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## SeaWiFS Technical Report Series

Stanford B. Hooker and  
Elaine R. Firestone, Editors

### Volume 6, SeaWiFS Technical Report Series Cumulative Index: Volumes 1–5

Elaine R. Firestone and Stanford B. Hooker



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## **SeaWiFS Technical Report Series**

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## ABSTRACT

The Sea-viewing Wide Field-of-view Sensor (SeaWiFS) is the follow-on ocean color instrument to the Coastal Zone Color Scanner (CZCS), which ceased operations in 1986, after an eight year mission. SeaWiFS is expected to be launched in August 1993, on the SeaStar satellite, being built by Orbital Sciences Corporation (OSC). The SeaWiFS Project at the NASA/Goddard Space Flight Center (GSFC) has undertaken the responsibility of documenting all aspects of this mission, which is critical to the ocean color and marine science communities. This documentation, entitled the *SeaWiFS Technical Report Series*, is in the form of NASA Technical Memoranda Number 104566. All reports published are volumes within the series. This volume serves as a reference, or guidebook, to the previous five volumes and consists of four main sections including an index to key words and phrases, a list of all references cited, and lists of acronyms and symbols used. It is our intention to publish a summary index of this type after every five volumes in the series. This will cover the topics published in all previous editions of the indices, that is, each new index will include all of the information contained in the preceding indices.

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## 1. INTRODUCTION

This first in a series of indices, published as a separate volume in the SeaWiFS Technical Report Series, covers information found in the following volumes:

- Vol. 1: S.B. Hooker, W.E. Esaias, G.C. Feldman, W.W. Gregg, and C.R. McClain, *An Overview of SeaWiFS and Ocean Color*.
- Vol. 2: W.W. Gregg, *Analysis of Orbit Selection for SeaWiFS: Ascending vs. Descending Node*.
- Vol. 3: C.R. McClain, W.E. Esaias, W. Barnes, B. Guenther, D. Endres, S.B. Hooker, B.G. Mitchell, and R. Barnes, *Calibration and Validation Plan for SeaWiFS*.
- Vol. 4: C.R. McClain, E. Yeh, and G. Fu, *An Analysis of GAC Sampling Algorithms: A Case Study*.
- Vol. 5: J.L. Mueller and R.W. Austin, *Ocean Optics Protocols for SeaWiFS Validation*.

This volume within the series serves as a reference, or guidebook, to the aforementioned volumes and consists of four main sections including a summary index to key words and phrases, a glossary of acronyms, a list of symbols used, and a bibliography of all references cited. Unless indicated otherwise, the index entries refer to some aspect of the SeaWiFS sensor or project, for example, the *mission overview* index entry refers to an overview of the SeaWiFS mission.

The nomenclature of the index is a familiar one, in the sense that it is a sequence of alphabetical entries, but it utilizes a unique format since multiple volumes are involved. An index entry is composed of a keyword followed by an entry field which directs the reader to the possible locations where a discussion of the keyword can be found. The entry field is normally made up of a volume identifier

shown in bold face, followed by a pages identifier, which is always enclosed in parentheses:

keyword, **volume**(pages).

If an entry is the subject of an entire volume, the volume field is shown in slanted type with no page field:

keyword, *Vol. (number)*.

Figures or tables that provide particularly important summary information are also indicated as separate entries in the pages field. In this case, the figure or table number is given with the page number it appears on.

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## GLOSSARY

- ACRIM Active Cavity Radiometer Irradiance Monitor  
 ACS Attitude Control System  
 A/D Analog-to-Digital  
 ADEOS Advanced Earth Observation Satellite (Japanese)  
 ALSCAT ALPHA and Scattering Meter (Note: the symbol  $\alpha$  corresponds to  $c(\lambda)$ , the beam attenuation coefficient, in present usage).  
 AOCI Airborne Ocean Color Imager  
 AOL Airborne Oceanographic Lidar  
 AOS/LOS Acquisition of Signal/Loss of Signal  
 ARGOS Name given to the data collection and location system on the NOAA Operational Satellites (not an acronym)  
 AT Along-Track  
 AVHRR Advanced Very High Resolution Radiometer  
 AVIRIS Advanced Visible and Infrared Imaging Spectrometer
- BBR Band-to-Band Registration  
 bpi bits per inch  
 BRDF Bidirectional Reflectance Distribution Function  
 BUUV Backscatter Ultraviolet Spectrometer
- CalCOFI California Cooperative Fisheries Institute  
 Cal/Val Calibration and Validation  
 Case 1 Water whose reflectance is determined solely by absorption.  
 Case 2 Water whose reflectance is significantly influenced by scattering.  
 CDOM Colored Dissolved Organic Material  
 CDR Critical Design Review  
 CHORS Center for Hydro-Optics and Remote Sensing (San Diego State University)  
 cpu Central Processing Unit  
 CRM Contrast Reduction Meter  
 CRT Calibrated Radiance Tapes; or Cathode Ray Tube.  
 CT Cross-Track  
 CTD Conductivity, Temperature, and Depth  
 CVT Calibration/Validation Team  
 CW Continuous Wave  
 CZCS Coastal Zone Color Scanner
- DAAC Distributed Active Archive Center  
 DC Direct Current  
 DCF Data Capture Facility  
 DCP Data Collection Platform  
 DOC Dissolved Organic Carbon  
 DOM Dissolved Organic Matter
- ECMWF European Centre for Medium Range Weather Forecasts  
 ECT Equator Crossing Time

