

Report - Workshop

Organized by Hemamalini

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Date: 4-5-2011

SUMMARY OF THE WORKSHOP

The first day of the workshop, it was more dedicated to the basic topics about introduction to GIS, RS and DIP. This is very much required because of the importance and necessary to work in open source softwares. Then the participants were exposed to linux environment and it was installed as well.

The 2nd day workshop the lectures were on the OS softwares such as Q-GIS, GRASS. The Q-GIS is the software used for manipulating geospatial data and supports all data formats supported OGC including MapServer. Q-GIS with integration of GRASS, the features such as Image processing, Georeferencing properties is possible. The software 'R' which is a Statistical Computer programme available through internet which also produces graphical output after the analysis which can be used for Image processing.

Further introduction to WEB GIS was very interesting where we were exposed to the types of applications such as centralised & decentralised data; we were introduced to the SDI which is the best decentralised application which is purely open source, which allows the to handle the datasets as per standards & policies. The Geonetwork which is the decentralised system with SDI was explained in detail and the software was loaded.

On the 3rd day, the Softwares like Q-GIS, Q-Jump were Explained for digitisation, analysis and to build Query for the application. Introduction to postgres and postgres was given. The conversion of Geometry data to database and vice versa using openGIS softwares was very well explained. The various standards such as WMS, WFS, WCS etc, were explained with their capability, advantages and limitations. The introduction to various RS availability and GPS was given which was more interactive.

The 4th day session was dedicated to the introduction of the applications developed from NRSC, and by Geographic lab USA i.e., Bhoomapada and P traffic Management System. Both the applications were in the combination of OpenSource as well as Proprietary Softwares and another pilot project on Emergency disaster management for Assam was showed by P. Prapan developed by NRSC was very interested and excited as they have used mobile service for data transfer.

Further introduction to Mathematical Statistics / probabilities and application in the field of RS was more informative. The session on the 'Bhuvan' introduction / exploration of the ISRO geospatial was very educative / useful for all the participants from various disciplines & it is really the gate way for a new applications which are useful for welfare of the society. Overall the workshop was very much informative, useful and we gained very good knowledge about the present Geospatial activities around the world.

Open Source Geo-spatial tools & technologies

This is a unique course on OGIS which has touch upon all aspects of open resources available in geo-spatial technology in a span of five days. A great learning experience to analyze, visualize and model spatial data in various tools available by the open source community. The following open source geo-spatial resources has been taught pedagogically in this notebook.

- a) How to obtain spatial data from NASA website, the ETM and ETM+ multi-spectral, multi-temporal data can be downloaded for study & analysis
- b) The GDAL (Geo-spatial Data Abstraction Library) is a great resource for study & analysis of raster-spatial data.
- c) The OGR (OGR Vector Format) in the open source is a resource for display & analysis of various vector formats.
- d) GeoNet is an open source project which makes all its data and images freely available through the facilities GeoNet which is an open source ^{web} GIS.
- e) Map Server
- f) OGC Geo - is a webmap facility which posts spatial data to net for the spatial data community to use.
- g) 'R' - an open source statistical tool which can be programmed to generate various statistical parameters of data & can be tested.
<http://cran.r-project.org>.
- h) GeoNode software which has two components viz i) GeoServer and ii) GeoNetwork (web GIS)

Geoserver serves spatial data infrastructure through portal.

i) PostGRE, PostGIS and PostGRESq. are open source tools where PostGIS is the super set containing PostGRESq. an open source RDBMS with spatial Extensia of about 780 functions. Hence PostGIS is a open source spatial Database which handles spatial data in NKB and Data formats, (well known Binary) and (well known Text) function along with web GIS

j) Projection library: Map Projection is an important processing step before any spatial data can be analyzed and visualized by any GIS S/W.

EPSG (European Petroleum surveying Group) has made available a ~~set~~ comprehensive set of literature, API and program tool which caters for map projection, Datum transformation and Co-ordinate transformation.

Proj to EPSG. searches the SPID which is a number corresponding to the projection type and make a data projected before loading into the PostGIS DB.

k). OpenJUMP and Open Layer in takes Comma separated vector (CSV) files and make them to spatial WKT before posting to PostGISDB where GPS data can be displayed as an layer.

i) GeoServer is an open source spatial data server which is based on SOA (Service oriented Architecture) which is OGC (Open GIS Consortium) compliant and gives its services through

ii) WMS - Map Service

- Get Capability → To obtain the meta data of spatial data
- Get Map → to fetch actual data
- Get Features info → to get a snapshot of the feature with information/attribute

iii) NFS → Web Feature Service which gets the full feature in the client.

iv) WCS → Web Coverage Service → Useful for finding the coverage of satellite or spatial images.

v) WRS → Web Registry Service - which is responsible for creating & searching the registry which contains the <spatial meta key> vs <Data> in the server.

vi) GeORSS → is a geographer.

vii) KML is Keyhole markup language which is derived of XML (Extended Markup Language) & ideal for storing 3D spatial data.

for OGC server compatibility WMS, NFS & WCS must be available in a GIS server.

m) Data Formats that can be handled by any spatial web server are

Vector (Post GIS, Oracle Spatial, Arc SDE, DB2, MySQL, Flat File)

Raster (Shape GeoTIFF, ECW, MrSID, JPEG 2000 and GTOPO 30).

N) Some of the free map browser and viewer available in the net are

Google, Yahoo, Baidu, Wikimapia and Microsoft Live

O) Open layer is set of APIs for building web applications using ~~AJAX~~ 'AJAX'.

Proj4, GDAL, GRASS, ORX and QGIS are some of the free & Open Source GIS resources which can be exploited for spatial data visualization, analysis, interpretation, modeling & learning

This course is a comprehensive tutorial and hands on for Open Resource in Geo-spatial Technology & great source of learning

Sincere Thanks & Regards to Prof. TVR & team

Narain Panigrahi (944019667)

"Workshop on Open Source Geo-Spatial tools"

1st - 5th May 2011.

CiSTUP

M. PRIYADHARSHINI

Research Scholar
Department of Geography
University of Madras.

The inception of the workshop begin with the introduction on Sustainable planning tools including the operations of Geographic information system, Satellite information and Global positioning system, the advantages of using these softwares, sources of obtaining these softwares, the requirement of sound knowledge in this field. The speakers gave valuable insights of various softwares applications and the usage of these in the various field. All the five days have a wonderful and a vivid descriptions of various softwares.

The advancement in science and Technology is a boon for India, to reach the paramount in the Sci-Techno arena. Open source software expedition enabling the users to envisage live data of the geo-spatial world on the internet,

with multi-combination of sensor data, maps, shape files and also to upload the individuals worked out documents and the inputs of ideas from the GIS toddlers to the folks. This task enables both the providers and users to enhance the operational performance, safety, security and management through the shared real-time situational awareness.

The Open source softwares enables to widen the horizon in the field of GIS, Remote sensing for a vast GI community. It was a great opportunity for the beginners to get an exposure in an arena of 'Geospatial' from a reputed academic Institute.

Report on Workshop on FOSS 4G: Opensource GIS

(Alok Singh, Assistant Professor, AIAM, Greater Noida)

I was quite excited, when I have got an e-mail regarding selection letter for FOSS 4G: Opensource GIS workshop, because it was my first trip to Bangalore as well as I was going to be associated with the one of the premium Institution in India, Tata Institute, Bangalore. Although this workshop was not associated with my area directly, But I have found it more fruitful for me not only in terms of knowledge enhancement but also it's applicability on management side. Many more management streams are emerging now a days that are related to this field like disaster management, space management, transportation management, infrastructure management, Urban and Rural Planning etc. Here I have got information about many new tools & techniques, like use of R as a statistical tool. In management, we use SPSS and MINITAB for data analysis, but after attending the workshop I have found that R may be applicable in management field to analyse data as well as to normalising the data.

Here I have enjoyed all the sessions; these all sessions were entirely new for me, but I have gained a lot specially in terms of knowledge enhancement in the field of GIS, Remote Sensing, Digital Image Processing, Image Sampling & Quantization, Q-GIS, R, Web GIS, Postgre SQL on Post GIS, Open Jump, Web Services, Web mapping services, Earth Resource Satellite, GPS, Openlayers, Geoserver, Bhuvan, GRASS, GRASS etc. After attending the workshop, I want to apply some of the tools in my research papers and I want to find the interrelationship in between the management tools and

geospatial tools. Now I am able to apply GRASS, Open Geo Suite, Quantum GIS, openjump etc. tools in some extent. I think that I need some more practice on these tools, that I'll definitely do.

Overall session was very good for me. The mixture of theory and practical sessions, that I have seen here was excellent. I am thanking all the people associated with the workshop to provide me such an excellent opportunity to attend the workshop.

