National Remote Sensing Centre
Indian Space Research Organisation
Dept. of Space, Govt. of India, Balanagar, Hyderabad - 500 037

Shadnagar (Earth Station)
Bengaluru | Jodhpur | Kolkata | Nagpur
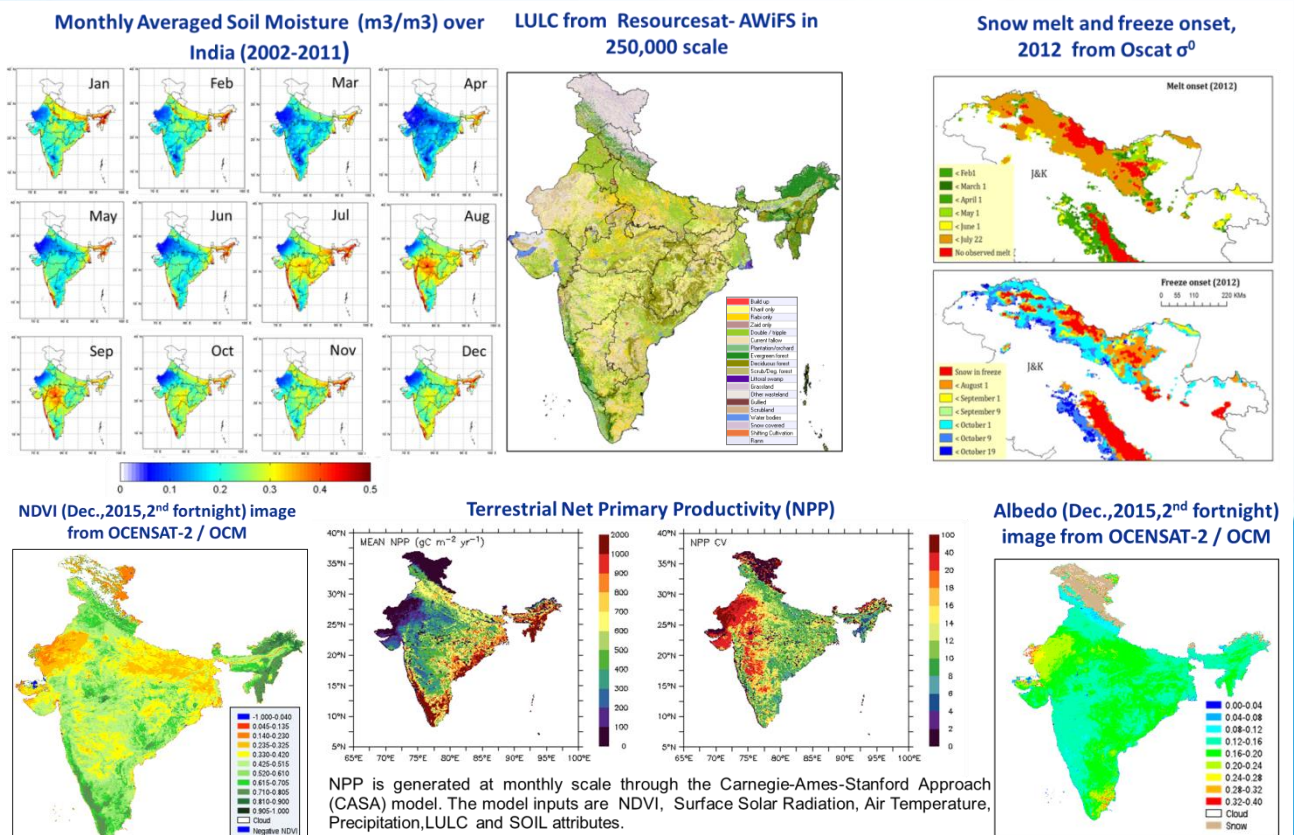
NRSC/ECSA/NICES/01/Feb - 2016

National Information system for Climate and Environment Studies (NICES)

- Established during September 2012 at NRSC, Hyderabad.
- To build long term database on climate variables.
- Promote data dissemination and climate change impact assessment & mitigation.
- NICES is guided by Programme Management Council (PMC), chaired by Director, NRSC. and represented by Members from ISRO/DOS Centres and other Departments.

