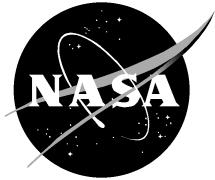


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SeaWiFS Postlaunch Technical Report Series

Stanford B. Hooker and Elaine R. Firestone, Editors

Volume 24, SeaWiFS Postlaunch Technical Report Series Cumulative Index: Volumes 1–23

Elaine R. Firestone and Stanford B. Hooker

National Aeronautics and
Space Administration

Goddard Space Flight Center
Greenbelt, Maryland 20771

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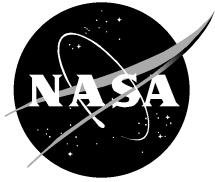
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Science Applications International Corporation, Beltsville, Maryland

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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 was launched on 1 August 1997, onboard the OrbView-2 satellite, built by Orbital Sciences Corporation (OSC). The SeaWiFS Project at the National Aeronautics and Space Administration (NASA) Goddard Space Flight Center (GSFC), undertook the responsibility of documenting all aspects of this mission, which is critical to the ocean color and marine science communities. The start of this documentation was titled the *SeaWiFS Technical Report Series*, which ended after 43 volumes were published. A follow-on series was started, titled the *SeaWiFS Postlaunch Technical Report Series*. This particular volume of the so-called *Postlaunch Series* serves as a reference, or guidebook, to the previous 23 volumes and consists of 4 sections including an errata, an index to key words and phrases, a list of acronyms used, and a list of all references cited. The editors will publish a cumulative index of this type after every five volumes.

1. INTRODUCTION

This is the fourth in a series of indexes, published as a separate volume in the *SeaWiFS Postlaunch Technical Report Series*, and includes information found in the previous 23 volumes of the series. The *SeaWiFS Postlaunch Technical Report Series* has been written under National Aeronautics and Space Administration (NASA) Technical Memorandum (TM) numbers 1998–206892, 1999–206892, and so on, up to the present numbering of 2003–206892, with the year part of the TM number changing with each calendar year of its existence. The volume numbers, authors, and titles of the volumes covered in this index are the following:

- Vol. 1: Johnson, B.C., J.B. Fowler, and C.L. Cromer, *The SeaWiFS Transfer Radiometer (SXR)*.
- Vol. 2: Aiken, J., D.G. Cummings, S.W. Gibb, N.W. Rees, R. Woodd-Walker, E.M.S. Woodward, J. Woolfenden, S.B. Hooker, J-F. Berthon, C.D. Dempsey, D.J. Suggett, P. Wood, C. Donlon, N. González-Benítez, I. Huskin, M. Quevedo, R. Barciela-Fernandez, C. de Vargas, and C. McKee, *AMT-5 Cruise Report*.
- Vol. 3: Hooker, S.B., G. Zibordi, G. Lazin, and S. McLean, *The SeaBOARR-98 Field Campaign*.
- Vol. 4: Johnson, B.C., E.A. Early, R.E. Eplee, Jr., R.A. Barnes, and R.T. Caffrey, *The 1997 Pre-launch Radiometric Calibration of SeaWiFS*.
- Vol. 5: Barnes, R.A., R.E. Eplee, Jr., S.F. Biggar, K.J. Thome, E.F. Zalewski, P.N. Slater, and A.W. Holmes, *The SeaWiFS Solar Radiation-Based Calibration and the Transfer-to-Orbit Experiment*.
- Vol. 6: Firestone, E.R., and S.B. Hooker, *SeaWiFS Postlaunch Technical Report Series Cumulative Index: Volumes 1–5*.

- Vol. 7: Johnson, B.C., H.W. Yoon, S.S. Bruce, P-S. Shaw, A. Thompson, S.B. Hooker, R.E. Eplee, Jr., R.A. Barnes, S. Maritorena, and J.L. Mueller, *The Fifth SeaWiFS Intercalibration Round-Robin Experiment (SIRREX-5), July 1996*.
- Vol. 8: Hooker, S.B., and G. Lazin, *The SeaBOARR-99 Field Campaign*.
- Vol. 9: McClain, C.R., E.J. Ainsworth, R.A. Barnes, R.E. Eplee, Jr., F.S. Patt, W.D. Robinson, M. Wang, and S.W. Bailey, *SeaWiFS Postlaunch Calibration and Validation Analyses, Part 1*.
- Vol. 10: McClain, C.R., R.A. Barnes, R.E. Eplee, Jr., B.A. Franz, N.C. Hsu, F.S. Patt, C.M. Pietras, W.D. Robinson, B.D. Schieber, G.M. Schmidt, M. Wang, S.W. Bailey, and P.J. Wendell, *SeaWiFS Postlaunch Calibration and Validation Analyses, Part 2*.
- Vol. 11: O'Reilly, J.E., and 24 Coauthors, *SeaWiFS Post-launch Calibration and Validation Analyses, Part 3*.
- Vol. 12: Firestone, E.R., and S.B. Hooker, *SeaWiFS Postlaunch Technical Report Series Cumulative Index: Volumes 1–11*.
- Vol. 13: Hooker, S.B., G. Zibordi, J-F. Berthon, S.W. Bailey, and C.M. Pietras, *The SeaWiFS Photometer Revision for Incident Surface Measurement (SeaPRISM) Field Commissioning*.
- Vol. 14: Hooker, S.B., H. Claustre, J. Ras, L. Van Heukelom, J-F. Berthon, C. Targa, D. van der Linde, R. Barlow, and H. Sessions, *The First SeaWiFS HPLC Analysis Round-Robin Experiment (Sea-HARRE-1)*.
- Vol. 15: Hooker, S.B., G. Zibordi, J-F. Berthon, D. D'Alimonte, S. Maritorena, S. McLean, and J. Sildam, *Results of the Second SeaWiFS Data Analysis Round Robin, March 2000 (DARR-00)*.

- Vol. 16: Patt, F.S., *Navigation Algorithms for the SeaWiFS Mission*.
- Vol. 17: Hooker, S.B., S. McLean, J. Sherman, M. Small, G. Lazin, G. Zibordi, and J.W. Brown, *The Seventh SeaWiFS Intercalibration Round-Robin Experiment (SIRREX-7), March 1999*.
- Vol. 18: Firestone, E.R., and S.B. Hooker, *SeaWiFS Postlaunch Technical Report Series Cumulative Index: Volumes 1–17*.
- Vol. 19: Zibordi, G., J-F. Berthon, J.P. Doyle, S. Grossi, D. van der Linde, C. Targa, and L. Alberotanza, *Coastal Atmosphere and Sea Time Series (CoASTS), Part 1: A Tower-Based Long-Term Measurement Program*.
- Vol. 20: Berthon, J-F., G. Zibordi, J.P. Doyle, S. Grossi, D. van der Linde, and C. Targa, *Coastal Atmosphere and Sea Time Series (CoASTS), Part 2: Data Analysis*.
- Vol. 21: Zibordi, G., D. D'Alimonte, D. van der Linde, J-F. Berthon, S.B. Hooker, J.L. Mueller, G. Lazin, and S. McLean, *The Eighth SeaWiFS Intercalibration Round-Robin Experiment (SIRREX-8), September–December 2001*.
- Vol. 22: Patt, F.S., R.A. Barnes, R.E. Eplee, Jr., B.A. Franz, W.D. Robinson, G.C. Feldman, S.W. Bailey, J. Gales, P.J. Werdell, M. Wang, R. Frouin, R.P. Stumpf, R.A. Arnone, R.W. Gould, Jr., P.M. Martinolich, V. Ransibrahmanakul, J.E. O'Reilly, and J.A. Yoder, *Algorithm Updates for the Fourth SeaWiFS Data Reprocessing*.
- Vol. 23: Hooker, S.B., G. Zibordi, J-F. Berthon, D. D'Alimonte, D. van der Linde, and J.W. Brown, *Tower-Perturbation Measurements in Above-Water Radiometry*.

This volume serves as a reference, or guidebook, to the preceding volumes of the so-called *Postlaunch Series*. It consists of three main sections: a cumulative index to key words and phrases, a glossary of acronyms, and a bibliography of all references cited in the series. An errata section has been added to address issues and needed corrections which have come to the editors' attention since the volumes were first published.

The nomenclature of the index section is a familiar one, in the sense that it is a sequence of alphabetical entries, but it uses a unique format because multiple volumes are involved. Unless indicated otherwise, the index entries refer to some aspect of the SeaWiFS Project or instrument. An index entry is composed of a keyword or phrase followed by an entry field that 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 page 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 without a page field:

keyword, *Vol. #*.

An entry can also be the subject of a complete chapter. In this instance, both the volume number and chapter number appear without a page field:

keyword, **volume(ch. #)**.

Figures or tables that provide particularly important summary information are also indicated as separate entries in the page field—even if they fall within an already specified page range. In this case, the figure or table number is given with the page number on which it appears:

keyword, **volume(Fig. # p. #)**,

or

keyword, **volume(Table # p. #)**.

Furthermore, because of the recursive nature of various topics, an index subentry may be repeated at the bottom of a main heading with the “*see also*” nomenclature. This directs the reader to a main entry elsewhere in the index for a more in-depth treatment of the topic.

2. ERRATA

Since the issuance of previous volumes, a number of the references cited have changed their publication status, e.g., they have gone from “submitted” to “accepted,” or “in press” to printed matter. In other instances, some part (or parts) of the citation, e.g., the title, authors, or year, has changed. Listed below are the references in question as they were cited in one or more of the first 23 volumes in the series, along with how they now appear in the references section of *this* volume. In addition, the definition of an acronym also appears differently in this volume than how it was originally published.

Original Citation

Biggar, S.F., P.N. Slater, J.M. Palmer, and K.J. Thome, 2001: Unified approach to absolute radiometric calibration in the solar-reflective range. *Remote Sens. Environ.*, (accepted).

Revised Citation

Slater, P.N., Biggar, S.F., J.M. Palmer, and K.J. Thome, 2001: Unified approach to absolute radiometric calibration in the solar-reflective range. *Remote Sens. Environ.*, **77**, 293–303.

Original Citation

Tassan, S., and M. Ferrari, 2002: Sensitivity analysis of the “Transmittance-Reflectance” method for measuring light absorption by aquatic particles retained on filters, *J. Plankton Res.*, (submitted).

Revised Citation

Tassan, S., and M. Ferrari, 2002: A sensitivity analysis of the “Transmittance-Reflectance” method for measuring light absorption by aquatic particles. *J. Plankton Res.*, **24**, 757–774.

Original Citation

Thuillier, G., M. Hersé, P.C. Simon, D. Labs, H. Mandel, and D. Gillotay, 2003: The solar spectral irradiance from 200 to 2400 nm as measured by the SOLSPEC spectrometer from the Atlas 1-2-3 and EURECA missions. *Solar Physics*, (submitted).

Revised Citation

Thuillier, G., M. Hersé, P.C. Simon, D. Labs, H. Mandel, and D. Gillotay, 2003: The solar spectral irradiance from 200 to 2400 nm as measured by the SOLSPEC spectrometer from the Atlas 1-2-3 and EURECA missions. *Solar Physics*, **214**, 1–22.

Original Citation

Van Heukelem, L., and C.S. Thomas, 2000: Computer-assisted HPLC method development with applications to the isolation and analysis of marine phytoplankton pigments. *J. Chrom. A.*, (in press).

Revised Citation

Van Heukelem, L., and C.S. Thomas, 2001: Computer-assisted HPLC method development with applications to the isolation and analysis of marine phytoplankton pigments. *J. Chrom. A.*, **910**, 31–49.

Original Citation

Vidussi, V., H. Claustre, J. Bustillos-Guzmán, and J.C. Marty, 1996: Determination of chlorophylls and carotenoids of marine plankton: separation of chlorophyll *a* from divinyl-chlorophyll *a* and zeaxanthin from lutein, *J. Plankton Res.*, **18**, 2,377–2,382.

and

Vidussi, G., H. Claustre, J. Bustillos-Guzmán, C. Caillau, and J-C. Marty, 2000: Rapid HPLC method for determination of phytoplankton chemotaxonomic pigments: separation of chlorophyll *a* from divinyl-chlorophyll *a* and zeaxanthin from lutein. *J. Plankton Res.*, **18**, 2,377–2,382.

Revised Citation

Vidussi, F., H. Claustre, J. Bustillos-Guzmán, C. Caillau, and J.C. Marty, 1996: Determination of chlorophylls and carotenoids of marine phytoplankton: separation of chlorophyll *a* from divinyl-chlorophyll *a* and zeaxanthin from lutein. *J. Plankton Res.*, **18**, 2,377–2,382.

Original Acronym

SIRCUS: Spectral Irradiance and Radiance Responsivity Calibrations Using Uniform Standards.

Revised Acronym

SIRCUS: Spectral Irradiance and Radiance Calibrations with Uniform Standards.

CUMULATIVE INDEX

Unless otherwise indicated, the index entries that follow refer to some aspect of the SeaWiFS instrument or Project.

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GLOSSARY

6S Not an acronym, but an atmospheric photochemical and radiative transfer model.

— A —

A/D	Analog-to-Digital
AAOT	<i>Acqua Alta</i> Oceanographic Tower
AC	Alternating Current
ACS	Average Calibration Slope or Attitude Control System (depending on usage).
ADCP	Acoustic Doppler Current Profiler
ADEOS	Advanced Earth Observing Satellite
AERONET	Aerosol Robotic Network
AI	Absorbing Aerosol Index
AI9901	Atlantic–Indian Ocean Cruise, 1999
ALOHA	A Long-term Oligotrophic Habitat Assessment
AMJ	April–May–June
AMT	Atlantic Meridional Transect
AMT-1	The First AMT Cruise
AMT-2	The Second AMT Cruise
AMT-3	The Third AMT Cruise
AMT-5	The Fifth AMT Cruise
AMT-8	The Eighth AMT Cruise
AOP	Apparent Optical Property
AOPs	Apparent Optical Properties
AOT	Aerosol Optical Thickness
APD	Absolute Percent Difference
ARGOS	Not an acronym, but the name given to the data collection and location system on the NOAA operational satellites.
ASAP	Artificial Satellite Analysis Program
ASCII	American Standard Code for Information Interchange
ASD	Analytical Spectral Devices
ASTER	Advanced Spaceborne Thermal Emission and Reflection Radiometer
ASTM	American Society for Testing and Materials
ATA	Ambient Temperature Plate Assembly
ATSR	Along-Track Scanning Radiometer
AU	Astronomical Unit
AVHRR	Advanced Very High Resolution Radiometer

— B —

BAS	British Antarctic Survey
BATS	Bermuda Atlantic Time-series Study
BBOP	Bermuda BioOptics Project
BCD	Binary Coded Decimal
Ber95	Bering Sea Cruise, 1995
Ber96	Bering Sea Cruise, 1996
BNC	Bayonet Nut Connector
BNL	Brookhaven National Laboratory
BOPSII	Bio-Optical Profiling System II (second generation)
BOUSSOLE	<i>Bouée pour l'acquisition de Séries Optiques à Long Terme</i> (buoy for the acquisition of a long-term optical series).
BPA	Back Plate Assembly
BRDF	Bidirectional Reflectance Distribution Function
BSI	Biospherical Instruments, Inc.
BSST	Bulk Sea Surface Temperature
BTBM	Bermuda Test Bed Mooring

— C —

C/CSC	NOAA Coastal Services Center, Charleston, South Carolina
CalCOFI	California Cooperative Fisheries Institute
CANIGO	Canary Islands, Azores, Gibraltar Observations
CARIACO	Carbon Retention in a Colored Ocean
CB-MAB	Chesapeake Bay–Middle Atlantic Bight
CC	Cloud Cover
CCAR	Colorado Center for Astrodynamics Research
CCD	Charge-Coupled Device
CCMS	Centre for Coastal and Marine Studies
CCN	Cloud Condensation Nuclei
CCPO	Center for Coastal Physical Oceanography
CDOM	Colored Dissolved Organic Matter
CEC	Commission of the European Communities
CERT	Calibration Evaluation and Radiometric Testing
C-FALLS	Combined (software package for logging) Sea-FALLS data
CHN	Carbon-Hydrogen-Nitrogen
CHORS	Center for Hydro-Optics and Remote Sensing
C-mount	Not an acronym, but a mounting system for camera lenses.
CNR	<i>Consiglio Nazionale delle Ricerche</i> (the Italian National Research Council)
CNRS	<i>Centre National de la Recherche Scientifique</i> (the French National Institute of Scientific Research)
COARE	Coupled Ocean Atmosphere Response Experiment
CoASTS	Coastal Atmosphere and Sea Time Series
CoBOP	Coastal Benthic Optical Properties (Bahamas)
COLORS	Coastal Region Long-Term Measurements for Colour Remote Sensing Development and Validation
C-OPS	Combined (software package for logging) Sea-OPS data.
COSMIC	Computer Software Management and Information Center
COTS	Commercial Off-The-Shelf
CSC	Coastal Service Center
CSH	UNIX “C-shell” (script programming utility)
CT	Cylindrical Tube or Conductivity and Temperature (depending on usage).
CTD	Conductivity, Temperature, and Depth
CV	Coefficient of Variation
CVE	Calibration and Validation Element
CVT	Calibration and Validation Team
CZCS	Coastal Zone Color Scanner

— D —

DAAC	Distributed Active Archive Center
DAD	Diode Array Detector
DalBOSS	Dalhousie Buoyant Optical Surface Sensor
DalSAS	Dalhousie SeaWiFS Aircraft Simulator
DARR	Data Analysis Round-Robin
DARR-94	The first DARR (1994)
DARR-00	The Second DARR (March 2000)
DAS	Data Acquisition Sequence
DATA	Not an acronym, but a designator for the Satlantic, Inc., series of power and telemetry units.
DATA-100	(Satlantic) Data (acquisition) Series 100 (unit)
dc	Direct Current

