Update on OCM on Oceansat-I & Scheduled OCM on Oceansat-II

T. Srinivasa Kumar
Indian National centre for Ocean Information Services, India

IRS-P4 OCM (Ocean Colour Monitor)

- LAUNCH: May 26, 1999 (by PSLV from SHAR, India)
- POLAR SUNSYNCHRONOUS (Alt: 720 km, incl: 98^{o} 28')
- EQUATORIAL CROSSING TIME: 1200 hrs $\pm$10 minutes (descending node)
- ALONG TRACK TILT : $\pm$ 20^{o} (to avoid sun glint)
- GROUND RESOLUTION: 360 m x 236 m
- SWATH : $\pm$ 43° (1,420 km)
- QUANTISATION : 12 bits

OCM payload : Main specifications

Channel (band)	Wave length (nm)	Reference ocean radiance*	Desired SNR	Estimated SNR	Desired $NE_{\Delta}L^*$	Est. $NE_{\Delta}L^*$
C1	404-423	9.1	356	340.5	0.0256	0.0267
C2	431-451	8.4	386	440.7	0.0218	0.0191
C3	475-495	6.6	380	427.6	0.0174	0.0154
C4	501-520	5.6	324	408.8	0.0173	0.0137
C5	547-565	4.6	311	412.2	0.0148	0.0112
C6	660-677	2.5	240	345.6	0.0104	0.0072
C7	749-787	1.6	286	393.7	0.0056	0.0041
C8	847-882	1.1	141	253.6	0.0078	0.0043

* in units of $mW/(cm^2\text{-}sr\text{-}\mu m)$.

OCM data products

Level -1:

Geo & radiometrically corrected radiances for scenes of sizes

(i) ~ 1420 km x 1420 km

(ii) ~ 710 km x 710 km (quadrant products)

(iii) ~ 100 km x 100 km

Level -2:

Standard products over the above scenes of

(i) Chlorophyll

(ii) Suspended sediments

(iii) Yellow substance

(iii) Diffuse attenuation coefficient

(iv) Aerosol optical depth

(v) Normalised water leaving radiances (to be incorporated)

OCM data products (Contd..)

Level -3:

