General Disclaimer

One or more of the Following Statements may affect this Document

- This document has been reproduced from the best copy furnished by the organizational source. It is being released in the interest of making available as much information as possible.
- This document may contain data, which exceeds the sheet parameters. It was furnished in this condition by the organizational source and is the best copy available.
- This document may contain tone-on-tone or color graphs, charts and/or pictures, which have been reproduced in black and white.
- This document is paginated as submitted by the original source.
- Portions of this document are not fully legible due to the historical nature of some
 of the material. However, it is the best reproduction available from the original
 submission.

N83-34413

Unclas G3/43 36151



Technical Memorandum 85077

LITERATURE RELEVANT TO REMOTE SENSING OF WATER QUALITY



Elizabeth M. Middleton, Richard F. Marcell

JULY 1983

National Aeronautics and Space Administration

Goddard Space Flight Center Greenbelt. Maryland 20771

LITERATURE RELEVANT TO REMOTE SENSING OF WATER QUALITY

by Elizabeth M. Middleton GSFC Greenbelt, MD 20771

Richard F. Marcell Computer Sciences Corp. Silver Spring, MD 20910

July 1983

GODDARD SPACE FLIGHT CENTER Greenbelt, Maryland

PREFACE

This bibliography was prepared in response to a need for a comprehensive literature source to support research pertaining to remote sensing of water quality. This need was identified in 1980 as a priority by the working group on Remote Sensing of Water Quality associated with the American Society of Photogrammetry's Hydrospheric Sciences Committee (the Remote Sensing Applications Division). An attempt was made to compile as complete a listing as possible from domestic and foreign literature available in English as of March 1983.

We would like to thank the following people whose contributions were invaluable: Thomas Alfoldi, Ottawa, Canada; John C. Munday, Gloucester Point, Virginia; Charles Trees, College Station, Texas; Siamak Khorram, Durham, North Carolina; Robert Ragan, College Park, Maryland and all our other friends and colleagues who made reference materials available to us. Technical assistance by Joseph Langdon and Babu Banerjee is also gratefully acknowledged.

We are confident that this document will be valuable to researchers interested in issues relevant to remote sensing of water quality.

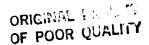
Elizabeth Middleton Richard Marcell

TABLE OF CONTENTS

		Page
1	Optical Properties and Measurement of Water Characteristics	l
1	A. Theory of Water/Light Relationships	ì
	B. Empirical and Scientific Investigations	6
II	Interpretation of Water Characteristics by Remote Sensing	10
	A. Color	10 13
	B. Transparency	13
	1. Turbidity	16
	 Secchi Disc/Water Clarity Bathymetry/Subsurface Features 	16
	C. Suspended or Dissolved Inorganic Matter	19
	1. Suspended Sediment	19
	2. Circulation Patterns	24
	3. Pollutants	27
	D. Biological Materials	29
	1. Plankton, Chlorophyll and Other Pigments	29
	2. Macroflora and Macrofauna	37
	E. Temperature	38
	F. Miscellaneous Parameters	40
111	Application of Remote Sensing for Water Quality Monitoring	41
	A. Monitoring for General Water Quality Conditions	41
	B. Monitoring for Determination of Eutrophication and Lake	5.0
	Classification	50 56
	C. Monitoring for Land Use/Water Quality Effects	90
IV	Application of Remote Sensing According to Water Body Type	51 61
	A. Oceans B. Coastal Waters	66
	C. Estuarine Waters	72
	D. Inland Water Bodies	 75
		,,,
V	Manipulation, Processing, and Interpretation of Remotely	
	Sensed Digital Water Data	86
	A. Preprocessing/Processing, Calibrations and Corrections	u.
	(Nonatmospheric)	86 87
	B. Atmospheric Effects	90
	C. Analysis and Interpretation (Special Techniques and Considerations for Water Studies)	90

LITERATURE RELEVANT TO REMOTE SENSING OF WATER QUALITY

- I OPTICAL PROPERTIES AND MEASUREMENT OF WATER CHARACTERISTICS A. THEORY OF WATER/LIGHT RELATIONSHIPS
- Austin, R. "The Remote Sensing of Spectral Radiance from Below the Ocean Surface." Optical Aspects of Oceanography. Academic Press, New York. 1974. pp.317-344.
- Austin, R. W. and T. J. Petzold. "The Determination of the Diffuse Attenuation Coefficient of Sea Water Using the Coastal Zone Color Scanner." COSPAR/SCPR/IUCRM Symposium, Oceanography from Space. Pleneum Publishing Co. 1981. pp.239-256.
- Austin, R. W. and B. L. McGlamery. Spatial Characteristics of the Diffuse Attenuation Coefficient of Ocean Surface Water as Derived from Coastal Zone Color Scanner Data. IAMAP Third Scientific Assembly, Hamburg, Germany. August 1981.
- Baker, K. S. and R. C. Smith. "Quasi-Inherent Characteristics of the Diffuse Attenuation Coefficient." Proceeding of the SPIE, Ocean Optics VI. pp.60-63.
- Bressette, W. "An Optical Filtering System for Remote Sensing of Phytoplankton and Suspended Sediment." Proceedings of the Earth Environmental and Resources Conference, Philadelphia, Pennsylvania. 1974
- Brown, O. and H. Gordon. "Size-Reflective Index distribution of Clear Coastal Water Particulates from Light Scattering." Applied Optics. 13:12 1974. pp.2874-2881
- Christman, R. and M. Ghassemi. "Chemical Nature of Organic Color in Water." Journal of the American Water Works Association. 58:6 1966. pp.723-741
- Citeau, J. and J. Noel. "A Diffusing Patch of Rhodamin Analyzed by Digitized Aerial Photography." Coastal and Marine Applications of Remote Sensing, Conference Proceeding, 6th 1980. 4pp.
- Clark, G. "The Significance of Spectral Changes in Light Scattered by the Sea." Remote Sensing in Ecology. University of Georgia Press, Athens, Georgia. 1969.
- Duntley, S. "Light in the Sea." Journal of the Optical Society of America. 53 1963. pp.214-233.



- Gazey, B. "Visibility and Resolution in Turbid Waters."

 Journal of Underwater Science and Technology. 2:2 June 1970.

 pp.105-115.
- Ghovanioua, A. Radiative Transfer Model for Remote Sensing of Suspended Sediments in Water. National Aeronautics and Space Administration. NASA CR-145145 1977.
- Gordon, H. "Trradiance Attenuation Coefficient in a Stratified Ocean. A Local Property of the Medium." Applied Optics. 19:13 July 1980. pp.2092-2094.
- Gordon, H. "Mie-Theory Models of Light Scattering by Ocean Particulates." Suspended Solids in Water. R.J. Gibbs (Editor). Plenum Press, New York 1974. pp.73-86.
- Gordon, H. The Diffuse Reflectance of the Ocean: The Theory of its Augmentation by Chlorophyll-a Fluorescence at 685nm. Applied Optics, 18. 1979. p.1161.
- Gordon, H. R. The Albedo of the Ocean-Atmosphere System: Influence of Sea Foam. Applied Optics, 16. 1977. 2257pp.
- Gordon, H. "Remote Sensing of Optical Properties in Continuously Stratified Waters." Applied Optics. 17:12 June 1978. pp.1893-1897.
- Gordon, H. "Simple Calculation of the Diffuse Reflectance of the Ocean." Applied Optics. 12:12 December 1973. pp.2803-2804.
- Gordon, H. and O. Brown. "Diffuse Reflectance of the Ocean: Some Effects of Vertical Structure." Applied Optics 14:12 December 1975. pp.2892-2895.
- Gordon, H. and O. Brown. "Influence of Bottom Depth and Albedo on the Diffuse Reflectance of a Flat Homogeneous Ocean." Applied Optics. 13:19 September 1974. pp.2153-2159.
- Gordon, H. and O. Brown. "Irradiance Reflectivity of a Flat Ocean as a Function of its Optical Properties." Applied Optics. 12:7 July 1973. pp.1549-1551.
- Gordon, H. O. Brown and M. Jacobs. "Computer Relationships Between the Inherent and Apparent Optical Properties of a Flat Homogeneous Ocean." Applied Optics. 14:2 February 1975. pp.417-427.

ORIGINAL PAGE 134" OF POOR QUALITY

- Gordon, H. and D. Clark. "Remote Sensing Optical Properties of a Stratified Ocean: An Improved Interpretation." Applied Optics. 19:20 15 October 1980. pp.3428-3430.
- Gordon, H. and W. McCluney. "Estimation of the Depth of Sunlight Penetration in the Sea for Remote Sensing." Applied Optics. 14:2 February 1975. pp.413-416.
- Hulburt, E. "Optics of Distilled and Natural Water." Journal of the Optical Society of America. 35 1945. pp.698-705.
- Ivanoff, A. and T. Waterman. "Elliptical Polarization of Submarine Illumination." Journal of Marine Research. 16 1958. pp.255-282.
- Ivanoff, A. and T. Waterman. "Factors, Mainly Depth and Wavelength Affecting the Degree of Underwater Light Polarization. Journal of Marine Research. 16 1958. pp.283-307.
- Jain, S. and J. Miller. "Algebraic Expression for the Diffuse Irradiance Reflectivity of Water from the Two-Flow Model." Applied Optics. 16:1 1977. pp.202-204.
- Jain, S. and J. Miller. "S bourface Water Parameters:
 Optimization Approach to their Determination from Remotely
 Sensed Water Color Data. "Applied Optics. 15 1976. p.886.
- Jerlov, N. "Significant Relationships Between Optical Properties of the Sea." Optical Aspects of Oceanography. Academic Press, New York. 1974. pp.77-94.
- Kattawar, G. and T. Humphreys. "Remote Sensing of Chlorophyll in Atmosphere-Ocean Environment: A Theoretical Study." Applied Optics. 15:1 1976. pp.273-282.
- Kattawar, G., T. Humphreys and G. Plass. "Radiative Transfer in an Atmosphere-Ocean System: A Matrix Operator Approach." Proceedings of the Society of Photo-Optical Instrument Engineers. 160 1978. pp.123-131.
- Klemas, V., D. Philpot and G. Davis. Determination of Spectral Signatures of Substances in Natural Waters. College of Marine Studies, University of Delaware, Newark, Delaware. National Aeronautics and Space Administration. CR-156998 March 1978.

ORIGINAL PAGE IS

- Klemas, V., D. Philpot and G. Davis. Signature of Coastal Pollutants. National Aeronautics and Space Administration. NASA CR-145594 1976.
- Lyzenga, D. "Shallow Water Keflectance Modeling with Application to Remote Sensing of the Ocean Floor." Proceedings of the 13th International Symposium on Remote Sensing of Environment. 1 1979. pp.583-602.
- McCluney, W. "Ocean Color Spectrum Calculations." Applied Optics. 13 1974. 229pp.
- McCluney, W. "Radiometry of Water Turbidity Measurements."

 Journal of Water Pollution Control Federation. 47 1975.
 525pp.
- McCluney, W. Remote Measurement of "Turbidity" and Other Water Quality Parameters. National Aeronautics and Space Administration. GSFC X-913-75-153 September 1975. 60pp.
- Morel, A. "Optical Properties of Pure Water and Pure Sea Water."
 Optical Aspects of Oceanography. N. Jerlov and E. Neelsen,
 Editors. Academic Press, Inc., New York. 1974. pp.1-24.
- Morel, A. and H. Gordon. "Report of the Working Group on Water Color." Boundary-Layer Meteorology. 18 1980. pp.343-355.
- Morel, A. and L. Prieur. "Analysis of Variation in Ocean Color." Limnology and Oceanography. 22:4 1977. pp.709-722.
- Morrison, R. "Experimental Studies on the Optical Properties of Sea Water." Journal of Geophysical Research. 75 1970. pp.612-628.
- Morrison, R. "Characteristics of the Optical Volume Scattering Function of Sea Water." Journal of the Oceanographic Society of Japan. 25 1970. pp.101-107.
- Mueller, J. L. and P. E. Laviolette. Color and Temperature Signatures of Ocean Fronts Observed with the Nimbus-7 CZCS. Oceanography from Space. Pleneum Publishing Corporation. 1981. pp.295-302.
- Nicodemus, F. "Radiance." American Journal of Physics. 31 1968. 368pp.
- Perelmen, A. and K. Sifrin. "Improvements to the Spectral Transparency Method for Determining Particle-Size Distribution." Applied Optics. 19:11 1 June 1980.

pp.1787-1793.

