

# Field survey of EMEA project in Inner-Mongolia: Synchronous data acquisition of vegetation reflectance using different devices

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## **Field survey of EMEA project in Inner-Mongolia: Synchronous data acquisition of vegetation reflectance using different devices**

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One of the major purpose of EMEA project is to understand and predict vegetation change in East Asia. According to this purpose, in the late May 2000, four Japanese members of the EMEA project, joined by two Chinese members, visited Hailar City, the capital of the Hulunboir League of China's Inner-Mongolia Autonomous Region. Situated at the converging point of the Greater Hinggan Mountains and the Mongolian highland, the Hailar City is surrounded by hills on three sides. The Yumin River and the Hailar River flow across the vast Hulunboir prairie at the foot of the magnificent Hinggan mountains. Although riparian forests spread along rivers and many mono-cultural plantations such as poplar, birch, pine, and larch are scattered in the area more east than Hailar, the vegetation are relatively simple changing gradually from desert to step, step to grassland, grassland to forest along with the precipitation gradient from west to east. We selected this Hulunboir area as one of the major model area to conduct our research subjected as follows:

1. Evaluation of the capabilities of current instruments and methods to monitor vegetation.
2. Synchronous acquisition and comparison of satellite, aerial and ground data.
3. Improvement of the processing methods for remote sensing data including sensor calibration.
4. Development of image processing methods in combination with radiation and sensor models.
5. Creation of a chemical-physical-biophysical model to understand and predict vegetation change in East Asia.

This year we selected two different types of vegetation. Using spectrometer, digital video camera, and an infrared CCD camera, reflectance of the major plant species was measured from different orders of distance (0.1 m, 1 m, 100 m, and 1000 m).



Photo 1 Members of EMEA Project in front of the building of remote sensing division, Chinese Academy of Forestry.



Photo 2 Members of EMEA Project in front of Hulunboir Hotel.



Photo 3 Birch plantation in the grassland area, east of Hailar.



Photo 4 Grassland in east of Hailar.



Photo 5 Pine plantation in the grassland area, east of Hailar.



Photo 6 Simultaneous data acquisition using a spectrometer, an infrared CCD camera, and a digital camera.



Photo 7 Greater Hinggan Mountains.



Photo 8 Investigation of the vegetation reflectance using a spectrometer in a grassland, west of Hailar (Mamoru KUBO).



Photo 9 Eating Mongolian food at the restaurant in Hailar City (Naoto KAMATA).



Photo 10 City of Hailar.