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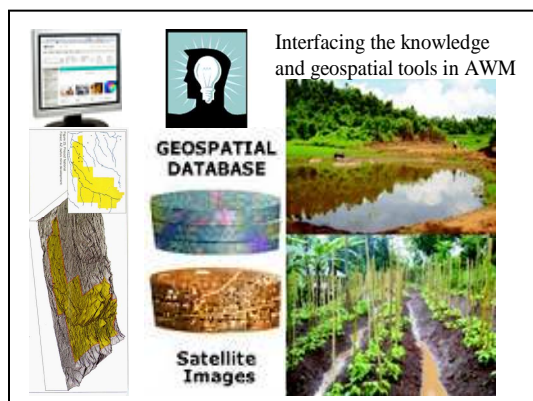
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Application of Geospatial Tools and Modelling Techniques in Integrated Water Resources Management

(October 6-26, 2009)



Dr. A. Sarangi
Course Director



Venue :

**WATER TECHNOLOGY CENTRE
INDIAN AGRICULTURAL RESEARCH INSTITUTE
NEW DELHI 110 012**

Rationale

The availability of land and water resources has a major effect on the economic and ecological aspects of life everywhere around the world. As a result, the need to develop better tools for efficient land and water resources management has become very vital. For quicker, reliable and precise results, it is necessary to use the geospatial tools and techniques such as Global Positioning Systems (GPS), Geographic Information Systems (GIS) and Remote Sensing (RS) image interpretation and analysis techniques to manage the natural resources. The application of these tools and techniques not only facilitates timely and repetitive analysis of attribute features, but also assists in development of Decision Support Systems (DSS) to generate alternative scenarios for optimal use of natural resources in the long term. The optimal use of these resources through integrated management of land water and vegetation leads to enhanced production and productivity of food, fodder, fiber, fuel, fish, flower and forest resources. In Indian context, the poor hydrological database of the country necessitate the need for development of process based models and use of existing models with specific modification. This will help in generation of surface and ground water quantity and quality estimates as an out come of soil and water interactions with land features. Moreover, the existing models developed by researchers around the globe cannot be applied in our country as such due to i) inclusion of large numbers of closely monitored parameters, which we have not achieved in India and ii) temporal, and spatial variations considered in the model. The models provide an insight into the future and their prediction accuracy depends on the existing database and consideration of the processes that are taking place within a system. However, though the soil and water interaction is a conspicuous process, conceptualization of the process involved in the system is supposed to give better prediction accuracy. The course in Integrated Water Resources Management (IWRM) will cover the fundamental concepts of using the geospatial tools for data acquisition and analysis and the modeling techniques of hydrologic processes with major emphasis on watershed systems. However, the approaches can be applied to any physical system having interactions of soil and water for example; land and water system modeling, hydrologic process modeling and modeling practices in agricultural engineering as a whole.

The training programme will provide a strong base for the researchers interested in development of a model to simulate the natural phenomenon using the geospatial tools.

Meticulously designed modules will assist the trainees to apply the techniques of model development and validation at different locations. This course will also provide a fundamental base for use of geospatial tools in data acquisition and analysis, preparation of input data files for model operation, development of model interfaces within the GIS and RS tools and its validation, display of simulated scenarios, prediction of uncertainties and development of DSSs'. **The ICAR sponsored Summer School will be organized for 21 days from 6th to 26th October, 2009 at Water Technology Centre, Indian Agricultural Research Institute, New Delhi, India.**

Objectives

The objective of this training programme is to impart advance training to young scientists and improve their skills in application of geospatial tools and modeling techniques in IWRM and (ii) to create a platform for scientific deliberations among the academics and the resource persons having significant contributions in this area. Upon successful completion of the training, the trainees would be able to operate the geospatial tools and models pertaining to IWRM.

Course Content

The course content will broadly cover the following topics: (i) Introduction to GIS, RS, GPS and modeling tools and techniques (ii) Modern gadgets for acquisition of hydro meteorological data, (iii) Use of GIS and RS in digitization of soil, water and vegetation resources in canal commands and watersheds, (iv) Application of geospatial tools and models in quantification of surface and ground water quantity and quality, (v) Impact of climate change on water resources availability and variability for use in agriculture (vi) Use of data mining tools in IWRM (vii) Use of RS and GIS in irrigation water management and Ground water recharge studies, (viii) Development of Decision Support systems in IWRM (ix) Use of geospatial tools for estimation of drought indices, precision farming and socio-economic evaluation of IWRM projects and other related areas.

Travel, Lodging and Boarding arrangements

The expenditure on travel by the shortest route will be met from budget head of ICAR fund as per norms and operational guidelines of Summer School. The participants will be provided shared accommodation and boarding facilities in Trainees Hostel of the Institute.

