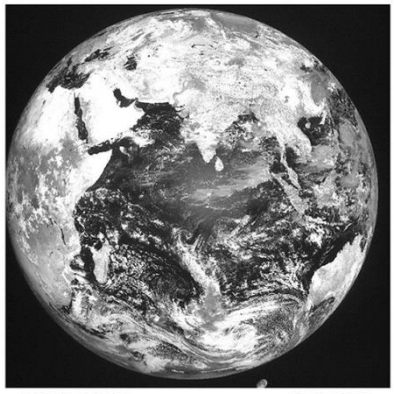
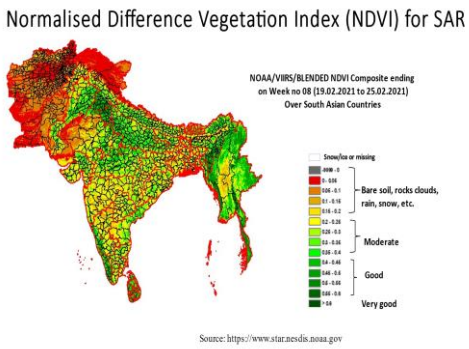
Remote Sensing

INSAT-3DR





At present the data generated from geostationary and polar orbiting satellite. Polar orbiting satellite is used for primarily crop discrimination, crop acreage etc. and geostationary satellite generate meteorological products and also products for agricultural sectors. Manual interventation & automation required to generate quality information and made useful for preparation of agromet advisories. NDVI data from INSAT CACCD is used for preparation of agromet advisories. At present number of products like maximum and minimum LST, NDVI, predicted NDVI, surface soil moisture is available. These products could be used for irrigation advisories, forewarning of pests & diseases incidences. INSAT coverage is all over South Asia. Govt of India's has encouraging policy on sharing data with the neighbouring coutries. However, validation of the products from INSAT 3D & INSAT 3R for use to reduce the error for effective use.

There is a large gap, need in the area of application of satellite and satellite derived information in agriculture. At this stage there is need to develop the strategies and road map to use the satellite product in agriculture in SAR looking at the priority. First priority would be what we can launch immediately considering the different level of use of remote sensing in the respective country followed by the capability to use remote sensing products and the remote sensing products skill level. Initially i.e., in phase 1. identify the remote sensing products/data which are globally and freely available and can be shared with SAR. It is required to prepare the list of the products and concurrently put and display in proposed web portal of SAFOAM and then it would be recognised worldwide. Add value in phase two and three. In phase two, enhancement of capacity building programme would be taken up. In phase three, research work as might be taken up. Paddy is a good suggestion for working with remote sensing data in SAR initially. The proposed priority works, challenges and ultimately the road map and works would be taken up at different stages of SAFOAM activities.

Today it is possible to use the high-resolution space products after proper massaging with the ground observations. Under this forum, one of the important tasks would be to generate products for entire South Asia and place in seamless digital platform to prepare agromet advisories and corresponding AAS bulletins. There are three challenges on the use of remote sensing products in agriculture. These are (i) identify and enlist the remote sensing products, (ii) preparation of quality of products using different techniques and using ground truth, (iii) establish the mechanism for hand holding to the user community to use these products for preparation of more robust agromet advisory bulletins. The satellite products may be generated daily, weekly and also other temporal scale as per the need of the user community. In addition to the products like NDVI, VCI, TCI, PET, Insolation, soil moisture information from SMAP could also be included along with MODIS, NOAA, AWIFs data and other data at high resolution scale may also be taken into consideration for development and display under SAFOAM initiative. More challenges would be on the development of institutional mechanism

along with good Standard Operating Procedure (SOP). for process-based simulation of remote sensing products. That a proper mechanism would be worked out how training programme for the representatives of SAR could be organised shortly without much hindrance involving SAC, IMD and other organisations. There is need to develop common strategy on availability of satellite data and also as far the requirement of advisory, a few indicators may be chosen to begin with.to take up and focus on some common products available and which can serve the farmers requirement in SAR.

INSAT products are freely available to research purpose and consumption by the public organisation also. The irrigation advisories taking consideration of satellite information to replace supply-based irrigation to demand based irrigation as more than 50 per cent water could be saved by this approach. demand-based irrigation advisories based on graphical interface technique, generalised crop coefficient, local information and development of Apps connected to server. There is potential of satellite information in forewarning of pest and disease incidence by citing some experiments she carried out some field experiments using reflectance data from handhold instruments and also such methodology might be applied to control fall armyworm incidence in maize crop. more on the operational aspects with the readily available information followed by display in appropriate platform and capacity building.

Satellite information might be very useful on preparation of fodder map and type of fodder map especially green fodder assessment. This would help in livestock management involving logistic also. Besides, utilisation of satellite information on pasture, dairy, forestry etc would be explored. This subject would be as one of the important activities of SAFOAM.as the subject is interesting and emerging in South Asia. The weather insurance supported by the remote sensing data and yield forecasting using weather and satellite information would be useful in SAR.

Request would be made to the representatives in SAR to send their requirements in respect of present status of remote sensing data, access of remote sensing data, capability of use the data, training requirements, success stories etc. Some of the recommendation on application of remote sensing on operational agrometeorology are as follows

1. *identification of the common & skilful satellite products/indicators, which have proper value and usages in agriculture would be made in South Asia.*
2. *Display of all the products/indicators in South Asia would be made on digital platform.*
3. *Mechanism would be developed to get access the satellite products/indicators by all the countries in South Asia obliging the data policy among different member countries.*
4. *Promotion of exchange programme on Research and Development especially on irrigation advisory, forewarning of pest and disease, crop yield forecast, weather-based insurance etc.*
5. *Explore to prepare fodder map, types of fodder map for green fodder assessment utilising the satellite information. Usability of satellite information in dairy, pasture, forestry sectors also may be ventured.*
6. *Documentation of satellite product catalogue, sources, links, data policies.*
7. *Identify high, moderate and low priority implementable work elements.*
8. *Formulate strategy and mechanism for training and student exchange.*
9. *Sharing of methods of quality check of satellite and observational data for its proper use.*
10. *Initiatives on product generation including satellite products for South Asian Region and display in the web portal of SAFOAM.*
11. *As far as application satellite technology is concerned, arrange to provide technical advisory for preparation of good agromet advisory.*
12. *Prepare some proposals in niche areas for international funding.*