DC	Direct Current	F-mount	Not an acronym, but a mounting system for camera lenses.
DCC	Dark Current Correction	FORTRAN	Formula Translation (computer language)
DCM	Deep Chlorophyll Maximum or Depth of the Chlorophyll Maximum (depending on usage).	FOV	Field of View
DCP	Data Collection Platform	FRRF	Fast Repetition Rate Fluorometer
DHI	DHI Water and Environment Institute (Denmark)	FS	Field Stop
DIN	<i>Deutsche Industrie-Normen</i> (German industry standards)	FWHM	Full-Width at Half-Maximum
DIO	Digital Input-Output	 – G –	
DIR	Not an acronym, but a designator for the Satlantic, Inc., series of directional units.	GAC	Global Area Coverage
DMA	Dimethylamine	GF	Glass Fiber (Filter)
DMM	Digital Multimeter	GF/F	Not an acronym, but a specific type of glass fiber filter manufactured by Whatman.
DMS	Dimethylsulfide	GLOBEC	Global Ocean System Eco-Dynamics
DMSP	Dimethylsulphoniopropionate	GMT	Greenwich Mean Time
DMSPd	Dissolved DMSP	GoA97	Gulf of Alaska 1997 (cruise)
DMSPp	DMSP within phytoplankton cells	GoCal	Gulf of California
DNA	Deoxyribonucleic Acid	GOES-8	The Eighth Geostationary Operational Environmental Satellite
DO	Deep Ocean	GOM	Gulf of Maine
DOC	Dissolved Organic Carbon	GPIB	General Purpose Interface Bus
DPA	Detector Plate Assembly	GPS	Global Positioning System
DSS	Digital Sun Sensor	GS	GSFC and Satlantic (comparison)
DU	Dobson Unit (of total ozone)	GSE	Ground Support Equipment
DUT	Device Under Test	GSFC	Goddard Space Flight Center
DVM	Digital Voltmeter	GUI	Graphical User Interface
DYF	DYFAMED	 – H –	
DYFAMED	<i>Dynamique des Flux en Méditerranée</i> (Dynamics of fluxes in the Mediterranean)	HACR	High-Accuracy Cryogenic Radiometer
 – E –			
E	East	HDF	Hierarchical Data Format
ECEF	Earth-Centered Earth-Fixed	HDS	Horizontal Deployment System
ECI	Earth-Centered Inertial	HEPA	High Efficiency Particle Arrestor
EcoHAB	Ecology of Harmful Algal Blooms	HMS	Her Majesty's Ship
ECR	Earth-Centered Rotating	HOBI	Hydro-Optics, Biology, and Instrumentation (Laboratories)
EDTA	Ethylenediaminetetraacetic Acid	HOT	Hawaii Optical Time-series
EEZ	Exclusive Economic Zone	HP	Hewlett-Packard
e-mail	Electronic Mail	HPL	Horn Point Laboratory
EOF	End-of-File	HPLC	High Performance Liquid Chromatography
EOS	Earth Observing System	HRPT	High Resolution Picture Transmission
EP	Entrance Pupil	HS	Horizon Scanner
EqPac	Equatorial Pacific	HTCO	High Temperature Catalytic Oxidation
ERS-2	The Second Earth Resources Satellite	 – I –	
ET	Eutrophic	IAD	Ion-Assisted Beam Deposition
ETOPO2	Earth Topography 2 min grid	IC	Integrated Circuit
ETOPO5	Earth Topography 5 min grid	ICESS	Institute for Computational Earth System Science
EU	European Union	ID	Identification or Inside Diameter (depending on usage).
EUC	Equatorial Under Current	IDL	International Date Line or Interactive Data Language (depending on usage).
 – F –			
FAFOV	Full-Angle Field of View	IEEE	Institute of Electrical and Electronic Engineers
FARCAL	Facility for Advanced Radiometric Calibrations	IES	Institute for Environment Sustainability
FASCAL	Facility for Automated Spectroradiometric Calibrations	IF	Interference Filter
FEL	Not an acronym, but a lamp designator.	ILX	Not an acronym, but part of the name of ILX Lightwave Corporation of Bozeman, Montana.
FET	Field-Effect Transistor	IMSL	International Mathematical and Statistical Libraries
FF	Free-Fall	INSU	<i>Institut National des Sciences de l'Univers</i> (the French National Institute of the Science of the Universe)
FFT	Fast Fourier Transform		
FIGD-IC	Flow Injection Gas-Diffusion Coupled to Ion Chromatography		
FL-Cuba	Florida-Cuba (cruise)		

IOCCG International Ocean Colour Coordinating Group
 IOP Inherent Optical Property
 IOPs Inherent Optical Properties
 IOS (SOC) Institute of Oceanographic Sciences
 IQR Interquartile Range
 IS Internal Standard
 ISDGM *Istituto per lo Studio della Dinamica delle Grandi Masse* (Institute for the Study of Dynamics of Large Masses)
 ISIC Integrating Sphere Irradiance Collector

— J —

JAS July–August–September
 JCR (RRS) *James Clark Ross*
 JES9906 Japan East Sea Cruise, 1999–06
 JFM January–February–March
 JG JRC and GSFC (comparison)
 JGOFS Joint Global Ocean Flux Study
 JRC Joint Research Centre
 JS JRC and Satlantic (comparison)
 JUL98NAN A NOAA-sponsored cruise off Nantucket Island, Massachusetts in July 1998.

— K —

KMR *K* from Multiresolution (wavelet analysis)

— L —

L1 Level-1 SeaWiFS data product
 L1A Level-1a SeaWiFS data product with navigation information
 L2 Level-2 SeaWiFS data product
 L3 Level-3 SeaWiFS data product
 Lab96 Labrador Sea Cruise, 1996
 Lab97 Labrador Sea Cruise, 1997
 Lab98 Labrador Sea Cruise, 1998
 LAC Local Area Coverage
 LANDSAT Land Satellite
 LLR Low Level Radiance
 LN LoCNESS
 LoCNESS Low-Cost NASA Environmental Sampling System
 LOV *Laboratoire d'Océanographie de Villefranche* (Oceanographic Laboratory of Villefranche)
 LPCM *Laboratoire de Physique et Chimie Marines* (Laboratory of Marine Physics and Chemistry)
 LS Light Stability
 LSB Least Significant Bit
 LTER Long Term Ecological Research
 LUT Look-Up Table
 LXR LANDSAT Transfer Radiometer

— M —

MA Methylamine
 MBARI Monterey Bay Aquarium Research Institute
 MBR Maximum Band Ratio
 MCM Marine and Coastal Management (South Africa)
 MCP Modified Cubic Polynomial
 MER Marine Environmental Radiometer
 MERIS Medium Resolution Imaging Spectrometer
 METEOSAT Meteorological Satellite

MF0796 R/V *Miller Freeman* Cruise, 1996–07
 MFR-6 Multi-Filter Rotating Shadow-Band Radiometer
 microNESS micro NASA Environmental Sampling System
 microSAS micro Surface Acquisition System
 miniNESS miniature NASA Environmental Sampling System
 MIO *Mer Ionienne* (Ionian Sea)
 MISR Multiangle Imaging Spectroradiometer
 MLD Mixed Layer Depth
 MLML Moss Landing Marine Laboratory
 MMA Mirror Mount Assembly or Monomethylamine (depending on usage).
 MN miniNESS
 MOBY Marine Optical Buoy
 MOCE Marine Optical Characterization Experiment
 MODIS Moderate Resolution Imaging Spectroradiometer
 MODTRAN Not an acronym, but an atmospheric photochemical and radiative transfer model.
 MOS Modular Optoelectronic Scanner (spaceborne sensor) or Marine Optical Spectroradiometer (depending on usage).
 MREN *Maison de la Recherche en Environnement Naturel*
 MSB Most Significant Bit
 MT Mesotrophic
 MVDS Multichannel Visible Detector System

— N —

N North
 NABE North Atlantic Bloom Experiment
 NAd North Adriatic (Current)
 NASA National Aeronautics and Space Administration
 NASDA National Space Development Agency (Japan)
 NCEP National Center for Environmental Prediction
 NCSA National Center for Supercomputing Applications
 NDVI Normalized Difference Vegetation Index
 NEC Northeast US Coastal Ecosystem or the present name (not an acronym) for the Nippon Electric Company (Japan), depending on usage.
 NECC North Equatorial Counter Current
 NEGOM Northeast Gulf of Mexico
 NEUC North Equatorial Undercurrent
 NIR Near-Infrared
 NIST National Institute of Standards and Technology
 NOAA National Oceanic and Atmospheric Administration
 NR Not Resolved
 NRL Naval Research Laboratory
 NRSR Normalized Remote Sensing Reflectance
 NSD Normalized Standard Deviation

— O —

OC Ocean Color
 OC2 Ocean Chlorophyll 2 (algorithm)
 OC2v1 OC2 version 1
 OC2v2 OC2 version 2
 OC2v4 Ocean Chlorophyll 2 (algorithm) version 4
 OC4 Ocean Chlorophyll 4 (algorithm)

OC4v2 OC4 version 2
 OC4v3 OC4 version 3
 OC4v4 OC4 version 4
 OCI Ocean Color Irradiance (sensor)
 OCI-200 Ocean Color Irradiance series 200 (sensor)
 OCP Ocean Color Profiler
 OCR Ocean Color Radiance (sensor)
 OCR-200 Ocean Color Radiance series 200 (sensor)
 OCR-250 Ocean Color Radiance Series 250 (sensor)
 OCR-504 OCR series-504 (four-channel, digital sensor)
 OCR-507 OCR series-507 (seven-channel, digital sensor)
 OCR-1000 Ocean Color Radiance Series 1000 (sensor)
 OCR-2000 Ocean Color Radiance Series 2000 (sensor)
 OCTS Ocean Color Temperature Scanner
 OD Outside Diameter
 OL Optronic Laboratories, Inc.
 OLL One-Percent Light Level
 OND October–November–December
 OPC Optical Plankton Counter
 OrbView-2 Not an acronym, but the current name for the SeaStar satellite.
 ORINOCO Orinoco River Plume
 OSC Orbital Sciences Corporation
 OT Oligotrophic
 OV2 OrbView-2

- P -

PAR Photosynthetically Available Radiation
 PC Personal Computer or Percent Contribution Ratio (depending on usage).
 PCR Polymerase Chain Reaction
 PD Percent Difference
 PI Principal Investigator
 P-I Photosynthesis-Irradiance
 PID Proportional, Integral, Differential
 PlyMBODY Plymouth Marine Bio-Optical Data Buoy
 PM Particulate Matter
 PML Plymouth Marine Laboratory
 POC Particulate Organic Carbon
 POLDER Polarization Detecting Environmental Radiometer
 PRIME Plankton Reactivity in the Marine Environment
 PRO-DCU Not an acronym, but a designator for the Satlantic, Inc., series of 48–76 V deck boxes.
 PROSOPE *Productivité des Systèmes Océaniques Pélagiques* (Productivity of Pelagic Oceanic Systems)
 PRR Profiling Reflectance Radiometer
 PRT Platinum Resistance Temperature (sensor)
 PS Power Supply
 PSD Particle Size Distribution
 PST Pacific Standard Time
 PSU Practical Salinity Units
 PTFE Polytetrafluoroethylene
 PVC Polyvinylchloride

- Q -

QC Quality Control

- R -

RAM Random Access Memory
 RE Ramsden Eyepiece
 RED9503 Red Tide Cruise, 1995-03
 Res94 Resolute Cruise, 1994
 Res95-2 Resolute Cruise, 1995
 Res96 Resolute Cruise, 1996
 Res98 Resolute Cruise, 1998
 RF Response Factor
 RH Relative Humidity
 RL Relay Lens
 RMA Reduced Major Axis
 RMS Root Mean Squared
 RMSD Root Mean Square Difference
 RMSrd Root Mean Square of relative difference
 ROAVERRS Research on Ocean–Atmosphere Variability and Ecosystem Response in the Ross Sea
 ROLO Robotic Lunar Observatory
 ROSSA Radiometric Observations of the Sea Surface and Atmosphere
 RPD Relative Percent Difference
 RRS Royal Research Ship
 RSG (PML) Remote Sensing Group
 RSMAS Rosenstiel School for Marine and Atmospheric Science
 RSR Relative Spectral Response
 RSS Root-Sum Square
 RTV Room Temperature Vulcanizing
 RVS (BAS) Research Vessel Services

- S -

S South
 S/N Serial Number
 S/CSC Stennis (Space Center) Coastal Services Center
 S/NRL Stennis Space Center, Naval Research Laboratory
 SACZ Sub-Antarctic Convergence Zone
 SAI Space Applications Institute
 SAS Surface Acquisition System
 SAS-II Satlantic Airborne Sensor
 SAT Short Along-Track (station)
 SatView The Satlantic data acquisition and visualization software package.
 SBE Sea-Bird Electronics
 SBRC Santa Barbara Research Center (Raytheon)
 SBRS Santa Barbara Remote Sensing (Hughes)
 SBUV Solar Backscatter Ultraviolet Radiometer
 SC Shallow Coastal
 SCOR Scientific Committee on Oceanographic Research
 SDSU San Diego State University
 SDY Sequential Day of the Year
 SeaACE SeaWiFS Atlantic Characterization Experiment
 SeaARCS SeaWiFS Advanced Radiometer Control System
 SeaBAM SeaWiFS Bio-optical Algorithm Mini-workshop
 SeaBASS SeaWiFS Bio-Optical Archive and Storage System
 SeaBOARR SeaWiFS Bio-Optical Algorithm Round-Robin
 SeaBOARR-98 The First SeaBOARR (1998)
 SeaBOARR-99 The Second SeaBOARR (1999)
 SeaBOARR-00 The Third SeaBOARR (April–May 2000)

SeaBOARR-01	The Fourth SeaBOARR (June 2001)	SSST	Sea Surface Skin Temperature
SeaBOARR-02	The Fifth SeaBOARR (June 2002)	SUNsAS	SeaWiFS Underway Surface Acquisition System
SeaBOSS	SeaWiFS Buoyant Optical Surface Sensor	SXR	SeaWiFS Transfer Radiometer
SeaDAS	SeaWiFS Data Analysis System		
SeaFALLS	SeaWiFS Free-Falling Advanced Light Level Sensors		
SeaHARRE	SeaWiFS HPLC Analysis Round-Robin Experiment		
SeaHARRE-1	The First SeaWiFS HPLC Analysis Round-Robin Experiment		— T —
SeaLaMP	SeaWiFS Lamp Monitoring and Performance	T	Transmission method for spectrophotometric analysis.
SeaOPS	SeaWiFS Optical Profiling System	T/N	Temporary (identification) Number
SeaPRISM	SeaWiFS Photometer Revision for Incident Surface Measurement	TAO	Tropical Atmosphere–Ocean
SeaSAS	SeaWiFS Surface Acquisition System	TBAA	Tetrabutyl Ammonium Acetate
SeaSHADE	SeaWiFS Shadow Band (radiometer)	TEC	Thermoelectric Cooler
SeaStar	Not an acronym, but the former name of the satellite on which SeaWiFS was launched, now known as OrbView-2.	THOR	Three-Headed Optical Recorder
SeaSURF	SeaWiFS Square Underwater Reference Frame	TIROS	Television Infrared Observation Satellite
SeaWiFS	Sea-viewing Wide Field-of-view Sensor	TMA	Trimethylamine
SEC	South Equatorial Current	TOA	Top of the Atmosphere
SEM	Scanning Electronic Microscopy	TOC	Total Organic Carbon
SEUC	South Equatorial Undercurrent	TOGA	Tropical Ocean Global Atmosphere
SIAP	<i>Societa Italiana Apparecchi di Precisione</i>	TOMS	Total Ozone Mapping Spectrometer
SIFS	Satlantic Instrument Files Standard	T-R	Transmission-Reflection (method for spectrophotometric analysis)
SIMBAD	Satellite Validation for Marine Biology and Aerosol Determination	TSM	Total Suspended Matter
SIMBIOS	Sensor Intercomparison and Merger for Biological and Interdisciplinary Oceanic Studies	TOPEX	Topography Experiment
SIO	Scripps Institution of Oceanography	TOTO	Tongue of the Ocean (Bahamas)
SIRCUS	Spectral Irradiance and Radiance Calibrations with Uniform Standards	TOVS	TIROS Operational Vertical Sounder
SIRREX	SeaWiFS Intercalibration Round-Robin Experiment	TSG	Thermosalinograph
SIRREX-1	The First SIRREX (July 1992)	TSM	Total Suspended Matter
SIRREX-2	The Second SIRREX (June 1993)	TSP	Thermo Separation Products
SIRREX-3	The Third SIRREX (September 1994)	TTL	Transistor–Transistor Logic
SIRREX-4	The Fourth SIRREX (May 1995)		
SIRREX-5	The Fifth SIRREX (July 1996)		
SIRREX-6	The Sixth SIRREX (August–December 1997)		
SIRREX-7	The Seventh SIRREX (March 1999)		
SIRREX-8	The Eighth SIRREX (September–December 2001)		
SIS	Spherical Integrating Source		— U —
SMAB	Southern Mid-Atlantic Bight	UA	University of Arizona
SMSR	SeaWiFS Multichannel Surface Reference	UCSB	University of California, Santa Barbara
SNR	Signal-to-Noise Ratio	UIC	Underway Instrumentation and Control
SO	SeaOPS	UK	United Kingdom
SOC	Southampton Oceanography Centre	ULCO	<i>Université du Littoral Côte d'Opale</i>
SOMARE	Sampling, Observations and Modelling of Atlantic Regional Ecosystems	UM	University of Miami
SOOP	SeaWiFS Ocean Optics Protocols	UMCES	University of Maryland Center for Environmental Science
SOSSTR	Ship of Opportunity Sea Surface Temperature Radiometer	UNC	Unified Course
SPMR	SeaWiFS Profiling Multichannel Radiometer	UNESCO	United Nations Educational, Scientific, and Cultural Organization
SPO	SeaWiFS Project Office	UOR	Undulating Oceanographic Recorder
SQM	SeaWiFS Quality Monitor	UPD	Unbiased Percent Difference
SQM-II	The Second Generation SQM	UPS	Uninterruptable Power Supply
SRF	Spectral Response Function	UPW	Upwelling
SS	Sea State	URL	Universal Resource Locator
SSE	Size-of-Source Effect	USF	University of South Florida
SSH	Sea Surface Height	USGS	United States Geological Survey
SSM/I	Special Sensor for Microwave/Imaging	USN	United States Navy
		UTC	Coordinated Universal Time (definition reflects actual usage instead of following the letters of the acronym).
		UV	Ultraviolet
		UVA	Ultraviolet-A
			— V —
		V1	Version 1
		V2	Version 2
		V3	Version 3
		V4	Version 4
		V5	Version 5
		VAFB	Vandenberg Air Force Base

VisSCF Visible Spectral Comparator Facility (NIST)
VKI VKI Institute for Water Environment (Denmark)
VXR Visible Transfer Radiometer

– W –
W West
WC Winch and Crane
WETLabs Western Environmental Technology Laboratories (Inc.)
WG Working Group
WiSPER Wire-Stabilized Profiling Environmental Radiometer
WM Spherical Mirror Wedge Section
WMO World Meteorological Organization

WOCE World Ocean Circulation Experiment
WP WiSPER
WS Wind Speed
WSSC Washington Suburban Sanitary Commission

– X –
XBT Expendable Bathythermograph
XOTD Expendable Optical, Temperature, and Depth
– Y, Z –
YB71 Not an acronym, but a type of paint for solar diffusers.
YBOM Yamato Bank Optical Mooring (Japan)
YES Yankee Environmental Systems (Inc.)

