

Information Scientist needs for Environmental Modeling and Understanding

Virach Sornlertlamvanich and Thatsanee Charoenporn
National Electronics and Computer Technology Center
112 Phaholyothin Road, Klong Nueng, Klong Luang, Pathumthani 12120
virach.sornlertlamvanich@nectec.or.th, thatsanee.charoenporn@nectec.or.th

Abstract

It is truly said that we are living in the midst of information. In our daily life, it is reported that in 2012 Facebook has over 1 billion active users; Twitter hits 140 million active users and 340 million tweets per day; Youtube reaches 4 billion video views per day; 95 percent of companies that find and attract employees using LinkedIn; Flickr hosts more than 6 billion photos. These numbers still keep growing and there is no sign of declining at all. Accordingly, the technologies for real-time communication and big data manipulation are gradually established. In the environmental viewpoint, these technologies are essential for environmental modeling and understanding. It is not over state that the scale of disaster nowadays is unexpectedly huge and a widely effect, such as the 2004 Indian Ocean earthquake that caused Tsunami to hit countries in South and South-East Asia across the Indian Ocean to the eastern coast of Africa. Environmental scientists are working hard to understand the causal process by expecting that one day they can prevent or avoid the damage. To do that, they need to be an information scientist to collect the scientific information for modeling and understanding the change of the environment. Many types of information are collected and studied in this couple of years.

1. Water levels in the river and canals in the target area are measured by sensors.
2. Sensors are installed in a coral reef of Racha Yai Island near Phuket. Water conductivity, temperature and depth data are recorded.
3. Data of rainfall quantity, temperature, and humidity in the mountainous area of Mae Hong Son and Chiang Mai provinces are transmitted via GPRS timely to the server for landslide prediction.
4. Environmental cultural data are reported from provinces and school communities of border petrol police.

Utilizing the accumulated data, several topics have been selected for raising information scientists to invigorate the work on environmental issues.

1. Environmental Monitoring System (temperature, humidity, and rainfall quantity)
2. GPS-based Traffic Information Analysis & Data Mining for Urban Environment (urban taxi GPS information)
3. Underwater Environmental Monitoring and Analysis System (water conductivity, temperature, and depth)
4. Cultural Tourism with Spatial-Temporal Computing (urban taxi GPS information, Environmental cultural information)

In practice, it is crucial to understand both of the nature of the data and the interpretation methodology. The environmental scientists need to be equipped with the skill of information science and the vice versa.