Report on the "Workshop on Opensource Geospatial tools"

Dr. A.P. Dineshbabu
Senior Scientist, CMFRI, Mangalore

My major intention for attending the workshop was to get an overall picture on the development in opensource geospatial tools around the world and to understand our expertise in the field. In marine fisheries scenario, the management options on fishery resource conservation are going to be taken up in the basis of spatio-temporal projections. In recent years the preliminary mapping of marine resources in spatial distribution platform was carried out in software like Arc GIS. Since our organisation, CMFRI want to establish a National Fisheries Grid in GIS platform with collaboration with the national and regional organisations involved in fisheries research management, the focus should be on low cost technology has to be thought about without losing the accuracy of the projection. With the exposure given in the workshop, I am convinced about the capabilities of open source geospatial tools, and the open source tools provide options for incorporating additional scenarios according to the requirement of the user, which is

usually cannot be done with the rigid packages.

As far as I am concerned it was a very good exposure, which allowed me to interact with the experts from CISTOP, NRSC, and Open Source Community and these relationships will be very much useful in our research plans. The explanation regarding the AVL in US by Dr. Uma also opened up the mindset of the participants regarding the challenges and opportunities in the solution making using open source geospatial tools.

I am fully satisfied as the content of the program is concerned and I wish to thank Dr. TVR for his excellent co-ordination of the program and the program is fitting one to the reputation of IISc Campus with 9 to 7 schedule. I also like to thank all the Research Scholars involved in the conduct of workshop and I feel they are the driving force for the co-ordination of workshop of such magnitude without any short coming. Accommodation and food arrangement were excellent, special thanks for the same.

Supraja Anukemate
M.Tech student
at KSRBAC.

It is a tremendous opportunity for me which has been provided by DR T.V. Ramachandra siva to attend this workshop at IISc. At present I am doing my masters in Geoinformatics. I came with an object to learn about open source softwares available in Geoinformatics field. I am explaining my experiences in the below on a day by day basis.

1st day: It was a very energetic start pulling out the brief knowledge from the students and by a lecture by DR T.V. Ramachandra siva. Siva had explained us about GIS and Remote sensing in brief and in detailed. The few things we left during our academic curriculum were explained very well and enhanced our knowledge. I really liked the concept of summarizing the session often, so that all the students were kept alert and were concentrated on the session. In the evening we started uploading the softwares to our laptops & enabling WLAN connection of IISc. ~~we ended the~~ we had concluded the session by 7pm.

2nd day: Mr Bharath and Ms Anindita's presentations were given on GIS and 'R' facts for statistical operations. I really learnt a lot from this presentation. I have just heard about statistical operations, after this I came to know the importance of GIS statistical analysis and how it can be computed. Dr Sameer Sasan's presentation on geonetwork open source explained us about spatial data management, utilities, functionality SDI, harvesting and synchronization, ~~open~~ It was really helpful to acquire the information about spatial data.

3rd day: Dr Santosh has started his session about web GIS, openjump & explained about postgres sql & Post GIS. ~~Dr~~ Santosh made us to do some practicals along with him, & taught us command line programming for querying & calculations. Dr Harish Karnatak explained us about web services, frameworks, standards of web GIS, GML, KML overview. At the end session of time ~~Dr~~ H.S. Bharath explained about NDVI in remote sensing which is used for calculation of measurements to identify vegetation. He also discussed about GPS.

4th day: We started our session with Dr Harish Karnatak explaining about openlayers, Bhosampada, openlayers development, google maps in openlayers, Dr Bhanu in GPS & its applications. After this Dr. UMA SHAMA explained us about statistics. ~~He~~ In the afternoon Dr. Huchopadhyay had given a brief discussion about mathematical and had shown some live data, 2D & 3D models. Dr. Bala Anilraj & Team presented the bhuvan services and had shown some live data, 2D & 3D models.

Viray S
1st Year Mtech
K S R S A C
Blore - 01

- I thank Dr. T. V. Ramachandra sir for providing opportunity to attend the workshop.
- The FOSS [Free & Open Source Software] 4G workshop held by IISc under the co-ordination of Dr. T. V. Ramachandra sir, was very much helpful in gaining the basic knowledge about the available softwares such as GRASS, Quantum GIS, 'R' [R], Open Geo Suite, Geo server & others, also we got to know about the installations not only the GIS softwares but also the operating system as Ubuntu.
- We on day one got an opportunity to know about Remote Sensing and also about the lacuna of the knowledge we are having i.e., lacuna in basics which was overcome by studying/revising the subject. & also the lacuna in ^{Practicals} data analysis i.e., it also includes Digital Image Processing. Also basics of Linux (Ubuntu).
- ~~Day 2~~ On the rest of the other days, we got to know what is Web GIS, why Web GIS & how to export or make the available data with us web enabled, (that was most concentrated) Also we got to know about the statistical mathematics which happens to be mostly used in classification of an imagery.
The 'R' - a statistical maths based software which could be used in performing statistics, adding, overlaying (multiplying) also assigning values, We also got to know about the Histogram generation from the MSS or any satellite data.
- Geo server / Geo Suite - softwares are to be practiced more by users ~~for~~ for web enabling.
- We got to know about metadata generation, maintaining in the softwares.

- Bhuvan was one portal which is so useful in generating the shape files, Applications, features.
- The applications ^{demonstrated,} that were created using GIS, gave me ideas about how extensively GIS could be made useful.
- We got the ~~info~~ ^{idea} about downloading maps / satellite images.
- I thank all resource persons for providing us more ~~info~~ information & guidance, also to Professionals from DRDO, & others who cleared ~~us~~ the doubts.
- I, would ^{like} ~~hope~~ to get more ^{theoretical,} practical knowledge & hands on to GIS, RS... etc. under the guidance from T.V Ramanandaa Sir & other resource persons.
- I also Thank CISTUP, IISc

Amoghavarsha . M
Student,
M.Tech in GeoInformatics
KSR SAC

ACCOUNT OF THE OPEN SOURCE GEOSPATIAL
TOOLS WORKSHOP, May 1st - 5th, 2011,
CISTUP

IMPORTANT CONCEPTS LEARNT:-

- Fundamental theory of image analysis and remote sensing.
- The Open Source movement - in the world and in India.
 - Bhuvan - How open source tools have been used to provide useful information to the general public [researchers, students, ~~geo~~ fishermen etc]
 - A small group of committed people pushing for the spread of Bhuvan
 - Regional language support.
 - How I can be part of it.
 - Openlayers - How users can overlay their information on freely available images (from google, ISRO etc)
 - GIS as a web service.
- Geonetwork - Open source, high performance web server.
- IISc OsGeo Initiative - Development of GRDSS
 - Analysis/^{Research} at zero / less cost due to use of open source tools.

o Transit Management System by Bridgewater State University

- How GIS can help meet expectations and improve service levels of public transport systems.
- Increase business revenue, improve business intel by analyzing ~~the~~ tourist traffic,
- Vehicle free tourism.

o NRSC - Web GIS

- for disaster management,
- emergency services management.
- power of OpenLayers and other open source software
- Open source can rival performance of proprietary systems.

o GRASS and GRDSS

- Powerful image analysis tools
- ease of use

Suggestions:-

- The time given to practical sessions needs to be increased.
- The presentation files [PPTs] can be provided to the participants on the 1st day.

I would like to thank IISc, CPSTUP, Dr. T.V. Ramchandra, his team, and all presenters at the workshop for the opportunity to attend this workshop. I very much appreciate this effort to help society (GIS professionals) Thank you. 😊

NAGARAJ BHAT
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(K.S.R.S.A.C)

WORKSHOP ON OPEN SOURCE GEOSPATIAL TOOLS

1st - 5th MAY 2011

1st DAY: In first day I learnt about GIS, Remote Sensing, and Digital Image Processing. Dr TV Ramachandra has given Fantastic lecturing on these concepts I was really surprised, on that day, because Sir has explained all those things within 4 hours but I ~~thought~~ I semister to learn all those things in my M.tech. In next session Mr Uttam kumar explained about ~~QGIS~~ and I learnt little bit about ~~QGIS~~

2nd day In Second day 1st session I learnt about QGIS and In next session Ms Anindita explained about R-Statistical Software Next In afternoon session Mr Samer told about Geonetwork, and I learnt about Geonetwork.

3rd Day: Mr Harish karnatak explained about Geoserver and open layer API for web GIS application development, and I learnt about web GIS Open Jump.

4th Day. In This day I learnt about postgresQL and post GIS for Enterprise GIS Database Management. It was explained by Harish Karnatak. In the same day Uma Sharma explained about Free Web Services. Finally we come to know about bhuvan, really its a wonderful application.

5th day: I learnt how to Install GRASS Software in Ubuntu.

Mr Uttam has given good demonstration on GRASS.

But one thing is we didn't get sufficient time to learn all those things and softwares.

Really It was a wonderful experience to me.

Here In this workshop I learnt a lot of things ~~not~~.

Specially I want to say thanks To Mr Bhasath Aithal

He helped me a lot.

So finally Thanks to all IISL People.

Thank you

A Report On The Workshop FOSS 4 G : Prospective Benefits For My Organization.