REFERENCES

— A —

- Aas, E., 1981: The refractive index of phytoplankton. *Institute for Geophysikk Report Series, No. 46*, Oslo University, 61 pp.
- Aiken, J., G.F. Moore, and P.M. Holligan, 1992: Remote-sensing of oceanic biology in relation to global climate change. *J. Phycol.*, **28**, 579–590.
- , —, C. Trees, S.B. Hooker, and D. Clark, 1995: The SeaWiFS CZCS-Type pigment algorithm. *NASA Tech. Memo. 104566, Vol. 29*, S.B. Hooker and E.R. Firestone, Eds., NASA Goddard Space Flight Center, Greenbelt, Maryland, 34 pp.
- , and S.B. Hooker, 1997: The Atlantic Meridional Transect: Spatially extensive calibration and validation of optical properties and remotely-sensed measurements of ocean color. *Backscatter*, **8**, 8–11.
- , D.G. Cummings, S.W. Gibb, N.W. Rees, R. Woodd-Walker, E.M.S. Woodward, J. Woolfenden, S.B. Hooker, J-F. Berthon, C.D. Dempsey, D.J. Suggett, P. Wood, C. Donlon, N. González-Benítez, I. Huskin, M. Quevedo, R. Barciela-Fernandez, C. de Vargas, and C. McKee, 1998: AMT-5 Cruise Report. *NASA Tech. Memo. 1998–206892, Vol. 2*, S.B. Hooker and E.R. Firestone, Eds., NASA Goddard Space Flight Center, Greenbelt, Maryland, 113 pp.
- , N.W. Rees, S. Hooker, P. Holligan, A. Bale, D. Robins, G. Moore, R. Harris, and D. Pilgrim, 2000: The Atlantic Meridional Transect: overview and synthesis of data. *Prog. Oceanogr.*, **45**, 257–312.
- Ainsworth, E.J., and F.S. Patt, 2000: “Modifications to the TOMS ozone ancillary data interpolation.” In: McClain, C.R., E.J. Ainsworth, R.A. Barnes, R.E. Eplee, Jr., F.S. Patt, W.D. Robinson, M. Wang, and S.W. Bailey, SeaWiFS Postlaunch Calibration and Validation Analyses, Part 1. *NASA Tech. Memo. 2000–206892, Vol. 9*, S.B. Hooker and E.R. Firestone, Eds., NASA Goddard Space Flight Center, Greenbelt, Maryland, 69–73.
- Ångström, A., 1929: On the atmospheric transmission of sun radiation and on dust in the air. *Geogr. Ann.*, **12**, 130–159.
- , 1961: Techniques of determining the turbidity of the atmosphere. *Tellus*, **13**, 214–223.
- Antoine, D., and P. Guevel, 2000: Calibration and validation of satellite ocean color observations: The BOUSSOLE Project. *Proc. Ocean Optics XV*, Monaco, October 16–20, 2000. [Available on CD-ROM: Office of Naval Research, Washington, DC].
- Artegiani, A., D. Bregant, E. Paschini, N. Pinardi, F. Raicich, and A. Russo, 1997a: The Adriatic Sea general circulation, Part I: Air-sea interactions and water mass structure. *J. Phys. Oceanogr.*, **27**, 1,492–1,514.
- , —, —, —, —, and —, 1997b: The Adriatic Sea general circulation, Part II: Baroclinic circulation structure. *J. Phys. Oceanogr.*, **27**, 1,515–1,532.
- ASTM, 1997: “E1256–95, standard test methods for radiation thermometers (single waveband type).” Temperature Measurement, Vol. 14.03, Sect. 14, General Methods and Instrumentation, *Annual Book of ASTM Standards*, American Society of Testing and Materials, Philadelphia, Pennsylvania, 437–443.
- Austin, R.W., 1974: The remote sensing of spectral radiance from below the ocean surface. In: *Optical Aspects of Oceanography*, N.G. Jerlov and E.S. Nielsen, Eds., Academic Press, London, 317–344.
- , 1980: Gulf of Mexico, ocean color surface truth measurements. *Bound.-Layer Meteorol.*, **18**, 269–285.
- , and G. Halikas, 1976: The index of refraction of seawater. *SIO Ref. 76-1*, Vis. Lab., Scripps Institution of Oceanography, La Jolla, California, 64 pp.
- , and T.J. Petzold, 1981: The determination of the diffuse attenuation coefficient of sea water using the Coastal Zone Color Scanner. In: *Oceanography from Space*, J.F.R. Gower, Ed., Plenum Press, 239–256.

— B —

- Bailey, S.W., C.R. McClain, P.J. Werdell, and B.D. Schieber, 2000: “Normalized water-leaving radiance and chlorophyll *a* match-up analyses.” In: McClain, C.R., R.A. Barnes, R.E. Eplee, Jr., B.A. Franz, N.C. Hsu, F.S. Patt, C.M. Pietras, W.D. Robinson, B.D. Schieber, G.M. Schmidt, M. Wang, S.W. Bailey, and P.J. Werdell, SeaWiFS Postlaunch Calibration and Validation Analyses, Part 2. *NASA Tech. Memo. 2000–206892, Vol. 10*, S.B. Hooker and E.R. Firestone, Eds., NASA Goddard Space Flight Center, Greenbelt, Maryland, 45–52.
- Barlow, R.G., R.F.C. Mantoura, M.A. Gough, and T.W. Fileman, 1993: Pigment signatures of the phytoplankton composition in the northeastern Atlantic during the 1990 spring bloom. *Deep-Sea Res. II*, **40**, 459–477.
- , D.G. Cummings, and S.W. Gibb, 1997: Improved resolution of mono- and divinyl chlorophylls *a* and *b* and zeaxanthin and lutein in phytoplankton extracts using reverse phase C-8 HPLC. *Mar. Ecol. Prog. Ser.*, **161**, 303–307.
- Barnes, R.A., 1994: *SeaWiFS Data: Actual and Simulated*. [World Wide Web page.] From URLs: <http://seawifs.gsfc.nasa.gov/SEAWIFS/IMAGES/spectra1.dat> and [/spectra2.dat](http://seawifs.gsfc.nasa.gov/SEAWIFS/IMAGES/spectra2.dat) NASA Goddard Space Flight Center, Greenbelt, Maryland.
- , 1996a: “Calculation of an equivalent blackbody temperature for the GSFC sphere.” In: Barnes, R.A., E-n. Yeh, and R.E. Eplee, SeaWiFS Calibration Topics, Part 1. *NASA Tech. Memo. 104566, Vol. 39*, S.B. Hooker and E.R. Firestone, Eds., NASA Goddard Space Flight Center, Greenbelt, Maryland, 5–17.
- , 1996b: “A comparison of the spectral responses of SeaWiFS and the SeaWiFS Transfer Radiometer.” In: Barnes, R.A., E-n. Yeh, and R.E. Eplee, SeaWiFS Calibration Topics, Part 1. *NASA Tech. Memo. 104566, Vol. 39*, S.B. Hooker and E.R. Firestone, Eds., NASA Goddard Space Flight Center, Greenbelt, Maryland, 39–48.
- , 1996c: “SeaWiFS center wavelengths.” In: Barnes, R.A., E-n. Yeh, and R.E. Eplee, SeaWiFS Calibration Topics, Part 1. *NASA Tech. Memo. 104566, Vol. 39*, S.B. Hooker and E.R. Firestone, Eds., NASA Goddard Space Flight Center, Greenbelt, Maryland, 49–53.
- , 1997: “SeaWiFS measurements in orbit: Band-averaged spectral radiance.” In: Barnes, R.A., R.E. Eplee, E-n. Yeh, and W.E. Esaias, SeaWiFS Calibration Topics, Part 2. *NASA Tech. Memo. 104566, Vol. 40*, S.B. Hooker and E.R. Firestone Eds., NASA Goddard Space Flight Center, Greenbelt, Maryland, 48–55.

- , and A.W. Holmes, 1993: Overview of the SeaWiFS ocean sensor. *Proc. SPIE*, **1939**, 224–232.
- , W.L. Barnes, W.E. Esaias, and C.R. McClain, 1994a: Prelaunch Acceptance Report for the SeaWiFS Radiometer. *NASA Tech. Memo. 104566*, Vol. 22, S.B. Hooker, E.R. Firestone, and J.G. Acker, Eds., NASA Goddard Space Flight Center, Greenbelt, Maryland, 32 pp.
- , A.W. Holmes, W.L. Barnes, W.E. Esaias, C.R. McClain, and T. Svitek, 1994b: SeaWiFS Prelaunch Radiometric Calibration and Spectral Characterization. *NASA Tech. Memo. 104566*, Vol. 23, S.B. Hooker, E.R. Firestone, and J.G. Acker, Eds., NASA Goddard Space Flight Center, Greenbelt, Maryland, 55 pp.
- , —, and W.E. Esaias, 1995: Stray Light in the SeaWiFS Radiometer. *NASA Tech. Memo. 104566*, Vol. 31, S.B. Hooker, E.R. Firestone, and J.G. Acker, Eds., NASA Goddard Space Flight Center, Greenbelt, Maryland, 76 pp.
- , and R.E. Eplee, Jr., 1996: “The SeaWiFS solar diffuser.” In: Barnes, R.A., E-n. Yeh, and R.E. Eplee, SeaWiFS Calibration Topics, Part 1. *NASA Tech. Memo. 104566*, Vol. 39, S.B. Hooker and E.R. Firestone Eds., NASA Goddard Space Flight Center, Greenbelt, Maryland, 54–61.
- , and E-n. Yeh, 1996: “Effects of source spectral shape in SeaWiFS radiance measurements.” In: Barnes, R.A., E-n. Yeh, and R.E. Eplee, SeaWiFS Calibration Topics, Part 1. *NASA Tech. Memo. 104566*, Vol. 39, S.B. Hooker and E.R. Firestone, Eds., NASA Goddard Space Flight Center, Greenbelt, Maryland, 18–38.
- , and R.E. Eplee, 1997a: “The 1993 SeaWiFS calibration using band-averaged spectral radiances.” In: Barnes, R.A., R.E. Eplee, E-n. Yeh, and W.E. Esaias, SeaWiFS Calibration Topics, Part 2. *NASA Tech. Memo. 104566*, Vol. 40, S.B. Hooker and E.R. Firestone, Eds., NASA Goddard Space Flight Center, Greenbelt, Maryland, 39–46.
- , and —, 1997b: “The 1993 SeaWiFS calibration using band-averaged spectral radiances.” In: Barnes, R.A., R.E. Eplee, E-n. Yeh, and W.E. Esaias, SeaWiFS Calibration Topics, Part 2. *NASA Tech. Memo. 104566*, Vol. 40, S.B. Hooker and E.R. Firestone Eds., NASA Goddard Space Flight Center, Greenbelt, Maryland, 39–47.
- , and W.E. Esaias, 1997: “A nominal top-of-the-atmosphere spectrum for SeaWiFS.” In: Barnes, R.A., R.E. Eplee, E-n. Yeh, and W.E. Esaias, SeaWiFS Calibration Topics, Part 2. *NASA Tech. Memo. 104566*, Vol. 40, S.B. Hooker and E.R. Firestone Eds., NASA Goddard Space Flight Center, Greenbelt, Maryland, 3–11.
- , R.E. Eplee, and F.S. Patt, 1998: “SeaWiFS measurements of the moon.” In: Sensors, Systems, and Next-Generation Satellites II, *SPIE*, **3498**, 311–324.
- , and C.R. McClain, 1999: “The calibration of SeaWiFS after two years on orbit.” In: Sensors, Systems, and Next-Generation Satellites V, *SPIE*, **3870**, 214–227.
- , R.E. Eplee, Jr., F.S. Patt, and C.R. McClain, 1999a: Changes in the radiometric sensitivity of SeaWiFS determined from lunar and solar-based measurements. *Appl. Opt.*, **38**, 4,649–4,664.
- , —, S.F. Biggar, K.J. Thome, E.F. Zalewski, P.M. Slatter, and A.W. Holmes, 1999b: The SeaWiFS Solar Radiation-Based Calibration and the Transfer-to-Orbit Experiment. *NASA Tech. Memo. 1999-206892*, Vol. 5, S.B. Hooker and E.R. Firestone, Eds., NASA Goddard Space Flight Center, Greenbelt, Maryland, 28 pp.
- , R.E. Eplee, Jr., G.M. Schmidt, F.S. Patt, and C.R. McClain, 2001: Calibration of SeaWiFS. I. Direct techniques. *Appl. Opt.*, **40**, 6,682–6,700.
- Berk, A., L.S. Bernstein, and D.C. Robertson, 1989: MODTRAN: A moderate resolution model for LOWTRAN7. *Tech. Report GL-TR-90-0122*, Geophysical Directorate Phillips Laboratory, Hanscom AFB, Massachusetts, 44 pp.
- Berthon, J-F., G. Zibordi, S. Grossi, D. van der Linde, and C. Targa, 1998: The CoASTS time-series of bio-optical measurements in the North Adriatic Sea: An analysis in view to interpretation of satellite color data in coastal waters. *Ocean Optics XIV*, Kailua-Kona, USA, 10–13 November 1998.
- , G. Zibordi, and S.B. Hooker, 2000: Marine optical measurements of a “mucilage” event in the northern Adriatic Sea, *Limnol. Oceanogr.*, **45**, 322–327.
- , —, D. D’Alimonte, S. Grossi, D. van der Linde, and C. Targa, 2001: Empirical relationships between apparent and inherent optical properties in the northern Adriatic Sea. Proc. Int. Conf. Current Problems in Optics of Natural Waters (ONW’2001), 25–28 September 2001, St. Petersburg, Russia, *Proc. D.S. Rozhdestvensky Opt. Soc.*, 311–317.
- , —, J.P. Doyle, S. Grossi, D. van der Linde, and C. Targa, 2002: Coastal Atmosphere and Sea Time Series (CoASTS), Part 2: Data Analysis. *NASA Tech. Memo. 2002-206892*, Vol. 20, S.B. Hooker and E.R. Firestone, Eds., NASA Goddard Space Flight Center, Greenbelt, Maryland, 25 pp.
- Bidigare, R.R., 1991: “Analysis of algal chlorophylls and carotenoids.” In: Marine Particles: Analysis and Characterization. *Geophysical Monograph 63*, D.C. Hurd and D.W. Spencer, Eds., American Geophysical Union, Washington, DC, 119–123.
- Biggar, S.F., 2001: A method for correcting the irradiance of standards of spectral irradiance (lamps) operated at non-standard distances. *Opt. Photonics News*, (withdrawn).
- , D.I. Gelman, and P.N. Slater, 1990: Improved evaluation of optical depth components from Langley plot data. *Remote Sens. Environ.*, **32**, 91–101.
- , K.J. Thome, P.N. Slater, A.W. Holmes, and R.A. Barnes, 1993: Preflight solar radiation-based calibration of SeaWiFS. *SPIE*, **1939**, 233–242.
- , P.N. Slater, K.J. Thome, A.W. Holmes, and R.A. Barnes, 1994: “Preflight solar-based calibration of SeaWiFS.” In: McClain, C.R., R.S. Fraser, J.T. McLean, M. Darzi, J.K. Firestone, F.S. Patt, B.D. Schieber, R.H. Woodward, E-n. Yeh, S. Mattoo, S.F. Biggar, P.N. Slater, K.J. Thome, A.W. Holmes, R.A. Barnes, and K.J. Voss, Case Studies for SeaWiFS Calibration and Validation, Part 2. *NASA Tech. Memo. 104566*, Vol. 19, S.B. Hooker, E.R. Firestone, and J.G. Acker, Eds., NASA Goddard Space Flight Center, Greenbelt, Maryland, 25–32.

- , K.J. Thome, P.N. Slater, A.W. Holmes, and R.A. Barnes, 1995: “Second SeaWiFS preflight solar radiation-based calibration experiment.” In: Mueller, J.L., R.S. Fraser, S.F. Biggar, K.J. Thome, P.N. Slater, A.W. Holmes, R.A. Barnes, C.T. Weir, D.A. Siegel, D.W. Menzies, A.F. Michaels, and G. Podesta, Case Studies for SeaWiFS Calibration and Validation, Part 3. *NASA Tech. Memo. 104566, Vol. 27*, S.B. Hooker, E.R. Firestone, and J.G. Acker, Eds., NASA Goddard Space Flight Center, Greenbelt, Maryland, 20–24.
- Bjornland, T., and S. Liaaen-Jensen, 1989: Distribution patterns of carotenoids in relation to chromophyte phylogeny and systematics. In: *The Chromophyte Algae: Problems and Perspectives*. J.C. Green, B.S.C. Leadbeater, and W.L. Diver, Eds., Clarendon Press, Oxford, 37–61.
- Bonzagni, M., U. Amato, R. Rizzi, and R. Guzzi, 1989: Evaluation of the shadowband effect on a 2π spectroradiometer. *Appl. Opt.*, **28**, 2,199–2,201.
- Brewer, P.G., and J.P. Riley, 1965: The automatic determination of nitrate in sea water. *Deep-Sea Res.*, **12**, 765–772.
- Bricaud, A., M. Babin, A. Morel, and H. Claustre, 1995: Variability in the chlorophyll-specific absorption coefficients of natural phytoplankton: Analysis and parameterization. *J. Geophys. Res.*, **100**, 13,321–13,332.
- , A. Morel, M. Babin, K. Allali, and H. Claustre, 1998: Variations of light absorption by suspended particles with chlorophyll *a* concentration in oceanic (Case-1) waters: Analysis and implications for bio-optical models. *J. Geophys. Res.*, **103**, 31,033–31,044.
- Briegleb, B.P., and V. Ramanathan, 1982: Spectral and diurnal variations in clear sky planetary albedo. *J. Climate Appl. Meteor.*, **21**, 1,168–1,171.
- Brown, C.W., 1995: “Classification of coccolithophore blooms in ocean color imagery.” In: McClain, C.R., W.E. Esaias, M. Darzi, F.S. Patt, R.H. Evans, J.W. Brown, K.R. Arrigo, C.W. Brown, R.A. Barnes, and L. Kumar, Case Studies for SeaWiFS Calibration and Validation, Part 4. *NASA Tech. Memo. 104566, Vol. 28*, S.B. Hooker, E.R. Firestone, and J.G. Acker, Eds., NASA Goddard Space Flight Center, Greenbelt, Maryland, 13–19.
- , and J.A. Yoder, 1994: Coccolithophorid blooms in the global ocean. *J. Geophys. Res.*, **99**, 7,467–7,482.
- Bruegge, C.J., V.G. Duval, N.L. Chrien, and D.J. Diner, 1993: Calibration plans for the multi-angle, imaging spectroradiometer (MISR). *Metrologia*, **30**, 231–221.
- Bukata, R.P., J.H. Jerome, and J.E. Bruton, 1988: Particulate concentrations in Lake St. Clair as recorded by a shipborne multispectral optical monitoring system. *Remote Sens. Environ.*, **25**, 201–229.
- , —, K.Y. Kondratyev, and D.V. Pozdnyakov, 1995: *Optical Properties and Remote Sensing of Inland and Coastal Waters*. CRC Press, Boca Raton, Florida, 362 pp.
- Bustillos-Guzmán, J., H. Claustre, and J.C. Marty, 1995: Specific phytoplankton signatures and their relationship to hydrographic conditions in the coastal northwestern Mediterranean Sea. *Mar. Ecol. Prog. Ser.*, **124**, 247–258.
- Butler, J.J., and B.C. Johnson, 1996: EOS radiometric measurement comparisons at Hughes Santa Barbara Remote Sensing and NASA’s Jet Propulsion Laboratory. *The Earth Observer*, **8**(5), 17–19.
- Carder, K.L., and R.G. Steward, 1985: A remote sensing reflectance model of a red tide dinoflagellate off West Florida. *Limnol. Oceanogr.*, **30**, 286–298.
- , S.K. Hawes, K.A. Baker, R.C. Smith, R.G. Steward, and B.G. Mitchell, 1991: Reflectance model for quantifying chlorophyll *a* in the presence of productivity degradation products. *J. Geophys. Res.*, **96**, 20,599–20,611.
- , F.R. Chen, Z.P. Lee, and S.K. Hawes, 1999: Semi-analytic Moderate-Resolution Imaging Spectrometer algorithms for chlorophyll *a* and absorption with bio-optical domains based on nitrate-depletion temperatures. *J. Geophys. Res.*, **104**, 5,403–5,421.
- Charlson, R.J., J.E. Lovelock, M.O. Andreae, and S.G. Warren, 1987: Oceanic phytoplankton, atmospheric sulphur, cloud albedo, and climate. *Nature*, **326**, 655–661.
- , S.E. Schwartz, J.M. Hales, R.D. Cess, J.A. Coakley, J.E. Hansen, and D.J. Hofmann, 1992: Climate forcing by anthropogenic aerosols. *Science*, **255**, 423–430.
- Chen, L.C., and G.M. Lerner, 1978: “Sun sensor models.” In: Wertz, J.R., *Spacecraft Attitude Determination and Control*, D. Reidel Publishing Company, Dordrecht, Holland, 224–227.
- Chisholm, S.W., R.J. Olson, E.R. Zettler, R. Goericke, J.B. Waterbury, and N.A. Welschmeyer, 1988: A novel free-living prochlorophyte abundant in the oceanic euphotic zone. *Nature*, **334**, 340–343.
- Clark, D., H.R. Gordon, K.J. Voss, Y. Ge, W. Broenkow, and C. Trees, 1997: Validation of atmospheric correction over the oceans. *J. Geophys. Res.*, **102**, 17,209–17,217.
- , M.E. Feinholz, M.A. Yarbrough, B.C. Johnson, S.W. Brown, Y.S. Kim, and R.A. Barnes, 2001: “Overview of the radiometric calibration of MOBY.” In: Earth Observing Systems VI, *SPIE*, **4483**, 64–76.
- Claustre, H., 1994: Phytoplankton pigment signatures of the trophic status in various oceanic regimes. *Limnol. Oceanogr.*, **39**, 1,207–1,211.
- , P. Kerhervé, J-C. Marty, L. Prieur, and J.H. Hecq, 1994: Phytoplankton distribution associated with a geostrophic front: ecological and biogeochemical implications. *J. Mar. Res.*, **52**, 711–742.
- Cox, C., and W. Munk, 1954: Measurements of the roughness of the sea surface from photographs of the sun’s glitter. *J. Opt. Soc. Am.*, **44**, 838–850.
- Curcio, J.A., and C.C. Petty, 1951: The near infrared absorption spectrum of liquid water. *J. Opt. Soc. Amer.*, **41**, 302–305.

