

1.Outline

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1. Outline

■ The EMEA Project

The Environmental Monitoring in East Asia (EMEA) Project has been designed to promote cooperation in vegetation research with a particular focus on the remote sensing and field research. Originally the project was launched in April 1999 and it lasted for 3 years. The second stage of the EMEA project started in April 2002 and it will last for 4 years. This project is supported by Grants-in-Aid for International Scientific Research Program of the Japanese Ministry of Education, Science, Sports and Culture.

◆ Main Objectives

Forests play an important role in keeping environmental conditions suitable for life on earth. Even though vegetation varies largely in spatial and temporal scales, there are signs of rapid degradation in East Asia due to human activities and environmental effects. Quantitative information on vegetation coverage is important for global-change research. For monitoring forests consistently and repeatedly over large areas, it is desirable to use remote sensing data and automated analysis techniques. Several types of remote sensing data have been used to detect, identify, classify, evaluate and measure various forest cover types and their changes. While remote sensing imagery is a useful tool for obtaining an overall view of forests, there are problems in methodology and accuracy to overcome for the technique to be utilized successfully. Therefore, it is emphasized that field surveys remain essential in the use of remote sensing imagery.

The EMEA project is designed on the basis of cooperative interaction among foresters, hydrologists and remote sensing scientists, wishing to join their expertise to a common task for the environmental monitoring in East Asia.

The proposed main objectives are:

- ◇ evaluation of the capabilities of current instruments and methods to monitor vegetation;
- ◇ synchronous acquisition and comparison of satellite, aerial and ground data;
- ◇ improvement of the processing methods for remote sensing data including sensor calibration, atmospheric and geometric correction;
- ◇ development of image processing methods in combination with radiation and sensor models;
- ◇ creation of a chemical-physical-biophysical model to understand and predict vegetation change in East Asia.

◆Experiment Design

To achieve the project goal, an experiment is designed to determine the relationship between ground data and the estimate from satellite data. First, the ground data will be collected. Next, a model will be constructed to estimate vegetation coverage from the satellite data. After the determination of the relationship between the ground data and the estimates, this model will be applied to wide areas of East Asia. Finally, predictive models of future vegetation changes in East Asia will be developed.