About IARI

Indian Agricultural Research Institute, popularly known as 'Pusa Institute', is the country's premier institution for research and higher education in the field of agricultural sciences. The primary mission of the Institute is to explore new frontiers of science and knowledge and develop human resources to provide leadership in technology development and policy making. The Institute conducts basic and strategic research, serves as a centre for academic excellence, and provides national leadership in agricultural research, education and extension through development of new concepts, hypotheses and technologies.

Water Technology Centre (WTC), located within the Indian Agricultural Research Institute (IARI), New Delhi is an inter-disciplinary facility for research, teaching, training and extension in the area of Water Resources Management in Agriculture. It was established in 1969 with the technical collaboration of University of California, Davis and ICAR and partial financial support from the Ford Foundation. The Centre has evolved into a unique institution, addressing a wide range of activities centering around water management at on-farm level, large irrigation commands and watersheds. It renders guidance to farmers, policy makers and administrators at state and national levels on various aspects related to water management. It was the first Centre in the country to undertake the responsibility of training senior, middle and junior level administrative and technical personnel of Command Area Development Authorities and Irrigation Departments, Central Water Commission, Agricultural Universities, State Soil and Water Conservation Departments and sponsored candidates from foreign countries on interdisciplinary aspects of water management through an innovative range of training programmes of 3 days to 6 months duration. The Centre has been recognized as one of the "Centers of Excellence" in **Water Management** by the Directorate of Extension, Department of Agriculture and Cooperation, Ministry of Agriculture, Govt. of India.

IARI is located about 8 km west of New Delhi railway station and 10 km from the Inter-State Bus Terminal. The weather in Delhi during October remains to be comfortable, with a maximum temperature of 27-30°C and minimum temperature of 20-23°C.

Who can participate?

This programme is open for young and active academicians not below the rank of Assistant Professor / Scientist having a minimum of 2 years research / teaching experience in SAUs and CAUs'/ICAR Institutes in the field of Agricultural Engineering with specialization in SWCE related fields/ Soil Science/ Agricultural Physics Agronomy/ Environmental Science or any other related discipline having experience in use of geospatial tools. The applicant should normally be less than 45 years of age. The total number of participants shall be limited to 25.

Application form for Participation in Summer School on Application of Geospatial Tools and Modelling Techniques in Integrated Water Resources Management (October 6-26, 2009)

Venue: WTC, IARI, Pusa Campus, New Delhi -110012

1. Full name (in block letters):
2. Designation:
3. Present employer and address:
4. Address for correspondence (Give E-mail, Tel. / Mobile No.):
5. Permanent address:
6. Date of birth:
7. Sex: Male/Female
8. Marital status: Married/unmarried
9. (a) Teaching/research/professional experience (Mention posts held in last 5 years):
(b) Present area of research and no. of publications:
10. Mention if you have participated in any Summer/ Winter School/Short Course etc. during previous years under ICAR / any other organization (Give details of course, organizers, duration/dates/year etc.):
11. Registration fee of Rs. 50/- (DD/Postal Order No..... dated..... (in favour of Course Director) (Non-refundable):
12. Academic record (Indicate in tabular form examinations passed from B.Sc. degree onwards, Main subjects, Year of passing, Class / rank / distinction, University / Institution, Other information including certificate, degree & diploma):

13. Relevance of training to applicant's present academic and research activities:
14. Signature of applicant (indicate name of place and date):
15. Recommendation of the forwarding Institute (Signature with date, designation / address):

CERTIFICATE

It is certified that the above information was furnished as per the office record and was found correct.
(Signature and Designation of the sponsoring authority)

How to apply?

Application for participation in the Summer School may be made in the prescribed format as given herewith and forwarded by the competent authority of the SAU/ICAR Institute where the candidate is presently employed. Applicants may send an advance copy if they anticipate delay in forwarding through proper channel. However, the final selection will be made only if the application is duly recommended by the competent authority and received within one week after the closing date. **The closing date for receipt of applications is 21.9.2009. The selected candidates will be intimated by 28.9.2009.**

After the candidates are intimated of their selection, they should immediately reply with firm acceptance. Cancellation at the last moment for casual reasons after acceptance will be regarded as a serious breach of ethical conduct since it may deprive other eager candidates who could have availed the opportunity.

Applications may be sent to:

**Dr. A. Sarangi
Senior Scientist and course Director,
Water Technology Centre,
Indian Agricultural Research Institute (IARI),
New Delhi 110 012**

E-mail: ads_wtc@rediffmail.com;
(or) arjamadutta.sarangi@mail.mcgill.ca
Telephone No.: 011-25846790(O)
Fax: 011-25482494
Mobile: 09811400885

For further details about the Summer School, contact Dr A. Sarangi through E-mail/phone/Fax.