— C —

- D’Alimonte, D., G. Zibordi, and J-F. Berthon, 2001: “The JRC data processing system.” In: Hooker, S.B., G. Zibordi J-F. Berthon, D. D’Alimonte, S. Maritorena, S. McLean, and J. Sildam, Results of the Second SeaWiFS Data Analysis Round Robin, March 2000 (DARR-00). *NASA Tech. Memo. 2001-206892, Vol. 15*, S.B. Hooker and E.R. Firestone, Eds., NASA Goddard Space Flight Center, Greenbelt, Maryland, 71 pp.

— D —

- Darzi, M., 1998: SeaWiFS Algorithm Flow Chart. *NASA Contractor Report 1998-206848*, NASA Goddard Space Flight Center, Greenbelt, Maryland, 36 pp.
- , F.S. Patt, and L. Kumar, 1995: “Algorithm for the application of the sensor calibration for SeaWiFS level-2 processing.” In: McClain, C.R., K. Arrigo, W.E. Esaias, M. Darzi, F.S. Patt, R.H. Evans, J.W. Brown, C.W. Brown, R.A. Barnes, and L. Kumar, SeaWiFS Algorithms, Part 1. *NASA Tech. Memo. 104566, Vol. 28*, S.B. Hooker, E.R. Firestone, and J.G. Acker, Eds., NASA Goddard Space Flight Center, Greenbelt, Maryland, 26–32.
- Dave, J.V., 1972: Development of programs for computing characteristics of ultraviolet radiation, *Tech. Rept.*, Vector Case, IBM Corp., Fed. Syst. Div., Gaithersburg, Maryland, 337 pp.
- Davies, B.H., 1976: Carotenoids. In: *Chemistry and Biochemistry of Plant Pigments, Volume 2, 2nd Edition*. T.W. Goodwin, Ed., Academic Press, London, 38–165.
- Dedieu, G., P-Y. Deschamps, and Y.H. Kerr, 1987: Satellite estimation of solar irradiance at the surface of the earth and of surface albedo using a physical model applied to Meteosat data. *J. Climate Appl. Meteor.*, **26**, 79–87.
- De Santis, L.V., C. Tomasi, and V. Vital, 1994: Characterization of Ångström’s turbidity parameters in the Po Valley area for summer conditions of the atmosphere. *Il Nuovo Cimento*, **17C**, 407–430.
- Deschamps, P.Y., M. Herman, and D. Tanré, 1983: Modeling of the atmospheric effects and its application to the remote sensing of ocean color. *Appl. Opt.*, **22**, 3,751–3,758.
- DeWitt, D.P., and J.C. Richmond, 1988: “Thermal radiative properties of materials.” In: *Theory and Practice of Radiation Thermometry*, D.P. DeWitt and G.D. Nutter, Eds., John Wiley and Sons, Inc., New York, 91–187.
- Diehl, H.P., and H. Haardt, 1980: Measurement of the spectral attenuation to support biological research in a “plankton tube” experiment. *Oceanol. Acta*, **3**, 89–96.
- Ding, K., and H.R. Gordon, 1994: Atmospheric correction of ocean-color sensors: effects of the Earth’s curvature., *Appl. Opt.*, **33**, 7,096–7,106.
- Doyle, J.P., and G. Zibordi, 1998: Correction of oceanographic tower-shading effects on in-water optical measurements. *Proc. Ocean Optics XIV*, [Available on CD-ROM], Office of Naval Research, Washington, DC.
- , and —, 2002: Monte Carlo modeling of optical transmission within 3-D shadowed field: Application to large deployment structures, **41**, 4,283–4,306.
- E —
- Early, E.A., and B.C. Johnson, 1997: “Calibration and characterization of the GSFC sphere.” In: Yeh, E-n., R.A. Barnes, M. Darzi, L. Kumar, E.A. Early, B.C. Johnson, and J.L. Mueller, Case Studies for SeaWiFS Calibration and Validation, Part 4. *NASA Tech. Memo. 104566, Vol. 41*, S.B. Hooker and E.R. Firestone, Eds., NASA Goddard Space Flight Center, Greenbelt, Maryland, 3–17.
- , E.A. Thompson, and P. Disterhoff, 1998a: A field calibration unit for ultraviolet spectroradiometers. *Appl. Opt.*, **37**, 6,664–6,670.
- , A. Thompson, B.C. Johnson, J. DeLuisi, P. Disterhoff, D. Wardle, E. Wu, W. Mou, J. Ehramjian, J. Tusson, T. Mestechkina, M. Beaubian, J. Gibson, and D. Hayes, 1998b: The 1996 North American interagency intercomparison of ultraviolet monitoring spectroradiometers. *J. Res. NIST*, **103**, 449–482.
- , —, —, —, —, —, —, —, —, Y. Sun, T. Lucas, T. Mestechkina, L. Harrison, J. Berndt, and D. Hayes, 1998c: The 1995 North American interagency intercomparison of ultraviolet monitoring spectroradiometers. *J. Res. NIST*, **103**, 15–62.
- , P.Y. Barnes, B.C. Johnson, J.J. Butler, C.J. Bruegge, S.F. Biggar, P.R. Spyak, and M.M. Pavlov, 2000: Bidirectional reflectance round-robin in support of the Earth Observing System Program. *J. Atmos. Ocean. Technol.*, **17**, 1,077–1,091.
- Emery, W.J., and J.S. Dewar, 1982: Mean temperature and salinity-depth and temperature-depth curves for the North Atlantic and the North Pacific. *Prog. Oceanogr.*, **11**, 219–305.
- Eplee, R.E., Jr., and R.A. Barnes, 1997: “The SeaWiFS temperature calibration.” In: Barnes, R.A., R.E. Eplee, E-n. Yeh, and W.E. Esaias, SeaWiFS Calibration Topics, Part 2. *NASA Tech. Memo. 104566, Vol. 40*, S.B. Hooker and E.R. Firestone, Eds., NASA Goddard Space Flight Center, Greenbelt, Maryland, 56–62.
- , and —, 2000: “Lunar data analysis for SeaWiFS calibration.” In: McClain, C.R., E.J. Ainsworth, R.A. Barnes, R.E. Eplee, Jr., F.S. Patt, W.D. Robinson, M. Wang, and S.W. Bailey, SeaWiFS Postlaunch Calibration and Validation Analyses, Part 1. *NASA Tech. Memo. 2000-206892, Vol. 9*, S.B. Hooker and E.R. Firestone, Eds., NASA Goddard Space Flight Center, Greenbelt, Maryland, 17–27.
- , and C.R. McClain, 2000a: “MOBY data analysis for vicarious calibration of SeaWiFS bands 1–6.” In: McClain, C.R., E.J. Ainsworth, R.A. Barnes, R.E. Eplee, Jr., F.S. Patt, W.D. Robinson, M. Wang, and S.W. Bailey, SeaWiFS Postlaunch Calibration and Validation Analyses, Part 1. *NASA Tech. Memo. 2000-206892, Vol. 9*, S.B. Hooker and E.R. Firestone, Eds., NASA Goddard Space Flight Center, Greenbelt, Maryland, 43–50.
- , and —, 2000b: “SeaWiFS global clear-water analysis.” In: McClain, C.R., R.A. Barnes, R.E. Eplee, Jr., B.A. Franz, N.C. Hsu, F.S. Patt, C.M. Pietras, W.D. Robinson, B.D. Schieber, G.M. Schmidt, M. Wang, S.W. Bailey, and P.J. Werdell, SeaWiFS Postlaunch Calibration and Validation Analyses, Part 2. *NASA Tech. Memo. 2000-206892, Vol. 10*, S.B. Hooker and E.R. Firestone, Eds., NASA Goddard Space Flight Center, Greenbelt, Maryland, 29–33.
- , and F.S. Patt, 2000: “Cloud-top radiance analysis for SeaWiFS bilinear gain knee calibration.” In: McClain, C.R., E.J. Ainsworth, R.A. Barnes, R.E. Eplee, Jr., F.S. Patt, W.D. Robinson, M. Wang, and S.W. Bailey, SeaWiFS Postlaunch Calibration and Validation Analyses, Part 1. *NASA Tech. Memo. 2000-206892, Vol. 9*, S.B. Hooker and E.R. Firestone, Eds., NASA Goddard Space Flight Center, Greenbelt, Maryland, 13–16.

- , R.A. Barnes, and F.S. Patt, 2000: “Solar data analysis for SeaWiFS calibration.” In: McClain, C.R., E.J. Ainsworth, R.A. Barnes, R.E. Eplee, Jr., F.S. Patt, W.D. Robinson, M. Wang, and S.W. Bailey, *SeaWiFS Postlaunch Calibration and Validation Analyses, Part 1. NASA Tech. Memo. 2000-206892, Vol. 9*, S.B. Hooker and E.R. Firestone, Eds., NASA Goddard Space Flight Center, Greenbelt, Maryland, 28–37.
- , W.D. Robinson, S.W. Bailey, D.K. Clark, P.J. Werdell, M. Wang, R.A. Barnes, and C.R. McClain, 2001: Calibration of SeaWiFS. II. Vicarious techniques. *Appl. Opt.*, **40**, 6,701–6,718.
- Eppeldauer, G., 1991: Temperature monitored/controlled silicon photodiodes for standardization. *SPIE*, **1479**, 71–77.
- , and J.E. Hardis, 1991: Fourteen decade photocurrent measurements with large area silicon photodiodes at room temperature. *Appl. Opt.*, **30**, 3,091–3,099.
- Evans, R.H., and H.R. Gordon, 1994: Coastal zone color scanner “system calibration”: A retrospective examination. *J. Geophys. Res.*, **99**, 7,293–7,307.
- F —
- Fallon, L., 1978: “Recursive least-squares estimators and Kalman filters.” In: Wertz, J.R., *Spacecraft Attitude Determination and Control*, D. Reidel Publishing Company, Dordrecht, Holland, 459–469.
- , and P.V. Rigterink, 1978: “Introduction to estimation theory.” In: Wertz, J.R., *Spacecraft Attitude Determination and Control*, D. Reidel Publishing Company, Dordrecht, Holland, 447–451.
- Fargion, G.S., and J.L. Mueller, 2000: Ocean Optics Protocols for Satellite Ocean Color Sensor Validation, Revision 2, *NASA Tech. Memo. 2000-209966*, NASA Goddard Space Flight Center, Greenbelt, Maryland, 184 pp.
- , and C.R. McClain, 2001: SIMBIOS Project 2000 Annual Report, *NASA Tech. Memo. 2001-209976* NASA Goddard Space Flight Center, Greenbelt, Maryland, 164 pp.
- Ferrari, G.M., M.D. Dowell, S. Grossi, and C. Targa, 1996: Relationship between the optical properties of chromophoric dissolved organic matter and total concentration of dissolved organic carbon in the southern Baltic Sea region. *Mar. Chem.*, **55**, 299–316.
- , and —, 1999: A method for removal of light-absorption by phytoplankton pigments using chemical oxidation. *J. Phycol.*, **35**, 1,090–1,098.
- Firestone, E.R., and S.B. Hooker, 1998: SeaWiFS Prelaunch Technical Report Series Final Cumulative Index. *NASA Tech. Memo. 1998-104566, Vol. 43*, S.B. Hooker and E.R. Firestone, Eds., NASA Goddard Space Flight Center, Greenbelt, Maryland, 4–8.
- Firestone, J.K., R.H. Woodward, and C.R. McClain, 1994: “An evaluation of surface wind products for use in SeaWiFS.” In: McClain, C.R., R.S. Fraser, J.T. McLean, M. Darzi, J.K. Firestone, F.S. Patt, B.D. Schieber, R.H. Woodward, E-n. Yeh, S. Mattoo, S.F. Biggar, P.N. Slater, K.J. Thome, A.W. Holmes, R.A. Barnes, and K.J. Voss, Case Studies for SeaWiFS Calibration and Validation, Part 2. *NASA Tech. Memo. 104566, Vol. 19*, S.B. Hooker and E.R. Firestone, Eds., NASA Goddard Space Flight Center, Greenbelt, Maryland, 50–64.
- Flittner, D.E., and P.N. Slater, 1991: Stability of narrow-band filter radiometers in the solar-reflected range. *Photogramm. Eng. Remote Sens.*, **57**, 165–171.
- Fougnie, B., R. Frouin, P. Lecompte, P-Y. Deschamps, 1999a: Reduction of skylight reflection effects in the above-water measurements of diffuse marine reflectance. *Appl. Opt.*, **38**, 3,844–3,856.
- , P-Y. Deschamps, R. Frouin, 1999b: Vicarious calibration of the POLDER ocean color spectral bands using *in situ* measurements. *IEEE Trans. Geosci. Remote Sens.*, **37**, 1,567–1,574.
- Fowler, J.B., 1977: The electronic aspects of the NBS detector response and intercomparison package and laser stabilization facility. *Electro-Optics/Laser 77 Conference and Exposition*, Industrial and Scientific Conference Management, Chicago, Illinois, 689–695.
- Fraser, R.S., S. Mattoo, E-n. Yeh, and C.R. McClain, 1997: Algorithm for atmospheric and glint corrections of satellite measurements of ocean pigment. *J. Geophys. Res.*, **102**, 17,107–17,118.
- Fröhlich, C., and G.E. Shaw, 1980: New determination of Rayleigh scattering in the terrestrial atmosphere. *Appl. Opt.*, **19**, 1,773–1,775.
- Frouin, R., D.W. Lingner, K. Baker, C. Gautier, and R. Smith, 1989: A simple analytical formula to compute clear sky total and photosynthetically available solar irradiance at the ocean surface. *J. Geophys. Res.*, **94**, 9,731–9,742.
- , and B. Chertock, 1992: A technique for global monitoring of net solar irradiance at the ocean surface. Part I: Model. *J. Appl. Meteor.*, **31**, 1,056–1,066.
- , M. Schwindling, and P.Y. Deschamps, 1996: Spectral reflectance of sea foam in the visible and near infrared: *In situ* measurements and remote sensing implications. *J. Geophys. Res.*, **101**, 14,361–14,371.
- Fu, G., K.S. Baith, and C.R. McClain, 1998: SeaDAS: The SeaWiFS Data Analysis System. *Proc. 4th Pacific Ocean Remote Sensing Conf.*, Qingdao, China, 28–31 July 1998, 73–79.
- Fukushima, H., M. Schmidt, B.J. Sohn, M. Toratani, and I. Uno, 1999: Detection of dust loaded airmass in SeaWiFS Imagery: an empirical dust index in comparison with model-predicted dust distribution over the Pacific in April 1998, *Proc. Int. Symp. Remote Sens. '99*, Korean Society of Remote Sensing, ISSN 1226-9743, 89–94.
- Furnas, M.J., 1990: *In situ* growth rates of marine phytoplankton: approaches to measurement, community and species growth rates. *J. Plank. Res.*, **12**, 1,117–1,151.

