP)
July 7, 2015	L2 Spatial Databases & SQL Queries Formulation (KO)	P2 PostgreSQL & POSTGIS (KO, KP)				Wrap up of P2 (KO)
July 8, 2015	L3 Advanced QGIS: Plugins & Processing Framework (PKG)	P3: QGIS Plugin development (PKG, AKJ)				Wrap up of P3 (PKG)
July 9, 2015	L4 WebGIS & GeoWeb services (HCK)	P4 Geoserver, Open Layers JavaScript, API & Consuming OGC WMS Services (HCK, KO)		L5 Mobile GIS & Location Based Services (HCK)	P5 Real time Data collection using Mobile App (HCK, KP, KO)	Wrap up of P4 (HCK)
July 10, 2015	L6 3D Geo-visualization using Cesium with Demo (AKJ)	L7 Spatial Data Infrastructure with Demo on Metadata Catalogue Geonetwork (SS)	L8 Demo of Trivim generation of 3D Street View (PST & HP)	P7 Overview of Bhuvan and Demonstration (AR, NRSC)		Feedback & Valedictory Function

L-Lecture; P-Practical; Tea/Coffee Break: 11:00 to 11:30 hrs & 15:00 to 15:30 hrs; Lunch Break: 13:00 to 14:00 hrs

**Coordinator: Dr. Sameer Saran (IRS, Dehradun)**

**Faculty:**

SS: Dr. Sameer Saran, IIRS

AR: Shri. Arul Raj, NRSC

PKG: Mr. Prasun K. Gupta, IIRS

HCK: Dr. Harish Chandra Karnatak, IIRS

KO: Mr. Kapil Oberai, IIRS

PAV: Mr. Prabhakar A. Verma, IIRS

PST: Dr. Poonam S. Tiwari, IIRS

KP: Mr. Kamal Pandey, IIRS

MS: Shri. Mahadev Swamy, IIRS

HP: Dr. Hina Pande, IIRS

AKJ: Mr. Ashutosh K. Jha, IIRS

KN: Ms. Kavitha, IIRS

## ISPRS Summer School

July 6-10, 2015; Dehradun (India)

**Course: Research and Teaching Methodologies for Master and PhD students**  
**[Focal Point: Siberian State University of Geosystems and Technologies (Russia)]**

Date	09:30-11:00 hrs	11:30-13:00 hrs	14:00-15:00 hrs	15:30-17:00 hrs	17:00-17:30 hrs
<b>July 6, 2015</b>	Registration & Inauguration (Inaugural Lecture on 'Geospatial Technologies and Applications' by Dr. S.P.S. Kushwaha, IIRS)	L1 Writing a thesis proposal	P1 Writing a thesis proposal (work in groups)	P2 Writing a thesis proposal (work in groups)	Wrap up of Day-1
<b>July 7, 2015</b>	L2 Organizing a Master Thesis	L3 Academic writing	P3 Organizing a Master Thesis (work in groups)	P4 Academic writing (work in groups)	Wrap up of Day-2
<b>July 8, 2015</b>	L4 Pedagogics as Science	L5 Advice to beginning teachers	P5 Pedagogics as Science (work in groups)	P6 Pedagogics as Science (work in groups)	Wrap up of Day-3
<b>July 9, 2015</b>	L6 Basic rules of an educational course development	L7 Skills of a public speech	P7 Basic rules of an educational course development (work in groups)	P8 Skills of a public speech. Making a PP presentation (work in groups)	Wrap up of Day-4
<b>July 10, 2015</b>	L8 Teaching technologies	L9 Research and teaching technologies	Wrap-up & Feedback	Valedictory Function	

L-Lecture; P-Practical; Tea/Coffee Break: 11:00 to 11:30 hrs & 15:00 to 15:30 hrs; Lunch Break: 13:00 to 14:00 hrs

**Coordinator and Faculty:** Dr. Igor Musikhin (Siberian State University of Geosystems and Technologies, Russia)