P. Dasgupta,
Assistant Planner, KMPA

My interest in this workshop stemmed primarily from the fact that in my organization, a lot of mapping activity is likely to commence in the near future. As I see it, my organization does not have a clear policy on mapping, RS and GIS at present. There are problems related to the use of proprietary software like AutoCAD and MapInfo. This is due to the limited number of licences available at present and the difficulties and delays in getting funds for the same. The State SRT Dept has trained some of us in our organization on RS and GIS but we are unable to utilise the training due to the problems just mentioned. Costly imagery procured by my organization often lies unutilised due to these problems. As such, I feel excited to have seen a first hand glimpse of alternative free source software. I shall definitely convey the findings to my superiors so that my organization can truly benefit from open source resources like QGIS and GRASS.

Beyond this, I am also excited to have

got a first hand glimpse of Web GIS concepts. This is my first exposure to PostGIS, PostGIS, GeoServer and Open Layers and I am happy that my first contact is with Open Source Software in this area. I can perceive that in the near future my organisation will also need to be Web GIS enabled in order that all planning proposals can be experienced by the public on the internet or using mobile networks. Possibly, we can start publishing the shape files and databases using open source resources like GeoServer, or maybe try simple uploading to Bhuvan. I shall definitely convey these ideas to my superiors so that my organisation can immediately take up a Web GIS policy besides a Mapping, RS and GIS policy, both of which should be rooted in open source.

Finally, a word of thanks to Dr. T.V. Ramachandra and his team for their untiring efforts at exposing us to this wealth of information in such a short span of time.


(2)

PREMJEET DASGUPTA

05/04/11

It has been pleasure, attending this open source software workshop. This program will help us in our future endeavour. It has broadened our horizon and gave opportunity to meet people from different organizations as well as to learn GIS and RS tools. It also helped to learn open source software which are freely available. This workshop has given a glimpse of starting from RS & GIS to statistics, but still I felt some more lab classes should be there. As we all have come to learn software which requires more of practical exposure, so I think there ~~to~~ should be more emphasis on practical hours than theoretical classes.

NAME: SHWETMALA
EWRG, CES
IISc, Bangalore

The workshop on geospatial tools of open source which was held in Indian Institute of Science, where we first learnt the basic concepts of GIS, Remote Sensing and Digital Image processing which was taken by Dr. T.V. Ramachandran. We also learnt about GPS, which is used for the navigation of vehicles.

We also learnt about how to install Ubuntu which is based on Linux. We also learnt how to install the open source softwares and also learnt how to use the softwares. The softwares such as Geo Server, Geo network and Open Jump. We also learnt how to use SQL query in Geo Server softwares. We also learnt about the Statistical Software 'R'. We also learnt about Quantum GIS. How it is to be installed and the other procedures which was taught by Bharath Settur. We also learnt about Web GIS where we learnt how to web enable the shapes etc. We learnt how metadata Catalog is carried out using open source software such as Geo network. Then we learnt about Geo network and how to process it and how to upload the shape files of Area of Interest. We learnt how global positioning system actually works and the options present in the GPS. We also learnt about the Indian Satellites and other along with their resolution.

We also learnt about Postgre SQL and PostGIS which are mainly used for the Enterprise GIS data base Management.

We also learnt about how to provide Customer information using free web services

We learnt about Bhuvan, which is an application software. Bhuvan is a gateway to Indian ^{earth} observation, which renders Indian imaging capabilities.

We also learnt when the Bhuvan software was launched and it also had many applications where we can browse which the areas we are interested.

We also learnt little bit of ~~Set~~ Mathematical Statistics.

Thank you,

R. SOBANA LEENA
RESEARCH SCHOLAR
DEPARTMENT OF GEOGRAPHY
UNIVERSITY OF MADRAS, CHENNAI

TAMIL NADU

Workshop on Open source Geospatial tools (1st May - 5th May 2014)
First of all I am very much proud to get an opportunity to attend the workshop in the Esteemed organization of Indian Institute of Science, Bangalore. The day - I was started with Inauguration and GIS, Remote sensing, and Digital Image processing done by Dr. T. V. Rameshchandra, also Bheemath H. Aithal explained about Linux basics of lab session. The Day - II was very Interesting Bheemath Seltum presented the lecture about Quantum GIS, R by Anindita Dasbupta and Web GIS by S. N. Prasad. The post session was about meta data catalog using Open source GIS network by Sameer Seoran. During the Day - III the speaker Harish Karnatak, presented GIS server and open layer API for web GIS application and web-GIS explained by Santosh Braikwad and Achari. The Day - IV session was started with postgresql, postGIS and DMS by Mr. Harish Karnatak. The Customer Informating using free web services was presented by Uma Shama. In the post lunch session was started by R. Chiranjit Mukhopthayay explained about Mathematical Statistics and the evening session was endup with Bhuvan - The gateway of Indian Earth observation done by Dr. Bala and Asul.

The Day-V was started with GRASS which presented by Uttamkumar. Over all observation ~~is~~ taken by these five days will be more useful for my study. Also I am thankful to Indian Institute of Science for giving me an opportunity to attend the valuable work shop.

Thanking you.

I am Reshma Bhat, M.Tech, Geo-Information student in Karnataka State Remote Sensing Application Centre, Bangalore.

This 5 days workshop on 'Open Source Geospatial Tools' has been very useful to us. Starting with the fundamentals of Remote Sensing and GIS we have learnt how to create our own applications and host it on the web using open source softwares-

First day i.e. 1st May we learnt about the basics of Remote Sensing, GIS, and Digital Image Processing. We also saw the overview of QGIS, ^{on 2nd May} We also studied about the statistical software 'R', how it can be applied for the analysis of Remote Sensing data. We also studied about the Web GIS technology which helps us to host our GIS data on to the web. We came to know about the spatial data management Infrastructure - Open Source Geonetwork. We studied how to create our spatial database and management of the spatial database using PostgreSQL/PostGIS. We also learnt how to create our database in Regional Languages.

The third day we saw the overview of Geoserver and the web services provided by the Geoserver, WMS, WFS, WCS, GORSS etc.

On May 4th we had a session on GPS application in the transportation system. We also saw the NDEM application. We had a session on mathematical statistics. We also had the interesting session on 'Bhuvan'.

As a beginner in the field of GIS I got an overview of several useful open source softwares. which

The GRASS software demonstration started with the introduction & features of the software. We also ~~learned~~ saw the tools & features for various analysis purposes.

The information which I have gained in this workshop

I just got the overview & the potential of FOSS. I would like since I am a beginner I would definitely try to use the information obtained from this workshop in my future projects.

I would like to thank TV Ramachandran SPO & CISTUP for giving me this opportunity.

This workshop on open source Geospatial Tools is going on very good. Its very useful for us & its very good opportunity we got to attend this workshop so I like to say thank you for all & everyone & also for arranging this in most perfect way to ~~us~~ so I like to tell thanks to ~~all~~ Dr. T.V. Ramachandra, Sir.

This is very helpful for me to do Project & to do Ph.D in future.

This gives to understand the potential & limitation of tools. In many Industries & government its remains unused due to licence softwares & they require extensive training. So this free / open source software tools helps most govt. & most educational institute work in local language media.

First day we came to know about the basis of GIS, Remote Sensing & Digital Image Processing.

Second day we learnt about installing of LINUX software, QGIS, working in R, web GIS, Geonetwork open source. Its very useful for us

Third day we learnt installing open Jump software & geoserver & working with In GeoServer & we came to know about earth satellite GPS etc.

Fourth day we came to know about open layers : API for data Integration in a open source map browser & Bhosampada.

& we came to know about providing customer information using free web services which is used to find the Routes from Point A to Point B & its a real time usage & its give real time information.

& we came to know about some mathematical statistics.

we learnt & we got information about Bhuvan - which is new to me & its better than google earth which is more advanced & its have more advantage. They thought us so nice & how to use, & how to work & How to Participate. & they gave more information.

In 5 days we can't completely learn all these but Any How we learnt what they thought & what we need to work more about this.

They put more effects & they gave more information & they covered which we need & which usefull for us.

once again Thank you
I like to

your faithfully
Varshini H.S

I am Shweta Darge, 8 year M.tech student of KRSAC, Bangalore.

My intension was to learn some basic of open source software to implement in my academic project.

Firstly, I want to thank for ~~us~~ give us opportunity to attend the workshop on "open source Geospatial tool". First day, we started with the basic of GIS, Remote sensing and digital image process and last session was on installing the LINUX.

Second day, first started with QGIS & then "Geospatial open source". Here we learnt how to host the data on web, manipulating & analysis.

on 3rd day of first session started with particle session on QGIS, ~~some~~ here I learnt how to load a shapefile to sql & ~~localize~~.

Here another open source software open-Jump was introduced. This session overall was good.

ON 4th day first session started with open layer. Building API for data integrate in a open source map browser. second session on "providing customer information using free web services". 3rd session was on "Bhevan". It was best one of the best session of workshop.

we started with 'GRASS', here we learnt basic operations like digitizing, map overlaying, clipping the images & providing DTM, DEM. ~~etc.~~
 Here introduction to GRASS & mirror site in India of GRASS.

- The workshop was an very useful to me. For keep conducting, such workshop which will be very helpful for students like me.