ORIGINAL PAGE IS OF POOR QUALITY

- Pickering, R. Measurement of "Turbidity" and Kelated Characteristics of Natural Waters. U. S. Department of Interior. Geological Survey Open File Report 76-153 1976. 7pp.
- Piech, K., J. Schott and K. Stewart. "The Blue-to-Green Reflectance Ratio and Lake Water Quality." Photogrammetric Engineering and Remote Sensing. 44 October 1978. pp.1303-1310.
- Plass, G. and G. Kattawar. "Degree and Direction of Polarization of Multiple Scattered Light." Applied Optics. 11:12 1972. pp.2867-2879.
- Plass, G. and G. Kattawar. "Radiative Transfer in an Atmospheric-Ocean System." Applied Optics. 8:2 1969. pp.455-466.
- Preisendorfer, R. W. "Application of Radiative Transfer Theory to Light measurements in the Sea." IUUG/IAPO Symposium on Radiant Energy in the Sea, Helsinki. August 1960. pp.83-91.
- Slater, P. "Theoretical Principles of Spectroradiometric Instruments; Color Theory and Specification." Remote Sensing: Optics and Optical Systems. Chapter 7. Addison-Wesley Publishing Company, Inc., Advanced Book Program, Reading, Massachusetts. 1980. 56pp.
- Smith, R. and K. Baker. "Optical Properties of the Clearest Natural Waters (200-800nm)." Applied Optics. 20:2 15 January 1981. pp.177-184.
- Sturm, B. "Optical Properties of Water Applications of Kemote Sensing to Water Quality Determination." Remote Sensing Application in Agriculture and Hydrology. A. A. Balkeman. Rotterdam. 1980. pp.471-495.
- "Theory of Spectral Radiance of Pollutants at Sea." University of Southern California Institute for Marine and Coastal Studies, UCLA. N79-27633 June 1979. 40pp.
- Turner, R. and W. Malila. Study of Spectral Discrimination.
 National Aeronautics and Space Administration. NASA CR WKL 31650/22/T 1971.

- Whitlock, C. An Estimate of the Influence of Sediment Concentration and Type on Remote Sensing Penetration Depth for Various Coastal Waters. National Aeronautics and Space Administration. NASA TM X-73906 1976.
- Whitlock, W., W. Witte, J. Usry, et. al. "Penetration Depth at Green' Wavelenghts in Turbid Waters." Photogrammetric Engineering and Remote Sensing. 44:11 1978. pp.1405-1410.
- Williams, J. "Optical Properties of the Ocean." Rep. Prog. Phys. 36 1973. pp.1567-1608.
- Wilson, W. and D. Kiefer. "Keflectance Spectroscopy of Marine Phytoplankton, Part 2, A Simple Model of Ocean Color." Limnology and Oceanography. 24:4 1979. pp.673-682.
- Yentsch, C. "The Influence of Phytoplankton Pigments on the Color of Sea Water." Deep Sea Research. 7 1960. pp.1-9.
- B. EMPIRICAL AND SCIENTIFIC INVESTIGATIONS
- Agui, T. and M. Nakajima. Recognition of Lakes by a Structural Analysis Method. Tokyo Inst. of Technology. 1980. 11pp.
- Atkins, W. and H. Poole. "An Experimental Study of the Scattering of Light by Natural Waters." Proceedings of the Royal Society of London. 140 1952. pp.321-338.
- Austin, R. "Gulf of Mexico, Ocean-Color Surface-Truth Measurements." Boundary-Layer Meteorology. 18:1 1980. 17pp.
- Bartolucci, L., B. Kobinson and L. Silva. "Field Measurements of Spectral Response of Natural Waters." Photogrammetric Engineering and Remote Sensing. 43:5 1977. pp.595-598.
- Bukata, K. P. "Determination of Inherent Optical Properties of Lake Untario Coastal Waters". Applied Optics. December 1979. Volume II. 7pp.
- Bristow, M., D. Nielsen, D. Bundy and R. Furten. "Use of Water Raman Emission to Correct Airborne Laser Fluorosensor Data for Effects of Water Optical Attenuation." Optical Society of America. N.Y. 20:17 September 1981. pp.2889-2910.

- Broenkow, W. w. "Coastal Zone Color Scanner Surface Truth Measurements." Final Report, NASA CR-166267. 1981.
- Bukata, R., et. al. "Nonzero Subsurface Irradiance Reflectance at 670 nm from Lake Ontario Water Masses." Applied Optics. 19:15 l August 1980. pp.2487-2488.
- Charlton, J. "Sea Truth Measurements for Remote Sensing Verification." Proceedings of the 6th Coastal and Marine Applications of Remote Sensing Conference. Dundee, Scotland, 18-19 December 1979. pp.85-94.
- Clark, D., E. Baker and A. Strong. "Upwelled Spectral Radiance Distribution in Relation to Particulate Matter in Sea Water." Boundary-Layer Meteorology. 18:1 1980.
- Clarke, G. and H. James. "Laboratory Analysis of the Selective Absorption of Light by Sea Water." Journal of the Optical Society of America. 23 1960. 43pp.
- Collins, W. and H. Chiu. "Signature Evaluation of Natural Targets Using High Spectral Resolution Techniques." Proceedings of the 13th International Symposium on Remote Sensing of Environment. April 1979. pp.567-582.
- Davis, A., M. Bristow and J. Koningstein. "Raman Spectroscopy as a Water Quality Indicator." Proceedings of the Remote Sensing and Water Resources Management Symposium. American Water Resources Association. 1973. pp.239-246.
- Egan, W. G. "Optical Remote Sensing of the Sea-A Caribbean Example." Proceeding of the 14th International Symposium on Remote Sensing of Environment. Volume 1. April 1980. 563pp.
- Elsayed, S., H. Reheim, G. Fryxell, et al. Scientific Investigations in the Gulf of Mexico and Caribbean Sea During the 1974-1975 Calypso Cruise, Parts 1 and 2. Texas A & M University, Center for Marine Resources. December 1975. 262pp.
- Gabriel, W. "Spectral Analysis and Adaptive Array Superresolution Techniques." IEEE Proceedings. 68:6 June 1980. pp.654-666.
- Gehlhaar, U., K. P. Gunther and J. Luther. "Compact and Highly Sensitive Fluorescense Lidar For Oceanographic Measurements." Optical Society of America. 20:19 October 1981. pp.3318-3326.

- Gierloff-Emden, H. G. Timescale as Interface of Satellite Data Acquisition Systems Against Coastal Water and Tidal Region Processes as Significant Problem for Remote Sensing. International Society for Photogrammetry. July 1980. 10pp.
- Hoge, F. E. and R. N. Swift. "Airborne Simultaneous Detection of Laser Induced Water Raman Backscatter and Fluorescense from Chlorophyll a and Other Naturally Occurring Figments." Optical Society of America. 20:18 September 1981. pp.3197-3205.
- Hovis, W. A. The Nimbus-7 Coastal Zone Color Scanner (CZCS)
 Program. Oceanography from Space. Pleneum Publishing
 Corporation. 1981. pp.213-225.
- James, H. and E. Birge. "A Laboratory Study of the Absorption of Light by Lake Waters." Transactions of the Wisconsin Academy of Science, Arts and Letters. 31 1938. pp.1-154.
- Johnson, R., C. Batten, D. Bowker, et. al. "Preliminary Data for the 20 May 1974 Simultaneous Evaluation of Remote Sensor Experiments." National Aeronautics and Space Administration. NASA TM-X-72676 1975. 61pp.
- Lichy, D. and M. G. Mattie. A Ground Truth Site For Testing Kemote Sensing Techniques to Study Coastal and Marine Phenomena. Remote Sensing Society. 1980. 10pp.
- Lindell, L. "Experiences from Correlations of Landsat Data Versus Transmission of Light and Chlorophyll a." Verh. Internat. Verein. Limnol. 21 1981. pp.406-409.
- Maul, G. "Analysis of Analog Visible Infrared Satellite Data For Oceanic Information Content." Proceeding of the 14th International Symposium on Remote Sensing of Environment. Volume 1. April 1980. 515pp.
- Maul, G. and H. Gordon. "On the Use of the Earth Resources Technology Satellite (Landsat-1) in Optical Oceanography." Kemote Sensing of Environment. 4:2 1975. pp.95-128.
- Miller, J., S. Jain, N. O'Neill, et. al. "Interpretation of Airborne Spectral Keflectance Measurements Over Georgian Bay." Remote Sensing of Environment. 6:3 1977. pp.183-200.
- Horel, A. and L. Prieur. Ocean Color Variation Analysis. Limnology and Oceanography. #22. pp.709-722.
- Mork, M. and O. M. Johannessen. Remote Sensing Experiment

- in Norwegian Coastal Waters. Spring 1979. Geophysical Inst. University of Bergen, Norway. April 1980. 10pp.
- Petzold, T. Volume Scattering Function for Selected Ocean waters, Visibility Laboratory Technique. Scripps Institute of Oceanography. Report Number 72-78 1972.
- Polcyn, F. and D. Lyzenga. "Multispectral Sensing of Water Parameters." American Water Resources Association. Remote Sensing and Water Resources Management, Procedures Number 17 June 1973. pp.394-403.
- Sorensen, B. The North Sea Ocean Color Scanner Experiment 1977 Final Report. Commission of European Communities, Joint Research Center. Ispra, Italy, September 1979. 140pp.
- Strickland, J. and T. Parsons. A Practical Handbook of Sea Water Analysis. Fish Research Board of Canada. Bulletin 167 1972. 310pp.
- Tanis, F., C. Polcyn and E. Doak. "Measurement of Sea Surface Upwelling Radiance in the Gulf of Mexico Using the Nimbus-G Coastal Zone Color Scanner." Proceedings of the 14th International Symposium on Remote Sensing of Environment. 1980. pp.1859-1864.
- Tassan, S., B. Strum and E. Diana. "A Sensitivity Analysis for the Retrieval of Chlorophyll Contents in the Sea from Remotely Sensed Radiances." Proceedings of the 13th International Symposium on Remote Sensing of Environment. 1979. pp.713-727.
- Usry, J., W. witte, C. Whitloc, F. al. Laboratory Measurements of Radiance and Peflectance Spectra of Dilute Primary-Treated Sewage Sludge. National Aeronautics and Space Administration. NASA TP-1038 1977.
- Watanabe, K. Remote Sensing Data from Satellite Available for Oceanographic Investigations. Marine Sciences Monthly, #6. 1977. Volume 9.
- whitlock, C., et. al. Investigation of Effects of Background Water on Upwelled Reflectance Spectra and Techniques for Analysis of Dilute Primary-Treated Sewage Sludge. National Aeronautic and Space Administration. NASA TP-1446 August 1979. 33pp.

- Whitlock, C., J. Usry, W. Witte, et. al. Laboratory Measurements of Upwelled Radiance and Reflectance Spectra of Calvert, Ball, Jordan and Feldspar Soil Sediments. National Aeronautics and Space Administration. NASA TP-1039 1977.
- Wrigley, R. C. Spectrometer Measurements of Water Color in the Gulf of Mexico. 41st Annual Meeting, American Society of Limnology and Oceanography, Victoria, B. C. June 1978.
- Yentsch, C. and F. El-Baz. "Estimation of Total Reflectance from the Orinoco River Outflow." Apollo-Soyuz Test Project Summary Science Report Vol.2 - Earth Observations and Photography. National Aeronautics and Space Administration. NASA SP-412 1979. 5pp.
- Zwick, H., S. Jain and R. Bukata. A Satellite/Airborne and In-Situ Water Quality Experiment in Lake Ontario. Canadian Center for Remote Sensing. CCRS Number 1024285 Category 1-02-02/2-03-00 1979. 18pp.
- II INTERPRETATION OF WATER CHARACTERISTICS BY REMOTE SENSING A. COLOR
- Anderson, F. P., et.al. "A South African Ocean Color Experiment."
 Oceanography from Space. Pleneum Publishing Corporation.
 1981. pp.381-386.
- Birine, R. and E. Posementier. "Identification of Lateral Spectral Contrasts in the Lower Hudson River Estuary Using Landsat Digital Data." Proceedings of the 14th International Symposium on Remote Sensing of Environment. 1980. pp.1663-1672.
- Blaine, L., C. Murphy and W. Barnes. The Ocean Color Scanner Experiment. National Aeronautics and Space Administration. GSFC X-941-77-153 August 1977. 51pp.
- Borstad, G. "ASTP at Barbados: Mesoscale Pools of Amazon River Water in the Western Tropical Atlantic." Apollo-Soyuz Test Project Summary Science Report Volume 2 Earth Observations and Photography. National Aeronautics and Space Administration. NASA SP-412 1979. 17pp.
- Clark, G., G. Ewing and C. Lorenzen. "Remote Measurement of Ocean Color as an Index of Biological Productivity." Proceedings of the 6th International Symposium of Remote Sensing of Environment. 1969. pp.54-56.

