CLIMARICE II: SWAT modelling and online database creation

Introductory GIS workshop
May 4-6, 2011
Tamil Nadu Agricultural University, Coimbatore

Summary of the workshop

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As part of the CLIMARICE II project, the second capacity building workshop on Introductory GIS was held from May 4- 6, 2011, at the Tamil Nadu Agricultural University (TNAU) campus, Coimbatore. Twenty four engineers and research associates from various institutes and Government departments participated in this workshop. The participants came from the following six organizations:

1. Tamil Nadu Agricultural University, Coimbatore
2. Water Resources Organization, Public Works Department (PWD) of Trichy and Thanjavur
3. International Water Management Institute (IWMI), Hyderabad
4. Water and Land Management Training and Research Institute (WALAMTARI), Hyderabad
5. Command Area Development Authority (CADA), Rajamundry and Hyderabad
6. National Institute for Rural Development, Hyderabad

The following indicate the technical program covered during the three days of workshop:

Day 1	Day 2	Day 3
Forenoon: Overview of Input datasets needed by SWAT Projection, Datum and Coordinate system Appropriate projection transformations for hydrologic modelling Map making Hands-on exercises Afternoon: Image registration Image mosaicing Digitizing and Attributing (Creating and editing Vector data) Hands-on exercises	Forenoon: Geoprocessing Tools (Vector) Spatial Analyst tools (Raster) Hands-on Exercises Afternoon: Hydrology tools, Watershed Delineation Hands-on exercises	Forenoon: Preparation of DEM, landuse and soil data for SWAT Preparation of weather input for SWAT Preparation of other Miscellaneous data for SWAT Hands-on exercises Afternoon: A quick set-up of the SWAT model using the developed dataset

The workshop was mostly hands-on and was conducted at the Computing Facility of the GIS and Remote sensing department of the Directorate of Natural resources, TNAU.

During the first SWAT workshop in December, 2010, it was felt that the participants do not have a sound knowledge in GIS and lack familiarity with ArcGIS. Hence, it was decided to organize an introductory workshop in GIS with a focus on strengthening the fundamental concepts and familiarize the participants with the ArcGIS interface. Participants were given hands-on training in ArcGIS using the example dataset of Bhavani Basin of Cauvery, one of the watersheds focussed on the CLIMARICE project.

On Day 1, an introduction was given to what is GIS and the data models of GIS. The fundamentals of how the three dimensional object gets represented in a two dimensional map was demonstrated with hands-on exercises. The importance of choosing the correct map projection for hydrologic modelling was impressed upon the participants.

On Day 2, an introduction was given to image registration. The soil map sheets of Tamil Nadu were used to demonstrate image registration and digitizing. The importance of using topology tools for developing a seamless set of soil polygons was demonstrated with hands-on exercises. The participants gained good familiarity of digitizing and attributing. Some of the basic geoprocessing and spatial analysis operations were demonstrated to the participants.

On Day 3, the participants were given a hands-on exercise of watershed delineation using digital elevation model. The participants were also introduced to pedo-transfer functions for deriving soil properties needed by SWAT based on soil textural information. The digital elevation model, landuse, soil data were prepared in the needed format by SWAT. A quick demonstration was given on using these developed dataset with the ArcSWAT interface.

The professor and head in-charge, Agro Climate Research Centre, TNAU distributed the certificates to the participants.

Follow-up action:

Before the next advanced level workshop, the participants are requested to organize the datasets for their respective watersheds. The participants were clearly told that during the next workshop no demonstration dataset will be given to them and we want only participants who are serious in taking the training to the next level.