GRASS

- GRASS (Geographic Resource Analysis Support System).
- Started with introduction to GRASS. It was developed by IBSC & maintained by IIT. It consist of all the GRASS programs.
- GRASS we learn importing & exporting the image, classification image, spatial analysis techniques like overlay.
- One case study of Bangalore was shown to us.
- Installation of GRASS software on LINUX

WORKSHOP ON
OPEN SOURCE GEOSPATIAL TOOLS

Kavitha D
2nd Sem
M.Tech, KSRSAK

It's an honour to work be a part of IISc-workshop which was done under the instruction of Dr. T.V. Ramachandra as on 1st May - 2011 to 5th May - 2011.

The journey was started with Basic concepts in GIS, Remote Sensing, Digital image processing concepts by Dr. T.V. Ramachandra. There was a good questionnaire by Ramachandra to the students. The whole day went with the knowledge updation on Remote Sensing like Spectral bandwidth.

The day two was started with QGIS by Mr Bharath Sthuru who gave some basic concepts in using QGIS like loading, querying data & working both with vector & raster data. Followed by Ms Ananditha Dasgupta a lecture on "R" statistical part of GIS.

The 3rd session was started by Mr. Senthil on PostGIS, he gave a concept of using SDI values for projection. This was followed by Mr Samcer Saran lecture on Geonetwork and he gave more stress on Metadata creation, its standards and its edition and he also gave software demonstration of the same.

On our third day the session was started with webGIS by Santhosh & Mr Achari which was mainly a software demonstration of using PostGIS. They were followed by Mr Harish Karnatak a lecture on GeoServer. This was one of the important topics in GIS which help in hosting the data with a open source called GeoServer. He gave a depth knowledge on standards on webserver. He also gave an introduction on design of web server, its merits and demerits. The day was ended with Mr Bharath.H a talk on Satellite, GPS and DGPS.

The fourth day was started with Mr Harish Karnatak with the practical knowledge of web server using Geo Server. This was taken over by Dr umashama a professor from United States. She gave an opening to traffic, road networking & its implementation in India. The requirements of the same was also shown. The afternoon session was started with Dr Chiranjithmukhopadhyay a lecture on Statistics and its implementation in Remote Sensing. The day wound up by Dr Dr Bala Arulraj and team with the depth knowledge on 'BHUVAN' which is the web enabled gateway of Indian Earth.

A Report of Workshop on Open Source Geo-spatial Tools

- Mr. Ashwath, D. Naik
Ph.D. Student
Dept. of Economics
Karnatak University
Dharwad..

The workshop basically aimed to understand the potentialities and limitations of OSQ tools. Prior to the workshop all participants were given study materials and required softwares. The workshop brought together 47 participants from various organisations and academic institutions across India. The workshop was a combination of lectures and demonstrations. This was followed by queries and discussions.

The activities of the workshop are briefly reported as follows:

Day 1:

The inaugural session of the workshop was chaired by Dr. T.G. Sitaran who spoke about the importance of open source softwares. Later, Dr. Z.V. Ramechandra discussed the basics of GIS, remote sensing and image processing aspects extensively. In the evening, participants were guided to install LINUX OS.

Day 2:

Mr. Bharat Settur presented the overview of QGIS, its installation process and other related aspects of it. This was followed by a presentation on an open source statistical package 'R' by Mr. Anindita Dasgupte. Later, Dr. Santosh from SACON, Hyderabad, presented the various aspects of WERGIS. In the evening, Dr. Sameer Soren gave a presentation on Geonetwork open sources.

Day 3:

The morning session started with the demonstration session on various functionalities of Geoserver by Dr. Santosh and Dr. Achary. Later Dr. Harish Karnatak covered various aspects of geoserver and open layers API for web GIS applications development. In the evening, Mr. Bharat Aithal and ~~Blas~~ Mr. Bharat Settur

explain the various aspects of GPS and its applications.

Day 4:

The day started with the discussion of Bhoosempade portal and its ~~utilization~~ utilization, by Dr. Harish Karnatak. He later demonstrated NDEM website. In the afternoon session, Dr. Chiranjit Mukhopadhyay basic issues of Mathematical statistics concentrating mainly on ~~two~~ issues of frequentist paradigm and Bayesian paradigm. In the evening, Dr. Bala & Dr. Arulraj gave a vivid presentation of ~~Bhuvan~~ Bhuvan website, its uniqueness and its various applications.

Day 5:

Mr. Uttam Kumar extensively discussed various aspects of GRASS software and also practically demonstrated its installation and its usage. ~~This was followed by~~ This was followed by presentation by selected participants,

Some Observations:

- The daily schedule was intensive. Though training was didn't include unnecessary topic, some of the topics covered was more theoretical than ~~practical~~ practical, ex: R and QGIS.
- There was no complaints of any arrangements.
- Although, I do not think that I have acquired the knowledge to use immediately, I feel the workshop has helped me to understand about GIS and its applications. Personally, I being in social-science area, I feel lack of training about GIS has remained the hurdle in its application. In this context, I request the organizers to conduct further training and if possible social science students be involved in it as it would be very helpful in breaking the hurdle of interdisciplinary research.

comparing

In the first day session, we started with an introduction class on Remote sensing, GIS and Image processing. This gives me to polish my basic concepts very well.

Then we moved into installing Linux on our notebooks. We all are done with the installation part.

In the second day we started with QGIS. The QGIS is very similar to ArcGIS. It has very similar features with ArcGIS. This QGIS works in windows and command based operating system as well. Then we further moved into statistical tool called R. This R tool is also command based tool, using this we come to know how to produce different plots including ~~graphic~~ ^{graphic} data also. We all learned difference b/w data and normal data. Next session we started with webGIS. This webGIS helps how to produce geo data (vector data). Further we moved into Geonetwork on 'Metadata Catalog using Geonetwork opensource'. It helps me to understand basic difference of centralized and decentralized application. End of this day we could successfully install open Geosuit in our laptops.

3 day has started with goal to import data in opengeo suit, in this session we had at may web service like WBS, WFS, WMS, WCS, and WRS. All features are defined by XML (Geographical Markup Language). Then we started with Geoserver, it is a Java based platform, geoserver reads variety of data formats further we moved into how to get data from NRSC. And how to download Landsat data.

4 day, we started with openlayers: API for data integration in an open source map browser. In this session we had data visualisation and processing of Bhosampada. And how to download openlayers, the openlayers is pure client side javascript, we had what are the layers of vector and raster. Then we started GeoRSS, it is a simple model for tagging external content, the openlayers is a powerful, easy to understand & use. Then we moved into another different concept which is on providing customer information using fee web service. Then we discussed about National data for energy Management (NDEM) it is a mobile data local. Further we had a class on Mathematical statistics, it gives me how the probability models for certain observed.

Last day of our workshop, we had how to install GPASS on our systems. and further we had experts work presentations.

From, BHAVYA B.K
KSR.SAC
M-Tech

Open Source
Workshop

I thank Dr T. V Ramachandra Sir, for an opportunity to learn the several Open Source Applications which are open to create any project without cost.

And also thanks to Co-Professori Harish Sir, Santosh Sir and Achari Sir and others.

⇒ Following is the brief Summary of learning from Open Source Workshop:-

Started with Overview of GIS, Remote Sensing, and Digital Image.

⇒ Then Installing :-

- Ubuntu
- OpenGeo Suite
- GeoServer
- Bhuvan

⇒ Open Sources:

* OpenGeo Suite :- It is complete, OGC standards web mapping Platform built on powerful, cutting edge, Open Source geospatial components.

- if we submit Projection name in <http://www.ajayEPSC.com> we will get SRT number.

- Data in different languages.

* GeoServer :- GIS web services Provider Framework for distributed system.

- XML messaging: SOAP (Simple Object Access Protocol)

- OGC - started Interoperability in 1999

* Purpose of those initiatives is to develop a set of interoperabilities.

- * web GIS: Putting your GIS data into map.
- * Geo network: It is distributed application.
 - Pooling the resources and generating the data sets, depends upon Interoperability and standards.
- * PostGIS: PostGIS data - Spatial Extension
 - stores spatial objects
 - manipulates spatial objects just like DBMS.
- * Open GIS:-
- * Open layers: API for data integration in an open source map browser.
 - Bhosampada: LULU information Portal using Open Source GIS.
- ⇒ Providing customer information using free web services.
 - Real time identification or tracking of vehicles.
- ⇒ Mathematical Statistics:
 - Probability Statistics: Continuous & discrete models,
 - maximum likelihood estimations.
- ⇒ Bhuvan: Gateway to Indian earth observation
 - multi-resolution, multi-temporal and multi sensor IRS imagery, overlaying value added thematic maps on 3D globe.
 - Bhuvan server works with 24 servers 3 load balancer, 2D or 3D load balancer will take care, works with Round Robin algorithm.
 - Different options of Bhuvan and advantages of data to work with it.

⇒ Implementation :-

M-Tech Project is Identification of different Plantations by using Quick bird data 60m resolution, level 5 classification i m doing and my idea was to web enable Plantation details, were this is useful for horticulture Department.

Now by applying open source like Geo Server i can web enable ~~my~~ Plantations.

⇒ I thank Bharath and friends for their support.

5/05/2011

Arjunghanasham, C.No.