- Deschamps, P., P. Lecomte and M. Viollier. "Remote Sensing of Ocean Color and Detection of Chlorophyll Content." Proceedings of the 11th International Symposium on Remote Sensing of Environment. 2 1977. pp.1021-1033.
- Duntley, S. Q. and R. W. Austin. Ocean Color Analysis. University of California, San Diego. 1974.
- Egan, W. "Optical Remote Sensing of the Sea A Caribbean Example." Proceedings of the 14th International Symposium on Remote Sensing of Environment. 1980. pp.563-589.
- Gordon, H. R. and A. Y. Morel. "Water Color Measurement- An Introduction." Pleneum Publishing Co. 1981. pp.207-212.
- Grew, G. "Characteristic Vector Analysis as a Technique for Signature Extraction of Ocean Color Data." Proceedings of the 6th Annual Remote Sensing of Earth Resources Conference. 29-31 March 1977.
- Hojerstev, N. "Water Color and its Kelation to Primary Production." Boundary-Layer Meteorology. 18:1 1980. 18pp.
- Hovis, W., M. Forman and L. Blaine. Detection of Ocean Color Changes from High Altitude. National Aeronautics and Space Administration. GSFC X-652-73-371 1973.
- Hovis, W. "Remote Sensing of Ocean Color." Optical Engineering. 16:2 1977. pp.158-166.
- Maul, G., R. Char all 'nd R. Qualset. "Computer Enhancement of ERTS-1 Images for Ocean Radiances." Remote Sensing of Environment. 3:4 1974. pp.237-254.
- McCluney, W. "Kemote Measurement of Water Color." Remote Sensing of Environment. 5 1976. pp.3-33.
- McNeil, W. and K. Thomson. "Kemote Measurement of Water Color and its Application to Water Quality Surveillance."

 Proceedings of the Third Annual Remote Sensing of Earth Resources Conference. 3 March 1974. pp.117-146.
- Miller, J., R. Gordon and D. Kamykowski. "Airborne Water Color Measurements of the Nova Scotia Coast." Canadian Journ. 1 of Remote Sensing. 2 1976. 42pp.
- Morel, A. "In Water and Remote Measurement of Ocean Color." Boundary-Layer Meteorology. 18:1 1980. 25pp.

- Mueller, J. "Ocean Color Spectra Measured off the Oregon Coast: Characteristic Vector." Applied Optics. 15:2 1976. pp.394-402
- Mueller, J., D. Ball and E. Middleton. "Parametrization and Preprocessing of Ocean Image Data for Studies of Coastal Oceanography." Proceedings of the Ninth Annual Offshore Technology Conference. May 1977. pp.295-302
- Pearcy, W. and D. Keene. "Remote Sensing of Water Color and Sea Surface Temperature of the Oregon Coast." Limnology and Oceanography. 19 1974. pp.573-583.
- Piech, K. and J. Walker. "Aerial Color Analysis of Water Quality." Proceedings of the American Society of Civil Engineers. Journal of the Surveying and Mapping Division. November 1971.
- Piech, K. and J. Walker. "Photographic Analysis of Water Kesource Color and Quality." Proceedings of the American Society of Photogrammetry 37th Annual Meeting. 1971. pp.258-279.
- Ramsey, R. Study of the Remote Measurement of Ocean Color. National Aeronautics and Space Administration. TWA-NASA-1658 1968.
- Schiebe, F. and J. Ritchie. "Color Measurements and Suspended Sediments in North Mississippi Reservoirs." Proceedings of the Fourth Annual Remote Sensing of Earth Resources Conferences. University of Tennessee. March 1975.
- Stevenson, M. R. and R. G. Kirkham. Coastal Zone and Open Ocean Observations from NOAA Satellite Very High Resolution Radiometers- Final Report. Inter American Tropical Tuna Commission. Scrips Institute of Oceanography, December 1977. 97pp.
- Smith, R. C. and K. S. Baker. Optical Classification of Natural Waters. Limnology and Oceanography. 1978. pp.260-267.
- Tanis, F. G. "Neasurement of Sea Surface Upwelling Radiance in the Gulf of Mexico using the Nimbus-G Coastal Zone Color Scanner." Proceeding of the 14th International Symposium on Remote Sensing of Environment. Volume 3. April 1980. 1859pp.

- Tisdall, T. and F. El-Baz. "Analysis of Water Color as Seen in Orbital and Aerial Photographs of Cape Cod, Nantucket and Martha's Vineyard, Massachusetts." Apollo-Soyuz Test Project Summary Science Report Volume 2 Earth Observations and Photography. National Aeronautics and Space Administration. NASA SP-412 1979. 26pp.
- Wilson, W. H. and R. W. Austin. "Remote Sensing of Ocean Color." Proceeding of the 22nd Annual SPIE Symposium "Ocean Optics V 1978. pp.23-30.
- Yentsch, C., et. al. "Ocean Color Observations." Apollo-Soyuz Test Project Summary Science Report Volume 2 - Earth Observations and Photography. National Aeronautics and Space Administration. NASA SP-412 1979. 14pp.
- Zwick, H. H. and S. C. Jain. Recent Work in Passive Optical Imaging of Water. Canada Center for Remote Sensing. Ottawa (Ontario). July 1981. pp.189-194.

B. TRANSPARENCY 1. TURBIDITY

- Coker, A., A. Higer and C. Goodwin. "Detection of Turbidity Dynamics in Tampa Bay, Florida, Using Multispectral Imagery from ERTS-1." Proceedings of the National Aeronautics and Space Administration Symposium on Significant Results Obtained from ERTS-1. NASA SP-327 1973. pp.1715-1726.
- Curran, R. "Ocean Turbidity and Chlorophyll as Inferred from ERTS-1 Observations." Proceedings of a Symposium held at Goddard Space Flight Center on the Significant Accomplishments in Science. National Aeronautics and Space Administration. NASA SP-331 1973. pp.109-192.
- Finley, R. and R. Baumgardner. "Interpretation of Surface-Water Circulation, Arkansas Pass, Texas, Using Landsat Imagery."
 Remote Sensing of Environment. 10:1 August 1980. pp.3-22.
- Gazey, B. "Visibility and Resolution in Turbid Waters."

 Journal of Underwater Science and Technology. 2:2 June 1970.

 pp.105-115.
- Goldman, C., R. Richards, H. Pearl, et. al. "Limnological Studies and Remote Sensing of the Upper Truckee River Sediment Plume in Lake Tahoe, California-Nevada." Remote Sensing of Environment. 3:1 1974. pp.49-67.

- Gordon, H. One-Parameter Characterization of the Ocean's Optical Properties for Remote Sensing. Applied Optics, 16. 1977. 2627pp.
- Harris, G., R. Bukata and J. Bruton. "Satellite
 Observations of Water Quality Turbidity and Chlorophyll in
 Cootes Paradise Marsh, Ontario." Journal of Transportation
 Engineering. 102 August 1976. pp.537-554.
- Klemas, V., M. Otley, W. Philpot, et. al. "Correlation of Coastal Water Turbidity and Current Circulation with ERTS-1 and Skylab Imagery." Proceedings of the 9th International Symposium on Remote Sensing of Environment. 1974. pp.1289-1317.
- Koidsumi, K., T. Nagasawa and S. Kawashima. "Quantitative Relationship Between Concentration of Solids in Suspension and the Transparency or the Turbidity of Waters, An Experimental Investigation and its Application to Water of Lake Suwa, Japan." Journal of Limnology. 30:4 1969. pp.125-138.
- Lecroy, R. S. Determination of Turbidity Patterns in Lake Chicot from Landsat MSS Imagery. Kenton International Inc. Hampton, VA. March 1982. 50pp.
- McCluney, W. "Radiometry of Water Turbidity Measurements."

 Journal of Water Pollution Control Federation. 47 1975.
 252pp.
- McCluney, W. Remote Measurement of "Turbidity" and Other Water Quality Parameters. National Aeronautics and Space Administration. GSFC X-913-75-153 September 1975. 60pp.
- McCluney, W. Two Channel Laboratory Scattering Meter. Review of Scientific Instruments: A Publication of the American Institute of Physics. 46:9 September 1975. pp.1231-1236.
- Merry, C. Airborne Spectroradiometer Data Compared with Ground Water Turbidity Measurements at Lake Powell, Utah. Army Cold Regions Research and Engineering Laboratory, Hanover, New Hampshire. National Aeronautics and Space Administration. CH-155290 1977. 44pp.
- Merry, C. "The Correlation and Quantification of Airborne Spectroradiometer Data to Turbidity Measurements at Lake Powell, Utah." Proceedings of the 13th International Symposium on Remote Sensing of Environment. April 1979. pp.1309-1316.

- Morris, W., W. Witte and C. Whitlock. Turbid Water Measurements of Remote Sensing Penetration Depth at Visible and Near-Infrared Wavelengths. National Aeronautics and Space Administration. NASA TM-81843 August 1980. 10pp.
- Pickering, R. Measurement of "Turbidity" and Kelated Characteristics of Natural Waters. U. S. Department of Interior. Geological Survey Open File Report 76-153 1976. 7pp.
- Pijanowski, B. "The Meaning and Measurement of Turbidity."
 Proceedings of the International Conference on Environmental
 Sensing and Assessment, Las Vegas, Nevada. II 1975.
 pp.21-26.
- Pluhowsky, E. "Remote Sensing of Turbidity Plumes in Lake Ontario." Journal of Research of U. S. Geological Survey. 1 September-October 1973. pp.609-614.
- Rogers, R., L. Reed and E. Smith. "Computer Mapping of Turbidity and Circulation Patterns in Saginaw Bay, Michigan (Lake Huron) from ERTS Data." Proceedings of the American Society of Photogrammetry 41st Annual Meeting. March 1975. pp.415-429.
- Weishlatt, E., J. Zaitzeffi and C. Reeves. "Classification of Turbidity Levels in the Texas Marine Coastal Zone." Proceedings of the Conference on Machine Processing of Remotely Sensed Data. Purdue University. October 1973. pp.3A-42/3A-59.
- Wertz, D., W. Mealor, M. Steele, et. al. "Correlation Between Multispectral Photography and Near-Surface Turbidities." Photogrammetric Engineering and Remote Sensing. 42:5 May 1976. pp.695-701.
- Whitlock, W., W. Witle, J. Usry, et. al. "Penetration Depth at Green Wavelenghts in Turbid Waters." Photogrammetric Engineering and Kemote Sensing. 44:11 1978. pp.1405-1410.
- Yarger, H. "Water Turbidity Detection Using ERTS-1 Imagery."
 Proceedings of the Third Earth Resources Technology
 Satellite-1 Symposium. National Aeronautics and Space
 Administration. NASA SP-351 1973. pp.651-658.
- Yarger, H., J. McCauley, G. James, et. al. "Water Turbidity Detection Using ERTS-1 Imagery." Proceedings of the Symposium on Significant Results Obtained from the Earth Resources Technology Satellite-1. National Aeronautics and Space Administration. NASA SP-327 March 1973. pp.651-658.

2. SECCHI DISC/WATER CLARITY

- Brooks, D. "Landsat Measures Water Clarity." Photogrammetric Engineering and Remote Sensing. 91 1975.
- Brooks, D., A. Mace, M. Meyer, et. al. Assessment of Water Quality Status and Trends in Minnesota by Remote Sensing Techniques. University of Minnesota. OWRT-A-033-MINN. December 1977. 66pp.
- Cibuzar, A. Mapping of Chlorophyll-a Concentrations and Secchi Disc Depth Within Region 5 Using Landsat Digital Data. A. W. Research Laboratories. 1978. 25pp.
- Gordon, H. and D. K. Clark. "Clear Water Radiances for Atmospheric Correction of Coastal Zone Color Scanner Imagery." Optical Society of America. 20:24 December 1981. pp.4175-4180.
- Gordon, H. "Estimation of the Depth of Sunlight Penetration in Natural Waters from the Remote Sensing of Chlorophyll-a via in Vivo Fluorescence." Applied Optics. 18:12 1 June 1979. pp.1883-1884.
- Holmes, R. "The Secchi Disk in Turbid Coastal Waters." Limnology and Oceanography. 15 1970. pp.688-694.
- McCluney, W. Estimation of Sunlight Penetration in the Sea for Kemote Sensing. National Aeronautics and Space Administration. NASA TM X-70643 1974.
- Mueller, J. "Remote Measurement of Chlorophyll Concentration and Secchi Depth Using the Principal Components of the Ocean's Color Spectrum." Proceedings of the Fourth Annual Earth Resources Program Review. MSC-05937 4 1972. pp.105-1/105-13.

