

Surface Reflectance Data Product

National **R**emote **S**ensing **C**entre (NRSC) developed Surface Reflectance Data Product using satellite data from Indian Remote Sensing satellites for Indian sub-continent region. Surface Reflectance (SR) or Bottom of Atmosphere (BOA) product is compensated for atmospheric attenuation and is the basic input for retrieval of any biophysical parameter from satellite remote sensing images.

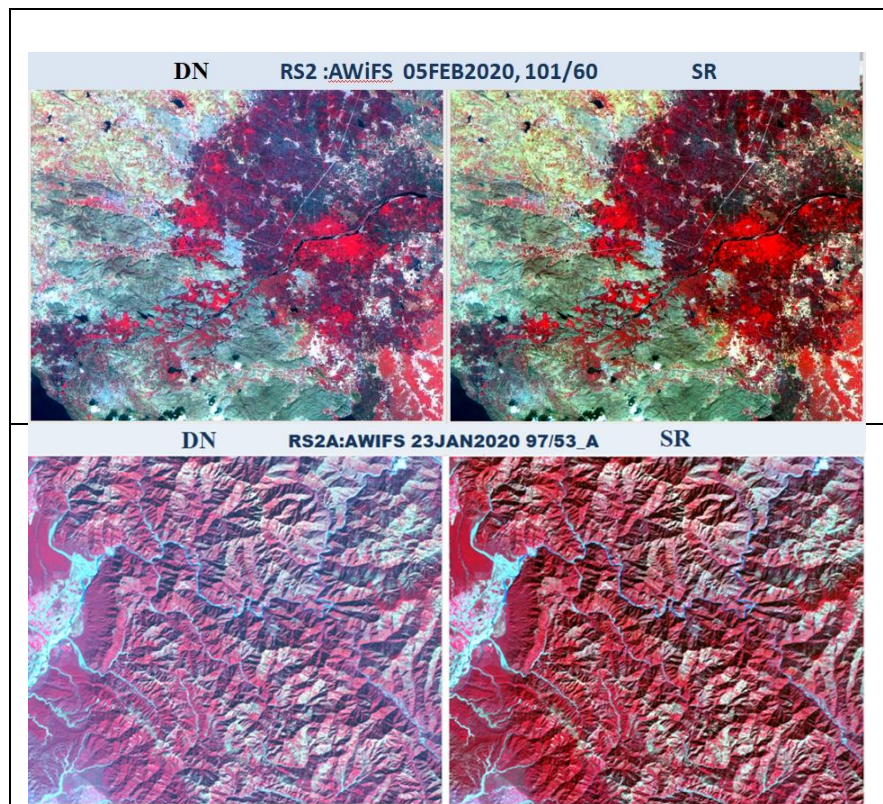
The automated process retrieves the daily atmospheric data viz. Aerosol optical depth (AOD), Water vapor (WV) & ozone from Terra-MODIS level-2 data products over Indian sub-continent and processes and arranges into finer grid. These parameters along with Resourcesat-2A sensor data are processed to derive surface reflectance per pixel for four Electro-Magnetic spectral bands (Green, Red, NIR and SWIR).

Advantages of using SR product

Researchers can use these SR products for improved time series analysis and geo-physical parameter retrieval using satellite data over Indian sub-continent. SR products will help to assess the spectral variability in geo-physical parameters and improves the estimation of these parameters.

- Normalized Difference Vegetation Index (NDVI) derived using SR product, accounts for 20% more dynamic changes in vegetation in comparison to that derived using Top of Atmosphere (TOA) products.
- Frequent SR products are necessary in monitoring spatially dynamic natural phenomena. The SR products can extensively be utilized for information retrieval in the domains of land cover change, agricultural management, disaster response, water spread and vegetation phenology.
- Surface Reflectance is an essential input in developing Analysis Ready Data (ARD) products.

- The SR products can extensively be used for development of energy balance models for various geo-spatial applications.



Science Students can use SR products for developing useful empirical relationship across different parameters in their academic experimental projects. *Industry can develop scientific solutions and services using SR products.*

How to access the SR product ?

SR products from Resourcesat-2A sensors (AWiFS and LISS-3) and Harmonized Surface Reflectance (SR) products from RS-2 can be accessed on ISRO's Bhoonidhi portal as BOA(Bottom of Atmosphere) products from Bhoonidhi portal.

<https://bhoonidhi.nrsc.gov.in>

SR data Product Specifications

Parameter	Specifications
Sensor	AWiFS and LISS-III sensors on board Resourcesat-2 (R2) and Resourcesat-2A (R2A).
Image File Format	GeoTIFF
Projection	LCC for AWiFS and UTM for LISS-III
Datum	WGS-84
Spatial resolution	56m. for AwiFS and 24m. for LISS-III
Radiometric Resolution	16 bits per pixel
Corrections	Terrain Corrected
Data Type	Unsigned 16 bit integer