



e-ISSN: 2319-8753 | p-ISSN: 2347-6710

IJIRSET

International Journal of Innovative Research in
SCIENCE | ENGINEERING | TECHNOLOGY

INTERNATIONAL JOURNAL OF INNOVATIVE RESEARCH

IN SCIENCE | ENGINEERING | TECHNOLOGY

Volume 11, Issue 11, November 2022

ISSN INTERNATIONAL
STANDARD
SERIAL
NUMBER
INDIA

Impact Factor: 8.118

9940 572 462

6381 907 438

ijirset@gmail.com

www.ijirset.com



Internet Resources to Learn Remote Sensing and GIS for Earth Sciences

Dr. S. D. Deshmukh, Dr. Vikas Swarnkar, Dharmesh Deshmukh and Nikhil Kumar Verma

Department of Geology, Govt.V.Y.T.PG Autonomous College, Durg, Chhattisgarh, India

ABSTRACT: Remote Sensing and GIS have emerged as effective tools with a vast range of their applications in Earth Sciences. The COVID crisis has paved the way to use online teaching and learning in education systems worldwide. As a result, internet resources have gained great importance and are being used by teachers and students on an unprecedented scale in order to both share and gain knowledge. This article deals with the information regarding few of the internet resources that are available in the enormous ocean of information called world wide web.

KEYWORDS: Internet resources, Remote Sensing, GIS.

I. INTRODUCTION

The internet resources have few features which impart to them a cutting edge over the other aids to education. A few of them are mentioned as follows: -

1. They can be accessed at any time and from anywhere.
2. They have a great visual impact and facilitate the learning process.
3. Availability of complete information database from all over the globe is a matter of few mouse clicks and few strokes on the keyboard.
4. Latest facts and figures can be easily retrieved through internet resources to acquire new competencies.
5. Archives provide past history or background information about any topic, thus helping in observing the changes in various features with reference to passage of time.
6. Ease of communication with the people of same field all over the globe.
7. Virtual classrooms.
8. Access to Virtual libraries on World Wide Web.
9. Availability of material tailor made to meet specific curricula needs.
10. Access to large number of research journals.
11. Software download facility.
12. Lecture notes and activity-based projects related to a large number of topics are available on the internet.

Remote sensing and GIS offer a set of tools that have wide range of applications in earth sciences ranging from geological mapping, mineral exploration, water resources management to study of climate change and disaster management.

Remote sensing is the acquisition of information about an object or phenomenon without making physical contact with the object, in contrast to in situ or on-site observation. The term is applied specially to acquiring information about Earth and other planets.

Remotely gathering spatial information is a powerful means to understand and respond to geological and environmental problems. Earlier, it was challenging to get the information required to take action, as remote sensing data was limited and difficult to acquire. But now many websites are available, from which the remote sensing data can be downloaded free of cost. With the combination of new data sources, faster analysis and products that deliver findings to key decision makers, it's become practical to use remote sensing data and tools for a broad range of applications.

A geographic information system (GIS) is a computer system for capturing, storing, checking, and displaying data related to positions on Earth's surface. GIS can show many different kinds of data on one map, such as streets, buildings, and vegetation. This enables people to more easily see, analyze, and understand patterns and relationships.

Geographic Information System also plays a vital role in scientific research, with a broad array of applications for spatial data and visualizations in earth science. The professionals who use these methods to gather, analyze, manipulate and visualize geographic data can reveal fascinating details about our world and even other planets.

The internet resources in Remote sensing and GIS can be classified into those related to



1. Data
2. Software
3. Study material
4. Videos

A few important internet resources in the field of remote sensing and GIS are summarized in the Table-1.

Table-1.

S.No.	Website link	Description
1	https://www.un-spider.org/links-and-resources/gis-rs-software	This database provides descriptions of a large variety of software for the processing and analysis of space-based information. You can search the database by criteria such as software type, data format and operating system. As the database includes applications of varying technical complexity, it is also possible to select only those that do not require programming skills and have a graphical user interface.
2	https://www.gsi.gov.in/webcenter/portal/OCBIS/pageQuickLinks/pageTIGISandRemoteSensing	Link to the web page of Geological Survey of India website containing educational videos on GIS & remote sensing
3	https://www.e-education.psu.edu/geog480/orientation/remresources	This page of Penn University has a compilation of links to remote sensing resources and an orientation on fundamentals of remote sensing <ul style="list-style-type: none"> • Lesson 1: Introduction to Remote Sensing • Lesson 2: Sensors, Platforms, and Georeferencing • Lesson 3: Production of Digital Image Base Maps • Lesson 4: Production of Digital Elevation Models • Lesson 5: Management of Imagery and Elevation Data • Lesson 6: Validation of Imagery and Elevation Data • Lesson 7: Basic Concepts of Image Analysis • Lesson 8: Terrain Modeling and Analysis • Final Project: Problem Solving with Imagery and Elevation Data
4	https://www.iirs.gov.in/	Official website of Indian Institute of Remote Sensing
5	https://www.nateko.lu.se/sites/nateko.lu.se/files/remote_sensing_and_gis_20111212.pdf	An introduction to Remote Sensing and GIS
6	https://gisgeography.com/open-source-remote-sensing-software-packages/	This site has a compilation of links to Open-Source Remote Sensing Software Packages
7	https://www.gislounge.com/learn-gis-for-free/	Links to resources that provide you access to free courses from some of the world's best universities and institutions
8	https://bhuvan.nrsc.gov.in/home/index.php	Indian geoplatform of ISRO
	http://www.csre.iitb.ac.in/rs_links/useful_links.html	This page provides links to internet resources useful in remote sensing/Earth observation and GIS including image processing, digital elevation models, computing and algorithms, data sources, space centres and other relevant organisations, neural net applications, satellites and sensors .
9	https://natural-resources.canada.ca/maps-tools-and-publications/satellite-imagery-and-air-photos/tutorial-fundamentals-remote-sensing/9309	Tutorial on remote sensing technology and its applications by The Canada Centre for Mapping and Earth Observation (formerly Canada Centre for Remote Sensing)