3. BATHYMETRY/SUBSURFACE FEATURES

1

- Austin, R. "The Remote Sensing of Spectral Radiance from Below the Ocean Surface." Optical Aspects of Oceanography. Academic Press, New York. 1974. pp.317-344.
- Blankenburgh, J. C. and H. Veland. Water depth from Landsat Imagery. Remote Sensing of the Ocean North Sea Projects-Final Report. February 1980. 3pp.
- Brown, W., A. N. Polcyn, A. Zellman, et. al. Water Depth

- Measurements by wave Refraction and Multispectral Techniques. Environmental Research Institute of Michigan Report, Number 31650-31-T. 1971.
- Doak, E., J. Livisay, J. Ott and F. Polcyn. "Evalution of Water Depth Extraction Techniques Using Landsat and Aircraft Data." Defense Mapping Agency Contract 800-78-C-0060. Environmental Research Institute of Michigan Final Report 135900-2-F. January 1980.
- Gordon, H. and W. McCluney. "Estimation of the Depth of Sunlight Penetration in the Sea for Remote Sensing." Applied Optics. 14:2 February 1975. pp.413-416.
- Ivanoff, A. and T. Waterman. "Elliptical Polarization of Submarine Illumination." Journal of Marine Research. 16 1958. pp.255-282
- Ivanoff, A. and T. Waterman. "Factors, hainly Depth and Wavelength Affecting the Degree of Underwater Light Polarization." Journal of Marine Research. 16 1958. pp.283-307.
- Jain, S. and J. Miller. "Subsurface Water Parameters: Optimization Approach to their Determination from Remotely Sensed Water Color Data." Applied Optics. 15 1970. 886pp.
- "Korean Coastal water Depth, Sedimentation and Land Cover Happed by Computer Analysis of Landsat Imagery." National Aeronautics and Space Administration. NASA TM-79546.
- Lohmann, P. and H. Vander Piepen. "Evaluation of Ocean Bottom Features from Ocean Color Scanner Imagery." International Society for Photogrammetry, 14th Conf., Hamburg, W. Germany. July 1980. 27pp.
- Lyzenga, D. "Passive Remote Sensing Techniques for Mapping Water Depth and Bottom Features." Applied Optics. 17:3 1978. pp.379-383.
- Lyzenga, D. "Shallow Water Reflectance Modeling with Application to Remote Sensing of the Ocean Floor." Proceedings of the 13th International Symposium on Remote Sensing of Environment. 1979. pp.583-602.
- Lyzenga, D. and F. Polcyn. Techniques for the Extraction of Water Depth Information from Landsat Digital Data. Prepared for Defense Mapping Agency by EKIM. Contract Number 800-77-C-0053 March 1979. 57pp.

- Lyzenga, D. and F. Polcyn. The Analysis of Spectral Resolution and Band Location for Satellite Bathymetry. Prepared for National Oceanic and Atmospheric Administration, National Environmental Satellite Service, by ERIM. Contract Number 7-35176 January 1978. 60pp.
- Lyzenga, D., R. Shucham and R. Arnone. "Evaluation of an Algorithm for Mapping Bottom Features Under a Variable Depth of Water." Proceedings of the 13th International Symposium on Remote Sensing of Environment. 1979.
- Lyzenga, D. R., J. S. Ott, J. P. Livisay and F. C. Polcyn. "Kemote Bathymetry with a Multispectral Active/Passive Airborne System." Naval Coastal Systems Center Contract N61331-80-C-0022. Environmental Research Institute of Michgan Final Report 149600-1-F. February 1982.
- Middleton, E. and J. Barker. Hydrographic Charting from Landsat Satellite: a Comparison with Aircraft Imagery. National Aeronautics and Space Administration. GSFC X-923-76-111 1976. 6pp.
- Moller, S. and G. Maracci. "Monitoring of Eutrophic Depth from Aircraft." Remote Sensing of Environment. 8:4 1979. 349pp.
- Perelmen, A. and K. Sifrin. "Improvements to the Spectral Transparency Method for Determining Particle-Size Distribution." Applied Optics. 19:11 June 19080.
- Philpot, W. D. A Radiative Transfer Model for Remote Sensing of Vertically Inhomogeneous Waters. Ph.D. Thesis. Delaware Univ. Newark. 1981. 157pp.
- Philpot, W. D. and S. G. Ackleson. Remote Sensing of Optically Shallow Vertically Inhomogeneous Waters. Delaware University. Newark. October 1979. pp283-300.
- Polcyn, F. and D. Lyzenga. "Landsat Bathymetric Mapping by Multitemporal Processing." Proceedings of the 13th International Symposium on Remote Sensing of Environment. April 1979. pp.1269-1276.
- Polcyn, F. and D. Lyzenga. Remote Bathymetry and Shoal Detection with ERTS-1: ERTS Water Depth - Final Report, Project 193302. National Aeronautics and Space Administration. NASA CR ERIM 193300-51-F April 1975. 55pp.

- Savasta, F. J., K. H. Faller, L. W. McFadin and H. Holley. "Mapping of Submerged Vegetation Using Remote Sensing Technology." NOAA Technical Memorandum NNFS-SEFC-73. September 1981.
- Tanis, F. J. "Radiance Calculations for Optimization of Sensors Designed for Remote Bathymetry." Naval Research Laboratory Contract NOOU14-81-C-2350. Environmental Research Institute of Michigan Final Technical Report 155800-1-F, Vol 1. July 1982.
- Whitlock, C. An Estimate of the Influence of Sediment Concentration and Type on Remote Sensing Penetration Depth for Various Coastal Waters. National Aeronautics and Space Administration. NASA TM X-73906 1976.
- C. SUSPENDED OR DISSOLVED MATTER
 1. SUSPENDED SEDIMENT
- Alexander, V., J. Mellor and K. Barsdate. Suspended Sediments and Kelated Limnology of an Alpine Lake System -- Peters Lake and Schraeder Lake. Alaska University, Fairbanks. 31 January 1977. 16pp.
- Amos, C. Suspended Sediment Analysis of Seawater Using Landsat Imagery, Minas Basin, Nova Scotia. Geological Survey of Canada Paper 76-1C. 1976. pp.55-60.
- Amos, C. and T. Alfoldi. "Determination of Suspended Sediment Concentrations in a Macrotidal System Using Landsat Data." Journal of Sedimentary Petrology. 49:1 1979. pp.159-174.
- Azura, P. and L. Hidalgo. "A Study of Suspended Solids in the Requena Dam by Remote Sensing." Proceedings of the 11th International Symposium on Remote Sensing of Environment. 1977. pp.495-504.
- Blanchard, B. and R. Leamer. Spectral Response of Water Containing Suspended Sediments; Remote Sensing and Water Resources Management. American Water Resources Association. Procedures Number 17. 1973.
- Bowker, D., P. Fleisher, T. Gosink, et. al. "Correlation of ERTS Multispectral Imagery with Suspended Matter and Chlorophyll in the Lower Chesapeake Bay." Proceedings on the Symposium on Significant Results Obtained from ERTS-1. National Aeronautics and Space Administration. NASA SP-327 1973. pp.1291-1298.

- Bowker, D., P. Fleisher, T. Gosink, et. al. "Transmissometry and Suspended Matter in the Lower Chesapeake Bay: Correlation with ERTS Multispectral Imagery." Proceedings of the American Society of Photogrammetry Fall Convention. 2-5 October 1973 pp.840-847.
- Bressette, W. "An Optical Filtering System for Remote Sensing of Phytoplankton and Suspended Sediment." Proceedings of the Earth Environmental and Resources Conference, Philadelphia, Pennsylvania. 1974.
- Bukata, R., G. Harris and J. Burton. "The Detection of Suspended Solids and Chlorophyll-a Utilizing Digital Multispectral ERTS-1 Data." Proceedings of the 2nd Canadian Symposium on Remote Sensing. April 29-May 1, 1974. pp.552-564.
- Chagarlamudi, P., R. Hecky and J. Schubert. "Quantitative Monitoring of Sediment Levels in Freshwater Lakes from Landsat." Proceedings of the COSPAR Conference: The Contribution of Space Observations to Water Resources Management. 1980. 4pp.
- Cracknell, A. and S. Singh. "The Determination of Chlorophyll-a and Suspended Sediment Concentrations for EURASEP Test Site, During North Sea Ocean Color Scanner Experiment, from an Analysis of a Landsat Scene." Proceedings of the 14th. Congress of the International Society for Photogrammetry. Hamburg, West Germany, 13-25 July 1980. 10pp.
- Exton, R. and W. M. Houghton. Laser Remote Sensing of Marine Sediment Load and Algal Pigments. NASA, Hampton, VA. October 1981. pp.339-348.
- Ghovanioua, A. Radiative Transfer Model for Remote Sensing of Suspended Sediments in Water. National Aeronautics and Space Administration. CR-145145 1977.
- Goldberg, E. "Particle Fluxes to the Aquatic Environment." Remote Sensing and Problems of the Hydrosphere. National Aeronautics and Space Administration. NASA CP-2109 1979. 16pp.
- Gordon, H. "Mie-Theory Models of Light Scattering by Ocean Particulates." Suspended Solids in Water. R.J. Gibbs (Editor). Plenum Press, New York 1974. pp.73-86.
- Hill, J. M. Landsat Estuarine Water Quality Assessment of Silviculture and Dredging Activities. Environmental Protection Agency, Las Vegas, Nevada. Aug 1980. 130pp.

- Holyer, R. Multispectral Techniques for Remote Monitoring of Sediment in Water: A Feasibility Investigation. U. S. Environmental Protection Agency. EPA-600/4-80-019 1980. 157pp.
- Holyer, R. "Towards Universal Multispectral Suspended Sediment Algorithms." Remote Sensing of Environment. 7:4 1978. pp.323-338.
- Jerlov, N. "The Particulate Matter in the Sea as Determined by Means of the Tyndall Meter." Tellus. 7. pp.218-225.
- Johnson, K. "Quantitative Sediment Mapping from Remotely Sensed Data." Proceedings of the Fourth Annual Remote Sensing of Earth Resources Conference. March 1975. pp.24-26.
- Johnson, R. "Quantitative Suspended Sediment Mapping Using Aircraft Remocely Sensed Multispectral Data." Proceedings of the National Aeronautics and Space Administration Earth Resources Survey Symposium. Volume I-C.

 NASA TM X-58168 1975. pp.2087-2098.
- Johnson, R. "Remote Sensing and Spectral Analysis of Plumes from Ocean Dumping in the New York Bight Apex." Remote Sensing of Environment. 9:3 May 1980. pp.197-209.
- Johnson, R., I. Duedall, R. Glasgow, et. al.
 "Quantitative Mapping of Suspended Solids in Watershed Sludge
 Plumes in the New York Bight Apex." Journal of Water
 Pollution Control Federation. 49:10 1977. pp.2063-2073.
- Kritikos, H., L. Yorinks and H. Smith. "Suspended Solids Analysis Using EKTS-1 Data." Remote Sensing of Environment. 3 1974. pp.69-78.
- Koidsumi, K., T. Nagasawa and S. Kawashima. "Quantitative Relationship Between Concentration of Solids in Suspension and the Transparency or the Turbidity of Waters, An Experimental Investigation and its Application to Water of Lake Suwa, Japan." Journal of Limnology. 30:4 1969. pp.125-138.
- Kuo, C. and R. Cheng. Laboratory Requirements for In-Situ and Remote Sensing of Suspended Materials. National Aeronautics and Space Administration. NASA CK-145263 March 1976. 90pp.
- Munday, J. Jr. Chesapeake Bay Suspended Sediment Distribution and Analysis from Landsat for Calibration and Verification of Numerical Models of Bay Water Quality. Proposal to the Virginia Sea Grant Program. Virginia Polytechnical Institute.

- 4 April 1980.
- Munday, J. Jr. and T. Alfoldi. "Landsat Test of Diffuse Keflectance Models for Aquatic Suspended Solids Measurements." Remote Sensing of Environment. August 1978. pp.169-183.
- Munday, J. Jr., T. Alfoldi and C. Amos. "Landart Measurement of Suspended Sediment." World Health Organization, Water Quality Bulletin. 5:1 January 1980. pp.6-10.
- Munday, J. Jr, T. Alfoldi and C. Amos. "Verification and Application of a System for Automated Multidata Landsat Measurement of Suspended Sediments." Proceedings of the 5th William T. Pecora Memorial Symposium. Satellite Hydrology. Sioux Falls, South Dakota. June 1980. 35pp.
- Ohlhorst, C. and B. Gilbert. "Mapping of Particulate Iron in an Ocean Dump." Photogrammetric Engineering and Remote Sensing. 45:8 August 1979. pp.1117-1122.
- Punongbayan, R. S. "Studies of Coastal Sediment Migration and Accumulation Using Landsat MSS Data." Proceeding of the 14th International Symposium on Remote Sensing of Environment. Volume 3. April 1980. 1555pp.
- "Remote Sensing Instrumentation Criteria for Monitoring Sediment and Salinity in Surface Waters." U. S. Environmental Protection Agency. EPA-600/U-75-004 1975. 14pp.
- Ritchie, J., J. McHenry, F. Schiebe, et. al. "The Relationship of Reflected Solar Radiation and the Concentration of Sediment in the Surface Waters of Reservoirs." Proceedings of the Third Remote Sensing of Earth Resources Conference. University of Tennessee. III 1974. pp.57-72.
- Ritchie, J. and F. Schiebe. "Remote Sensing of Suspended Sediments in Lake Chicot, Arkansas." Proceedings of the American Society of Photogrammetry 45th Annual Meeting. March 1979. pp.29-39.
- Kitchie, J., F. Schiebe and J. McHenry. "Remote Sensing of Suspended Sediments in Surface Waters." Photogrammetric Engineering and Remote Sensing. 12 1976. pp.1539-1545.
- Ritchie, J., F. Schiebe, B. Wilson, et. al. "Sun Angle, Keflected Solar Radiation and Suspended Sediments in North Mississippi Reservoirs." Proceedings of the Fourth Remote Sensing of Earth Kesources Conference. University of Tennessee. March 1975. pp.555-563.