M.Tech, 4th SEM,

Geoinformatics

KRSAC, Bangalore

Workshop on Foss4G open source

Geospatial Tools

Workshop on Foss4G open source geospatial tools was exceptionally useful for us.

Since I am pursuing in M.Tech, Geoinformatics, we had great exposure on open source geospatial tools.

All the 5 days was very well planned and useful. Before coming to workshop I had exposure on proprietary softwares.

After attending the workshop it give me opportunity to know about open source and also to work on open source.

I am doing my mtech project in proprietary software, After attending workshop it give the opportunity to work.

in open source.

In future i would like to attend the workshop and take part.

My sincere thanks to Dr. T.V. Rama chandra sir and team for giving the oppurunity to work on open source.

Regarding food it was really like homely and nice. Once again all the credit to Dr. T.V. Ramachandra sir and team.

I learnt lot all this 5 days. My sincere thanks to you sir and your team and all the participants.

Thank you.

Arjun Kumar C.N.

Chaitra R
M.Tech Student
(KSRGAC).

"Workshop on open source Geospatial tools"

Firstly the Introduction class handled by Dr. T.V. Ramachandra sir had taken the basic concepts of Remote Sensing and Digital Imaging processes were taught in excellent manner.

The lab session on the same day where we had the installation of Ubuntu an open source software was finished successfully. Concepts of linux were made clear in relation with installing other software support.

Although QGIS, similar to Arc GIS to use it on an open source environment is easy to understand, I will try to implement my project based on QGIS. I just had a very basic knowledge of QGIS as it was in our M.Tech curriculum but now I can use it in what ever way I need.

R - Statistical software was not known to me now I have got an exposure to this software found it easy to understand but needs some thinking to use it in a manner that we need. Similarly Mathematical class was taken to correlate with this S/W providing sufficient knowledge about Statistical part of computation.

Web GIS were most of the theoretical part were included in M.Tech Syllabus provided just a vague idea, now it was elaboratively done so that i can put a public Map on Server. Concepts of API and much more things were cleared in lab session as well.

Geoserver, based on Java platform, i could get the knowledge. Since i am from and Electronic background found it difficult to use codes and other concepts of Java. In open source environment.

Bhuvan - Gateway to Indian Earth observation. This was an excellent demonstration given by Arul sir. It was very interesting and my concentration was more towards linking this open source to my project. In that way i will utilise all the open source tools maximum to the need.

Thank you for organising this workshop and enhancing our knowledge in open source domain and also for serving healthy food & Refreshments and trying to make the workshop interactive with summarizing the concepts.

Thank You.....

WHAT I LEARNED FROM IISC

- D.K. Sivakumar

First of all, I should thank IISC selecting me to participate in this course which I feel as a lucky opportunity for me. I learned all kind of technologies that are induced in GIS. The fundamentals covered in the first day session ~~are~~ by T.V. Ramachandran Sir ~~are~~ cannot be forgotten even if we have to forget. ~~I thank~~ I am grateful to Sir and his students (Bharath, Sathur, Aniditha) on bringing the Doctors and Scientists near to us and issuing the fruits of knowledge on various subjects and softwares. I learned programming concepts, Database modelling, Application development concept, importance of statistics, GIS softwares and their working environment, fundamentals, various techniques in remote sensing, Bhuvan applications.

I may (or) may not get again this kind of opportunity, but I am really happy and ^{became} so confident about my subject as I am much through the fundamentals. My kind request ^{is} to Sir, is also give opportunity to un-employed (at least 10 members by scrutinising) who instead of spending lot of money outside for courses can come here and improve their skills.

Thanking you /


D.K. Sivakumar

Report on IISC workshop

Jumath . V

M. Tech
KSR SAC

First of all i would like to say thanks to T.V. Ramachandra Sir for giving me the opportunity to attend this workshop. I gain knowledge how to use open source software for my project like ~~we~~ using ~~web~~ geo server, geo node for web applications purpose and also i gained knowledge how to use postgres software for adding attribute information spatially. And also Ramachandra Sir gave us a brief explanation about fundamentals of Remote & digital image processing which we had studied in I & II Sem of our intake. He gave the lecture for 3 to 4 hours but he gave a brief ~~and~~ lecture about it so that i can brush up the things what i learnt in 1 year. I also come to know how to add Attribute data to database by using postgres. we also came to know how to install ubuntu software, QGIS, GRASS, postgres etc., we also came to know statistical computer program i.e., 'R'. we also came to know how to query the data in postgres and concept of web service & Introduction to Oreservices. The Seminar & practicals given by NRSC faculty was also nice and it helped me to develop webgis for my project.

we learned the different satellites across the world and different satellites ~~positions~~ their periodicity, time, inclination etc., and i came to know how to use ~~GPS~~ Hand held GPS and how GPS works, base stations, master stations etc., one of the main concept in GPS is ~~how~~ differential GPS How it works? what is it? Another important thing is about Bhuvan which is the great invention of ~~indian~~ ISRO which renders indian imaging capability in multi-sensor, multi-temporal & multi-platform geospatial domain. It is also a gateway to explore & discover virtual earth in 2D & 3D, and i also came to know how to add attribute information about it, once again i would like to ^{say} thanks to Ramachandra Sir for providing me this opportunity to attend this workshop. I request T.V Ramachandra Sir to provide me the details of other workshops that will be held in future regarding Geo-Spatial technologies.

Thank you

Workshop on open source geospatial tools.

I am Anusha Hegde, I Year M-Tech student of Karnataka State Remote Sensing Application Centre, got a wonderful opportunity to attend the workshop on open source geospatial tools conducted at Cistep, IISc, Bangalore. The workshop was meticulously scheduled and organised and following is the glimpse of the same, starting with Fundamentals of Remote Sensing, Geographic Information System, which included advantages of GIS such as extraction, analysis, visualization of spatial & non spatial data, Classification & Enhancement techniques, Publication of ER with Atmosphere & matter, along with installation of ~~the~~ LINUX, on First Day.

Second Day, the first session included introduction to Quantum GIS, overview of the same & overview of R which included diff. statistical operations on the data.

The next session included installation of ~~Geo network~~ ^{Geo network} & postGIS and also the overview of Geonetwork & PostGIS such as loading spatial data to Database. Running queries on the data.

Third day ~~was~~ the session continued from

posters to overview of Geoserver & different analysis to be done & webpublishing of data through Geoserver by Dr. Harishkumar. The fourth day the analysis in Geoserver was taught, continuing with a customer requirements and navigation application in GIS by Dr. Uma Shama. In the afternoon session we were taught about the showcase of BHUVAN which a common portal to share the data. BHUVAN data uses only Indian satellite images. In the afternoon session of fourth day the statistical methods of analysis & classification is dealt with which was

On the fifth day complete demonstration of GRASS was taught with starting with installation & micro site description. Starting with GRASS how to open once installed. ~~was~~ Introduction to all tools in GRASS. How to work on these tools. What are the facilities available from this tool. Such as clipping, digitizing, georeferencing, Fusion of images for better visualization. Overall idea of GRASS was efficiently demonstrated. The concepts were efficiently conveyed through this workshop.

Feedback

Aruna
Assistant Engineer
W.R.D.O & also
V Sem, KRSAC
B'lore.

As GIS is a booming field in technology, I took up my masters in Geoinformatics. During my academic I came across open sources available knowledge but when I got an opportunity to participate in the open source GIS - workshop @ IISc B'lore. I was really excited that I can get some knowledge about open source.

After attending 5 days of session I am extremely happy that I am aware about the different free S/W & their uses but of course I need to explore it. It's a very interesting talk was about buvan.

Only very interesting talk was about buvan. The only thing that was difficult to follow was statistic / probability lecture.

I take back the knowledge of the free S/W to my department as there are hundred of rules to procure the S/W & sometime we get stuck in the interoperability of formats as per our needs. IISc should also hold our hands in future. Also after the workshop as we are toddlers in the free S/W usage.

This workshop was more of a very very interactive session over & again summarising made us to learn again if we have lost some details ^{while} hearing. Everything start from the food, lecture, materials & Faculties / P.G Students interaction. I felt hard on ~~exp~~ for GRASS ~~was~~ need for complete one day session.

Report on GRASS 8/10.

GRASS - Geographic resource analysis of support system.
It's a free software available ^{online}, where we can share the data, update the data & develop further by taking the source code. Such s/w is useful for student & research community.
GRASS mirror in India is maintained by Cistup I.I.S.C.B'ore.
Mirror site is used to share the load of the server.

GRDSS - is also a free s/w, open source it's a GUI
GRDSS - Geographic resource decision support system.
with general public licences.

It's built on C language & C++ pearl installed on Linux platform.

GRDSS is built by I.I.S.C. & it's a Command line based.
It works on vector & raster ~~data~~ data.

This can ~~perform~~ ^{work on} vector & raster ^{attributes} processing, scripting
GRDSS does data management, ^{attributes} processing, scripting
can be done.

Fusion of two high spectral data can be merged.
or Pan data & other high resolution data merging is also done for sharpening the image, edges & enhancement.
It's done in a 1:4 & 1:2 ratio based.

where Max, min, Std deviation, Correlation Co-eff, UIQI, CC b/w fused & original & MS img at degraded solⁿ.

