

“INFORMATION COMMONS” FOR A SUSTAINABLE SOCIETY BASED ON SATELLITE REMOTE SENSING AND NUMERICAL MODELLING

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ABSTRACT:

We are now facing a grand challenge whether we can establish a new paradigm such as a “Sustainable Society” or we go back to the old paradigm such as mass production, mass consumption and mass disposal in the 20th century. When we review the 20th century in retrospect, we can conclude that the 20th century was an age of explosion and wars, and a human society has confronted to a limitation of the environmental capacity. It is obvious that we should realize the Sustainable Society in the 21st century.

At present, besides the Earth environmental issue there exist many issues such as poverty, economical depression, unemployment and so on. When we take an action towards these issues, comprehensive solution to these issues is indispensable. Our environment consists of three major sub-systems, such as a natural-system, a socio-economic system and a human system, which are interacting each other and mutually well balanced. I think that the Earth environmental issues are due to an imbalance between these subsystems. For example, the global warming issue is resulted from an imbalance between the natural system and the socio-economic system. Similarly, materials and artifact issues and co-existing with the natural eco-system should be considered. Then, IR3S/TIGS has proposed the integration of the low-carbon society, material circulating society and nature-friendly society.

Then, what is a problem? One important reason is that the Earth is the only one, but our societies are not. We are divided into nation states and political and diplomatic decisions should be made through an agreement of nation states. However, interests and concerns of each nation state is different and in general it is very much difficult to achieve an agreement.

In order to achieve this agreement, we have to integrate our different thought, and share the common feeling and perception. How can we achieve this goal? We should stand on the same forum (ring), in other words, we have to build an “Information Commons”, where every people in the world can access and obtain data about the knowledge about the past, present and future status of the Earth. For this, Earth Observation, especially remote-sensing from space is very useful to this purpose, because remoteness means that we can stand away from the reality and take a bird’s eye view

However, each piece-wise information is useless for getting an action. When we take an action, we need an entire view. In other words, we need the global view as well as a local view. Then, an important tool for integration is a numerical modeling. Due to an advance of computer technology, capacity of numerical modeling has grown up dramatically. It is obvious that satellite remote sensing and numerical modeling are the main components of the future Information commons, where dissemination and utilization of information should be investigated.