Terrestrial Products

S.N	Products	Time period	Resolution	Interval
1	Vegetation Parameters: NDVI - LAC & GAC and VF	Jan 2011(LAC) & 2013(GAC), VF :2012- till date	1 km & 8 Km 1 Km	15 day 15 day
2	Mesoscale model compatible LULC at 30 sec, 2 min and 5 min	2004-2013	30 sec, 2 min and 5 min	Yearly
3	Soil Moisture(satellite)	2002 onwards	25 km	2 day
4	Surface water body area and fraction	2013 onwards	1 km	15 day
5	Terrestrial NPP and NEP (modeled)	1981-2006	2 x 2 min	Monthly
6	LULC map 250K	2004 - 2015	56 m	Yearly
7	LULC map 50K	2005-06, 2011-12	23m	5 years
8	Snow cover fraction	2014 onwards	3 x 3 min	15 day
9	Himalaya snow melt and freeze maps	2009-2014	2.225 km	2 day

Monthly Averaged Soil Moisture (m3/m3) over India (2002-2011)

LULC from Resourcesat- AWiFS in 250,000 scale

Snow melt and freeze onset, 2012 from Oscat σ0

NDVI (Dec.,2015,2nd fortnight) image from OCENSAT-2 / OCM

Terrestrial Net Primary Productivity (NPP)

NPP is generated at monthly scale through the Carnegie-Ames-Stanford Approach (CASA) model. The model inputs are NDVI, Surface Solar Radiation, Air Temperature, Precipitation, LULC and SOIL attributes.

Albedo (Dec.,2015,2nd fortnight) image from OCENSAT-2 / OCM

National Information system for Climate and Environment Studies (NICES)

Ocean Products

| S.N	Products	Time period	Resolution	Interval
1	Ocean Heat Content(OHC700)	Jan 2002 – Mar 2015	25 km	Daily
2	Tropical cyclone heat potential (TCHP)	Jan 1998 – Mar 2015	25 km	Daily
3	Ocean Mean Temperature(OMT)-Indian Ocean Region	Jan 1998 – Mar 2015	25 km	Daily
4	Depth of 26⁰C Isotherm	July 2013 –Mar 2015	50 km	Daily
5	Ocean Surface Winds ,Wind stress and Curl(Regional & Global)	Jan 2010 - Dec 2013	50 km	Daily/2 day
6	Ocean Surface currents-North Indian Ocean (NIO)	March 2013 – Feb 2014	25 km	Daily

Ocean Heat Content (OHC) at depths of 50 to 700 m, Tropical Cyclone Heat Potential (TCHP) with reference to 26°C isotherm (estimated in Watts/m2) along with Ocean Mean Temperature (OMT) in ^{o}C are generated at NRSC on daily basis in near real-time mode to support user activities on cyclone track prediction and intensity assessment studies, air-sea fluxes and climate change analysis.
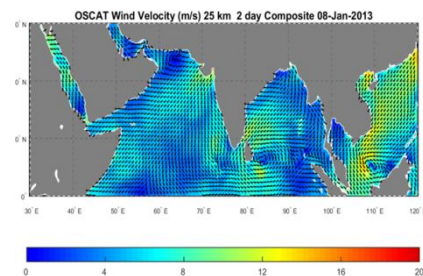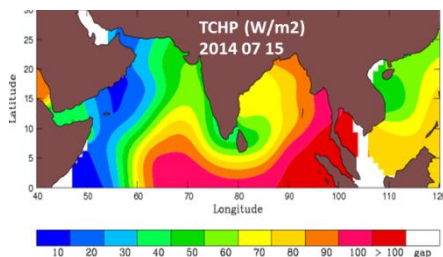

Ocean Surface Currents have been estimated from OSCAT wind and SARAL AltiKa SSHA products to support the ocean dynamic studies in the north Indian Ocean.