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EOS	Earth Observing Satellite	NET	Nimbus Experiment Team
EOSAT	Earth Observation Satellite Company	NIST	National Institute of Standards of Technology
EOSDIS	Earth Observing Satellite Data Information System	NMC	National Meteorological Center
ERBE	Earth Radiation Budget Experiment	NOAA	National Oceanic and Atmospheric Administration
ERBS	Earth Radiation Budget Sensor	NOARL	Naval Oceanographic and Atmospheric Research Laboratory
ER-2	Earth Resources-2	NRA	NASA Research Announcement
ESA	European Space Agency	NSCAT	NASA Scatterometer
FDDI	Fiber Data Distribution Interface	NSF	National Science Foundation
FNOC	Fleet Numerical Oceanography Center	OCTS	Ocean Color Temperature Sensor (Japanese)
FOV	Field-of-View	ODAS	Ocean Data Acquisition System
FWHM	Full-Width Half-Maximum	OFFI	Optical Free-Fall Instrument
GAC	Global Area Coverage, coarse resolution satellite data with a nominal ground resolution of approximately 4 km.	ONR	Office of Naval Research
GASM	General Angle Scattering Meter	OSC	Orbital Sciences Corporation
GFF	Glass Fiber Filter by Whatman	OSFI	Optical Surface Floating Instrument
GLI	Global Imager	OSSA	Office of Space Science and Applications
GMT	Greenwich Mean Time	PAR	Photosynthetically Available Radiation
GOES	Geosynchronous Orbital Environmental Satellite	PDR	Preliminary Design Review
GOFS	Global Ocean Flux Study	PIKE	Phased Illuminated Knife Edge
GPS	Global Positioning System	POC	Particulate Organic Carbon
GSFC	Goddard Space Flight Center	POLDER	Polarization Detecting Environmental Radiometer (French)
HeNe	Helium-Neon	PON	Particulate Organic Nitrogen
HPLC	High Performance Liquid Chromatography	PSU	Practical Salinity Units
HRPT	High Resolution Picture Transmission	QC	Quality Control
HYDRA	Hydrographic Data Reduction and Analysis	RDF	Radio Direction Finder
IAPSO	International Association for the Physical Sciences of the Ocean	RFP	Request for Proposal
ICES	International Council on Exploration of the Seas	rms	root mean squared
IFOV	Instantaneous Field-of-View	RODIS	Remote Sensing Imaging Spectrometer, also known as the Reflective Optics System Imaging Spectrometer (Germany)
I/O	Input/Output	RTOP	Research and Technology Operation Plan
IOP	Inherent Optical Properties	SARSAT	Search and Rescue Satellite
IR	Infrared	SBRC	Santa Barbara Research Center
IUE	International Ultraviolet Explorer	SBUV	Solar Backscatter Ultraviolet Radiometer
JGOFS	Joint Global Ocean Flux Study	SBUV-2	Solar Backscatter Ultraviolet Radiometer-2
LAC	Local Area Coverage, fine resolution satellite data with a nominal ground resolution of approximately 1 km.	SCOR	Scientific Committee on Oceanographic Research
Level-0	Raw data.	SDPS	SeaWiFS Data Processing System
Level-1	Calibrated radiances.	SeaWiFS	Sea-viewing Wide Field-of-view Sensor
Level-2	Derived products.	SIS	Spherical Integrating Source
Level-3	Gridded and averaged derived products.	SISSR	Submerged <i>In Situ</i> Spectral Radiometer
MAREX	Marine Resources Experiment Program	SMM	Solar Maximum Mission
MARS	Multispectral Airborne Radiometer System	SNR	Signal-to-Noise Ratio
MERIS	Medium Resolution Imaging Spectrometer	SOC	Spacecraft Operations Center
MIPS	Millions of Instructions Per Second	SOGS	SeaStar Operations Ground Subsystem
MOBY	Marine Optical Buoy	SPM	Suspended Particulate Material
MODIS	Moderate Resolution Image Spectrometer	SPO	SeaWiFS Project Office
MODIS-N	Moderate Resolution Image Spectrometer—Nadir	SPOT	<i>Satellite Pour l'Observation de la Terre</i> (French)
MODIS-T	Moderate Resolution Image Spectrometer—Tilt	SPSWG	SeaWiFS Prelaunch Science Working Group
MTF	Modulation Transfer Function	SST	Sea Surface Temperature
NAS	National Academy of Science	ST	Science Team
NASA	National Aeronautics and Space Administration	SWG	Science Working Group
NASCOM	NASA Communications	T-S	Temperature-Salinity
NASDA	National Space Development Agency (Japanese)	TBD	To Be Determined
NASIC	NASA Aircraft/Satellite Instrument Calibration	TDI	Time-Delay and Integration
NCDS	National Climate Data System	TDRSS	Tracking and Data Relay Satellite System
NE $\Delta$ T	Noise Equivalent Delta Temperature	TOMS	Total Ozone Mapping Spectrometer
NE $\delta$ L	Noise Equivalent delta Radiance	TOPEX	Topography Experiment
NESDIS	National Environmental Satellite Data Information Service	TSM	Total Suspended Material
		UNESCO	United Nations Educational, Scientific, and Cultural Organizations
		UVB	Ultraviolet-B