- Sausen, T. M. "Tres Marias Reservoir, Minas Gerais State. A Study of the Dispersion of Suspended Sediments in Surface Waters Using Orbital Imagery." Proceeding of the 14th International Symposium on Remote Sensing of Environment. Volume 3. April 1980. 1877pp.
- Schiebe, F. and J. Kitchie. "Color Measurements and Suspended Sediments in North Mississippi Keservoirs." Proceedings of the Fourth Annual Kemote Sensing of Earth Resources Conferences. University of Tennessee. March 1975.
- Schubel, J. R. Coastal Sedimentation. State University of New York, Stony Brook, NY 11790. 1980. 7pp.
- Syder, M. Lakewide Monitoring of Suspended Solids Using Satellite Data. Minnesota Univ. Duluth, Volume 14. 14pp.
- Sydor, M. "Neasurement of Suspended Solids in Lakes and Oceans, Using Satellite Memote Sensing Data." A Study of Minnesota Land and Water Resources Using Remote Sensing. 13 January 1980. pp.107-137.
- Sydor, M. "Remote Sensing of Particulate Concentrations in Water." Applied Optics. 19:16 15 August 1980. pp.2794-2800.
- Thomas, I. "Sediment/Siltration Monitoring Within a Tidal Basin Using Repetitive Landsat CCT Data." Proceedings of the 12th International Symposium on Remote Sensing of Environment. 1978. pp.1367-1378.
- Thomas, I. "Suspended Sediment Dynamics from Repetitive Landsat Data." International Journal of Remote Sensing. 1:3 July-September 1980. pp.285-292.
- Whitlock, C. An Estimate of the Influence of Sediment Concentration and Type on Remote Sensing Penetration Depth for Various Coastal Waters. National Aeronautics and Space Administration. NASA TM X-73906 1976.
- Whitlock, C., C. Y. Kuo and S. R. Lecroy. Criteria for the Use of Kegression Analysis for Remote Sensing of Seciment and Pollutants. Feb 1982. 36pp.
- Whitlock, C., J. Usry, W. Witte, et. al. Laboratory Measurements of Upwelled Radiance and Reflectance Spectra of Calvert, Ball, Jordan and Feldspar Soil Sediments. National Aeronautics and Space Administration. NASA TP-1039 1977.

- Whitlock, C. H., W. G. Witte, A. T. Taly, W. D. Morris, J. W. A. Ursy and Poole. L. R. Research for Reliable Quantification Water Sediment Concentrations from Multispectral Scanner Remote Sensing Data. NASA. Langley Research Center. Hampton, VA. MAY 1981. 22pp.
- Williamson, A. and W. Graban. "Sediment Concentration Mapping in Tidal Estuaries." Proceedings of the Third Earth Resources Technology Satellite-1 Symposium. National Aeronautics and Space Administration. NASA SP-351 1973. pp.1347-1386.

2. CIRCULATION PATTERNS

- Abiodun, A. "Satellite Survey of Particulate Distribution Patterns in Lake Kainji (Nigeria)." Remote Sensing of Environment. 5:2 1976. pp.109-123.
- Abiodun, A. and H. Adeniji. "Movement of Water Columns in Lake Kainji (Nigeria)." Remote Sensing of Environment. 7:3 1978. pp.227-234.
- Alberotanza, L., G. Aldighieri and V. Barale. "Circulation Modeling in the Northern Adriatic Sea and its Comparison with Nimbus-7 Remotely Sensed Data." COSPAR/SCOR/IURM Symp. on Oceanography from Space. Venice, Italy. May-1980.
- American Society of Civil Engineers. "Coastal Sediments '77." receedings of the Fifth Symposium of the American Society of Civil Engineers Waterway, Port, Coastal and Ocean Division. Charleston, South Carolina. November 1977.
- Apel, J. R. "Nonlinear Features of Internal Waves as Derived from the Seasat Imaging Radar." Oceanography from Space, Pleneum Publishing Corporation. 1981. pp.525-533.
- Bradley, J., M. Eden and P. Rice-Evans. "Remote Sensing of Suspended Sediment in Amazonian Rivers from Landsat Imagery." Proceedings of the 5th Annual Conference of the Remote Sensing Society: Remote Sensing and National Mapping. 1979. 13pp.
- Campbell, W. Janet and J. P. Thomas. Chesapeake Bay Plume Study. NASA Hampton, Va. Oct 1981. 504pp.
- Eliason, J. and H. Foote. "Surface Water Movement Studies Utilizing a Tracer Dye Imaging System." Proceedings of the 7th International Symposium on Remote Sensing of Environment. 1971. pp.731-749.

- Finley, R. and R. Baumgardner. "Interpretation of Surface-Water Circulation, Arkansas Pass, Texas, Using Landsat Imagery." Remote Sensing of Environment. 10:1 August 1980. pp.3-22.
- Gatto, L. "Analysis of Circulation Pattens in Grays Harbor, Washington, Using Kemote Sensing Techniques." Marine Geodesy. 3 1980. pp.289-323.
- Hunter, R. E. and G. W. Hill. Nearshore Current Pattern Off South Texas: An Interpretation from Aerial Photographs. Remote Sensing of Environment. September 1980. 20pp. Volume II.
- Johnson, R., et. al. "Monitoring the Temporal Dispersion of a Sewage Sludge Plume." Photogrammetric Engineering and Remote Sensing. 45:6 June 1979. pp.763-768.
- Khorram, S. "Remote Sensing of Salinity in the San Fransisco Bay Delta." Elsevier Science Publishing Co. Inc. New York. 12:1 Harch 1982. pp.15-21.
- Klemas, V. "Kemote Sensing of Coastal Wetland Vegetation and Estuarine Water Properties." Estuarine Processes. Volume 2 -Circulation, Sediments and Transfer of Material in the Estuary. Academic Press, New York. 1977. pp.381-403.
- Klemas, V., J. Borchardt and W. Treasure. "Suspended Sediment Observation from ERTS-1." Remote Sensing of Environment. 2 1973. pp.205-221.
- Klemas, V., R. Srna, W. Treasure, et. al. "Application of ERTS-1 Imagery to the Study of Suspended Sediments and Aquatic Fronts." Proceedings of the Symposium on the Significant Results Obtained from the Earth Resources Technology Satellite-1 Volume 1!. National Aeronautics and Space Administration. NASA SP-327 1973.
- Lissauer, I. M. and L. D. Farmer. "Determining Synoptic Surface Current Patterns Using Aerial Photography." Photogrammetric Engineering and Remote Sensing. March 1980. 4pp. Volume 46 #III.
- Manning, A. P. Jr. USGS. "Current Status of Remote Sensing for Oil Pollution Control in U.S. Coastal Waters." Proceeding of the 14th International Symposium on Remote Sensing of Environment. Volume 1. April 1980. pp.249-262.

- Maxwell, T. "Suspended-Sediment Dispersal Patterns of River Deltas Photographed by ASTP." Apollo-Soyuz Test Project Summary Science Report Volume 2 Earth Observations and Photography. National Aeronautics and Space Administration. NASA SP-412 1979. pp.521-503.
- Ochiai, H. and K. Tsuchiya. Application of Remotely Sensed Data to the Detection of Sea Surface Phenomena. Toba National Merchant Marine College. September 1980. 13pp.
- Parada, N. and T. Sausen. Tres Marias Reservoir, Minas Gerais State: Study of the Dispersion of Suspended Sediments in Surface Waters Using Orbital Images. National Aeronautics and Space Administration. NASA CR-163774 1980.
- Psuty, N. and J. Allen. "Trend Surface Analysis of Ocean Outfall Plumes." Photogrammetric Engineering. 41:6 June 1975. pp.721-730.
- Rouse, L. and J. Coleman. "Circulation Observations in the Louisiana Bight Using Landsat Imagery." Remote Sensing of Environment. 5:1 .976. pp.55-66.
- Sausen, T. "Tres Marias Reservoir, Minas Gerais State: Study of the Dispersion of Suspended Sediments in Surface Waters Using Orbital Imagery." Proceedings of the 14th International Symposium on Remote Sensing of Environment. April 1980. pp.1877-1890.
- Tisdall, T. and F. El-Baz. Analysis of Water Color as Seen in Orbital and Aerial Photographs of Cape Cod, Nantucket and Martha's Vineyard, Mass. Appollo-Soyuz Test Project Summary Science Report. 1979. 26pp.
- Smith, R. S. Remote Sensing of Non-Point Source Sediment in Northern Maine. M.S.Thesis. Maine Univ. at Orono. May 1981. 89pp.
- Thornton, S. Suspended Sediment Transport in Surface Waters of the California Current off Southern California: 1977-1978 Floods. University of Southern California, Department of Geological Sciences, Los Angeles, CA. 1979. 23pp.
- Welby, C. and L. Pietrafesa. "Combined Satellite Imagery of Water Circulation." World Health Orginazition. Water Quality Bulletin. 5:1 January 1980. pp.15-17.

3. POLLUTANTS

- Arvesen, J., E. Weaver and J. Millard. "Kapid Assessment of Water Pollution by Airborne Measurement of Chlorophyll Content." American Institute of Aeronautics and Astronautics Paper Number 71-1097. 1971. pp.394-403.
- Boesch, D. Application of Numerical Classification in Ecological Investigations of Water Pollution. U. S. Environmental Protection Agency. EPA-600/3-77-033 1977. 263pp.
- Bristow, M. and D. Nielson. Remote Monitoring of Organic Carbon in Surface Waters. U. S. Environmental Protection Agency. EPA-600/4-81-001 1981. 93pp.
- Burgess, F. and W. James. Airphoto Analysis of Ocean Outfall Dispersion. U. S. Environmental Protection Agency. Report Number 16070ENSO6/71. 1971. 185pp.
- Burkhalter, R., C. Meyer and J. M. Massin. "Current Status of Kemote Sensing for Oil Pollution Control in French Coastal Waters." 14th International Symposium on Kemote Sensing of Environment, Proc. San Jose, Costa Rica. April 1980. Volume I. 6pp.
- Fielder, G. and D. J. Telfer. Satellite Monitoring of Sea Surface Pollution. U. K. Dept. of Industry, Monsanto House, Victoria St., London. January 1980. 33pp.
- Hellden, U. and I. Akersten. "Landsat Digital Data for Water Pollution and Water Quality Studies in Southern Scandinavia." Proceedings of the 11th International Symposium on Remote Sensing of Environment. 1977. pp.875-884.
- Hord, R. M. and R. T. Macomber. "Digital Landsat Processing to Assess New york Bight Acid Dump." American Society of Photogrammetry, Proceedings of the 45th Annual Meeting. March 1979. 12pp. Volume II.
- Hypes, W. and C. Ohlhorst. A Summary of the Test
 Procedures and Operational Details of a Delaware River and
 an Ocean Dumping Pollution Monitoring Experiment Conducted
 28 August 1975." National Aeronautics and Space
 Administration. NASA TM X-74005 1977.
- Johnson, R. "Mapping the Hudson River Plume and Acid Waste Plume by Remote Sensing in the New York Bight Apex." Results from the NASA Remote Sensing Experiments in the New York Bight April 7-17, 1975. National Aeronautics and Space

- Administration. NASA TM X-74032 1977.
- Johnson, R., et. al. "Monitoring the Temporal Dispersion of a Sewage Sludge Plume." Photogrammetric Engineering and Remote Sensing. 45:6 June 1979. pp.763-768.
- Johnson, R. "Multispectral Analysis of Ocean Dumped Materials." Proceedings of the 11th International Symposium on Remote Sensing of the Environment. 1977. pp.25-29.
- Johnson, R. "Remote Sensing and Spectral Analysis of Plumes from Ocean Dumping in the New York Bight Apex." Remote Sensing of Environment. 9:3 May 1980. pp.197-209.
- Johnson, R., I. Duedall, R. Glasgow, et. al.
 "Quantitative Mapping of Suspended Solids in Watershed Sludge
 Plumes in the New York Bight Apex." Journal of Water
 Pollution Control Federation. 49:10 1977. pp.2063-2073.
- Klemas, V. Remote Sensing of Coastal Pollutants --- Delaware. College of Marine Studies, University of Delaware, Newark, Delaware. 1978.
- Klemas, V., R. Davis and R. Henry. "Satellite and Current Drogue Studies of Ocean-Disposed Waste Drift." Journal of the Water Pollution Control Federation. May 1977. pp.757-763.
- Klemas, V., R. Davis, J. Lackie, et. al. "Satellite, Aircraft and Drogue Studies of Coastal Currents and Pollutants." IEEE Transactions on Geoscience Electronics. GE-15:2 April 1977. pp.97-108.
- Klemas, V., R. Davis, H. Wang, et. al. "Remote Sensing of Coastal Currents and Pollutants. Geoscience and Man. 18 December 1977. pp.193-204.
- Klemas, V., D. Philpot and G. Davis. Signature of Coastal Pollutants. National Aeronautics and Space Administration. NASA CK-145594 1976.
- Klemas, V. and D. Polis. "Remote Sensing of Estuarine Fronts and their Effects on Pollutants." Photogrammetric Engineering and Remote Sensing. 43:5 May 1977. pp.599-612.
- Lewis, B. and V. Collins. Remotely Sensed and Laboratory Spectral Signatures of an Ocean-Dumped Acid Waste. National Aeronautics and Space Administration. NASA TNO-8467 July 1977.