Ocean Surface Currents in the Indian Ocean is generated by combining winds from Oceansat-II, SSH from Altimeters (AVISO), and SST from AVHRR in a simplified diagnostic model
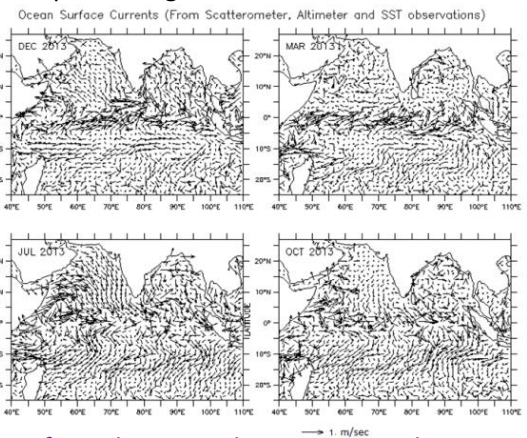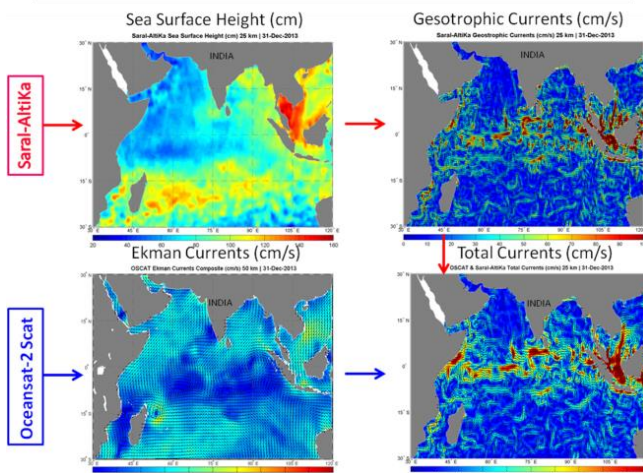
Sea Surface pressure fields are estimated using University of Washington Planetary Boundary Layer model with Scatterometer along swath winds. Daily global surface pressure fields are generated with along swath pressure fields using data interpolating Variational analysis tool.
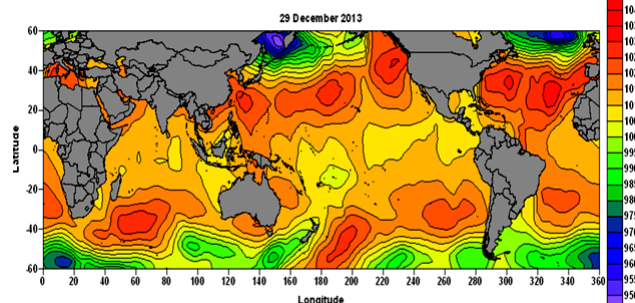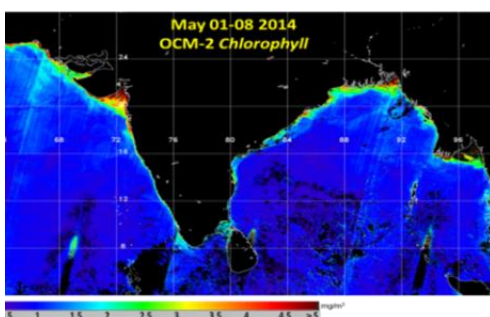

Daily Surface pressure fields on 29 Dec,2013 estimated from Oceansat-II Scatterometer winds

## National Information system for Climate and Environment Studies (NICES)

Atmospheric Products

S.N	Products	Time period	Resolution	Interval
1	Tropospheric Ozone	2009 - 2014	1°	Daily
2	GPS RO gridded temperature & humidity profiles	April 2006 to Dec 2012	Spatial: 1 x 1° Vertical: 1 km	Seasonal
3	Cloud fraction	June, 2008 onwards	8 km and 25 km	Half hourly
4	Planetary boundary layer height	Sept-2014 to May 2015	25 km	Daily; Monthly

Tropospheric columnar Ozone (DU), (14 Oct,2016) from OMI and MLS
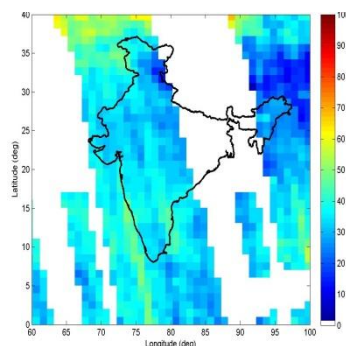
Planetary Boundary Layer Height using SNPP-CrIS Profiles
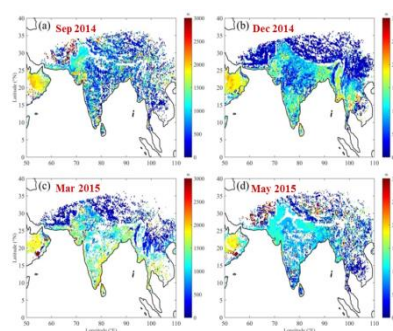
Model derived Products