VHF	Very High Frequency
VISLAB	Visibility Laboratory (Scripps Institution of Oceanography)
VISNIR	Visible and Near Infrared
WFF	Wallops Flight Facility
WMO	World Meteorological Organization
WOCE	World Ocean Circulation Experiment
WORM	Write Once Read Many

## SYMBOLS

$a(z, \lambda)$	Spectral absorption coefficient
$b(z, \lambda)$	Total scattering coefficient
$b(\theta, z, \lambda_0)$	Volume scattering coefficient
$b_b(z, \lambda)$	Spectral backscattering coefficient
$b_r(\lambda)$	Total Raman scattering coefficient
$c(z, \lambda)$	Spectral beam attenuation coefficient
$c(z, 660)$	Red beam attenuation (at 660 nm)
$E_a(\lambda)$	Irradiance in air
$E_{\text{cal}}$	Calibration source irradiance
$E_d(0^-, \lambda)$	Incident spectral irradiance
$E_d(z, \lambda)$	Downwelled spectral irradiance
$E_s(\lambda)$	Surface irradiance
$E_{\text{sky}}(\lambda)$	Spectral sky irradiance distribution
$E_{\text{sun}}(\lambda)$	Spectral sun irradiance distribution
$E_u(z, \lambda)$	Upwelled spectral irradiance
$E_w(z, \lambda)$	Irradiance in water
$K(z, \lambda)$	Diffuse attenuation coefficient
$K_E(\lambda)$	Attenuation coefficient downwelled irradiance
$K_L(z, \lambda)$	Attenuation coefficient upwelled radiance
$L_u(z, \lambda)$	Upwelled spectral radiance
$L_{\text{cal}}$	Calibration source radiance
$L(z, \theta, \phi)$	Submerged upwelled radiance distribution
$L_{\text{sky}}(\lambda)$	Spectral sky radiance distribution
$L_W(\lambda)$	Water-leaving radiance
$L_{WN}(\lambda)$	Normalized water-leaving radiance
$n_w(\lambda)$	Index of refraction of water
$Q(\lambda)$	$L_u(0^-, \lambda)$ to $E_u(0^-, \lambda)$ relation factor (theoretically equal to $\pi$ )
$R_L(z, \lambda)$	Spectral reflectance
$R_z$	Sunspot number
$S$	Solar constant
$T_s(\lambda)$	Transmittance through the surface
$T_w(\lambda)$	Transmittance through a water path
$\beta(z, \lambda, \theta)$	Spectral volume scattering function
$\bar{\mu}_d(0^+, \lambda)$	Spectral mean cosine for downwelling radiance at the sea surface
$\tau(z, \lambda)$	Spectral optical depth
$\tau_s(\lambda)$	Spectral solar atmospheric transmission

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<b>13. ABSTRACT (Maximum 200 words)</b>  The Sea-viewing Wide Field-of-View Sensor (SeaWiFS) is the follow-on ocean-color instrument to the Coastal Zone Color Scanner (CZCS) which ceased operations in 1986, after an 8-year mission. SeaWiFS is expected to be launched in August 1992, on the SeaStar satellite, being built by Orbital Sciences Corporation (OSC). The SeaWiFS Project at the NASA/Goddard Space Flight Center (GSFC) has undertaken the responsibility of documenting all aspects of the mission, which is critical to the ocean-color and marine-science communities, in the form of NASA Technical Memoranda. This volume within the series serves as a reference, or guidebook, to the previous five volumes and consists of four main sections including an index to keywords and phrases, a list of all references cited, and lists of acronyms and symbols used. It is our intention to publish a summary index after every five volumes in the series, which will cover the topics published in all previous editions of the indices, that is, each new index will include all of the information contained in the preceding indices.				
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