10	https://gisrsstudy.com/remote-sensing-data/	Links to many sources to download Remotely Sensed Data.
11	https://foote.geography.uconn.edu/gcraft/notes/remote/remote_f.html	Study material developed by Shannon Crum, Department of Geography, University of Texas at Austin
12	https://foote.geography.uconn.edu/gcraft/notes/notes.html	Links to notes and study material for GIS
13	https://www.geo.university/course/s/introduction-to-remote-sensing	Free online course on introduction to remote sensing
14	https://gisrsstudy.com/isro-free-online-courses/	Information regarding free online courses on remote sensing and GIS offered by ISRO
15	https://www.gislounge.com/free-ways-to-learn-qgis/	Useful links to study material and videos to learn QGIS for free
16	https://glovis.usgs.gov/	Remote sensing data, navigational, global data
17	https://scihub.copernicus.eu/	The Copernicus Open Access Hub (previously known as Sentinels Scientific Data Hub) provides complete, free and open access to Sentinel-1, Sentinel-2, Sentinel-3 and Sentinel-5P user products
18	https://search.earthdata.nasa.gov/	The Earth Science Data Systems (ESDS) Program provides full and open access to NASA's collection of Earth science data for understanding and protecting our home planet.
19	https://crisp.nus.edu.sg/~research/tutorial/rsmain.htm	This tutorial is part of the "Space View of Asia, 2nd Edition" CD-ROM produced by the Centre for Remote Imaging, Sensing and Processing (CRISP) at the National University of Singapore.
20	https://rscc.umn.edu/	Website of Remote Sensing and Geospatial Analysis Laboratory, University of Minnesota.
21	https://gisgeography.com/free-satellite-imagery-data-list/	15 Free Satellite Imagery Data Sources
22	https://www.microimages.com/documentation/Tutorials/introrse.pdf	A tutorial on Remote Sensing of Environment
23	https://nature.berkeley.edu/~penggong/textbook/	A text book on Remote Sensing and Imaging Analysis
24	http://www.geoinfo.amu.edu.pl/wpk/rst/rst/Front/overview.html	Tutorial for learning the role of space science and technology in monitoring Earth's surface and atmosphere.
25	https://www.isprs.org/education/tutorials.aspx	Tutorial on Photogrammetry, Remote Sensing and GIS

II. CONCLUSION

The internet resources cannot substitute class room teaching, but can definitely act as a supplement to the traditional classroom teaching. The websites mentioned in the table and the remarks are based on the opinion of the authors. The sites not mentioned in the table, are, by no means inferior in the quality of their content and setup. The authors are of the strong opinion that the sites and their content shall be a great aid to all those who are concerned with learning Remote Sensing and GIS.

III .ACKNOWLEDGEMENT

The authors are thankful to Dr. R. N. Singh, Principal, Govt. V.Y.T.P.G.Autonomous College, Durg for his encouragement. The authors are thankful to their family members for their co-operation, without which it would not have been possible to contribute this paper.

REFERENCES

- [1] Bloemer, Hugh And Quattrochi, Dale "Introduction to Remote Sensing: Online Resources," Online Journal of Space Communication: Vol. 2 : Iss. 3 , Article 6.(2003)
- [2] Butler, J.C. An introduction to geoscience education resources on the internet. Computers and Geosciences, v. 21, No. 6, pp. 817-824.(1995)



- [3] Browning, P. & Williams, J. Using the Internet in teaching and learning: a U.K. perspective. Computers and Geosciences v.23, No.5 pp.549-557(1997)
- [4] Ghosh, Ananya. Online Study Resources: Remote Sensing and GIS. Geospatial World - 12/07/2010 .(2010)
- [5] Mounissamy,P., Kalliammal,A.,Thirunavukkarasu. Access of E- Journals in the Institutions of Indian Higher Education through Consortium. Journal of Library and Information Science, v..29, No.1, pp.26-36(2004)
- [6] Sounderajan, E., Joseph, J.V.M., Jayakumar, C., Venkadesan, S.V. E - learning: Digital library as information repository. Journal of Library and Information Science, v.27, No.2, pp.135-141. (2002)
- [7] https://en.wikipedia.org/wiki/Remote_sensing
- [8] <https://gis.usc.edu/blog/the-application-of-geographic-and-information-science-gis-in-earth-sciences/>
- [9] <https://education.nationalgeographic.org/resource/geographic-information-system-gis/>



INNO SPACE
SJIF Scientific Journal Impact Factor
Impact Factor: 8.118



ISSN INTERNATIONAL
STANDARD
SERIAL
NUMBER
INDIA



INTERNATIONAL JOURNAL OF INNOVATIVE RESEARCH

IN SCIENCE | ENGINEERING | TECHNOLOGY

9940 572 462 6381 907 438 ijirset@gmail.com



www.ijirset.com

Scan to save the contact details