- G -

- Garside, C., 1982: Chemiluminescent technique for the determination of nanomolar concentrations of nitrate and nitrite in seawater. *Mar. Chem.*, **11**, 159–167.
- Gentile, T.R., and J.M. Houston, J.E. Hardis, C.L. Cromer, and A.C. Parr, 1996: National Institute of Standards and Technology High-accuracy Cryogenic Radiometer. *Appl. Opt.*, **35**, 1,056–1,068.
- Gibb, S.W., J.W. Wood, and R.F.C. Mantoura, 1995: Automation of flow injection gas diffusion-ion chromatography for the nanomolar determination of methylamines and ammonia in seawater and atmospheric samples. *J. Autom. Chem.*, **17**, 205–212.
- , R.F.C. Mantoura, P.S. Liss, and R.G. Barlow, 1998: Distribution and biogeochemistry of methylamines and ammonia in the Arabian Sea. *Deep-Sea Res.*, **46**, 593–615.
- Gilmartin, M., and N. Revelante, 1980: Nutrient input and the summer nanoplankton bloom in the northern Adriatic Sea. *Mar. Ecol.*, **1**, 169–180.
- , D. Degobbis, N. Relevant, and N. Smoldlaka, 1990: The mechanism controlling plant nutrient concentrations in the Northern Adriatic Sea. *Int. Revue Ges. Hydrobiol.*, **75**, 425–445.
- Gordon, H.R., 1981: A preliminary assessment of the Nimbus-7 CZCS atmospheric correction algorithm in a horizontally inhomogeneous atmosphere. In: *Oceanography from Space*, J.F.R. Gower, Ed., Plenum Press, 257–266.
- , 1995: Remote sensing of ocean color: A methodology for dealing with broad spectral bands and significant out-of-band response. *Appl. Opt.*, **34**, 8,363–8,374.
- , 1998: In-orbit calibration strategy for ocean color sensors. *Remote Sens. Environ.*, **63**, 265–278.
- , and W.R. McCluney, 1975: Estimation of the depth of sunlight penetration in the sea for remote sensing. *Appl. Opt.*, **14**, 413–416.
- , and D.K. Clark, 1981: Clear water radiances for atmospheric correction of coastal zone color scanner imagery. *Appl. Opt.*, **20**, 4,175–4,180.
- , —, J.W. Brown, O.B. Brown, R.H. Evans, and W.W. Broenkow, 1983: Phytoplankton pigment concentrations in the Middle Atlantic bight: comparison between ship determinations and Coastal Zone Color Scanner estimates. *Appl. Opt.*, **22**, 20–26.
- , J.W. Brown, and R.H. Evans, 1988a: Exact Rayleigh scattering calculations for use with the Nimbus-7 Coastal Zone Color Scanner. *Appl. Opt.*, **27**, 862–871.
- , O.B. Brown, R.H. Evans, J.W. Brown, R.C. Smith, K.S. Baker, and D.K. Clark, 1988b: A semianalytic radiance model of ocean color, *J. Geophys. Res.*, **93**, 10,909–10,924.
- , and K. Ding, 1992: Self shading of in-water optical instruments. *Limnol. Oceanogr.*, **37**, 491–500.
- , and M. Wang, 1992: Surface roughness considerations for atmospheric correction of ocean color sensors. 1: Rayleigh scattering component. *Appl. Opt.*, **31**, 4,247–4,260.
- , and —, 1994a: Retrieval of water-leaving radiance and aerosol optical thickness over the oceans with SeaWiFS: a preliminary algorithm. *Appl. Opt.*, **33**, 443–452.
- , and —, 1994b: Influence of oceanic whitecaps on atmospheric correction of ocean color sensors. *Appl. Opt.*, **33**, 7,354–7,763.
- Gould, R.W., and R.A. Arnone, 1994: Extending Coastal Zone Color Scanner estimates of the diffuse attenuation coefficient into case II waters. *SPIE, Ocean Optics XII*, **2258**, 342–356.
- , —, and M. Sydor, 1998: Testing a new remote sensing reflectance algorithm to estimate absorption and scattering in Case-2 Waters. [Available on CD-ROM], *SPIE Ocean Optics XII*, Hawaii.
- , —, and P.M. Martinolich, 1999: Spectral dependence of the scattering coefficient in Case-1 and Case-2 waters. *Appl. Opt.*, **38**, 2,377–2,383.
- Graeme, J.G., 1995: *Photodiode Amplifiers: Operational Amplifier Solutions*, McGraw-Hill, New York, 252 pp.
- Grasshoff, K., 1976: *Methods of Seawater Analysis*. Verlag Chemie, Weilheim, Germany, 317 pp.
- Green, S.A., and N. Blough, 1994: Optical absorption and fluorescence properties of chromophoric dissolved organic matter in natural waters. *Limnol. Oceanogr.*, **39**, 1,903–1,916.
- Gregg, W.W., F.S. Patt, and R.H. Woodward, 1993: The Simulated SeaWiFS Data Set, Version 1. *NASA Tech. Memo. 104566, Vol. 9*, S.B. Hooker, E.R. Firestone, and A.W. Indest, Eds., NASA Goddard Space Flight Center, Greenbelt, Maryland, 17 pp.
- , —, A.L. Mezaache, J.D. Chen, J.A. Whiting, 1994: The Simulated SeaWiFS Data Set, Version 2. *NASA Tech. Memo. 104566, Vol. 15*, S.B. Hooker and E.R. Firestone, Eds., NASA Goddard Space Flight Center, Greenbelt, Maryland, 42 pp., plus color plates.
- , and R.H. Woodward, 1998: Improvements in high frequency ocean color observations: Combining data from SeaWiFS and MODIS, *IEEE Trans. Geosci. Remote Sens.*, **36**, 1,350–1,353.
- Greenberg, A.E., L.S. Clesceri, and A.D. Eaton (Eds.), 1992: *Standard Methods for the Examination of Water and Wastewater, 18th Edition*. American Public Health Association, Washington, DC, 10–19.
- Guzzi, R., G. Maracci, R. Rizzi, and R. Siccardi, 1985: Spectroradiometer for ground-based atmospheric measurements related to remote sensing in the visible from a satellite. *Appl. Opt.*, **24**, 2,859–2,864.

- H -

- Hale, G.M., and M.R. Query, 1973: Optical constants of water in the 200-nm to 200 μm wavelength region. *Appl. Opt.*, **12**, 555–563.
- Hapke, B., 1986: Bidirectional reflectance spectroscopy. 4. Extinction and the opposition effect. *Icarus*, **67**, 246–280.
- Harrison, L., J. Michalsky, and J. Berndt, 1994: Automatic multifilter rotating shadow-band radiometer: An instrument for optical depth and radiation measurements. *Appl. Opt.*, **33**, 5,118–5,125.

- Heath, D.F., Z. Wei, W.K. Fowler, and V.W. Nelson, 1993: Comparison of spectral radiance calibrations of SBUV-2 satellite ozone monitoring instruments using integrating sphere and flat-plate diffuser techniques. *Metrologia*, **30**, 259–264.
- Helfenstein, P., and J. Veverka, 1987: Photometric properties of lunar terrains derived from Hapke's equation. *Icarus*, **72**, 342–357.
- Herman, J.R., P.K. Bhartia, O. Torres, N.C. Hsu, C.J. Seftor, and E. Celarier, 1997: Global distribution of UV-absorbing aerosols from Nimbus-7/TOMS data, *J. Geophys. Res.*, **102**, 16,911–16,922.
- Holben, B.N., T.F. Eck, I. Slutsker, D. Tanré, J.P. Buis, A. Setzer, E. Vermote, J.A. Reagan, Y.I. Kaufman, T. Nakajima, F. Lavenu, I. Jankowiak, and A. Smirnov, 1998: AERONET—A federated instrument network and data archive for aerosol characterization. *Remote Sens. Environ.*, **66**, 1–16.
- Holm-Hansen, O., C.J. Lorenzen, R.W. Holmes, and J.D.H. Strickland, 1965: Fluorometric determination of chlorophyll. *J. du Cons. Int'l. pour l'Explor. de la Mer*, **30**, 3–15.
- Hooker, S.B., W.E. Esaias, G.C. Feldman, W.W. Gregg, and C.R. McClain, 1992: An Overview of SeaWiFS and Ocean Color. *NASA Tech. Memo. 104566*, Vol. 1, S.B. Hooker and E.R. Firestone, Eds., NASA Goddard Space Flight Center, Greenbelt, Maryland, 24 pp., plus color plates.
- , and —, 1993: An overview of the SeaWiFS project. *Eos, Trans., Amer. Geophys. Union*, **74**, 241–246.
- , C.R. McClain, and A. Holmes, 1993a: Ocean color imaging: CZCS to SeaWiFS. *Marine Tech. Soc. J.*, **27**, 3–15.
- , W.E. Esaias, and L.A. Rexrode, 1993b: Proceedings of the First SeaWiFS Science Team Meeting. *NASA Tech. Memo. 104566*, Vol. 8, S.B. Hooker and E.R. Firestone, Eds., NASA Goddard Space Flight Center, Greenbelt, Maryland, 61 pp.
- , —, J.K. Firestone, T.L. Westphal, E. Yeh, and Y. Ge, 1994a: The SeaWiFS Bio-Optical Archive and Storage System (SeaBASS), Part 1. *NASA Tech. Memo. 104566*, Vol. 20, S.B. Hooker and E.R. Firestone, Eds., NASA Goddard Space Flight Center, Greenbelt, Maryland, 40 pp.
- , T.L. Westphal, Y. Ge, 1994b: "The SIRREX database." In: Hooker, S.B., C.R. McClain, J.K. Firestone, T.L. Westphal, E. Yeh, and Y. Ge, The SeaWiFS Bio-Optical Archive and Storage System (SeaBASS), Part 1. *NASA Tech. Memo. 104566*, Vol. 20, S.B. Hooker and E.R. Firestone, Eds., NASA Goddard Space Flight Center, Greenbelt, Maryland, 23–30.
- , C.R. McClain, J.K. Firestone, T.L. Westphal, E-n. Yeh, and Y. Ge, 1994c: The SeaWiFS Bio-Optical Archive and Storage System (SeaBASS), Part 1. *NASA Tech. Memo. 104566*, Vol. 20, S.B. Hooker and E.R. Firestone, Eds., NASA Goddard Space Flight Center, Greenbelt, Maryland, 40 pp.
- , and J. Aiken, 1998: Calibration evaluation and radiometric testing of field radiometers with the SeaWiFS Quality Monitor (SQM). *J. Atmos. Ocean. Technol.*, 995–1,007.
- , G. Zibordi, G. Lazin, and S. McLean, 1999: The SeaBOARR-98 Field Campaign. *NASA Tech. Memo. 1999–206892*, Vol. 3, S.B. Hooker and E.R. Firestone, Eds., NASA Goddard Space Flight Center, Greenbelt, Maryland, 40 pp.
- , and G. Lazin, 2000: The SeaBOARR-99 Field Campaign. *NASA Tech. Memo. 2000–206892*, Vol. 8, S.B. Hooker and E.R. Firestone, Eds., NASA Goddard Space Flight Center, 46 pp.
- , and S. Maritorena, 2000: An evaluation of oceanographic radiometers and deployment methodologies. *J. Atmos. Ocean. Technol.*, **17**, 811–830.
- , and C.R. McClain, 2000: The calibration and validation of SeaWiFS data. *Prog. Oceanogr.*, **45**, 427–465.
- , G. Zibordi, J-F. Berthon, S.W. Bailey, and C.M. Pietras, 2000a: The SeaWiFS Photometer Revision for Incident Surface Measurement (SeaPRISM) Field Commissioning. *NASA Tech. Memo. 2000–206892*, Vol. 13, S.B. Hooker and E.R. Firestone, Eds., NASA Goddard Space Flight Center, Greenbelt, Maryland, 24 pp.
- , H. Claustre, J. Ras, L. Van Heukelem, J-F. Berthon, C. Targa, D. van der Linde, R. Barlow, and H. Sessions, 2000b: The First SeaWiFS HPLC Analysis Round-Robin Experiment (SeaHARRE-1). *NASA Tech. Memo. 2000–206892*, Vol. 14, S.B. Hooker and E.R. Firestone, Eds., NASA Goddard Space Flight Center, Greenbelt, Maryland, 42 pp.
- , G. Zibordi, J-F. Berthon, D. D'Alimonte, S. Maritorena, S. McLean, and J. Sildam, 2001: Results of the Second SeaWiFS Data Analysis Round Robin, March 2000 (DARR-00). *NASA Tech. Memo. 2001–206892*, Vol. 15, S.B. Hooker and E.R. Firestone, Eds., NASA Goddard Space Flight Center, Greenbelt, Maryland, 71 pp.
- , S. McLean, J. Sherman, M. Small, G. Lazin, G. Zibordi, and J.W. Brown, 2002a: The Seventh SeaWiFS Intercalibration Round-Robin Experiment (SIRREX-7), March 1999. *NASA Tech. Memo. 2002–206892*, Vol. 17, S.B. Hooker and E.R. Firestone, Eds., NASA Goddard Space Flight Center, Greenbelt, Maryland, 69 pp.
- , G. Lazin, G. Zibordi, and S. McLean, 2002b: An evaluation of above- and in-water methods for determining water-leaving radiances. *J. Atmos. Ocean. Technol.*, **19**, 486–515.
- , and A. Morel, 2003: Platform and environmental effects on above- and in-water determinations of water-leaving radiances. *J. Atmos. Ocean. Technol.*, **20**, 187–205.
- Hsu, N.C., J.R. Herman, P.K. Bhartia, C.J. Seftor, O. Torres, A.M. Thompson, J.F. Gleason, T.F. Eck, and B.N. Holben, 1996: Detection of biomass burning smoke from TOMS measurements, *Geophys. Res. Lett.*, **23**, 745–748.
- , —, O. Torres, B.N. Holben, D. Tanre, T.F. Eck, A. Smirnov, B. Chatenet, and F. Lavenu, 1999: Comparisons of the TOMS aerosol index with sun photometer aerosol optical thickness: results and applications, *J. Geophys. Res.*, **104**, 6,269–6,279.

- , W.D. Robinson, S.W. Bailey, and P.J. Werdell, 2000: "The description of the SeaWiFS absorbing aerosol index." In: McClain, C.R., R.A. Barnes, R.E. Eplee, Jr., B.A. Franz, N.C. Hsu, F.S. Patt, C.M. Pietras, W.D. Robinson, B.D. Schieber, G.M. Schmidt, M. Wang, S.W. Bailey, and P.J. Werdell, SeaWiFS Postlaunch Calibration and Validation Analyses, Part 2. *NASA Tech. Memo. 2000-206892, Vol. 10*, S.B. Hooker and E.R. Firestone, Eds., NASA Goddard Space Flight Center, Greenbelt, Maryland, 3–5.
- Hu, C., K.L. Carder, and F.E. Mueller-Karger, 2000a: How precise are SeaWiFS ocean color estimates? Implications of digital noise errors. *Remote Sens. Environ.*, **76**, 239–249.
- , —, and —, 2000b: Atmospheric correction of SeaWiFS imagery over turbid coastal waters; a practical method. *Remote Sens. Environ.*, **74**, 195–206.

— I —

- International Organization for Standardization, 1993: *Guide to the Expression of Uncertainty in Measurement*, International Organization for Standardization, Geneva, Switzerland, 101 pp.

- IOCCG, 1998: Minimum Requirements for an Operational Ocean Colour Sensor for the open ocean. *Reports Int. Ocean-Colour Coordinating Group, Report Number 1*, 46 pp.

- Iqbal, M., 1983: *An Introduction to Solar Radiation*. Academic Press, New York, 390 pp.

— J —

- Jeffrey, S.W., 1972: Preparation and some properties of crystalline chlorophyll *c*₁ and chlorophyll *c*₂ from marine algae. *Biochim. Biophys. Acta.*, **279**, 15–33.

- , and F.T. Haxo, 1968: Photosynthetic pigments of symbiotic dinoflagellates (zooxanthallae) from corals and clams. *Biol. Bull.*, **135**, 149–165.

- , and J-M. LeRoi, 1997: Simple procedures for growing SCOR reference microalgal cultures. In: *Phytoplankton Pigments in Oceanography: Guidelines to Modern Methods*. S.W. Jeffrey, R.F.C. Mantoura, and S.W. Wright, Eds., UNESCO Publishing, Paris, 181–205.

- , and R.F.C. Mantoura, 1997: Appendix A: Pigment abbreviations used by SCOR WG 78. In: *Phytoplankton Pigments in Oceanography: Guidelines to Modern Methods*. S.W. Jeffrey, R.F.C. Mantoura, and S.W. Wright, Eds., UNESCO Publishing, Paris, 447–559.

- , —, and S.W. Wright, Eds., 1997a: "Phytoplankton Pigments in Oceanography: Guidelines to Modern Methods." UNESCO Monograph in Oceanographic Methods. *Report for SCOR WH 78, SCOR UNESCO Monographs on Oceanographic Methodology*. Paris, France, 661 pp.

- , —, and —, 1997b: *Phytoplankton Pigments in Oceanography: Guidelines to Modern Methods*. UNESCO Publishing, Paris, 661 pp.

- Johnson, B.C., S.S. Bruce, E.A. Early, J.M. Houston, T.R. O'Brian, A. Thompson, S.B. Hooker, and J.L. Mueller, 1996: The Fourth SeaWiFS Intercalibration Round-Robin Experiment, SIRREX-4, May 1995. *NASA Tech. Memo. 104566, Vol. 37*, S.B. Hooker and E.R. Firestone, Eds., NASA Goddard Space Flight Center, Greenbelt, Maryland, 66 pp.

- , F. Sakuma, J.J. Butler, S.F. Biggar, J.W. Cooper, J. Ishida, and K. Suzuki, 1997: Radiometric measurement comparison using the Ocean Color and Temperature Scanner (OCTS) visible and near infrared integrating sphere. *J. Res. NIST*, **102**, 627–646.

- , P.-S. Shaw, S.B. Hooker, and D. Lynch, 1998a: Radiometric and engineering performance of the SeaWiFS Quality Monitor (SQM): A portable light source for field radiometers. *J. Atmos. Ocean. Technol.*, **15**, 1,008–1,022.

- , J.B. Fowler, and C.L. Cromer, 1998b: The SeaWiFS Transfer Radiometer (SXR). *NASA Tech. Memo. 1998-206892, Vol. 1*, S.B. Hooker and E.R. Firestone, Eds., NASA Goddard Space Flight Center, Greenbelt, Maryland, 58 pp.

- , E.A. Early, R.E. Eplee, Jr., R.A. Barnes, and R.T. Cafrey, 1999a: The 1997 Prelaunch Calibration of SeaWiFS. *NASA Tech. Memo. 1999-206892, Vol. 4*, S.B. Hooker and E.R. Firestone, Eds., NASA Goddard Space Flight Center, Greenbelt, Maryland, 51 pp.

- , H.W. Yoon, S.S. Bruce, P-S. Shaw, A. Thompson, S.B. Hooker, R.E. Eplee, Jr., R.A. Barnes, S. Maritorena, and J.L. Mueller, 1999b: The Fifth SeaWiFS Intercalibration Round-Robin Experiment (SIRREX-5), July 1996. *NASA Tech. Memo. 1999-206892, Vol. 7*, S.B. Hooker and E.R. Firestone, Eds., NASA Goddard Space Flight Center, 75 pp.

- Joint Global Ocean Flux Study, 1991: JGOFS Core Measurements Protocols. *JGOFS Report No. 6*, Scientific Committee on Oceanic Research, 40 pp.

- , 1994: Protocols for the Joint Global Ocean Flux Study Core Measurements. Intergovernmental Oceanographic Commission, Scientific Committee on Oceanic Research. *Manual and Guides, UNESCO*, **29**, 91–96.

- Jonasz, M., 1983: Particle-size distributions in the Baltic. *Tellus*, **35B**, 346–358.

- Jones, R.D., 1991: An improved fluorescence method for the determination of nanomolar concentrations of ammonium in natural waters. *Limnol. Oceanogr.*, **36**, 814–819.

- Junge, C.E., 1963: Air chemistry and radioactivity. Academic Press, New York, 382 pp.

— K —

- Kahru, M., and B.G. Mitchell, 1998a: Spectral reflectance and absorption of a massive red tide off Southern California. *J. Geophys. Res.*, **103**, 21,601–21,609.

- , and —, 1998b: Evaluation of instrument self-shading and environmental errors on ocean color algorithms. *Proc. Ocean Optics XIV*, Kona, Hawaii, S. Ackleson and J. Campbell, Eds., [Available on CD-ROM.]