Fusion gives Quality in SFIM, COM, HP Fusion, HP Filter, HPN.

NDVI - indicates vegetation classification, supervised & unsupervised, Report building Query, develop, reclass map
- rescale, Analysis, Functional operation, Model building

- Cellular automata can also be done on pixel basis
- Change detection for temp & climate, population, land cover, land use, NDVI ~~changes~~ a case study done on these factors for Bangalore was shown to us & discussed, ^{other} Paper presentations are hosted on coelssik for more information. Demo on working on GRASS was given.

CAIR

Workshop started with a inauguration lecture by Prof Mohan Kumar that motivated all the participant to listen and participate in the workshop for ~~the~~ five days.

First lecture is taken by Prof. TV Ramchandran starting with what is GIS he gave very good definition of GIS followed with basic and advance things in remote sensing, Image processing - various parameters in remote sensing and how to use remote sensing data for different human causes. He talked about satellite images, different resolution of satellite image and their usage, land use land cover. In Image processing he talked about histogram equalization, image enhancement, image interpolation, image rectification, bilinear interpolation, bicubic interpolation, contrast stretching, Gray level slicing, bit plane slicing, local enhancement, image subtraction, image averaging, image filtering, sharpening filter, derivative filter.

Second lecture started with ~~steps~~ on UBUNTU installation in which step by step installation procedure has been told initially then same procedure is followed to install ~~Ubuntu~~ a Linux OS.

Next thing was open source statistical software tool R that calculates the statistical variable and parameter to help in our work. It also emphasized that how easily we can do the statistical calculation using R.

Then we went ahead with GeoNode software which is having two parts GeoServer and GeoNetwork which is a webGIS & distributed information system. Basic advantage of this is interoperability and following open standards. It can be used for make spatial data infrastructure. It follows ISO 19115 standard for metadata. GeoNetwork Architecture was also told in detail, then he gave Full online demo of working with GeoNetwork software. How to add data for posting on GeoNetwork software.

Next lecture was lecture for backend software which is the backbone of any software open source database PostgreSQL and PostGIS. ~~Had~~ Dr. Santosh started with installation of OSGeo Suite which includes PostgreSQL, PostGIS and OSGeo Server + other dependencies. After installation he described in detail how to work with both PostgreSQL and PostGIS database.

few of them were how to load spatial data (vector transfer) into the spatial database. After that he started with the driving or query to database using PostGIS Functions. He also told about how to load non spatial CSV data to PostgreSQL database and how it can be converted to spatial data or shape file. He also detailed about how to have the language support into your database.

Next lecture was from Dr Hansh Karmadik about concept of Web Services and introduction to WebService. WebService is having Service oriented architecture. This is a three tier architecture. Service in actual client tier requires only internet connection and a web browser. All the services is provided by Server in form of different OGC defined services like, WMS (web map service), WFS (web coverage service), WCS (web coverage service), WRS (web Registry Service) these four consists of 90% or more service that is used on the web GIS. He also talked about designing web services. Also detailed about the individual OGC services. He also talked about XML, GML, KML and there usage.

Next lecture by him was open layers. Different data formats and database supported. How to post the data into server and make it public. Implementing security versioning and support for platform independent and architecture independent - OPIUS

Next was lecture given by Mr Bharat about WPS. Next was what is open layers and their API for building web map applications. Web 2.0 architecture. GeoWeb 2.0 free map browsers used for GIS. Components of open layer maps.

Next lecture was from Dr UMA Sharma about application of GIS in Transportation in which she gave example of how GIS is used for public use in BUS for locating the bus, their scheduling and expected time. Next was very good lecture on demonstration by team from NRSC for Bhuvan Software for 2D and 3D GIS. Their architecture and how to use web services like WMS, WFS, WCS, WRS and other various things.

Next lecture was about mathematical statistics by Prof Upadhyay. He gave very good insight of probability and statistics and how they related to each other.

Last lecture was about GRASS was a very good lecture and its having good image processing capabilities followed by this was the basic installation and demonstration of GRASS capabilities.

5/5/2011

Report on opensource Geospatial tools workshop at IISc

Chandrasekhar-Gowd
KSRISAC.

First I would like to thank Dr. T.V. Ramachandra for giving me the opportunity to attend the workshop on opensource Geospatial tools workshop at IISc. From the workshop I gained the knowledge on opensource softwares like QGIS, GRASS, Bhuvan, Statistics, QGISserver and many more topics. It helped me lot in doing my mtech final sem project. I missed first day workshop but I collected the notes from my friend who attended first day which is about Fundamentals of Remote sensing and Digital Image processing, which helped to recall the concepts of RS and DEP. From Bhuvan I learnt how to visualize the earth. As I am doing web based watershed information system, opensource software QGISserver helps me in my project work. Also I learnt how to install Ubuntu operating system (Linux), I learnt about web map service, web feature service, web coverage service etc. Even I learnt the concept of providing customer information using free web services done by Dr. Umashama madam. Also I learnt to publish the map on the web both statically and dynamically. The presentation on Global positioning system and satellites given by Mr. Bharath helped me to know the concept of GPS and about different satellites. I learnt to operate GPS ^{from} _{by} him. Mr. Utham showed us to install GRASS software, overall five days of workshop helped me to gain knowledge. once again I thank Dr. T.V. Ramachandra for giving me the

opportunity to attend the workshop. Finally Mr. Ballew gave the presentation on GIS Applications in Fisheries. Overall we enjoyed the four days journey by gaining knowledge, healthier food on our web GIS.

Report: Workshop on open source
Cistup

Keerthishree N
Keerthishree07@gmail.com
(KSRSAAC)

I am glad as I have been part of this workshop where in I have learnt a lot of stuff. Dr. T.V. Ramachandra's introduction to GIS and Remote Sensing, Digital images: Basics, Satellite information, Elements, Functions... etc gave a view on importance of GIS and its usage. So I have rendered knowledge about many other terminologies used in GIS, especially got a clear concept of Image classification & Image enhancement.

The effective use of open source softwares like QGIS, Openjump, PostGIS, GRASS. I explored their features; Integration with non-spatial data, installation and various types of plug-ins and their utilities in QGIS software. A new R-software has introduced [Statistical plug-in].

I discovered how webGIS plays vital role in resolving e-governance issues and for my M.Tech project. When dealing with the data given by Revenue department I faced a problem regarding multi-lingual support which I found a solution in this workshop.

Dr. Sameer Saeen demonstrated GeoNetworks and Geoserver. Especially Geoserver which I am looking forward to use it for my project.

- In detail getting to know about PostGIS/PostgreSQL was an advantage, and web application.
- How to publish the data and create a webservice, using web Mapping services helped me a lot and gaining knowledge of these made me feel good.

- I realised I know nothing about Remote Sensing, so will surely concentrate and know the concepts, and improve myself.

- I came to know how GRASS works and how to install the open source softwares including Linux (Ubuntu) operating system and download the satellite image data.

- I was impressed by the technology Uma Shama explained, [the application of the technology in Transportation], as she challenged I will surely think of other fields where this can be implemented.

- During the 5 days of workshop I learnt a lot even preparing a report, and interaction with different people with different backgrounds from different people was good.

- But if more time would have been given to practical session, it would have been helpful.

Thank you,
K. Reddy

Workshop on Open Source Geospatial Tools

Umadevi.P

1/5/2011

First day of the workshop start with Dr. T. V. Ramachandra's talk. He talked about almost all the basics of GIS and Remote sensing. It was a useful class. He covered the topics such as definition of GIS, Elements of GIS, GIS function, GIS Capabilities, How GIS function, Gps, Satellite information, Remotesensing data, Sensors, Parameter of a sensor, Image processing, data analysis, Digital image processing, False contouring, Image characteristics, Image enhancement contrast stretching, Gray-level slurring etc. In the evening Bhuvana talked about introduction to Linux and Installing ubuntu 10.04 LTS.

2/5/2011

Second day Bharath Sether gave a class about QGIS and Installation of QGIS. He talked about history of QGIS, features, loading of raster data, working of raster and vector data in QGIS, overlaying transparency, different types of tabs, Geo referencing, digitization, Grass GIS integration, Grass toolbox etc. After that Anandha talked about "working in R". R is a statistical open source software she covered the topics such as: Installation of R, calculation in R, method of data entry, various statistical calculations in R such as minimum, maximum, range, variance, standard deviation, Graphs in R, Command for various plots, Normal dist. Q-Q plots.

In the next ^{session} Dr. Santosh Garkwad talked about web GIS; putting GIS in web.

After noon ~~Dr. Santosh Garkwad~~ ^{Dr. Sameer Sarap} talked about Geonetworks - open source. Application of geonetwork, main features, History, Evolution, overall functionality, geonetwork concept, utilities of geonetwork, customization, benefits etc.

In the evening Dr. Santosh Garkwad continued his class. He talked about postgres SQL / PostGIS and also he conduct lab session.