S.N	Products	Coverage	Time period	Resolution
1	26 Degree Isotherm	30S-30N;30E-120E	July 2013 – March 2015	0.5 x 0.5 °
2	Tropical Cyclone Heat Potential	30S-30N;30E-120E	July 2013 – March 2015	0.5 x 0.5 °
3	Terrestrial Net Primary Productivity (NPP) over India	Indian Region	Jan 1981 - Dec 2006	2 x 2 min; Monthly
4	Net ecosystem productivity (NEP) over India	Indian Region	Jan 1981 - December 2006	2 x 2 min; Monthly
5	Soil Moisture	Indian Region	01 June 2013 - till date; 01 Jan 1976 - 31 Dec 2005	9 x 9 min; Daily
6	Evapotranspiration	Indian Region	01 Jan 1976 - 31 Dec 2005; 01 June 2013 - till date	9 x 9 min ; Daily
7	Runoff	Indian Region	01 Jan 1976 - 31 Dec 2005; 01 June 2013 - till date	9 x 9 min; Daily
8	Amplitude and phase digital maps for major tidal constituents	Entire Indian Coast	Stationary maps	2 x 2 min
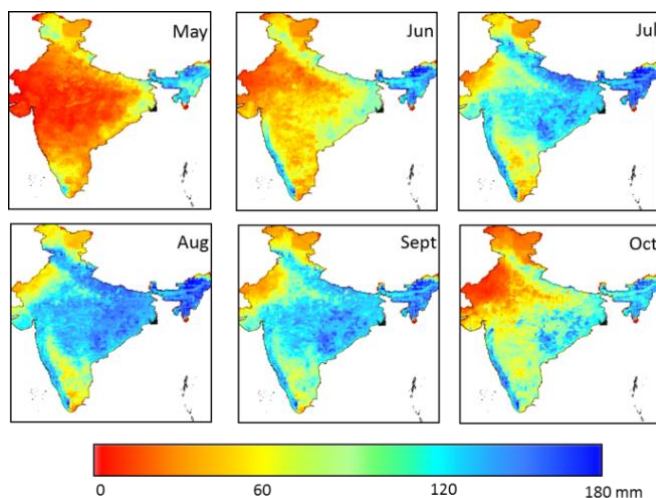
Model computed Evapotranspiration (Version 2.0) using VIC-3L hydrological model

- Geo-spatial data (land use, soil, elevation, crop phenology) and season Meteorological data (Rainfall, Minimum & Maximum Temperature) are inputs for the model computation
- Monthly Evapotranspiration is represented at 9 min (~16.5 km) spatial resolution in mm depth units.

National Information system for Climate and Environment Studies (NICES)

Products in Pipeline

S.N	Products	S.N	Products
1	Forest fraction Cover- 1930,1975 and 2013 – 5km grid	9	Snow cover over India and over Basins (5km grid for Himalayan Basin)
2	Forest type - 5km grid	10	Diffuse attenuation Coefficient (Kd_490) - North Indian Ocean
3	Forest fire frequency	11	TCHP, OHC-700,OMT & D26^{0}C V2.0 with TMI SST replaced by AMSR2 SST
4	Annual crop lands-2005-06 to 2004-15 – Net sown, Kharif, Rabi, Fallow - 5km grid	12	Chlorophyll (OC2 & OC4 Algorithm) - NIO - at 1km 2 day and weekly
5	Land degradation - Water & Wind Erosion, Salt Affected & Water Logging 2005-2006	13	Sea Level Pressure (SLP) – Global
6	Soil data set - Depth , Texture and Carbon	14	Year - end flooded data at 5 km
7	Land Surface Products viz., runoff, precipitation, evapotranspiration , Base flow etc.	15	Planetary boundary layer height
8	AWIFS based Leaf Area Index for crops	16	Cloud mask and fraction

Bhuvan NICES Home Page

The products are made available through NICES portal and the details of NICES Programme, List of Products and Documents are available in NRSC Website which can be accessed using
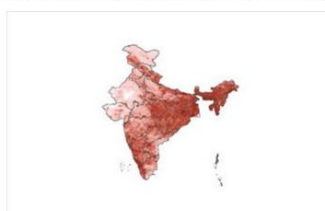**http://nrsc.gov.in/nices2/index.html**

For further details, please contact:
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