- , and —, 1999: Empirical chlorophyll algorithm and preliminary SeaWiFS validation for the California Current. *Int. J. Remote Sens.*, **20**, 3,423–3,429.
- Kasten, F., 1966: A new table and approximate formula for relative optical air mass. *Arch. Meteorol. Geophys. Bioklimatol. Ser. B*, **14**, 206–223.
- , and A.T. Young, 1989: Revised optical air mass tables: An approximation formula. *Appl. Opt.*, **28**, 4,735–4,738.
- Kearns, E., R. Riley, and C. Woody, 1996: A bio-optical time series collected in coastal waters for SeaWiFS calibration and validation: Large structure shadowing considerations. Halifax, Canada, *Proc. SPIE*, Ocean Optics XIII, **2963**, 697–702.
- Keller, M.D., W.K. Bellows, and R.R.L. Guillard, 1989: Dimethylsulphide production in marine phytoplankton. In: *Biogenic Sulphur in the Environment*. E.S. Saltzman and W.J. Cooper, Eds., American Chemical Society, Washington, DC, 167–182.
- Kieffer, H.H., and J.M. Anderson, 1998: “Use of the moon for spacecraft calibration over 350–2500 nm.” In: Sensors, Systems, and Next-Generation Satellites II, *SPIE*, **3498**, 325–336.
- , T.C. Stone, R.A. Barnes, S. Bender, R.E. Eplee, Jr., J. Mendenhall, and L. Ong, 2002: “On-orbit radiometric calibration over time and between spacecraft using the Moon.” In: Sensors, Systems, and Next Generation Satellites VIII, *SPIE*, **4881**, 301–313.
- King, G.M., 1988: Distribution and metabolism of quaternary amines in marine sediments. In: *Nitrogen Cycling in Coastal Marine Environments*. T.H. Blackburn and J. Sorenson, Eds., John Wiley and Sons, Chichester, United Kingdom, 143–173.
- Kiorbe, T., 1993: Turbulence, phytoplankton cell size, and the structure of pelagic food webs. *Adv. Mar. Biol.*, **29**, 1–72.
- Kirk, J.T.O., 1994: Estimation of the absorption and the scattering coefficients of natural waters by use of underwater irradiance measurements, *Appl. Opt.*, **33**, 3,276–3,278.
- Kirkwood, D.S., 1989: Simultaneous determination of selected nutrients in seawater. *ICES CM1989*, **29**, 12 pp.
- Kishino, M., J. Ishizaka, S. Saitoh, Y. Senga, and M. Utashima, 1997: Verification plan of ocean color and temperature scanner atmospheric correction and phytoplankton pigment by moored optical buoy system, *J. Geophys. Res.*, **102**, 17,197–17,207.
- Koepke, P., 1984: Effective reflectance of oceanic whitecaps. *Appl. Opt.*, **23**, 1,816–1,824.
- Kostkowski, H.J., and F.E. Nicodemus, 1978: “An introduction to the measurement equation.” In: F.E. Nicodemus, Ed., Self-Study Manual on Optical Radiation Measurements, Part 1—Concepts, *NBS Tech. Note 910-2*, U.S. Department of Commerce, National Institute of Standards and Technology, Washington, DC, 58–104.
- Kou, L., D. Labrie, and P. Chylek, 1993: Refractive indices of water and ice in the 0.65–2.5 μm spectral range. *Appl. Opt.*, **32**, 3,531–3,540.
- Kwok, J., 1987: *The Artificial Satellite Analysis Program*, Computer Software Management and Information Center, Athens, Georgia, 92 pp.
- Land, P.E., and J.D. Haigh, 1996: Atmospheric correction over case 2 waters with an iterative fitting algorithm, *Appl. Opt.*, **35**, 5,443–5,451.
- Landry, M.R., 1993: Estimating rates of growth and grazing mortality of phytoplankton by the dilution method. In: *Handbook of Methods in Aquatic Microbial Ecology*, P.F. Kemp, B.F. Sherr, E.B. Sherr, and J.J. Cole, Eds., Lewis Publishers, Boca Raton, Florida, 714–722.
- Lane, A.P., and W.M. Irvine, 1973: Monochromatic phase curves and albedos for the lunar disk. *Astron. J.*, **78**, 267–277.
- Lang, K.R., 1980: *Astrophysical Formulae*, Second Edition, Springer-Verlag, New York, 783 pp.
- Larason, T.C., S.B. Bruce, and C.L. Cromer, 1996: The NIST high accuracy scale for absolute spectral response from 406 nm to 920 nm. *J. Res. NIST*, **101**, 133–140.
- Latasa, M., R.R. Bidigare, M.E. Ondrusek, M.C. Kennicutt II, 1996: HPLC analysis of algal pigments: A comparison exercise among laboratories and recommendations for improved analytical performance. *Mar. Chem.*, **51**, 315–324.
- , —, —, and —, 1999: On the measurement of pigment concentrations by monochromator and diode-array spectrophotometers. *Mar. Chem.*, **66**, 253–254.
- Lazin, G., 1998: Correction Methods for Low-Altitude Remote Sensing of Ocean Color. *M.Sc. Thesis*, Dalhousie University, Halifax, Nova Scotia, 98 pp.
- , S. Hooker, G. Zibordi, S. McLean, and M.R. Lewis, 1998: In-water and above-water measurements of ocean color. *Proc. Ocean Optics XIV*, Office of Naval Research, Washington, DC, [Available on CD-ROM].
- Leckner, B., 1978: The spectral distribution of solar radiation at the Earth’s surface—Elements of a model. *Solar Energy*, **20**, 143–150.
- Lee, Z.P., K.L. Carder, R.G. Steward, T.G. Peacock, C.O. Davis, and J.L. Mueller, 1996: Remote sensing reflectance and inherent optical properties of oceanic waters derived from above-water measurements. *Proc. SPIE*, **2963**, 160–166.
- , —, —, —, —, and J.S. Patch, 1998: An empirical ocean color algorithm for light absorption coefficients of optically deep waters. *J. Geophys. Res.*, **103**, 27,967–27,978.
- Liu, B.Y.H., and K.W. Lee, 1976: Efficiency of membrane Nucleopore filters for submicrometer aerosols. *Env. Sci. Tech.*, **10**, 345–50.
- Liu, K., 1978: “Earth oblateness modeling.” In: Wertz, J.R., *Spacecraft Attitude Determination and Control*, D. Reidel Publishing Company, Dordrecht, Holland, 98–102.
- Loisel, H., and A. Morel, 1998: Light scattering and chlorophyll concentration in case 1 waters: A reexamination. *Limnol. Oceanogr.*, **43**, 847–858.
- Maffione, R.A., and D.R. Dana, 1997: Instruments and methods for measuring the backward-scattering coefficient of ocean waters. *Appl. Opt.*, **36**, 6,057–6,067.

—L—

—M—

- Mantoura, R.F.C., and E.M.S. Woodward, 1983: Optimization of the indophenol blue method for the automated determination of ammonia in estuarine waters. *Estuar. Coastal Shelf Sci.*, **17**, 219–224.
- , and D.J. Repeta, 1997: Calibration method for HPLC. In: *Phytoplankton Pigments in Oceanography: Guidelines to Modern Methods*. S.W. Jeffrey, R.F.C. Mantoura, and S.W. Wright, Eds., UNESCO Publishing, Paris, 407–428.
- , S.W. Wright, S.W. Jeffrey, R.G. Barlow, and D.G. Cummings, 1997: “Phytoplankton pigments in oceanography: Guidelines to modern methods.” In: S.W. Jeffrey, R.F.C. Mantoura, and S.W. Wright, Eds., UNESCO Monograph in Oceanographic Methods. *Report for SCOR WH 78, SCOR-UNESCO Monographs on Oceanographic Methodology*. Paris, France, 662 pp.
- Marggraf, W.A., and M. Griggs, 1969: Aircraft measurements and calculations of the total downward flux of solar radiation as a function of altitude. *J. Atmos. Sci.*, **26**, 469–477.
- Maritorena, S., A. Morel, and B. Gentili, 1994: Diffuse reflectance of oceanic shallow water: Influence of water depth and bottom albedo. *Limnol. Oceanogr.*, **39**, 1,689–1,703.
- , and J.E. O'Reilly, 2000: “OC2v2: Update on the initial operational SeaWiFS chlorophyll *a* algorithm.” In: O'Reilly, J.E., and 24 Coauthors, SeaWiFS Postlaunch Calibration and Validation Analyses, Part 3. *NASA Tech. Memo. 2000-206892, Vol. 11*, S.B. Hooker and E.R. Firestone, Eds., NASA Goddard Space Flight Center, Greenbelt, Maryland, 3–8.
- McClain, C.R., 2000: “SeaWiFS postlaunch calibration and validation overview.” In: McClain, C.R., E.J. Ainsworth, R.A. Barnes, R.E. Eplee, Jr., F.S. Patt, W.D. Robinson, M. Wang, and S.W. Bailey, SeaWiFS Postlaunch Calibration and Validation Analyses, Part 1. *NASA Tech. Memo. 2000-206892, Vol. 9*, S.B. Hooker and E.R. Firestone, Eds., NASA Goddard Space Flight Center, Greenbelt, Maryland, 4–12.
- , W.E. Esaias, W. Barnes, B. Guenther, D. Endres, S.B. Hooker, B.G. Mitchell, and R. Barnes, 1992: SeaWiFS Calibration and Validation Plan. *NASA Tech. Memo. 104566, Vol. 3*, S.B. Hooker and E.R. Firestone, Eds., NASA Goddard Space Flight Center, Greenbelt, Maryland, 41 pp.
- , R.H. Evans, J.W. Brown, and M. Darzi, 1995: “SeaWiFS quality control masks and flags: initial algorithms and implementation strategy.” In: McClain, C.R., W.E. Esaias, M. Darzi, F.S. Patt, R.H. Evans, J.W. Brown, K.R. Arrigo, C.W. Brown, R.A. Barnes, and L. Kumar, Case Studies for SeaWiFS Calibration and Validation, Part 4. *NASA Tech. Memo. 104566, Vol. 28*, S.B. Hooker, E.R. Firestone, and J.G. Acker, Eds., NASA Goddard Space Flight Center, Greenbelt, Maryland, 3–7.
- , M. Darzi, R.A. Barnes, R.E. Eplee, Jr., J.K. Firestone, F.S. Patt, W.D. Robinson, B.D. Schieber, R.H. Woodward, and E-n. Yeh, 1996: SeaWiFS Calibration and Validation Quality Control Procedures. *NASA Tech. Memo. 104566, Vol. 38*, S.B. Hooker and E.R. Firestone, Eds., NASA Goddard Space Flight Center, Greenbelt, Maryland, 68 pp.
- , M.L. Cleave, G.C. Feldman, W.W. Gregg, S.B. Hooker, and N. Kuring, 1998: Science quality SeaWiFS data for global biosphere research. *Sea Technol.*, **39**, 10–16.
- , and G.S. Fargion, 1999a: SIMBIOS Project 1998 Annual Report. *NASA Tech. Memo. 1999-208645*, NASA Goddard Space Flight Center, Greenbelt, Maryland, 105 pp.
- , and —, 1999b: SIMBIOS Project 1999 Annual Report, *NASA Tech. Memo. 1999-209486*, NASA Goddard Space Flight Center, Greenbelt, Maryland, 128 pp.
- , E.J. Ainsworth, R.A. Barnes, R.E. Eplee, Jr., F.S. Patt, W.D. Robinson, M. Wang, and S.W. Bailey, 2000a: SeaWiFS Postlaunch Calibration and Validation Analyses, Part 1. *NASA Tech. Memo. 2000-206892, Vol. 9*, S.B. Hooker and E.R. Firestone, Eds., NASA Goddard Space Flight Center, Greenbelt, Maryland, 82 pp.
- , R.A. Barnes, R.E. Eplee, Jr., B.A. Franz, N.C. Hsu, F.S. Patt, C.M. Pietras, W.D. Robinson, B.D. Schieber, G.M. Schmidt, M. Wang, S.W. Bailey, and P.J. Werdell, 2000b: SeaWiFS Postlaunch Calibration and Validation Analyses, Part 2. *NASA Tech. Memo. 2000-206892, Vol. 10*, S.B. Hooker and E.R. Firestone, Eds., NASA Goddard Space Flight Center, Greenbelt, Maryland, 57 pp.
- McLean, S., S. Feener, J. Scrutton, M. Small, S. Hooker, and M. Lewis, 1998: SQM-II: A commercial portable light source for field radiometer quality assurance. *Proc. Ocean Opt. XIV*, [Available on CD-ROM], Office of Naval Research, Washington, DC.
- Mitchell, B.G., and D.A. Kiefer, 1988: Chlorophyll-*a* specific absorption and fluorescence excitation spectra for light-limited phytoplankton, *Deep-Sea Res.*, **35**, 639–663.
- , and O. Holm-Hansen, 1991: Bio-optical properties of Antarctic Peninsula waters: differentiation from temperate ocean models. *Deep-Sea Res.*, **38**, 1,009–1,028.
- Mobley, C.D., 1999: Estimation of the remote-sensing reflectance from above-surface measurements. *Appl. Opt.*, **38**, 7,442–7,455.
- Monahan, E.C., 1971: Oceanic whitecaps. *J. Phys. Oceanogr.*, **1**, 139–144.
- Moore, G.K., 1980: Satellite remote sensing of water turbidity. *Bull. Hydrolog. Sci.*, **25**, 407–421.
- , J. Aiken, N. Rees, and S. Hooker, 1997: Remote Sensing of Bio-Optical Provinces. Abstract. *Proc. 23rd Annual Conf. Exhib. Remote Sens. Soc.*, 545–550.
- , J. Aiken, and S.J. Lavender, 1999: The atmospheric correction of water colour and the quantitative retrieval of suspended particulate matter in Case II waters application to MERIS, *Int. J. Remote Sens.*, **20**, 1,713–1,734.
- Moore, K.D., K.J. Voss, and H.R. Gordon, 1998: Spectral reflectance of whitecaps: Instrumentation, calibration, and performance in coastal waters. *J. Atmos. Ocean. Technol.*, **15**, 496–509.
- , —, and —, 2000: Spectral reflectance of whitecaps: Their contribution to water-leaving radiance. *J. Geophys. Res.*, **105**, 6,493–6,499.
- Morel, A., 1974: “Optical properties of pure water and pure seawater.” In: *Optical Aspects of Oceanography*, N.G. Jerlov and E. Steemann Nielsen, Eds., Academic Press, San Diego, California, 1–24.
- , 1980: In-water and remote measurements of ocean color. *Bound.-Layer Meteorol.*, **18**, 177–201.

- , 1988: Optical modeling of the upper ocean in relation to its biogenous matter content (Case I waters). *J. Geophys. Res.*, **93**, 10,749–10,768.
- , and L. Prieur, 1977: Analysis of variations in ocean color. *Limnol. Oceanogr.*, **22**, 709–722.
- , and A. Bricaud, 1981: Theoretical results concerning light absorption in a discrete medium, and application to specific absorption by phytoplankton. *Deep-Sea Res.*, **28**, 1,375–1,393.
- , and Y-H. Ahn, 1990: Optical efficiency factors of free-living marine bacteria: Influence of bacterioplankton upon the optical properties and particulate organic carbon in oceanic waters, *J. Mar. Res.*, **48**, 145–175.
- , and B. Gentili, 1991: Diffuse reflectance of oceanic waters: its dependence on sun angle as influenced by the molecular scattering contribution. *Appl. Opt.*, **30**, 4,427–4,438.
- , and —, 1996: Diffuse reflectance of oceanic waters. III. Implication of bidirectionality for the remote sensing problem, *Appl. Opt.*, **35**, 4,850–4,862.
- , and S. Maritorena, 2001: Bio-optical properties of oceanic waters: a reappraisal. *J. Geophys. Res.*, **106**, 7,163–7,180.
- , and J.L. Mueller, 2002: “Normalized water-leaving radiance and remote sensing reflectance: Bidirectional reflectance and other factors.” In: J.L. Mueller and G.S. Fargion, Eds., Ocean Optics Protocols for Satellite Ocean Color Sensor Validation, Revision 3, Vol. 2. *NASA Tech. Memo. 2002-210004*, NASA Goddard Space Flight Center, Greenbelt, Maryland, 183–210.
- , D. Antoine, and B. Gentilli, 2002: Bidirectional reflectance of oceanic waters: Accounting for Raman emission and varying particle scattering phase function. *Appl. Opt.*, **41**, 6,289–6,306.
- Morris, A.W., R.J.M. Howland, and A.J. Bale, 1978: A filtration unit for use with continuous autoanalytical systems applied to highly turbid waters. *Estuar. Coastal Mar. Sci.*, **6**, 105–109.
- Mueller, J.L., 1984: Effects of water reflectance at 670 nm on Coastal Zone Color Scanner (CZCS) aerosol radiance estimates off the coast of central California. *Ocean Optics VII, Proc. SPIE*, **489**, Bellingham, Washington, 179–186.
- , 1993: The First SeaWiFS Intercalibration Round-Robin Experiment, SIRREX-1, July 1992. *NASA Tech. Memo. 104566, Vol. 14*, S.B. Hooker and E.R. Firestone, Eds., NASA Goddard Space Flight Center, Greenbelt, Maryland, 60 pp.
- , 1995a: “An integral method for analyzing irradiance and radiance attenuation profiles.” In: Siegel, D.A., M.C. O’Brien, J.C. Sorensen, D.A. Konnoff, E.A. Brody, J.L. Mueller, C.O. Davis, W.J. Rhea, and S.B. Hooker, Results of the SeaWiFS Data Analysis Round-Robin (DARR-94), July 1994. *NASA Tech. Memo. 104566, Vol. 26*, S.B. Hooker and E.R. Firestone, Eds., NASA Goddard Space Flight Center, Greenbelt, Maryland, 44–52.
- , 1995b: “Comparison of irradiance immersion coefficients for several Marine Environmental Radiometers (MERs).” In: Mueller, J.L., R.S. Fraser, S.F. Biggar, K.J. Thome, P.N. Slater, A.W. Holmes, R.A. Barnes, C.T. Weir, D.A. Siegel, D.W. Menzies, A.F. Michaels and G. Podesta, Case Studies for SeaWiFS Calibration and Validation, Part 3. *NASA Tech. Memo. 104566, Vol. 27*, S.B. Hooker, E.R. Firestone, and J.G. Acker, Eds., NASA Goddard Space Flight Center, Greenbelt, Maryland, 3–15.
- , 1996: MER-2040 SN 8728: Irradiance Immersion Factors, *CHORS Tech. Memo. 004-96*, Center for Hydro-Optics and Remote Sensing, San Diego State University, San Diego, California, 3 pp.
- , 2000a: “SeaWiFS algorithm for the diffuse attenuation coefficient, $K(490)$, using water-leaving radiances at 490 and 555 nm.” In: O'Reilly, J.E., and 24 Coauthors, SeaWiFS Postlaunch Calibration and Validation Analyses, Part 3. *NASA Tech. Memo. 2000-206892, Vol. 11*, S.B. Hooker and E.R. Firestone, Eds., NASA Goddard Space Flight Center, Greenbelt, Maryland, 24–27.
- , 2000b: “In-water radiometric profile measurements and data analysis protocols.” In: Fargion, G.S., and J.L. Mueller, Ocean Optics Protocols for Satellite Ocean Color Sensor Validation, Revision 2. *NASA Tech. Memo. 2000-209966*, NASA Goddard Space Flight Center, Greenbelt, Maryland, 87–97.
- , 2000c: “Overview of Measurement and Data Analysis Protocols.” In: G.S. Fargion and J.L. Mueller, Ocean Optics Protocols for Satellite Ocean Color Sensor Validation, Revision 2. *NASA Tech. Memo. 2000-209966*, NASA Goddard Space Flight Center, Greenbelt, Maryland, 87–97.
- , 2002: “Overview of Measurement and Data Analysis Protocols.” In: J.L. Mueller and G.S. Fargion, Ocean Optics Protocols for Satellite Ocean Color Sensor Validation, Revision 3, Volume 1. *NASA Tech. Memo. 2002-210004/Rev3-Vol1*, NASA Goddard Space Flight Center, Greenbelt, Maryland, 123–137.
- , and R.W. Austin, 1992: Ocean Optics Protocols for SeaWiFS Validation. *NASA Tech. Memo. 104566, Vol. 5*, S.B. Hooker and E.R. Firestone, Eds., NASA Goddard Space Flight Center, Greenbelt, Maryland, 43 pp.
- , B.C. Johnson, C.L. Cromer, J.W. Cooper, J.T. McLean, S.B. Hooker, and T.L. Westphal, 1994: The Second SeaWiFS Intercalibration Round-Robin Experiment, SIRREX-2, June 1993. *NASA Tech. Memo. 104566, Vol. 16*, S.B. Hooker and E.R. Firestone, Eds., NASA Goddard Space Flight Center, Greenbelt, Maryland, 121 pp.
- , and R.W. Austin, 1995: Ocean Optics Protocols for SeaWiFS Validation, Revision 1. *NASA Tech. Memo. 104566, Vol. 25*, S.B. Hooker, E.R. Firestone, and J.G. Acker, Eds., NASA Goddard Space Flight Center, Greenbelt, Maryland, 67 pp.
- , B.C. Johnson, C.L. Cromer, S.B. Hooker, J.T. McLean, and S.F. Biggar, 1996: The Third SeaWiFS Intercalibration Round-Robin Experiment, SIRREX-3, September 1994. *NASA Tech. Memo. 104566, Vol. 34*, S.B. Hooker, E.R. Firestone, and J.G. Acker, Eds., NASA Goddard Space Flight Center, Greenbelt, Maryland, 78 pp.