Weekly and monthly averages on a trial basis being generated for

(i) Chlorophyll

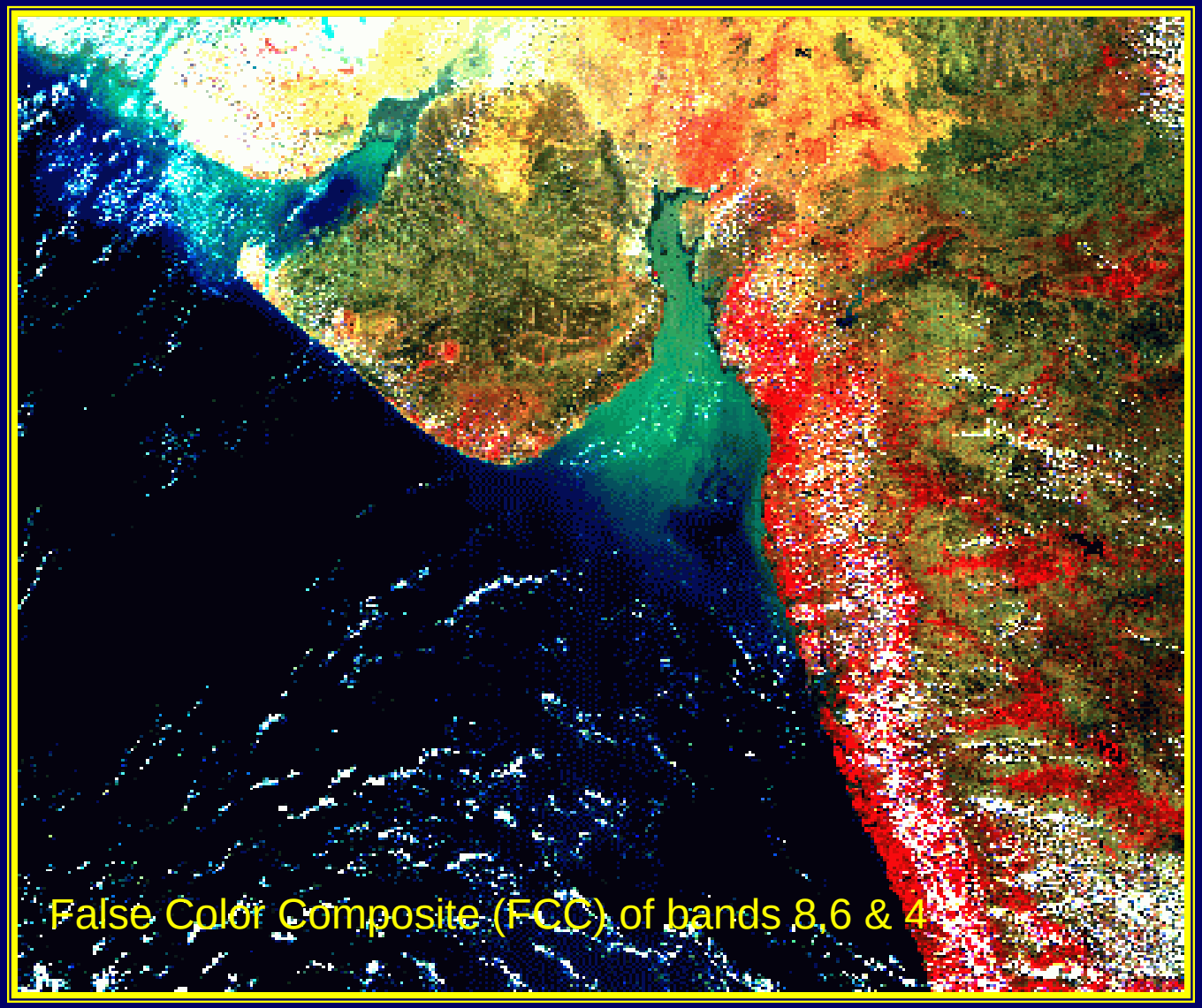
(ii) Suspended

(iii) Diffuse attenuation coefficient

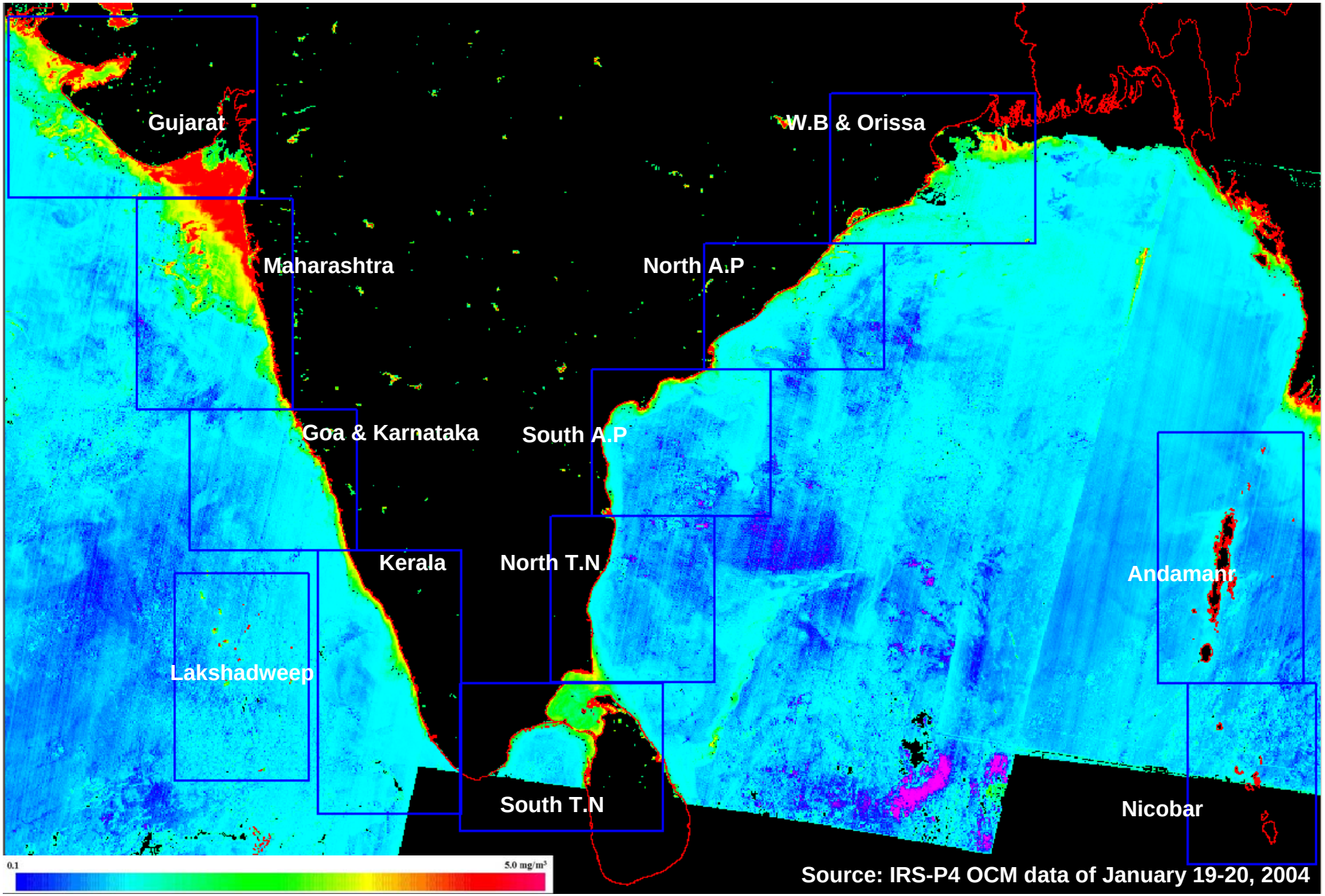
(iv) Aerosol optical depth

- **OCM coverage around India is available for browsing in the NRSA website**
- **Level -1& 2 can be acquired by users directly from NRSA on payment**
- **The processing s/w developed at SAC is distributed to users for a nominal cost**

Standard OCM Data Product



Chlorophyll Concentration



IRS-P4 OCM (Ocean Colour Monitor)

Current Status of the Mission

OCM is functioning normally and data is received at four ground stations (India, Germany, USA, N. Korea).

Oceansat II - OCM

- Will have ocean Colour monitor (OCM) and scatterometer.
- Proposed launch during 2007.
- Spectral bands: 8 bands between 400-900 nm.
- On-board recording for global coverage (1- 4 km).
- Provision of sun and moon calibration to assess stability of sensor performance.
