Biodiversity-2013

OMICS Group Conferences
Accelerating Scientific Discovery

2nd International Conference on
Biodiversity & Sustainable Energy Development

August 12-14 2013 Raleigh, North Carolina, USA

Using Geographical Information Systems (GIS) and Remote Sensing (RS) in watershed management studies in Turkey

Aysegul Tanik

Istanbul Technical University, Turkey

Abstract

In parallel to the advances in computer technologies, application of modern technologies of GIS and RS has accelerated after 2000's. Such studies require expert teams of interdisciplinary basis. Environmental and geomatic (geodesy and photogrammetry) engineers usually form the core members of such teams aiming environmental protection at watershed basis. Watersheds are so far known as the most logical scales to conduct integrated management of land and water resources. The key idea of similar efforts is to form a balance between "*utilization and protection*". The use of tools like GIS and RS in watershed studies enables to conduct the studies in a shorter period of time. Land-use detection and planning are the essential steps to be considered in keeping the environmental balance. Such detections are done through the classification of satellite images by means of RS technology. Data storage, manipulation and querying are done through GIS technology. Thus, maps of different thematic layers are produced to illustrate the findings especially to the decision makers and to conduct various watershed-scaled modeling and management studies.

In this study, five of the recent studies conducted by the joint efforts of experts in ITU-Turkey will be briefly described to give information on the different types of integrated and interdisciplinary studies as examples from a developing country.

- Land-use Change Detection in Istanbul Megacity from 1940s to 2000 (International-EU supported, 2005)
- Greater Istanbul Water Supply Project - B.Melen Watershed Integrated Protection and Water Management Master Plan (National-International, 2007-2008)
- Testing of Methodology on Spatial Planning for Integrated Coastal Zone Management ICZM (UNEP, 2007)
- Analysis of General Characteristics of the Filyos Watershed by means of Digital Elevation Model and Remote Sensing Data (TUBITAK- The Scientific and Technological Research Council of Turkey, 2005-2007)
- Analysis of Urban Environments using V-I-S (Vegetation-Impervious Surface-Soil) Components Model (National, 2010-2012)

Biography

Aysegul Tanik is a Full Professor at Istanbul Technical University in Turkey. She obtained her B.Sc. degree in Chemical Engineering (1981), M.Sc. Degree (1984) in Environmental Engineering from Bogazici University. Her Ph.D. is in Environmental Engineering (1991) and she got her degree from ITU where she has been a member of teaching staff since 1992. She has become Full Professor in 2002. Her current fields of interest are; determination and management of diffuse sources of pollutants, water quality management, water quality modeling, and integrated watershed management. She has 60 papers appearing in SCI journals and more than 50 papers in the selected international proceedings.