- , and C.C. Trees, 1997: “Revised SeaWiFS prelaunch algorithm for the diffuse attenuation coefficient $K(490)$.” In: Yeh, E.-n., R.A. Barnes, M. Darzi, L. Kumar, E.A. Early, B.C. Johnson, and J.L. Mueller, Case Studies for SeaWiFS Calibration and Validation, Part 4. *NASA Tech. Memo. 104566, Vol. 41*, S.B. Hooker and E.R. Firestone, Eds., NASA Goddard Space Flight Center, Greenbelt, Maryland, 18–21.
- , and A. Morel, 2002: “Fundamental Definitions, Relationships and Conventions.” In: J.L. Mueller and G.S. Fargion, Ocean Optics Protocols for Satellite Ocean Color Sensor Validation, Revision 3, Volume 1. *NASA Tech. Memo. 2002-210004/Rev3-Vol1*, NASA Goddard Space Flight Center, Greenbelt, Maryland, 10–28.
- , C. Pietras, S.B. Hooker, D.K. Clark, A. Morel, R. Frouin, B.G. Mitchell, R.R. Bidigare, C. Trees, J. Werdell, G.S. Fargion, R. Arnone, R.W. Austin, S. Bailey, W. Broenkow, S.W. Brown, K. Carder, C. Davis, J. Dore, M. Feinholz, S. Flora, Z.P. Lee, B. Holben, B.C. Johnson, M. Kahru, D.M. Karl, Y.S. Kim, K.D. Knobelspiesse, C.R. McClain, S. McLean, M. Miller, C.D. Mobley, J. Porter, R.G. Steward, M. Stramska, L. Van Heukelem, K. Voss, J. Wieland, M.A. Yarbrough, and M. Yuen, 2002a: Ocean Optics Protocols for Satellite Ocean Color Sensor Validation, Revision 3, Volume 1. *NASA Tech. Memo. 2002-210004/Rev3-Vol1*, J.L. Mueller and G.S. Fargion, Eds., NASA Goddard Space Flight Center, Greenbelt, Maryland, 137 pp.
- , C. Davis, R. Arnone, R. Frouin, K. Carder, Z.P. Lee, R.G. Steward, S. Hooker, C.D. Mobley, and S. McLean, 2002b: “Above-Water Radiance and Remote Sensing Reflectance Measurement and Analysis Protocols.” In: J.L. Mueller and G.S. Fargion, Ocean Optics Protocols for Satellite Ocean Color Sensor Validation, Revision 3, Volume 2. *NASA Tech. Memo. 2002-210004/Rev3-Vol2*, NASA Goddard Space Flight Center, Greenbelt, Maryland, 171–182.
- Muller-Karger, F., C.R. McClain, and P. Richardson, 1988: The dispersal of the Amazon water. *Nature*, **333**, 56–59.
- N —
- Neckel, H., and D. Labs, 1984: The solar radiation between 3,300 and 12,500 Å. *Solar Physics*, **90**, 205–258.
- Nicodemus, F.E., 1978: “More on the distribution of optical radiation with respect to position and direction.” In: F.E. Nicodemus, Ed., Self-Study Manual on Optical Radiation Measurements, Part 1—Concepts, *NBS Tech. Note 910-2*, U.S. Department of Commerce, National Institute of Standards and Technology, Washington, DC, 1–57.
- O —
- O'Reilly, J.E., and C. Zetlin, 1998: Seasonal, Horizontal, and Vertical Distribution of Phytoplankton Chlorophyll *a* in the Northeast U.S. Continental Shelf Ecosystem. *NOAA Tech. Report NMFS*, **39**, Fishery Bulletin, 120 pp.
- , S. Maritorena, B.G. Mitchell, D.A. Siegel, K.L. Carder, S.A. Garver, M. Kahru, and C. McClain, 1998: Ocean color chlorophyll algorithms for SeaWiFS. *J. Geophys. Res.*, **103**, 24,937–24,953.
- , S. Maritorena, M.C. O'Brien, D.A. Siegel, D. Toole, B.G. Mitchell, M. Kahru, F.P. Chavez, P. Strutton, G.F. Cota, S.B. Hooker, C.R. McClain, K.L. Carder, F. Müller-Karger, L. Harding, A. Magnuson, D. Phinney, G.F. Moore, J. Aiken, K.R. Arrigo, R. Letelier, M. Culver, 2000: “Ocean color chlorophyll *a* algorithms for SeaWiFS, OC2, and OC4: Version 4,” In: O'Reilly, J.E., and 24 Coauthors, *SeaWiFS Postlaunch Calibration and Validation Analyses, Part 3. NASA Tech. Memo. 2000-206892, Vol. 11*, S.B. Hooker and E.R. Firestone, Eds., NASA Goddard Space Flight Center, Greenbelt, Maryland, 9–23.
- O'Shea, D.C., 1985: *Elements of Modern Optical Design*, John Wiley and Sons, New York, 402 pp.
- Owens, N.J.P., and A.P. Rees, 1989: Determination of Nitrogen-15 at submicrogram levels of nitrogen using automated continuous-flow isotope ratio mass spectrometry. *Analyst*, **114**, 1,655–1,657.
- P —
- Pagano, T.S., and R.M. Durham, 1993: Moderate Resolution Imaging Spectroradiometer (MODIS). *SPIE*, **1939**, 2–17.
- Pak, H., J.R.V. Zaneveld, and G.F. Beardsley, 1971: Mie scattering by suspended clay particles. *J. Geophys. Res.*, **76**, 5,065–5,069.
- Palmer, K.F., and D. Williams, 1974: Optical properties of water in the near infrared. *J. Opt. Soc. Amer.*, **66**, 1,107–1,110.
- Partensky, F., N. Hoepffner, W.K.W. Li, O. Ulloa, and D. Vaultot, 1993: Photoacclimation of *Prochlorococcus* sp. (Prochlorophyta) strains isolated from the North Atlantic and the Mediterranean Sea. *Plant Physiol.*, **101**, 285–296.
- Patt, F.S., 1999: “Assessment of geolocation for SeaWiFS and OCTS using island targets.” *Proc. CNES Seminar, In-orbit characterization of optical imaging systems*, Bordeaux, France, November 1999.
- , 2002: Navigation Algorithms for the SeaWiFS Mission. *NASA Tech. Memo. 2002-206892, Vol. 16*, S.B. Hooker and E.R. Firestone, Eds., NASA Goddard Space Flight Center, Greenbelt, Maryland, 17 pp.
- , and W.W. Gregg, 1994: Exact closed-form geolocation algorithm for Earth survey sensors. *Inter. J. Remote Sens.*, **15**, 3,719–3,734.
- , R.H. Woodward, and W.W. Gregg, 1997: An automated method for navigation assessment for Earth survey sensors using island targets. *Inter. J. Remote Sens.*, **18**, 3,311–3,336.
- , and S. Bilanow, 2001: “Horizon scanner triggering height analysis for OrbView-2.” *Proc. 2001 Flight Mechanics Symp., NASA Contractor Rept., 2001-209986*, NASA Goddard Space Flight Center, Greenbelt, Maryland, 559–573.
- Petzold, T.J., and R.W. Austin, 1988: Characterization of MER 1032. *Tech. Memo. EN-001-88t*, Vis. Lab., Scripps Institution of Oceanography, La Jolla, California, 56 pp. plus appendices.
- Pinkerton, M.H., and J. Aiken, 1999: Calibration and validation of remotely-sensed observations of ocean colour from a moored data buoy. *J. Atmos. Oceanic Technol.*, **16**, 915–923.

- Podesta, G., 1995: "SeaWiFS Global Fields: What's In a Day?" In: Mueller, J.L., R.S. Fraser, S.F. Biggar, K.J. Thome, P.N. Slater, A.W. Holmes, R.A. Barnes, C.T. Weir, D.A. Siegel, D.W. Menzies, A.F. Michaels, and G. Podesta: Case Studies for SeaWiFS Calibration and Validation, Part 3. *NASA Tech. Memo. 104566, Vol. 27*, S.B. Hooker and E.R. Firestone, Eds., NASA Goddard Space Flight Center, Greenbelt, Maryland, 34–42.
- Pope, R.M., and E.S. Fry, 1997: Absorption spectrum (380–700 nm) of pure water, II. Integrating cavity measurements, *Appl. Opt.*, **36**, 8,710–8,723.
- Press, W.H., and S.A. Teukolsky, 1992: Fitting straight line data with errors in both coordinates. *Computers in Phys.*, **6**, 274–276.
- , —, W.T. Vettering, and B.P. Flannery, 1992: *Numerical Recipes in C: The Art of Scientific Computing*. Cambridge University Press, 994 pp.
- Priesendorfer, R.W., and C.D. Mobley, 1986: Albedos and glitter patterns of a wind roughened sea surface. *J. Phys. Oceanogr.*, **16**, 1,293–1,316.

—Q—

- Quinn, P.K., 1988: Simultaneous observations of ammonia in the ocean and atmosphere in the remote marine environment. *Ph.D. Thesis*, University of Washington, Seattle, Washington, 138 pp.
- , R.J. Charlson, and T.S. Bates, 1988: Simultaneous observations of ammonia in the atmosphere and ocean. *Nature*, **335**, 336–338.
- , T.S. Bates, J.E. Johnson, J.E. Covert, and R.J. Charlson, 1990: Interactions between the sulfur and reduced nitrogen cycles over the central Pacific Ocean. *J. Geophys. Res.*, **95**, 16,405–16,416.

—R—

- Remer, L.A., Y.J. Kaufman, and B.N. Holben, 1996: "The size distribution of ambient aerosol particles: smoke vs. urban/industrial aerosol." In: *Biomass Burning and Global Change*, J.S. Levine, Ed., MIT Press, Cambridge, Massachusetts, 519–530.
- Reuter, R., 1980: Characterization of marine particle suspensions by light scattering. II. Experimental results. *Oceanol. Acta*, **3**, 325–332.
- Ricker, W.E., 1973: Linear regressions in fishery research. *J. Fish. Res. Board Canada*, **30**, 409–434.
- Riley, T., and S. Bailey, 1998: The Sixth SeaWiFS/SIMBIOS Intercalibration Round-Robin Experiment (SIRREX-6) August–December 1997. *NASA Tech. Memo. 1998-206878*, NASA Goddard Space Flight Center, Greenbelt, Maryland, 26 pp.
- Robins, D.B., A.J. Bale, G.F. Moore, N.W. Rees, S.B. Hooker, C.P. Gallienne, A.G. Westbrook, E. Marañón, W.H. Spooner, and S.R. Laney, 1996: AMT-1 Cruise Report and Preliminary Results. *NASA Tech. Memo. 104566, Vol. 35*, S.B. Hooker and E.R. Firestone, Eds., NASA Goddard Space Flight Center, Greenbelt, Maryland, 87 pp.
- Robinson, N., 1966: *Solar Radiation*. American Elsevier, New York, 347 pp.

Robinson, W.D., and M. Wang, 2000: "Vicarious calibration of SeaWiFS band 7." In: McClain, C.R., E.J. Ainsworth, R.A. Barnes, R.E. Eplee, Jr., F.S. Patt, W.D. Robinson, M. Wang, and S.W. Bailey, *SeaWiFS Postlaunch Calibration and Validation Analyses, Part 1. NASA Tech. Memo. 2000-206892, Vol. 9*, S.B. Hooker and E.R. Firestone, Eds., NASA Goddard Space Flight Center, 38–42.

—, G.M. Schmidt, C.R. McClain, and P.J. Werdell, 2000: "Changes made in the operational SeaWiFS processing." In: McClain, C.R., R.A. Barnes, R.E. Eplee, Jr., B.A. Franz, N.C. Hsu, F.S. Patt, C.M. Pietras, W.D. Robinson, B.D. Schieber, G.M. Schmidt, M. Wang, S.W. Bailey, and P.J. Werdell, *SeaWiFS Postlaunch Calibration and Validation Analyses, Part 2. NASA Tech. Memo. 2000-206892, Vol. 10*, S.B. Hooker and E.R. Firestone, Eds., NASA Goddard Space Flight Center, Greenbelt, Maryland, 12–28.

Ruddick, K.G., F. Ovidio, and M. Rijkeboer, 2000: Atmospheric correction of SeaWiFS imagery for turbid coastal and inland waters. *Appl. Opt.*, **39**, 897–912.

—S—

- Sagan, S., A.R. Weeks, I.S. Robinson, G.F. Moore, and J. Aiken, 1995: The relationships between the beam attenuation coefficient and chlorophyll concentration and reflectance in Antarctic waters. *Deep-Sea Res.*, **42**, 983–996.
- Sakuma, F., B.C. Johnson, S.F. Biggar, J.J. Butler, J.W. Cooper, M. Hiramatsu, and K. Suzuki, 1996: EOS AM-1 pre-flight radiometric measurement comparison using the Advanced Spaceborne Thermal Emission and Reflection radiometer (ASTER) visible/near-infrared integrating sphere. *SPIE*, **2820**, 184–196.
- Saunders, R.D., and J.B. Shumaker, 1977: Optical Radiation Measurements: The 1973 NBS Scale of Spectral Irradiance. *NBS Tech. Note 594-13*, National Bureau of Standards, Gaithersburg, Maryland, 29 pp.
- , and —, 1984: Automated radiometric linearity tester. *Appl. Opt.*, **23**, 3,504–3,506.
- Shaw, P-S., B.C. Johnson, S.B. Hooker, and D. Lynch, 1997: The SeaWiFS Quality Monitor—a portable field calibration light source. *Proc. SPIE*, **2963**, 772–776.
- Shettle, E.P., and R.W. Fenn, 1979: Models for the Aerosols of the Lower Atmosphere and the Effects of Humidity Variations on Their Optical Properties. *AFGL-TR-79-0214*, U.S. Air Force Geophysics Laboratory, Hanscom Air Force Base, Massachusetts, 94 pp.
- Shimada, M., H. Oaku, Y. Mitomi, H. Murakami, A. Mukaida, J. Ishizaka, H. Kawamura, T. Tanaka, M. Kishino, and H. Fukushima, 1998: Calibration and validation of Ocean Color Version-3 Product from ADEOS OCTS, *J. Oceanogr.*, **54**, 401–416.
- Siegel, D.A., M.C. O'Brien, J.C. Sorenson, D.A. Konnoff, E.A. Brody, J.L. Mueller, C.O. Davis, W.J. Rhea, and S.B. Hooker, 1995: Results of the SeaWiFS Data Analysis Round-Robin (DARR-94), July 1994. *NASA Tech. Memo. 104566, Vol. 26*, S.B. Hooker and E.R. Firestone, Eds., NASA Goddard Space Flight Center, Greenbelt, Maryland, 58 pp.

- , M. Wang, S. Maritorena, and W. Robinson, 2000: Atmospheric correction of satellite ocean color imagery: The black pixel assumption. *Appl. Opt.*, **39**, 3,582–3,591.
- Sildam, J., M.R. Lewis, and J.C. Cullen, 1998: Multiresolution analysis of diffuse attenuation coefficient with an emphasis on surface and deep layers, Ocean Optics XIV.
- Slater, P.N., and J.M. Palmer, 1991: Solar-diffuser panel and ratioing radiometer approach to satellite sensor on-board calibration. *SPIE*, **1493**, 100–105.
- , Biggar, S.F., J.M. Palmer, and K.J. Thome, 2001: Unified approach to absolute radiometric calibration in the solar-reflective range. *Remote Sens. Environ.*, **77**, 293–303.
- Sloss, P.W., 1988: Digital Relief of the Surface of the Earth. *Data Announcement 88-MGG-02*, NOAA, National Geophysical Data Center, Boulder, Colorado, 2 pp.
- , 2001: ETOPO2 Database on CD-ROM, NOAA, National Geophysical Data Center, Boulder, Colorado, USA.
- Smirnov, A., B.N. Holben, O. Dubovik, N.T. O'Neill, L.A. Remer, T.F. Eck, I. Slutsker, and D. Savoie, 2000: Measurement of atmospheric optical parameters on U.S. Atlantic coast sites, ships and Bermuda during TARFOX, *J. Geophys. Res.*, **105**, 9,887–9,901.
- Smith, E.V.P., and D.M. Gottlieb, 1974: Solar flux and its variation. *Space Sci. Rev.*, **16**, 771–802.
- Smith, R.C., and K.S. Baker, 1978: Optical classification of natural waters. *Limnol. Oceanogr.*, **23**, 260–267.
- , and —, 1981: Optical properties of the clearest natural waters (200–800 nm). *Appl. Opt.*, **20**, 177–184.
- , and W.H. Wilson, 1981: Ship and satellite bio-optical research in the California Bight. *Oceanography from Space*, J.F.R. Gower, Ed., Plenum Press, 281–294.
- , and —, 1984: The analysis of ocean optical data. *Ocean Optics VII*, M. Blizzard, Ed., *SPIE*, **478**, 119–126.
- , and —, 1986: Analysis of ocean optical data II. *Ocean Optics VIII*, P.N. Slater, Ed., *SPIE*, **637**, 95–107.
- , D.A. Menzies, and C.R. Booth, 1997: Oceanographic Bio-Optical Profiling System II, Ocean Optics XIII, S.G. Ackelson and R. Frouin, Eds., *Proc. SPIE*, **2963**, 777–789.
- Stout, D.F., 1976: *Handbook of Operational Amplifier Design*, M. Kaufman, Ed., McGraw-Hill, New York, 317 pp.
- Stramski, D., and D.A. Kiefer, 1991: Light scattering by microorganisms in the open ocean, *Prog. Oceanogr.*, **28**, 343–383.
- , and C.D. Mobley, 1997: Effects of microbial particles on ocean optics: A database of single-particle optical properties, *Limnol. Oceanogr.*, **42**, 538–549.
- Strickland, J.D.H., and T.R. Parsons, 1972: *A Practical Handbook of Sea Water Analysis*. Fish. Res. Board. Canada, 310 pp.
- Stumpf, R.P., and M.A. Tyler, 1988: Satellite detection of bloom and pigment distributions in estuaries. *Remote Sens. Environ.*, **24**, 385–404.
- , and J.R. Pennock, 1989: Calibration of a general optical equation for remote sensing of suspended sediment in a moderately turbid estuary. *J. Geophys. Res.*, **94**, 14,363–14,371.
- Sturm, B., and G. Zibordi, 2002: SeaWiFS atmospheric correction by an approximate model and vicarious calibration, *Int. J. Remote Sens.*, **23**, 489–501.
- Subramaniam, A., R.R. Hood, C.W. Brown, E.J. Carpenter, and D.G. Capone, 2001: Detecting *Trichodesmium* blooms in SeaWiFS imagery. *Deep-Sea Res.*, **49**, 107–121.
- Sydon, M., and R.A. Arnone, 1997: Effect of suspended particulate and dissolved organic matter on remote sensing of coastal and riverine waters. *Appl. Opt.*, **36**, 6,905–6,912.