- Ohlnorst, C. Quantitative Mapping of Remote Sensing of an Ocean Acid Waste Dump. National Aeronautics and Space Administration. NASA TP-1275 1978.
- Ohlnorst, C. and B. Gilbert. "Mapping of Particulate Iron in an Ocean Dump." Photogrammetric Engineering and Remote Sensing. 45:8 August 1979. pp.1117-1122.
- Oman, G. and M. Sydor. "Use of Kemote Sensing in Determination of Chemical Loading of Lake Superior Due to Spring Runoff." Canadian Journal of Spectroscopy. 23:2 1978. pp.52-56.
- Philpot, W. and V. Klemas. "Kemote Detection of Ocean Waste." Proceedings of the Sixth Seminar of the Society of Photo-Optical Instrumentation Engineers. Monterey, California, 23-25 October 1979. pp.189-197.
- Psuty, N. and J. Allen. "Trend Surface Analysis of Ocean Outfall Plumes." Photogrammetric Engineering. 41:0 June 1975. pp.721-730.
- Scherz, J., D. Graff and W. Boyle. "Photographic Characteristics of Water Pollution." Photogrammetric Engineerng. 35 1969. pp.38-43.
- Wells, W. and H. Hodar. Passive Remote Sensing of Off-Shore Pollutants. Tetra Tech. Inc. Rosemead Blvd, Pasadona, CA 91107 May 1979. 51pp.
- D. BIOLOGICAL MATERIALS
 1. PLANKTON, CHLOROPHYLL AND OTHER PIGHENTS
- Aranuvachapun, S. and R. A. Perry. "Spectral Variations of Coastal Water Irradiance as a Measure of Photoplankton Pigments." International Journal of Remote Sensing. 2:4 March 1981. pp.299-312.
- Arvesen, J., J. Millard and E. Weaver. "Remote Sensing of Chlorophyll and Temperature in Marine and Fresh Waters." Astronautica Acta. 167 1970. 1119pp.
- Arvesen, J., E. Weaver and J. Millard. "Rapid Assessment of Water Pollution by Airborne Measurement of Chlorophyll Content." American Institute of Aeronautics and Astronautics Paper Number 71-1097. 1971. pp.394-403.

- "Assessment of Water Quality in Lakes by the Use of Bioindices from Satellite Imagery, A Case History of 208 Water Quality Management Planning." U. S. Environmental Protection Agency EPA-440/3-77-019. January 1978. 10pp.
- Borstad, G., R. Brown and J. Gower. "Airborne Remote Sensing of Sea Surface Chlorophyll and Temperature Along the Outer British Columbia Coast." Proceedings of the 6th Canadian Symposium on Remote Sensing. Paper Number 113 May 1980. 9pp.
- Bowker, D., P. Fleisher, T. Gosink, et. al. "Correlation of ERTS Multispectral Imagery with Suspended Matter and Chlorophyll in the Lower Chesapeake Bay." Proceedings on the Symposium on Significant Results Obtained from ERTS-1. National Aeronautics and Space Administration. NASA SP-327 1973. pp.1291-1298.
- Bressette, W. "An Optical Filtering System for Remote Sensing of Phytoplankton and Suspended Sediment." Proceedings of the Earth Environmental and Resources Conference, Philadelphia, Pennsylvania. 1974.
- Bressett, W. "The Use of Near Infrared Photography for Aerial Observation of Phytoplankton Blooms." Proceedings of the 2nd Annual Remote Sensing of Earth Resources Conference. 1972. pp.1173-1186.
- Bristow, M. Airborne Laser Fluorosensing of Surface Water Chlorophyll-a. U. S. Environmental Protection Agency, Environmental Monitoring System Lab, Las Vegas, Nevada. August 1979. 79pp.
- Brown, C., F. Farmer, O. Jarrett. et. al. "Laboratory Studies of In Vivo Fluroscene of Phytoplankton." Proceedings of the 4th Joint Conference on Sensing of Environmental Pollutants. 6-11 November 1977.
- Bukata, R., G. Harris and J. Burton. "The Detection of Suspended Solids and Chlorophyll-a Utilizing Digital Multispectral ERTS-1 Data." Proceedings of the 2nd Canadian Symposium on Kemote Sensing. April 29-May 1, 1974. pp.552-564.
- Cibuzar, A. Mapping of Chlorophyll a Concentrations and Secchi Disc Depth Within Region 5 Using Landsat Digital Data. A. W. Research Laboratories. 1978. 25pp.
- Clark, G., G. Ewing and C. Lorenzen. "Remote Measurement of Ocean Color as an Index of Biological Productivity."

- Proceedings of the 6th International Symposium of Remote Sensing of Environment. 1969. pp.54-56.
- Clarke, G., G. Ewing and C. Lorenzen. "Spectra of Back-Scattered Light from the Sea Obtained from Aircraft as a Measure of Chlorophyll Concentration." Science. 167 1970. pp.1119-1121.
- Cracknell, A. and S. Singh. "The Determination of Chlorophyll-a and Suspended Sediment Concentrations for EURASEP Test Site, During North Sea Ocean Color Scanner Experiment, from an Analysis of a Landsat Scene." Proceedings of the 14th Congress of the International Society for Photogrammetry. Hamburg, West Germany, 13-25 July 1980. 10pp.
- Curran, R. "Ocean Turbidity and Chlorophyll as Inferred from ERTS-1 Observations." Proceedings of a Symposium held at Goddard Space Flight Center on the Significant Accomplishments in Science. National Aeronautics and Space Administration. NASA SP-331 1973. pp.109-192.
- De Jesusparada Nelson. Estimating the Chlorophyll Content in the Waters of Guanabara Bay from the Landsat Multispectral Scanning Digital Data. Instituto De Pesquisas Espaciais, Sao Jose Dos Campus(Brazil). June 1980. 12pp.
- Deschamps, P., P. Lecomte and M. Viollier. "Remote Sensing of Ocean Color and Detection of Chlorophyll Content."

 Proceedings of the 11th International Symposium on Remote Sensing of Environment. 2 1977. pp.1021-1033.
- Duntley, S. "Detection of Ocean Chlorophyll From Earth Orbit."
 Proceedings of the 4th Annual Earth Resources Program Review.
 National Aeronautics and Space Administration Publication.
 Volume 1V January 1972.
- Exton, R. J. and W. M. Houghton. Laser Kemote Sensing of Marine Sediment Load and Algal Pigments. NASA Hampton, VA. October 1981. pp.339-348.
- El-Sayed, S. Z. and C. C. Trees. "Ecological Studies of Phytoplankton in the Gulf of Mexico During the Late Winter /Early Spring." ASLO/AGU Meeting, San Antonio.
- Farmer, F., et. al. "Remote Sensing of Phytoplankton Density and Diversity in Narragansett Bay Using an Airborne Fluorosensor." Proceedings of the 13th International Symposium on Remote Sensing of Environment. 1979. pp.1793-1805.

- Farmer, F., C. Brown Jr., O. Jarrett, et al. "Kemote Sensing of Phytoplankton Density and Diversity Using an Airborne Fluorosensor." Paper Presented at the Workshop on Advanced Concepts in Ocean Measurements I, Georgetown, South Carolina. 24-28 October 1978.
- Gordon, H. "Estimation of the Depth of Sunlight Penetration in Natural Waters from the Remote Sensing of Chlorophyll-a via in Vivo Fluorescence." Applied Optics. 18:12 1 June 1979. pp.1883-1884.
- Gordon, H. and D. Clark. "Atmospheric Effects in the Remote Sensing of Phytoplankton Pigments." Boundary-Layer Meteorology. 18:1 1980. 15pp.
- Gordon, H., D. Clark, J. Mueller, et. al. "Phytoplankton Pigments Derived from the Nimbus-7 Coastal Zone color Scanner: Initial Comparisons with Surface Measurements." Science. 210 3 October 1980. pp.63-66.
- Gordon, H. R. and D. K. Clark. Satellite Measurement of the Phytoplankton Pigment Concentration in the Surface Waters of a Warm Core Gulf Stream Ring. Jour. Mar. Res. (Accepted for Publication.) 1982.
- Gordon, H. and D. Clark. "Atmospheric Effects in the Remote Sensing of Phytoplankton Pigments." Boundary-Layer Meteorology. 18 March 1980. pp.299-313.
- Gordon, H. "Phytoplankton Pigments from Nimbus-7 Coastal Zone Color Scanner: Comparisons with Surface Measurements." Science. 210:4465 3 October 1980. pp.63-66.
- Gower, J. "Observations of In-Situ Fluorescence of Chlorophyll-a in Saanich Inlet." Boundary-Layer Meteorology. 18:1 1980. 11pp.
- Gramms, L. and W. Bolle. "Reflectance and Transmittance Characteristics of Selected Green and Blue-Green Unialgae." Proceedings of the 7th International Symposium on Remote Sensing of Environment. 1971. pp.1627-1650.
- Grew, G. "Kemote Detection of Chlorophyll-a in Coastal Waters." Proceedings of the 5th Annual Remote Sensing of Earth Resources Conference. 29-31 March 1976.
- Gustafson, T. and M. Adams. Remote Sensing of "Myriophyllum spicatum L." in a Shallow, Eutrophic Lake. American Water Resources Association. Procedures Number 17 1973. pp.387-391.

- Harris, G., K. Bukata and J. Bruton. "Satellite Observations of Water Quality - Turbidty and Chlorophyll in Cootes Paradise Marsh, Ontario." Journal of Transportation Engineering. 102 August 1976. pp.537-554.
- Hoge, F. E. and R. N. Swift. Application of the NASA Airborne Oceanographic Lidar to the Mapping of Chlorophyll and other Organic Pigments. NASA Wallops Island VA. October 1981. pp.349-374.
- Holm-Hansen, O. G. and G. J. Lorenzen. Flourometric Determination of Chlorophyll. J. Cons. Perm. Explor. Mer. 1965. pp.3-15.
- Horen, A. and R. Wrigley. "The Use of Remote Sensing to Detect How Wind Influences Planktonic Blue-Green Algae Distribution." Verh. Int. Ver. Limnol. 19 1975. pp.784-791.
- Jarrett, O., et. al. "Measurement of Chlorophyll-a Fluorescence with an Airborne Fluorosensor." Proceedings of the 13th International Symposium on Remote Sensing of Environment. 1979. pp.703-710.
- Jobson, D., R. Zingmark and S. Katzberg. "Remote Sensing of Benthic Microalgal Biomass with a Tower-Mounted Multispectral Scanner." Remote Sensing of Environment. 9:4 June 1980.
- Johnson, R. "Mapping of Chlorophyll-a Distributions in Coastal Zones." Photogrammetric Engineering and Remote Sensing. 44 May 1978. pp.617-624.
- Johnson, R. "Quantitative Mapping of Chlorophyll-a Distributions in Coastal Zones by Remote Sensing." Proceedings of the American Society of Photogrammetry 43rd Annual Meeting. 1977. pp.485-502.
- Johnson, W. and R. Harriss. "Remote Sensing for Water Quality and Biological Measurements in Coastal Waters." Photogrammetric Engineering and Remote Sensing. 46:1 January 1980. pp.77-85.
- Johnson, W. and D. Morris. "A Multispectral Analysis of Algal Blooms in the Gulf of Mexico." Proceedings of the American Institute of Aeronautics and Astronautics Conference on Satellite Applications to Marine Technology. AIAA Report Number 77-1565 C43 A78-13657 1977. pp.39-42.