31/5/11

Third day Dr. Santosh Garkwad continued his class about postgres SQL / PostGIS. He talked about loading shapefiles in postgres, in different ways, calculating area in hectare, length, querying the data, loading data from non-spatial source etc.

Afternoon session Dr. Harish Karnate talked about concept of web services and Introduction to Geoserver. He covered the topics such as; distributed GIS, web services, Designing web services, web service framework, web services and GIS, OGC web service initiatives, Geoserver, OGC protocol compliance, Geoserver features etc. and also he conduct lab session on geoserver.

After that Bharath gave a talk about earth remote satellites. He covered the topics: 8 types of satellite, Apogee, perigee, Landsat satellite program, spot-satellite program etc.

Also he demonstrate how can we download data from its netherlands and from nasa. Then he talked about GPS.

4/5/11

Morning session start with Dr. Harish Karnatake's speech. He talked about API, Bhoosampala, API for data integration in an open source map browser. After that Uma mam gave a small speech about providing customer information using free web services. Then Dr. Harish Karnatake demonstrate geoserver lab. Also he explained about mobile applications.

In the afternoon session ~~Chiranjit~~ ~~sir~~ talked about ~~mathematical statistics~~. Chiranjit Mukhopadhyay sir talked about mathematical statistics.

In the evening Anulraj ~~gave a talk about~~ talked about Bhuvan. Bhuvan is a geoportal of Indian space research organization. He talked about the application of bhuvan, bhuvan architecture, software tools used bhuvan 3D and 2D, Different service available in bhuvan like weather service, Ocean Serviceset and they gave a demo on these services.

5/5/11

In the morning session Uttam kumar gave a talk about GRASS and installation of GRASS in UBUNTU. He conduct lab session also.

I acquired lot of knowledge from this workshop such as basics of GIS and Remote Sensing, downloading data from nrc ~~and~~ narsc and also from Bhuvan. And also I learn some basics of GRASS, QGIS and ~~postgre/post sql~~ post gre sql / post GIS.

Foss workshop on Open source Geo spatial tools

Free open source softwares are more usable and cost effective in the development of Geographic Information Systems in educational and public level. Due to the unavailability of commercial softwares, the potential of open source softwares should be explored. The workshop held on 1-5 May 2011 takes me to the world of opensource softwares.

Fundamentals of Geographic Information System and Remote sensing are inevitable, while we discuss about open source softwares. I am extremely happy by getting the flavour of Remote sensing & GIS.

Sessions regarding Geonetwork open sources and metadata input and catalogues are very new to me and was a wonderful experience. As a beginner, it was rather difficult to digest all the topics. But I expect that, by the course of time I can explore it.

I have only one suggestion that, giving more time for practical session is quite beneficial than theory for application needs.

The session regarding Bhuvan, gateway to Indian Observation and the Dr. Uma madam's talk on the application of webservice on transportation sector gave an insight into the applicability of opensource softwares in public domain.

Softwares such as Q-GIS, grass and the database management system such as PostgreSQL ~~etc~~ and ~~the~~ its applications are very important in the earth resource studies and other applications.

I extract the knowledge bits as much as possible. I am very thankful to the Co-ordinators of this workshop.

"FOSS GIS: Workshop on open-source Geospatial tools"

A report
1-5 May 2011

By Shivakumar B.S
Srinivas Inst of Technology
Mangalore

Day 1: The workshop was formally inaugurated by Dr. Mohankumar, Chairman Cistup and it was briefed by M. T. V. Ramachandra, who introduced the basic purpose of organising the workshop.

In the second session Dr. T. V. R. introduced various basic concepts of GIS, RS and Digital Image processing. He explored about maps, projections, land use, land cover analysis etc. spatial data and its processing was discussed. Image processing techniques were discussed in detail with emphasis on image classification. Samples of supervised and unsupervised classification was discussed.

Post-lunch session included installation Linux-ORBITO by Mr. Bharath, which was a good experience to all.

Day 2: The 1st session was on QGIS by Bharath Settem.

Most of the following topics were discussed.

- Basic features, How to start QGIS, Overlaying, Working with Raster data, Georeferencing, Digitizing, GRASS integration.

In the second session 'R' - a statistical software was discussed by Ms. Arindita Das Gupta; Installation of R, R-calculator, How to do simple calculations, Graphs with R, Scatter plot etc were discussed.

3rd session was about web GIS and also on Geonetwork. Geonode was discussed. How to upload, its features, and also Spatial Data Infrastructure (SDI) was discussed. Post-lunch session had coverage on Geonetwork features, architecture. The day ended with installation steps of Geonetwork. Dr. Santhosh handled the sessions.

Day 3: 1st session was about openJUMP. Loading of shape files, querying data, was discussed in detail. It covered PostGIS also. Mr. Chari assisted Dr. Santhosh in the session.

The second session on day 3 was on concept of web services and introduction to GeoServer by Dr. Harish Karnataka. Web services in detail was discussed, its framework, SOAP architecture, protocols, Interoperability, web mapping services specification were discussed. In the afternoon session GMTL overview, GeoServer and its various capabilities and also the NRSC data support was discussed. The day ended with the discussion of GPS by Bharath.

Day 4: 1st session was on open layers by Dr. Harish Karnataka. He discussed about Bhuvan, Google idea of web 2.0. Discussed the architecture of open layer. ~~There was a~~ In the 3rd session also Dr. Harish discussed NDRM Mobile applications. The second session ~~covered~~ had a discussion on 'Providing Customer Information using Pre web Services' by Dr. Uma Shama of USA. Discussed the importance of real time customer information, especially in ~~traffic~~ ~~Management~~ Transportation Management.

Post lunch session had a talk on Statistics by Chiranjit Mukhopadhyay. It was very spirited and aggressive presentation on probability model. The day ended with the presentation on 'Bhuvan' - by Dr. Balu and Anuraj.

Uniqueness of Bhuvan, some applications, S/W tools, Bhuvan 2D, 3D, Data storage mechanisms and all the features of Bhuvan was discussed and ~~discussed~~ The day ended with a live demonstration of Bhuvan.

Day 5: GRASS tutorial by Utham Kumar
QGIS by Bharath Sathya.

Post lunch session will have presentation, ~~by~~ by participants and (Panel discussion) a resolution to OGC regarding the outcome of the 5 day workshop.

Report on the workshop

Abhijith SASRY N.
MTech
K.S.R.S.A.C

First of all, I would like to thank Indian Institute of Science and Dr T.V. Ramachandea, CES, IISc, for selecting me and giving me an opportunity to participate in the workshop. It was a wonderful 5-day experience for me which allowed me to learn a lot of things, the current trends in GIS, the various, software, tools and techniques used in the open source softwares field. Basically this workshop helped me in understanding the concepts on web enabling a GIS application, in which, i didnt have much idea about when it comes to the practical aspect. It also helped me in recollecting some of the basic concepts in GIS, Remote sensing and digital image processing, which i had forgotten. The most interesting thing was that i learnt about a statistical software called 'R', which i was not even aware of. I also came across Bhuvan, developed by ISRO, which was very interesting I would like to Congratulate them for coming up with such a wonderful software. I also learnt about Postgre SQL. I had heard a lot about but never got an opportunity to work on it. I also learn about a new concept called Geonetwork.

P.T.O

It would have been more helpful if we had more exposure in practicals like lab sessions. I would like to take ~~the opportunity~~ otherwise, everything else about the workshop was very good.

I would like to take this opportunity to thank all the resource persons, students of IISc, who were very helpful in solving our queries. I also would like to thank all the participants from different fields who made this workshop a success.

I am sure, with this knowledge, I can work in more detail in GIS softwares and come up with more and more suggestions, ideas in the future days to come.

Thank You All for everything.

05-05-2011

1

Punit Kumar.V.1c
M.Tech 2nd year
KSRSAE
Bangalore

"Report on FOSS4G opensource workshop"

First of all, I want to congratulate Ramchandra sir for conducting workshop efficiently and effectively in a disciplined manner.

The 5 days are really worthful for gaining knowledge. The workshop held very peacefully without wasting any time.

On the first day we got the knowledge about GIS, RS and DIP concepts by Dr. T.V. Ramachandra, sir in detailed and effective from the basics. Later we had "Ubuntu" basics and its installation, it was the newest software for me but easily learned by Bharath sir.

On the second day we learnt about Q-gis and R in the first half session, as these softwares are also newer to me and got the basic idea of it. Later I learnt about "Geonetwork" beautifully thought by Sameer sir.

On the third day, I learnt about "Post GIS" and "Post GIS SQL" thought by Santhosh sir, ~~we~~ I learnt here about database creation to its updation in net using various steps. After that, I learnt about "Geo server" thought by Harish sir, here I learnt how the databases and shape files are uploaded in

Geoserver and its maintenance.

On the fourth day, I learnt about "customer information system" by Uma madam, here I got to know about ~~essence~~ necessity of customer information system in India and way of evolving it.

Later we had "Bhuvan" by Dr. Bala sir, this is the proudest thing of us and I came to know how our bhuvan is far better than Google and its multiple options.

In all 5 days we got to learn newer softwares and concepts to learn. All technical persons gave very good teaching about the open source and newer or emerging technology in the field of GIS.