—T—

- Tanré, D., M. Herman, P.Y. Deschamps, and A. de Leffe, 1979: Atmospheric modeling for space measurements of ground reflectances, including bidirectional properties. *Appl. Opt.*, **18**, 213,587–213,597.
- , C. Deroo, P. Duhaut, M. Herman, J.J. Morcrette, J. Perbos, and P.Y. Deschamps, 1990: Description of a computer code to simulate the satellite signal in the solar spectrum: The 5S code. *Int. J. Remote Sens.*, **11**, 656–668.
- Tassan, S., and M. Ferrari, 1995: An alternative approach to absorption measurements of aquatic particles retained on filters. *Limnol. Oceanogr.*, **40**, 1,358–1,368.
- , and —, 2002: A Sensitivity analysis of the “Transmittance-Reflectance” method for measuring light absorption by aquatic particles. *J. Plankton Res.*, **24**, 757–774.
- Taylor, B.N., and C.E. Kuyatt, 1994: Guidelines for Evaluating and Expressing the Uncertainty of NIST Measurement Results. *NIST Tech. Note 1297*, U.S. Department of Commerce, National Institute of Standards and Technology, Washington, DC, 20 pp.
- Tegen, I., and A.A. Lacis, 1996: Modeling of particle size distribution and its influence on the radiative properties of mineral dust aerosol, *J. Geophys. Res.*, **101**, 19,237–19,244.
- Thompson, A., and H-M. Chen, 1994: Beamcon III, a linearity measurement instrument for optical detectors. *J. Res. NIST*, **99**, 751–755.
- Thuillier, G., M. Hersé, P.C. Simon, D. Labs, H. Mandel, and D. Gillotay, 1998a: Observation of the solar spectral irradiance from 200 to 870 nm during the ATLAS 1 and 2 missions by the SOLSPEC spectrometer. *Metrologia*, **35**, 689–695.
- , —, —, —, —, —, and T. Foujols, 1998b: The visible solar spectral irradiance from 350 to 850 nm as measured by the SOLSPEC spectrometer during the Atlas I mission. *Solar Physics*, **177**, 41–61.
- , —, —, —, —, —, and —, 2003: The solar spectral irradiance from 200 to 2400 nm as measured by the SOLSPEC spectrometer from the Atlas 1-2-3 and EURECA missions. *Solar Physics*, **214**, 1–22.
- Tsai, B.K., and B.C. Johnson, 1998: Radiometric traceability for fundamental measurements: Estimation and evaluation of combined standard uncertainties, *Metrologia*, **35**, 587–593.

- Twardowski, M.S., J.M. Sullivan, P.L. Donaghay, and J.R. Zaneveld, 1999: Microscale quantification of the absorption by dissolved and particulate material in coastal waters with AC-9. *J. Atmos. Oceanic Technol.*, **16**, 691–707.
- Tyler, J.E., and R.C. Smith, 1970: *Measurements of Spectral Irradiance Underwater*. Gordon and Breach, New York, 103 pp.
- U —
- UNESCO, 1981: Tenth report of the joint panel on oceanographic tables and standards. Sidney, British Columbia, September 1980, *UNESCO Tech. Papers Mar. Sci.*, **36**, 25 pp.
- V —
- Vance, T.C., J.D. Schumacher, P.J. Stabeno, C.T. Baier, T. Wyllie-Echeverria, C.T. Tynan, R.D. Brodeur, J.M. Napp, K.O. Coyle, M.B. Decker, G.L. Hunt, Jr., D. Stockwell, T.E. Whitledge, M. Jump, and S. Zeeman, 1998: Aquamarine waters recorded for the first time in the Eastern Bering Sea. *EOS*, **79**, 121 and 126.
- van der Linde, D., 2003: The AAOT Deployment Systems: An Overview. *EUR Report 20548 EN*, Joint Research Centre, Ispra, Italy, 13 pp.
- Van Heukelem, L., and C.S. Thomas, 2001: Computer-assisted HPLC method development with applications to the isolation and analysis of marine phytoplankton pigments. *J. Chrom. A.*, **910**, 31–49.
- Van Neste, A., R.A. Duce, and C. Lee, 1987: Methylamines in the marine atmosphere. *Geophys. Res. Lett.*, **14**, 711–714.
- Verity, P.G., D.K. Stoecker, M.E. Sieracki, and J.R. Nelson, 1996: Microzooplankton grazing of primary production at 140°W in the equatorial Pacific. *Deep-Sea Res. II*, **43**, 1,227–1,255.
- Vermote, E.F., D. Tanre, J.L. Deuze, M. Herman, and J.-J. Morcrette, 1997: Second simulation of the satellite signal in the solar spectrum, 6S: An Overview. *IEEE Trans. Geosci. Remote Sens.*, **35**, 675–686.
- Vesk, M., and S.W. Jeffrey, 1987: Ultrastructure and pigments of two strains of the picoplanktonic alga *Pelagococcus subviridis* (Chrysophyceae). *J. Phycol.*, **23**, 322–336.
- Vidussi, F., H. Claustre, J. Bustillos-Guzmán, C. Cailliau, and J.C. Marty, 1996: Determination of chlorophylls and carotenoids of marine phytoplankton: separation of chlorophyll *a* from divinyl-chlorophyll *a* and zeaxanthin from lutein. *J. Plankton Res.*, **18**, 2,377–2,382.
- Vigroux, E., 1953: *Contribution à l'étude expérimentale de l'absorption de l'ozone*. *Ann. Phys.*, **8**, 709–762.
- Voss, K.J., 1992: A spectral model of the beam attenuation coefficient in the ocean and coastal areas, *Limnol. Oceanogr.*, **37**, 501–509.
- W, X —
- Walker, J.H., R.D. Saunders, and A.T. Hattenburg, 1987a: Spectral Radiance Calibrations. *NBS Special Publication 250-1*, U.S. Department of Commerce, National Institute of Standards and Technology, Washington, DC, 68 pp.
- , —, J.K. Jackson, and D.A. McSparron, 1987b: Spectral Irradiance Calibrations. *NBS Special Publication 250-20*, U.S. Department of Commerce, National Institute of Standards and Technology, Washington, DC, 37 pp., plus Appendices.
- , and A. Thompson, 1994: Improved automated current control for standard lamps. *J. Res. NIST*, **99**, 255–261.
- Wang, M., 1999a: Atmospheric correction of ocean color sensors: Computing atmospheric diffuse transmittance, *Appl. Opt.*, **38**, 451–455.
- , 1999b: A sensitivity study of the SeaWiFS atmospheric correction algorithm: Effects of spectral band variations. *Remote Sens. Environ.*, **67**, 348–359.
- , 2000: “The SeaWiFS atmospheric correction algorithm updates.” In: McClain, C.R., E.J. Ainsworth, R.A. Barnes, R.E. Eplee, Jr., F.S. Patt, W.D. Robinson, M. Wang, and S.W. Bailey, *SeaWiFS Postlaunch Calibration and Validation Analyses, Part 1. NASA Tech. Memo. 2000-206892, Vol. 9*, S.B. Hooker and E.R. Firestone, Eds., NASA Goddard Space Flight Center, Greenbelt, Maryland, 57–63.
- , 2003: Correction of artifacts in the SeaWiFS atmospheric correction: Removing the discontinuity in the derived products. *Remote Sens. Environ.*, **84**, 603–611.
- , and H.R. Gordon, 1994: A simple, moderately accurate, atmospheric correction algorithm for SeaWiFS. *Remote Sens. Environ.*, **50**, 231–239.
- , and B. Franz, 2000: Comparing the ocean color measurements between MOS and SeaWiFS: A vicarious intercalibration approach for MOS. *IEEE Trans. Geosci. Remote Sens.*, **38**, 184–197.
- , and S.W. Bailey, 2000: “Correction of the sun glint contamination on the SeaWiFS aerosol optical thickness retrievals.” In: McClain, C.R., E.J. Ainsworth, R.A. Barnes, R.E. Eplee, Jr., F.S. Patt, W.D. Robinson, M. Wang, and S.W. Bailey, *SeaWiFS Postlaunch Calibration and Validation Analyses, Part 1. NASA Tech. Memo. 2000-206892, Vol. 9*, S.B. Hooker and E.R. Firestone, Eds., NASA Goddard Space Flight Center, Greenbelt, Maryland, 64–68.
- , —, C.M. Pietras, and C.R. McClain, 2000a: “SeaWiFS aerosol optical thickness match-up analyses.” In: McClain, C.R., R.A. Barnes, R.E. Eplee, Jr., B.A. Franz, N.C. Hsu, F.S. Patt, C.M. Pietras, W.D. Robinson, B.D. Schieber, G.M. Schmidt, M. Wang, S.W. Bailey, and P.J. Werdell, *SeaWiFS Postlaunch Calibration and Validation Analyses, Part 2. NASA Tech. Memo. 2000-206892, Vol. 10*, S.B. Hooker and E.R. Firestone, Eds., NASA Goddard Space Flight Center, Greenbelt, Maryland, 39–44.
- , B.A. Franz, and R.A. Barnes, 2000b: “Analysis of the SeaWiFS spectral band-pass effects.” In: McClain, C.R., R.A. Barnes, R.E. Eplee, Jr., B.A. Franz, N.C. Hsu, F.S. Patt, C.M. Pietras, W.D. Robinson, B.D. Schieber, G.M. Schmidt, M. Wang, S.W. Bailey, and P.J. Werdell, *SeaWiFS Postlaunch Calibration and Validation Analyses, Part 2. NASA Tech. Memo. 2000-206892, Vol. 10*, S.B. Hooker and E.R. Firestone, Eds., NASA Goddard Space Flight Center, Greenbelt, Maryland, 6–11.
- , and S.W. Bailey, 2001: Correction of sun glint contamination on the SeaWiFS ocean and atmospheric products. *Appl. Opt.*, **40**, 4,790–4,798.

- , B.A. Franz, R.A. Barnes, and C.R. McClain, 2001: Effect of spectral bandpass on SeaWiFS-retrieved near-surface optical properties of the ocean. *Appl. Opt.*, **40**, 343–348.
- Watanabe, T., A. Hongu, K. Honda, N. Masataka, M. Konno, and S. Saitoh, 1984: Preparation of chlorophylls and pheophytins by isocratic liquid chromatography. *Anal. Chem.*, **56**, 251–256.
- Waters, K.J., R.C. Smith, and M.R. Lewis, 1990: Avoiding ship-induced light-field perturbation in the determination of oceanic optical properties, *Oceanogr.*, **3**, 18–21.
- Wehrli, C., 1985: *Extraterrestrial Solar Spectrum*, Publ. 615, *Physikalisch-Meteorologisches Observatorium World Radiation Center*, Davos-Dorf, Switzerland, 23 pp.
- Welschmeyer, N.A., 1994: Fluorometric analysis of chlorophyll-*a* in the presence of chlorophyll-*b* and pheopigments. *Limnol. Oceanogr.*, **39**, 1,985–1,992.
- Wertz, J.R., 1978: Solar system constants (Appendix L). *Spacecraft Attitude Determination and Control*, D. Reidel Publishing Company, Dordrecht, Holland, 819.
- WETLabs, 2002: *AC-9 Protocol Document*. [World Wide Web page.] From URL: <http://www.wetlabs.com/Products/pub/ac9/> WETLabs, Inc., Philomath, Oregon.
- Woodward, R.H., R.A. Barnes, C.R. McClain, W.E. Esaias, W.L. Barnes, and A.T. Mecherikunnel, 1993: Modeling of the SeaWiFS Solar and Lunar Observations. *NASA Tech. Memo. 104566, Vol. 10*, S.B. Hooker and E.R. Firestone, Eds., NASA Goddard Space Flight Center, Greenbelt, Maryland, 26 pp.
- World Meteorological Organization, 1983: *Guide to the Meteorological Instruments and Methods of Observation*, WMO-N.8, 517 pp.
- Wright, S.W., S.W. Jeffrey, F.C. Mantoura, C.A. Llewellyn, T. Bjørnland, D. Repeta, and N. Welschmeyer, 1991: Improved HPLC method for the analysis of chlorophylls and carotenoids from marine phytoplankton. *Mar. Ecol. Prog. Ser.*, **77**, 183–196.
- Wyatt, C.L., 1978: *Radiometric Calibration: Theory and Methods*, Academic Press, New York, 200 pp.
- , 1987: *Radiometric System Design*, Macmillan Publishing Company, New York, 315 pp.
- Yang, H., and H.R. Gordon, 1997: Remote sensing of ocean color: Assessment of water-leaving radiance bidirectional effects on atmospheric diffuse transmittance. *Appl. Opt.*, **36**, 7,887–7,897.
- Yeh, E-n., M. Darzi, and L. Kumar, 1997: “SeaWiFS stray light correction algorithm.” In: Yeh, E-n., R.A. Barnes, M. Darzi, L. Kumar, E.A. Early, B.C. Johnson, J.L. Mueller, and C.C. Trees, Case Studies for SeaWiFS Calibration and Validation, Part 4. *NASA Tech. Memo. 104566, Vol. 41*, S.B. Hooker, and E.R. Firestone, Eds., NASA Goddard Space Flight Center, Greenbelt, Maryland, 24–30.
- Young, A.T., 1980: Revised depolarization corrections for atmospheric extinction. *Appl. Opt.*, **19**, 3,427–3,428.
- Young, D.F., P. Minnis, D.R. Doelling, G.G. Gibson, and T. Wong, 1998: Temporal interpolation methods for the clouds and Earth’s Radiant Energy System (CERES) experiment. *J. Appl. Meteor.*, **37**, 572–590.
- Z—
- Zaneveld, J.R., D.M. Roach, and H. Pak, 1974: The determination of the index of refraction distribution of oceanic particulates. *J. Geophys. Res.*, **79**, 4,091–4,095.
- , J.C. Kitchen, A. Bricaud, and C. Moore, 1992: Analysis of *in situ* spectral absorption meter data. *Ocean Optics XI, Proc. SPIE*, **1750**, 187–200.
- , —, and C. Moore, 1994: The scattering error coefficient of reflective absorption measurements, *Proc. SPIE, Ocean Optics XII*, **2,258**, 44–54.
- Zavatarelli, M., F. Raicich, D. Bregant, A. Russo, and A. Artegiani, 1998: Climatological biogeochemical characteristics of the Adriatic Sea. *J. Mar. System*, **18**, 227–263.
- Zege, E.P., A.P. Ivanov, and I.L. Katsev, 1991: *Image Transfer Through a Scattering Medium*. Springer-Verlag, New York, 349 pp.
- Zibordi, G., and M. Ferrari, 1995: Instrument self-shading in underwater optical measurements: Experimental data. *Appl. Opt.*, **34**, 2,750–2,754.
- , V. Barale, G.M. Ferrari, N. Hoepffner, L. Alberotanza, P. Cova, and C. Ramasco, 1995: Coastal Atmosphere and Sea Time-Series project (CoASTS): An ocean colour remote sensing calibration-validation project. *Proc. Third Thematic Conf. Remote Sens. Mar. Coastal Environ.*, Seattle, September 18–20, **2**, 96–100.
- , J.P. Doyle, and S.B. Hooker, 1999: Offshore tower shading effects on in-water optical measurements. *J. Atmos. Ocean. Technol.*, **16**, 1,767–1,779.
- , and J-F. Berthon, 2001: *In situ* relationships between *Q*-factor and seawater optical properties in a coastal region, *Limnol. Oceanogr.*, **46**, 1,130–1,140.
- , J-F. Berthon, J.P. Doyle, S. Grossi, D. van der Linde, C. Targa, and L. Alberotanza 2002a: Coastal Atmosphere and Sea Time Series (CoASTS), Part 1: A Tower-Based Long-Term Measurement Program. *NASA Tech. Memo. 2002-206892, Vol. 19*, S.B. Hooker and E.R. Firestone, Eds., NASA Goddard Space Flight Center, Greenbelt, Maryland, 29 pp.
- , S.B. Hooker, J-F. Berthon, and D. D’Alimonte, 2002b: Autonomous above-water radiance measurements from an offshore platform: A field assessment experiment. *J. Atmos. Oceanic Technol.*, **19**, 808–819.

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THE SEAWiFS POSTLAUNCH
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Johnson, B.C., J.B. Fowler, and C.L. Cromer, 1998: The SeaWiFS Transfer Radiometer (SXR). *NASA Tech. Memo. 1998–206892*, Vol. 1, S.B. Hooker and E.R. Firestone, Eds., NASA Goddard Space Flight Center, Greenbelt, Maryland, 58 pp.

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Vol. 3

Hooker, S.B., G. Zibordi, G. Lazin, and S. McLean, 1999: The SeaBOARR-98 Field Campaign. *NASA Tech. Memo. 1999–206892*, Vol. 3, S.B. Hooker and E.R. Firestone, Eds., NASA Goddard Space Flight Center, Greenbelt, Maryland, 40 pp.

Vol. 4

Johnson, B.C., E.A. Early, R.E. Eplee, Jr., R.A. Barnes, and R.T. Caffrey, 1999: The 1997 Prelaunch Radiometric Calibration of SeaWiFS. *NASA Tech. Memo. 1999–206892*, Vol. 4, S.B. Hooker and E.R. Firestone, Eds., NASA Goddard Space Flight Center, Greenbelt, Maryland, 51 pp.

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Vol. 8

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McClain, C.R., E.J. Ainsworth, R.A. Barnes, R.E. Eplee, Jr., F.S. Patt, W.D. Robinson, M. Wang, and S.W. Bailey, 2000: SeaWiFS Postlaunch Calibration and Validation Analyses, Part 1. *NASA Tech. Memo. 2000–206892*, Vol. 9, S.B. Hooker and E.R. Firestone, Eds., NASA Goddard Space Flight Center, 82 pp.

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Hooker, S.B., G. Zibordi, J.-F. Berthon, S.W. Bailey, and C.M. Pietras, 2000: The SeaWiFS Photometer Revision for Incident Surface Measurement (SeaPRISM) Field Commissioning. *NASA Tech. Memo. 2000–206892*, Vol. 13, S.B. Hooker and E.R. Firestone, Eds., NASA Goddard Space Flight Center, Greenbelt, Maryland, 24 pp.

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Hooker, S.B., H. Claustre, J. Ras, L. Van Heukelem, J.-F. Berthon, C. Targa, D. van der Linde, R. Barlow, and H. Sessions, 2000: The First SeaWiFS HPLC Analysis Round-Robin Experiment (SeaHARRE-1). *NASA Tech. Memo. 2000–206892*, Vol. 14, S.B. Hooker and E.R. Firestone, Eds., NASA Goddard Space Flight Center, Greenbelt, Maryland, 42 pp.

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