

Data Acquisition from Remote Sensing Satellites and its Applications

Dr.A.N.Satyanarayana^a B.Chandrasekhara Rao^b and G.Uma Devi^c

^aHead Antenna Systems Maintenance Division, ^bGroup Director, NRSC,

^c Dy. Director, SDR&ISA

National Remote Sensing Centre, Indian Space Research Organisation, Department of Space, Govt. Of India

Email: satyanarayana_an@nrsr.gov.in, and ans_1010@yahoo.com

ABSTRACT:

The varied advantages of satellite remote sensing in effectively harnessing the available natural resources potential have been successfully utilized in many parts of the world. The unique capability of space based sensors to provide a wide range of information available in electromagnetic spectrum, in a synoptic and more frequent manner, has made this technology an inevitable tool in the sustainable development and utilization of our natural resources.

Indian remote sensing programme: The growth towards excellence In India, development of satellite platforms for acquisition of remotely sensed data began with the Bhaskara mission of late seventies. The Bhaskara programmes provided valuable experience and insight in to number of aspects such as sensor system definition and development, conceptualization and implementation of a space platform, ground based data reception and processing, data interpretation and utilization as well as issues related to the integration of remotely sensed data with conventional data systems for resource management. Subsequently, a series of IRS satellites were launched from 1988 onwards. The Data Reception system at Shadnagar, receives the data transmitted in X-band frequency range. Commensurate with the developments in satellite technology and data availability considerable progress has been made towards effective utilization of the available data for various applications .Since the days of macro level assessment of coconut wilt disease using Hasselblad camera, remote sensing applications have come a long way in our efforts towards sustainable resource management .Today this technology has been operationalized to cover diverse themes /areas such as forestry ,agricultural crop acreage and yield estimation , drought monitoring and mitigation , flood monitoring and damage assessment , land use /cover studies , wasteland identification and reclamation , water resources development and management , groundwater targeting , marine resources survey , urban planning , mineral prospecting , environmental impact assessment and so on-thus encompassing almost every facet of sustainable resource development and management.

Remote sensing data provides much essential and critical information for monitoring many applications such as image fusion, change detection, and land cover classification. Remote sensing is an important technique to obtain information relating to the Earth's resources and environment. What popularized satellite data are the easily accessed online mapping applications like BHUVAN. From being simply able to find "where is my house" these applications have helped the GIS community in project planning, monitoring disasters and natural calamities, and guiding civil defence people. ISRO's BHUVAN (www.bhuvan.nrsc.gov.in) is a well known national geo-portal, which is being widely, used by the Government, public, NGOs and Academia. Bhuvan is developed with a clear focus of addressing Indian requirements of satellite Images and theme-oriented services to enable planning, monitoring and evaluation of stakeholder's activities in governance and development.

The feature of near real time looking to build cooperative framework with government offices, researchers and experts in order to promote the effective use of satellite data management, for resources and environmental monitoring such as climatic studies, drought/flood monitoring, disaster mitigation, agricultural and ocean environment applications, etc. All these data is taken from the Remote sensing satellites of Cartography application series Satellites, which are being tracked and data ingested disseminated from IMGEOs, NRSC Ground Station. The acquisition challenges and data ingest process will be discussed in this paper.

KEY WORDS: IMGEOs: Integrated Multi mission Ground Station For Earth Observation Satellites, BHUVAN: Is a well known national geo-portal, Antenna Systems, Tracking Systems, SERVO, RF Systems

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