- Kattawar, G. and T. Humphreys. "Remote Sensing of Chlorophyll in Atmosphere-Ocean Environment: A Theoretical Study." Applied Optics. 15:1 1976. pp.273-282.
- Kim, H., et. al. "Ocean Chlorophyll Studies from J-2 Aircraft Platform." Journal of Geophysical Research. 85:C7 20 July 1980. pp.3982-3990.
- Kim, H., C. McClain and W. Hart. "Chlorophyll Gradient Map from High-Altitude Ocean-Color-Scanner Data." Applied Optics. 18:22 15 November 1979. pp.3715-3716.
- Kolipinski, M., N. Higer, N. Thomson, et. al. "Inventory of Hydrodiological Features Using Automatically Processed Multispectral Data." Proceedings of the 6th International Symposium on Remote Sensing of Environment. 1969. 79pp.
- Larsen, P. L. and P. C. Jorgensen. Coastal Zone Color Scanner Data Applied for Mapping of the Phytoplankton Pigment Concentration in the North Sea. March 1981.
- Leung, K. and W. Hovis. "Kemote Sensing of Chlorophyll Concentrations from High Altitude." Proceedings of the Second Annual Combined Conference of the Marine Technology Society and the Institute of Electrical and Electronic Engineers. 13-15 September 1976. pp.15E-1 to 15E-4.
- Lindell, L. "Experiences from Correlations of Landsat Data Versus Transmission of Light and Chlorophyll-a." Verh. Internat. Verein. Limnol. 21 1981. pp.406-409.
- Lorenzen, C. "A Method for the Continuous Measurement of in Vitro Chlorophyll Concentrations." Deep-Sea Research. 13. pp.223-227.
- Lorenzen, C. "Surface Chlorophyll as an Index of the Depth, Chlorophyll Content and Primary Production of the Eutrophic Layer." Limnology and Oceanography. 15 1970. pp.479-480.
- Mueller, J. "Kemote Measurement of Chlorophyll Concentration and Secchi Depth Using the Principal Components of the Ocean's Color Spectrum." Proceedings of the Fourth Annual Earth Resources Program Review. MSC-05937 4 1972. pp.105-1/105-13.
- Mumola, P., O. Jarrett Jr. and C. Brown Jr. "Multiwavelength Lidar for Remote Sensing of Chlorophyll-a in Phytoplankton." Proceedings of the Second Environmental Quality Sensing Conference. 1973.

(Medic 10) 2000年 (10) 1000年 (10)

- Mumola, P., O. Jarrett Jr. and C. Brown Jr. "Multiwavelength Laser Introduced Fluorescence of Algae In-Vivo: A New Remote Sensing Technique." Proceedings of the Second Conference on the Sensing of Environmental Pollutants, Washington, D. C. 1973.
- Munday, J. Jr. and P. Zubkoff. "Remote Sensing of Dinoflagellate Blooms in a Turbid Estuary." Photogrammetric Engineering and Remote Sensing. 47:4 April 1981. pp.523-531
- Smith, R. C. Remote Sensing and the Depth Distribution of Ocean Chlorophyll. Marine Ecology. 1981. pp. 359-361.
- Smith, R. C. and K. S. Baker. The Bio-Optical State of Ocean Waters and Remote Sensing. Limnology and Oceanography. pp. 247-259.
- Smith, R. C. and K. S. Baker. Oceanic Chlorophyll Concentrations as Determined Using CZCS Imagery. Marine Biology. August 1981.
- Smith, R. C. and K. S. Baker. "The Remote Sensing of Chlorophyll 2. "Proceedings of the XXth Meeting COSPAR, E.A. Godby and Otterman, Pergamon Press, Oxford, New York. 1978.
- Smith, R. C., K. S. Baker and P. Dustan. Fluorometer Techniques for the Measurements of Oceanic Chlorophyll in the Support of Remote Sensing. University of California, San Diego, Scripps Institute of Oceanography, Visibility Laboratory.
- Smith, R. C., K. S. Baker and P. Dustan. Surface Chlorophyll Measurements for the Surface Validation of Remotely Sensed Chrolophyll. S. I. O. Reference Report, 1980.
- Strum, B., G. Ferrari and P. Schlittenhardt. Chlorophyll- a and Total Suspended Matter Concentration in the North Adriatic Sea Determined from Nimbus-7 CZCS. Woods Hole, Mass, U.S.A. October 1981.
- Tabor, P. Evaluation of Chlorophyll Measurements by Different Radiometry from Aircraft Altitudes. Florida State University. Department of Meteorology. Scientific Report Number CUEA 75-2 September 1975. 189pp.
- Tanis, F. A Remote Sensing Technique to Monitor "Cladophora" in the Great Lakes. U. S. Environmental Protection Agency. EPA-600/3-80-075 July 1980. 36pp.
- Tassan, S. "Application of a Global Sensitivity Analysis Model

- to the Retrieval of Chlorophyll Concentrations in Water From Remotely Measured Radiances." Proceedings of the 14th International Symposium on Remote Sensing of Environment. April 1980. pp.807-818.
- Tassan, S., B. Strum and E. Diana. "A Sensitivity Analysis for the Retrieval of Chlorophyll Contents in the Sea from Remotely Sensed Radiances." Proceedings of the 13th Interritional Symposium on Remote Sensing of Environment. 1979. pp.713-727.
- Thorne, J. "The Remote Sensing of Algae." Proceedings of the Sixth Annual Remote Sensing of Earth Resources Conference. University of Tennessee. 1977. pp.145-159.
- Ulbricht, K., D. Schmidt and U. Horstmann. "Mass Appearance of Blue Green Algae in the Baltic Sea: Evaluation of Multispectral Landsat Scenes by Image Processing."

 Proceedings of an International Conference on Earth Observation from Space and Management of Planetary Resources. Tulouse, Tennessee. March 1978. pp.77-79.
- Uno, S., Y. Sugahara and S. Hayakawa. "Remote Sensing of Chlorophyll Found in Bodies of Water." Proceedings of the 14th International Symposium on Remote Sensing of Environment. 1980. pp.1147-1157.
- Viollier, M., P. Deschamps and P. Lecomte. "Airborne Remote Sensing of Chlorophyll Content Under Cloudy Skies as Applied to Tropical Waters in the Gulf of Guinea." Remote Sensing of Environment. 7:3 1978. pp.235-248.
- Walters, N. M. Verification of the Utility of CZCS Imagery in Portraying Pigment Distributions in the Ocean. November 1981.
- Wilson, W., R. Austin and R. Smith "Optical Remote Sensing of Chlorophyll in Ocean Waters." Proceedings of the 12th International Symposium on Remote Sensing of Environment. 1978. pp.1103-1114.
- Wilson, W. and D. Kiefer. "Reflectance Spectroscopy of Marine Phytoplankton, Part 2, A Simple Model of Ocean Color." Limnology and Oceanography. 24:4 1979. pp.673-682.
- Wrigley, R., S. Klooster, M. Leroy, et. al. Field Measurement of Algal Biomass by Infrared Reflectance. National Aeronautics and Space Administration. NASA TM X-73. 107pp.

- Yentsch, C. S. A Method for the Determination of Phytoplankton Chlorophyll and Phaeophytin by Fluorescence. Deep Sea Research . 1963. pp.221-231.
- Yentsch, C. S. "The Influence of Phytoplankton Pigments on the Color of Sea Water." Deep Sea Research. 1960. pp.1-9.

2. MACROFLORA AND MACROFAUNA

- Ali, M. Application of Remote Sensing by Landsat to Study Fish Habitat Characteristics in the Karnafuli Reservoir and the Buriganga and Shitalakhya Rivers, Bangladesh. Kemote Sensing Institute, South Dakota State University, Brookings, South Dakota. SDSU-RSI-VISP-79-08 1979. 51pp.
- Eisenberg, M. "Water Quality and Shellfish Sanitation."
 Application of Remote Sensing to the Chesapeake Bay Region.
 National Aeronautics and Space Administration.
 Proceedings-2, NASA CP-6 1978. pp.267-268.
- Gower, J. and I. Daniel. The Use of ERTS-1 Computer Compatible Tapes with Respect to Marine Research. Canadian Fisheries and Marine Service. Pacific Marine Science Report 74-2 1974. pp.33-53.
- Gustafson, T. and M. Adams. The Remote Sensing of Aquatic Nacrophytes. Part I. Color Infrared Aerial Photography as a Tool for Identification and Mapping of Littoral Vegetation. Part II. Aerial Photography as a Quantitative Tool for the Investigation of Aquatic Ecosystems. Institute for Environmental Studies, University of Wisconsin at Madison. Remote Sensing Program Publication. 1973. 25pp.
- Halley, H. and K. Sarastano. "Remote Sensing for Coastal Fisheries Application." Proceedings of the 14th International Symposium on Remote Sensing of Environment. April 1980. pp.587-595.
- Horler, D., J. Barber and A. Barringer. "Effects of Heavy Metals on the Absorbance and Reflectance Spectra of Plancs." International Journal of Remote Sensing. 1:2 April-June 1980. pp.121-136.
- Jensen, J., J. Estes and L. Tinney. "Kemote Sensing Techniques for Kelp Surveys." Photogrammetric Engineering and Remote Sensing. 46:6 June 1980. 13pp.
- Kemmerer, A., J. Benigno, G. Reese, et. al. "Summary

- of Selected Early Results from the ERTS-1 Menhaden Experiment." Fishery Bulletin. 72:2 1974. pp.375-389.
- Klemas, V. "Remote Sensing of Coastal Wetland Vegetation and Estuarine Water Properties." Estuarine Processes. Volume 2 Circulation, Sediments and Transfer of Material in the Estuary. Academic Press, New York. 1977. pp.381-403.
- Klemas, V., D. Bartlett and W. Philpot. "Remote Sensing of Marine Fisheries Resources." ONK Symposium on Advanced Concepts in Ocean Measurement, Belle W. Baruch Institute for Marine Biology and Coastal Research, University of South Carolina, 25-29 October 1978. 19pp.
- Kolipinski, M., N. Higer, N. Thomson, et. al. "Inventory of Hydrobiological Features Using Automatically Processed Multispectral Data." Proceedings of the 6th International Symposium on Remote Sensing of Environment. 1969. 79pp.
- Long, K. and L. Link Jr. "Remote Sensing of Aquatic Plants."
 Proceedings of the 11th International Symposium on Kemote
 Sensing of Environment. 1977. pp.827-836.
- Murphree, D., C. Taylor and R. McClendon. "Mathematical Modeling for Detection of Fish by an Airborne Laser." American Institute of Aeronautics and Astronautics Journal. 12:12 1974. pp.1686-1692.
- Ogrosky, C. "Aerial Photographic Methods for Detection of Submerged Vegetation in Coastal New Jersey." Proceedings of the American Society of Photogrammetry Fall Technical Meeting. October 1978. pp.423-430.

E. TEMPERATURE

- Ahlnas, K. IR Enhancement Techniques to Delineate Surface Temperature and Sea-Ice Distributions." 13th International Symposium on Remote Sensing of Environment, Proc., Ann Arbor, MI. April 1979. Volume 207. 7pp.
- Arvesen, J., J. Millard and E. Weaver. "Remote Sensing of Chlorophyll and Temperature in Marine and Fresh Waters." Astronautica Acta. 167 1970. 1119pp.
- Borstad, G., R. Brown and J. Gower. "Airborne Remote Sensing of Sea Surface Chlorophyll and Temperature Along the Outer British Columbia Coast." Proceedings of the 6th Canadian Symposium on Remote Sensing. Paper Number 113 May 1980. 9pp.

- Chaudhury, M. V. "Study of Karnafuli Reservoir and its Water-shed." Proceeding of the 14th International Symposium on Remote Sensing of Environment. Volume 3. April 1980. 1409pp.
- Deschamps, P. Y. Sea Surface Temperature of the Coastal Zones of France. University of Lille. December 1979. 50pp.
- De Jesusparada, N. Processing Multispectral Data Obtained by Orbital Platforms of the Landsat Series for Studies of Water Quality in Guanabara Bay. M. S.Tnesis. Instituto De Pesquisas Espaciais, Sao Jose Dos Campos (Brazil). July 1981. 201pp.
- Domain, F., J. Citeau and J. Noel. "Sea Surface Temperatures Studied by Data Along the Coast of Senegal and Mauritania." Coastal and Marine Applications of Remote Sensing ,6th Conf. Proceeding, Dundee, Scotland. 1980. 9pp.
- Hoffman, H. "Monthly Temperature Patterns of Lake Michigan and Lake Superior from NOAA Satellites." World Health Organization Water Quality Bulletin. 5:1 January 1980. pp.18-19.
- Johnson, R. W., G. S. Bahn and J. P. Thomas. "Synoptic Thermal and Oceanographic Parameter Distributions in the New York Bight Appex." Photogrammetric Engineering and Remote Sensing. 48:11 November 1981. 6pp.
- Khorram, S. and G. Smith. Surface Temperature Napping. Space Science Laboratory, University of California, Berkeley, CA -94720. pp.286-299.
- Kuo, C. and T. Talay. Remote Monitoring of a Thermal Plume.

