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Next Generation Sensor for Ocean Color Coverage Ocean Color Instrument



ITT's Ocean Color Instrument (OCI) provides calibrated visible multispectral low earth orbit radiometric data for ocean color applications. High sensitivity measurement of incident light provides a comprehensive view of biological activity in the world's oceans.

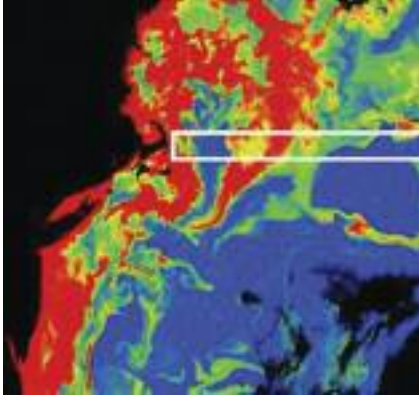
The OCI design provides high sensitivity with low polarization sensitivity and low stray light in a small volume, low cost and high performance package. Spectral bands are specifically tailored to meet ocean biology processing products including color/chlorophyll, littoral sediment, and water-leaving radiance. The OCI provides the latest improvements in resolution, radiometric calibration, and more uniform pixel size variation across the swath. Its simple design incorporates a standalone structure and easily aligned optics to meet tolerances.

The OCI's modular design for simplified integration and test also provides flexibility for future technology upgrades with minimal design impact. The sensor's design allows it to be integrated in a suite of sensors or as a standalone instrument. The OCI is the low risk option for calibrated ocean color data products and capitalizes on ITT's strength in producing operational polar-orbiting instruments.

Key Features

Application	Ocean Color Radiometry
Satellites	NPOESS or compatible satellite
Orbit	Nominally 828 km circular, sun-synchronous
Aperture	12 cm diameter
Spatial Resolution	≤ 0.8 km, at nadir; ≤ 1.3 km, at EOS
Scan Method	WFOV Pushbroom
Detector Cooling	Passive radiator
Detectors	CCD or CMOS linear arrays (depending on program requirements)

Specifications



Simulation of Chlorophyll Concentration Retrieval Algorithm

Imaging Radiometer Instrument

Parameter	Value
Space Envelope	74L X 88H x 80W, cm
Weight	35 kg
Power (Orbit Avg)	5 W
Data Rate	≤ 4Mbps
Design Life	7 years, on-orbit
Mapping Accuracy	≤ 0.8 km
Swath Width	≥ 1700 km
Band-to-band Registration	≥ 64% overlap, imagery channels
Absolute Radiometric Accuracy	≤ 2%
Polarization Sensitivity	≤ 2%
Command/data I/F	1394 firewire via electronics module

Wavelength Band Performance

λ (μm)	SNR	L_{TP} ($\text{W}/\text{m}^2/\text{sr}/\mu\text{m}$)
0.412	352	44.9
0.445	380	40
0.488	416	32
0.555	362	21
0.672	242	10
0.746	199	9.6
0.865	215	6.4

ITT provides a full range of remote sensing and GPS navigation solutions. For further information, contact us at:

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