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# GLOBAL ENVIRONMENT MONITORING FROM SPACE AN INTEGRATED APPROACH USING REMOTE SENSING

JOJI IISAKA AND D.G. GOODENOUGH

Canada Centre for Remote Sensing  
Ottawa, CANADA

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## ABSTRACT

World population is increasing very rapidly, which is one of the major world concerns facing the 21st century. Some developing countries, such as Ethiopia, already have a serious deficit in food supplies, and countries which have surplus food to export are decreasing in number. Potential areas for new agriculture development are also being used for other uses. In addition, changes in the ratio of forest area to agricultural area affects the Heat-Balance between ground and air, and eventually local climate will be affected.

Other industrial developments have been reported on that have various direct or indirect impacts on the global environment. However, few efforts have been made to investigate the spatial-temporal association of various planetary phenomena. Most terrestrial phenomena have been investigated independently. For instance, global vegetation has usually been interpreted independently of the global sea surface temperature distribution.

On the other hand, evidence is accumulating that some environmental phenomena are highly associated with each other in terms of various time and spatial scales. El nino is one typical example, another is the coupling between the angular rotation of the earth, atmospheric circulation, and patterns of reductions in crop yield. We suspect there are other important planetary relationships not yet discovered.

It is well known that remote sensing technologies provide a wide variety of information of the earth with various time and spatial resolutions using primarily the spectral reflectance properties of the surface. By applying image analysis techniques, one can obtain information on the types of ground cover, its distribution, and its vigor. Using temporal data sets, we can detect surface changes.

However, in order to understand deeply the phenomena which govern the global environments and their associations, the observed data should be interpreted more in physical, chemical and biological terms as well as ground cover types. How much is the energy transfer from an ice covered sea to the atmosphere? What is the effect of ice cover changes on the agricultural climate? Examples of such questions are: In order to obtain this information, various methods of data analysis and communication technologies should be integrated to other disciplines - specific knowledge.

Here we will discuss some results of global vegetation change analysis and some approaches to perform global environmental monitoring from space.