I feel, ~~but~~ ~~if~~ if we had ^{little} more lab session will be better, so far its no problem with lab, but once we sit and doing the s/w alone, I will get problems so I need your help and support after the workshop also.

Thanks to all persons for successful completion of workshop, special thanks to T.V.R sir for giving us an opportunity to attend workshop at India's most elegant institute and their motivating words.

WORKSHOP ON OPEN SOURCE GEO-SPATIAL TOOLS

1st - 5th MAY 2011

CSTUP

J. PRIYADHARSHINI
RESEARCH SCHOLAR
DEPARTMENT OF
GEOGRAPHY
UNIVERSITY OF
MADRAS.

The first day invited eminent the topic covered were GIS & Remotesensing, Digital Images, Satellite Information, Elements of GIS, GIS Advantages, GIS functions. Knowledge required, GIS Chain, Satellite information, Electromagnetic Radiation Statistical Analysis system Spatial data, Data modelling, Digital Image Processing Aerial & Satellite imagery scales, Image Enhancement, Histogram Processing, Image subtraction, and Averaging, Filtering, median filtering, Spatial filtering, Derivative filtering. The Day two topic covered @ GIS (Quantum GIS), History, @GIS time line. In UBUNTU, GIS working with vector data, overlaying, Loading raster data in GIS, Meta data map, Pyramids map, Histogram tab, Geo reference, Digitizing, GRASS GIS Integration, @GIS Plugins, working in R, R Graphics. ~~with~~ Bar Diagram and Spatial data base, Shape files. ~~Day~~ third day covered Quantum GIS, Querying data Create table file. Concept of web service & Introduction Geoserver Designing web services I & II, web services Framework, Transport web map, services, web services coverage, web feature, Register services, Gmcc overview, Styles, styled layer, Earth Resource Satellites. Satellite orbits, Geo stationary

Polar orbiting Satellites, Landsat Satellite Program, GPS (Global Positioning System), GPS Satellite signals.

The Fourth Day covered Integration in an open source map Bhossampada Land use/Land cover information. Portal using open source GIS, Open Layer features, Information using Free web Services, State of the Art Technology, GIS Data flow, Mathematical statistics Parameters, Frequentist, ~~to~~ mean, Bhuvan Gateway to Indian Earth observation, Bhuvan ~~Gateway~~ Genesis and Internet vision unique Bhuvan societal applications Bhuvan Architecture, Bhuvan website 4 tools ~~capabilities~~ Capabilities, vector data base layer, Data Storage, Bhuvan 2D, Future application weather Services.

Day five had demonstration on GIS and installation followed by Presentation from the Participants who are Professionals.

Workshop of the FOSS4G - Free Open Source Software - first day of session is basics of remote sensing, Digital image process, GIS - Geographic Information System - GIS Professionals, Image of key concepts, Arithmetic Correction supervised & unsupervised classification all it will be useful for us.

The 'UBUNTU' - Downloaded the binary package file from OGIS website & click on the downloaded file & the install, the learnt how to install 'UBUNTU' Software.

The QGIS - GIS tools for manipulating geographical data in 3D-analysis statistical analysis

The 'R' working of R is Statistical SW computer program made available through the internet the general public licence.

Geonetwork open source - web GIS, Distributed Information system using distributed data based using concept of services.

Spatial database that store spatial objects and manipulated & spatial objects just like other objects in the database.

Open web suite - It is the complete, OGC standard compliant web mapping platform built on PowerWeb, Cutting-edge, open source geospatial components and open source software.

Shapefile - To loading the shape files, `psql -d postgres -U postgres -f bc_data.sql - psql -database -U postgres` of file .sql to connect database table to `Shapefile`

- Concept of web service and server in distributed GIS is concerned itself with UI system that do not have all the system components in the same physical location. This could be the processing the database, the rendering of the user interface and web service.

OGC Web Services - Initiative has started a series of web based interoperability.

Earth Resourced Satellites - Orbit will be elliptical or near circular, time taken by a satellite to complete

GPS (Global Position System) - It is funded and controlled by US department of defense, specially coded sat signals can be processed in a GPS receiver. We learnt about global position system it will be useful.

2D mapping using the temporal AWT.

Open layers - Is a project of the project the open source geospatial.

Mathematical Statistics - Is inverse of probability models for certain observation.

'Bhuvan' gateway to Indian Earth observation, we learnt the more information about the bhuvan. that is genesis and the intent.

GRASS - Is a free wall under the GNU general public license (GPL2).

Thanking you to Dr. T.V. Ramachandra Rao for given opportunity to learn open source which we apply for GIS project.

Thanking you,

Bhuvan: R

M S. Kottureswara
Assistant Professor
Department of Computer
Science.

Department of Collegiate
Education

Before this workshop I had zero knowledge on Geoinformatics but keen to explore more on this knowledge domain.

Being Liemen, I felt TVR's session was useful to boot myself to get exposed to new world of GIS.

Session on QGIS gave overview of installation and functionality of QGIS. Working with raster data, Metadata, pyramids & histogram, Raster calculator have been clearly discussed.

Session on R & SW gave basic knowledge of statistical SW which is useful in the analysis.

WebGIS useful to view & put GIS data on web. Query execution has been showed to obtain the classifications.

Most impressive session on Geo hko. Interoperability & standards on distributed applications

Features & functions of Geo n/w architecture, utilities are neatly discussed

Database host system postgres/postgreSQL gave insight into database operation. Importing shape file usage of open jump was interesting

Session on Open Geo was informative. Elaborated session on Geo Server gave insight into services & functionality & importance of GeoServer.

Session by Mrs Uma Sharma was really useful motivated us to take up challenges to improve Bengaluru Infrastructure.

Session on R & Sh gave basic knowledge of statistical software which is useful in the analysis.

Session on Bhuvan was more detailed one and informative. The resource persons gave virtual working feel for us.

At last, one session which was useful was participant presentation. This gave real time working & implementation experience.

It was great & memorable ~~and~~ environment which gave food for brain & body.

Summary of Workshop

R.K. Poopal

I am happy to introduce myself as R.K. Poopal, doing Ph.D., Unit of Toxicology, Department of Zoology, School of Life Science Bharathiar University, Coimbatore, India.

CISTUP, IISc - Bangalore, Organised Workshop on Open Source Geospatial tools from 1st May to 5th May - 2011. During the workshop experts from various institute have taught us about Geo tools, applications and how to implement it. They focused on Basic and Remote Sensing, Digital mapping, Sustainable planning tools, Advantages of GIS, functions, Data Collection and Image Sampling, Quantization, Geometric Correction, Gaussian distribution, Grass, GIS integration, working in 'R' Geonetwork, Bhuvan etc... They taught us how to install and work on OS, OpenGeo Suite, Open Geo Suit, Grass. All the program are worked out by all the participants. We understood that Geo tools is a free software tool for developing standard compliant solution of Global information. Geo tools is a Contributor of the

Geo project information a Vendor - neutral Set of
Java interface. And we come to know that 'one
picture is worth more than ten thousand words' - by
T.V. Ramachandra, Graphical representation is easily
understood by all the people.

Food during the workshop is good.

I wish to thank the Co-ordinator, IISc - Bangalore
for giving us an opportunity to learn about Geo
tools.

In this, I thank all the experts for teaching
us the Geo tools. Even though I am ^{new} first to
Geo field, all the experts and CISTOP members
helped me to learn and work as like other
students and participants.

Thank you.

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India.

WORKSHOP ON OPENSOURCE GEO-SPATIAL TOOLS

1st - 5th May 2011

D. SURENDRAN, RESEARCH SCHOLAR,
UNIVERSITY OF MADRAS

I am glad to be in IGSC as a participant of well organised CISTUD workshop. As Day I started with the introduction of the Basis of GIS, Remote sensing & GPS, discussed about the geo-spatial tools and its uses & advantages. Installed open source operating system Ubuntu. The next topic was on Q-GIS, includes features of (Vector data, raster data, digitization etc.) web GIS installation and demonstration was given by Mr. Santosh jai kumar about the installation of Multilanguages platform in Google API, Geo code software. Bharat Sathre explained about open source geospatial tool, Quantum GIS, OpenGeoSuite, and learnt about Centralized and de Centralised applications & so on. Day III started working with OpenJump software & OpenGeoSuite that deals with web services Geo servers, OGC webservices (WMS, WFS, WCS & WRS), Foss Implementation etc. The day ends with Earth Resource satellites usage and uses of GPS. Day IV started with Dr. Harish Karnatak with the Presentation of opensource layers, API. for data integration. Dr. Umashama presented an excellent ongoing project which covers "providing customer using web services"

Mr. R. Chiranjit Mukhopadhyay gave a lecture on Mathematical Statistics, during the end of the session Arul Raj & his team have given a inspirational presentation on BHUVAN, which is a opensource software from ~~ISRO~~ ISRO, which

will be very much useful for my research. Day V started with the presentation of opensource software GRASS, with its brief tutorial and its uses which taught me more technical skills.

Whatever I learnt in this five days intensive workshop has given me good knowledge & idea in using opensource operating system, softwares etc., in my research.