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**Ocean Optics Protocols For Satellite Ocean Color Sensor
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Protocols and Appendices**

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Appendix A

Characteristics of Satellite Ocean Color Sensors: Past, Present and Future

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This appendix summarizes the essential operational characteristics of ocean color sensors of the past, present and future. Table A.1 lists general characteristics of past and presently operating ocean color sensors, including for each the satellite platform, country and agency, operational time period (actual or planned), orbit characteristics, spatial resolution at nadir, swath width, and tilt capabilities. Table A.2 lists the same information for ocean color sensors currently planned for launch and operation in the future. Table A.3 lists the center wavelength, spectral bandwidth (FWHM) and noise equivalent radiance resolution (NE Δ L) for the ocean color bands of each of the sensors listed in Tables A.1 and A.2. Many of these sensors have additional bands, not listed here, addressing data requirements in terrestrial or atmospheric sciences. The information in these tables was updated from that published in IOCCG (1998). The sensor band data in Table A.3 should be used to expand Table 4.1 when specifying *in situ* instrument characteristics needed to support algorithm development and validation related to any of the other sensors, in addition to SeaWiFS, which fall within the SIMBIOS purview.

REFERENCES

IOCCG 1998: Minimum Requirements for an Operational, Ocean Colour Sensor for the Open Ocean. *Reports of the International Ocean-Colour Coordinating Group, No. 1*. IOCCG, Dartmouth, Canada, 46pp.

Table A1. Characteristics of past and present ocean-color sensors.

Sensor	CZCS	OCTS	POLDER	MOS	SeaWiFS	OCM
Platform	Nimbus-7	ADEOS-1	ADEOS-1	IRS-P3	OrbView-2	IRS-P4
Agency	NASA	NASDA	CNES	DLR	OSC/NASA	ISRO
Country	USA	Japan	France	Germany/India	USA	India
Operation Start	Oct. 1978	Aug. 1996	Aug. 1996	Mar. 1996	Sep. 1997	Nov. 98
Operation End	Jun. 1986	Jun. 1997	Jun. 1997			
Orbital Inclination	99.3	98.6	98.6	98.7	98.2	98.3
Equatorial Crossing Time (h)	12:00	10:41	10:41	10:30	12:00	12:00
Altitude (km)	955	804.6	804.6	817	705	720
Resolution at Nadir (km)	0.825	0.7	6 x 7	0.5	1.1	0.36
Swath (km)	1566	1400	2400	200	2800	1420
Tilt (degrees)	±20	±20	Variable	No	±20	±20
Direct Link	No	UHF/X-band	X-band	S-band	L-band	X-band
Recorded	Yes	X-band	X-band	None	S-band	Yes
Solar Calibration	No	Yes	No	Yes	Yes	Yes
Lunar Calibration	No	No	No	No	Yes	No
Lamp Calibration	Yes	Yes	No	Yes	No	Yes