- Sun-synchronous orbit with equatorial crossing at 1200 noon.

Spectral Bands for OCM on Oceansat-II

Bands	Central wavelength (nm)	Bandwidth (nm)	Application
1	402 – 422	20	Yellow substance absorption
2	433 – 453	20	Low chlorophyll-a
3	480 – 500	20	Moderate Chlorophyll-a
4	500 – 520	20	High Chlorophyll-a
5	545 – 565	20	Chlorophyll/sediments
6	610 – 630 (660-677*)	20	Sediments
7	725 – 755 (749-787*)	30-40	Atmospheric correction
8	845 – 885	40	Atmospheric correction

* Values for OCM on Oceansat-1

KU BAND SCATTEROMETER SPECIFICATIONS

PARAMETER	VALUE
Altitude	720 Km
Frequency	13.5156 GHz
Resolution	50 km X 50 km
Polarisation	HH and VV
Antenna	Parabola of 1.0 m Dia
Scanning Rate	20.5 rpm
Data Rate	13.5 Mbit/sec (Raw) 137 Kbit/Sec (Processed)
Pulse Repetetion Frequency	200 Hz (100 Hz each for Inner & outer beams)
Transmit Power	100 W Peak
Swath	1400 km
Wind Speed Range	4 to 24 m/s
Wind Speed Accuracy	2 m/sec or 10% (Whichever is higher)
Wind Direction Accuracy	20 deg RMS

Scheduled launch of Oceansat-II

Early 2008