 National Aeronautics and Space Administration. NASA TM-80125

 July 1979. 10pp.
- Lechi, G. M. "Tiber River Discharge Analysis by Means of Landsat Satellite Images." Proceeding of the 14th International Symposium on Remote Sensing of Environment. Volume 3. April 1980, 1389pp.
- Miller, J. R. "Variations in Upper Ocean Heat Storage Determined from Satellite Data." Elsevier North Holland, Inc. 11:6 December 1981. 9pp.
- Pearcy, W. and D. Keene. "Remote Sensing of Water Color and Sea Surface Temperature of the Oregon Coast." Limnology and Oceanography. 19 1974. pp.573-583.

- Schott, J. "Temperature Measurement of Cooling Water Discharge from Power Plants." Photogrammetric Engineering and Remote Sensing. 45:6 June 1979. pp.753-761.
- Schott, J. "Remote Sensing of Thermal Loadings on Aquatic Systems." Proceedings of the 14th Congress of the International Society for Photogrammetry. Hamburg, West Germany. 13-25 July 1980. 10pp.
- Stevenson, K. M., C. E. Steffen and M. I. Villagra. Preliminary Results of a Study of Mapping Thermal Discharge in the Ocean Using Remote Sensing Data. Instituto De Pesquisas Espaciais, Sao Jose Dos Campos (Brazil). Sept 1981. 23pp.
- Talay, T., K. Sykes and C. Kuo. Remote Monitoring of the Gravelly Run Thermal Plume at Hopewell and the Thermal Plume at the Surry Nuclear Power Plant on the James River.
 National Aeronautics and Space Administration. NASA TM-80124 July 1979. 21pp.
- Talay, A. T. Usage and Limitation of Characteristic Vector Analysis of Remote Sensing Multispectral Data for the Identification and Quantification of Water Quality Parameters. Pn.D. Thesis. Old Dominion Univ. Norfolk. VA. 1981. 394pp.
- Zheng, Q. A. and V. Klemas. "Determination of Winter Temperature Patterns, Fronts and Surface Currents in the Yellow Sea and East China Sea from Satellite Imagery." Elsevier Science Publishing Co. Inc. 12:3 July 1982. 17pp.

F. MISCELLANEOUS PARAMETERS

- Dalsted, K., B. Worcester and L. Brun. "Detection of Saline Seeps by Kemote Sensing Techniques." Photogrammetric Engineering and Kemote Sensing. 45:3 March 1979. pp.285-291.
- Needham, B. H. "Observation of Wind-Induced Sea Surface Feature off Pulu Bawean, Java, From Landsat-1." Bulletin of the American Meteorological Society. 57:4 April 1976. pp.444-448.
- Philpot, W. and V. Klemas. Detection of Ocean Waste in the New York Bight Final Report. Univ. of Delaware, College of Marine Studies, Newark, De. March 1979. 41pp.

- Strong, A. and B. Eadie. "Satellite Observations of Calcium Carbonate Precipitations in the Great Lakes." Limnology and Oceanography. 23:5 1978. pp.877-887.
- Strong, A., H. Stumpf, J. Hart, et. al. "Extensive Summer Upwelling on Lake Michigan During 1973 Observed by NOAA-2 and ERTS-1 Satellites." Proceedings of the 9th International Symposium on Remote Sensing of Environment. 1974. pp.923-932.
- Szekielda, K., D. Suszkowski and P. Tabor. "Skylab Investigation of the Upwelling off Northwest Coast of Africa." Proceedings of the National Aeronautics and Space Administration Earth Resources Survey Symposium. NASA TM-X-58168 1975. pp.2005-2022.
- Yaksich, S. and R. Rumer. Phosp orus Management in the Lake Erie Basin. U. S. Army, Engineering District. Buffalo, N.Y. March 1980. 16pp.
- III APPLICATION OF REMOTE SENSING FOR WATER QUALITY MONITORING A. MONITORING FOR GENERAL WATER QUALITY CONDITIONS
- Adams, N., F. Scarpace, J. Scherz, et. al. "Assessment of Aquatic Environments by Remote Sensing." Institute for Environmental Studies, University of Wisconsin-Madison. IES Report 84 1977. 235pp.
- Alfoldi, T. and J. Munday Jr. "Progress Towards a Landsat Water Quality Monitoring System." Proceedings of the 4th Canadian Symposium on Remote Sensing. 16-18 May 1977. Quebec City, Quebec, Canada. pp.325-340.
- Alfoldi, T. and J. Munday Jr. "Water Quality Analysis by Digital Chromaticity Mapping of Landsat Data." Canadian Journal of Remote Sensing. 4 1978. pp.108-126.
- Anderson, R. "Multispectral Analysis of Aquatic Ecosystems in Chesapeake Bay." Proceedings of the 7th International Symposium on Remote Sensing of Environment. 1971. pp.2217-2227.
- Baker, K. S. and R. C. Smith. "Bio-Optical Classification and Model of Natural Water II." Limnology and Oceanography. 1981.
- Barker, J. Monitoring Water Quality from Landsat Satellite Observation of Virginia. National Aeronautics and Space

- Administration. NASA TM X-71006 1975. 40pp.
- Bennett, P. and M. Sydor. "Use of ERTS in Heasurement of Water Quality in Lake Superior and the Duluth Superior Harbor." Remote Sensing of Earth Resources. Volume III. University Tennessee, Tullahoma. 1974. pp.85-92.
- Bowker, D. and W. Witte. "Evaluation of ERTS MSS Digital Data for Monitoring Water in the Lower Chesapeake Bay Area." Proceedings of the 4th Annual Remote Sensing of Earth Resources Conference. 24-26 March 1975.
- Bowker, D., W. Witte, P. Fleischer, et. al. "An Investigation of the Waters in the Lower Chesapeake Bay." Proceedings 10th International Symposium Remote Sensing of Environment. 1975. pp.411-420.
- Bristow, M., D. Nielson and R. Furtek. "A Laser-Fluorosensor Technique for Water Quality Assessment." Proceedings of the 13th International Symposium on Remote Sensing of Environment. April 1979. pp.397-417.
- Brooks, D., A. Mace, H. Meyer, et. al. Assessment of Water Quality Status and Trends in Minnesota by Kemote Sensing Techniques. University of Minnesota OWRT-A-033-MINN. December 1977. 66pp.
- Brown, W., F. Polcyn, J. McKimmy, et. al. "Calculating Water Quality Parameters Using Remotely Sensed Scanner Data." Proceedings of the 8th International Symposium on Remote Sensing of Environment. 1972. pp.563-567.
- Burton, J. A Preliminary Review of Water Quality Remote Sensing Techniques. Howard University, Washington, D.C. January 1974.
- Butaka, R., J. Burton and J. Jerome. "Determination of Water Quality by Means of Remotely Sensed and Locally Acquired Optical Data." Environmental Analysis. 1977. pp.13-28.
- Carlson, M., R. Peterson, R. Hoffman, et. al. "Applications of Remote Sensing by the State of Nebraska." Proceedings of the 9th International Symposium on Remote Sensing of Environment. 3 1974. pp.2083-2086.
- Chen, W., G. Freas, G. Hickman, et. al. eds. Application of Kemote Sensing to the Chesapeake Bay Region. National Aeronautics and Space Administration. NASA CP-6 Volume 1 1977. 404pp.

- Clark, D., J. Zaitzeff, L. Stress, et. al. "Computer Derived Coastal Water Classification Via Spectral Signatures." Proceedings of the 9th International Symposium on Remote Sensing of Environment. 1974. pp.1213-1239.
- Colwell, R., A. Knight and S. Khorram. Remote Sensing Analysis of Water Quality and the Entrapment Zone in the San Francisco Bay and Delta Final Report. University of Califorina, Space Sciences Lab., Berkeley, CA. SSI Series 20 Issue 42 August 1979. 39pp.
- Curfman, H. Jr., J. Oberholtzer and R. Schertler.
 Assessment of the Kole of Remote Sensing in the Study of Inland and Coastal Waters. National Aeronautics and Space Administration. NASA TM-81881 September 1980. 62pp.
- Darnell, W. "Aircraft Versus Spacecraft for Kemote Monitoring of Water Quality in U. S. Coastal Zones." Proceedings of the Southeast Region 3 Conference on Imaginative Engineering Through Education and Experience. Institute of Electrical and Electronics Engineers April 1977. pp.435-441.
- Egan, W. "Boundaries of ERTS and Aircraft Data Within Which Useful Water Quality Information can be Obtained." Proceedings of the 9th International Symposium on Remote Sensing of Environment. 2 1974. pp.1319-1343.
- Gervin, J. and M. Marshall. "Landsat Investigation of Water Quality in Lake Okeechobee." Proceedings of the American Society of Photogrammetry-American Congress of Surveying and Mapping. 27 February-5 March 1977. pp.105-106.
- Graham, D. "Field Study for Landsat Water Quality Verifications." Proceedings of a Specialty Conference of the Aerospace Division of the American Society of Civil Engineers. Civil Engineering Applications of Remote Sensing. Madison, Wisconsin. August 1980. pp.101-107.
- Hellden, U. "The Use of Landsat-1 Imagery for Water Quality in Southern Scandinavia." Proceedings of the National Aeronautics and Space Administration Earth Resources Survey Symposium. Volume I-A. NASA TM X-58168 June 1975. pp.451-468.
- Hellden, U. and Akersten. "Landsat Digital Data for Water Pollution and Water Quality Studies in Southern Scandinavia." Proceedings of the 11th International Symposium on Remote Sensing of Environment. 1977. pp.875-884.

- Hergenradar, G. Application of Kemote Sensing in the Determination of Water Quality in Nebraska Reservoirs. National Aeronautics and Space Administration. NASA CR-148776 July 1976. 2745pp.
- Herz, R. "Spatial and Temporal Variations in Lagoon and Coastal Processes of the Southern Brazilian Coast." 13th International Symposium on Remote Sensing of Environment, Proc., Ann Arbor, MI. April 1979. 14pp. Volume III.
- Hill, J. and D. Graham. "Using Enhanced Landsat Images for Calibrating Real-Time Estuarine Water Quality Models." World Health Organization Water Quality Bulletin. 5:1 January 1980. pp.20-23.
- Hovis, W. Remote Sensing of Water Quality. National Aeronautics and Space Administration. NASA CP-6 2 February 1978. pp.141-148.
- Huges, R. and S. Iyengar. A Model for the Analysis of Water Quality in Atchafalaya Bay, Louisiana Using Landsat Multispectral Digital Data. Department of Geography, Louisiana State University, Baton Rouge, Louisiana. 1981. 31pp.
- Huh, O. and V. Noble. "Remote Sensing of the Environment: Achievements and Prognosis for the Future." Naval Research Reviews. July 1977. pp.1-18.
- Johnson, K. "Application of Aircraft Multispectral Scanners to Quantitative Analysis and Mapping of Water Quality Parameters in the James River, Virginia." COSPAR Space Research, Volume XVII. M. J. Rycroft and A. C. Strickland, editors. Pergamon Press, Inc. 1977. pp.25-31.
- Johnson, R. and G. Bain. Quantitative Analysis of Aircraft Multispectral Scanner and Mapping of Water Quality Parameters in the James River in Virginia. National Aeronautics and Space Administration. NASA TP-1021 1977.
- Johnson, J., P. Cressy and W. Dallam. "Utilization of Landsat Data for Water Quality Surveys in the Choptank River." Proceedings of the National Aeronautics and Space Administration Earth Resources Survey Symposium. NASA TM X-58168 1975. pp.2325-2350.
- Johnson, W. and R. Harriss. "Remote Sensing for Water Quality and Biological Measurements in Coastal Waters." Photogrammetric Engineering and Remote Sensing. 46:1 January 1980. pp.77-85.

- Khorram, S. "Remote Sensing Analysis of Water Quality in the San Francisco Bay Delta." Proceedings of the 13th International Symposium on Remote Sensing of Environment. 1979. pp.1591-1601.
- Khorram, S. "Use of Ocean Color Scanner Data in Water Quality Mapping" Photogrammetric Engineering and Remote Sensing. 47:5 May 1981. pp.667-676.
- Khorram, S. "Water Quality Mapping from Landsat Digital Data."
 Proceedings of the American Society of Photogrammetry and the
 American Congress of Surveying and Mapping Convention. March
 1980.
- Khorram, S. Water Quality Mapping from Landsat Digital Data. School of Geoscience, Louisiana State University, Baton Rouge, Louisiana. 18pp.
- Kiefer, R. W. Multidisciplinary Research on the Application of Remote Sensing to Water Resources Problems. Wisconsin Univ. Madison. July 1980. 45pp.
- Kirby, M. An Analysis of Digital Landsat Techniques for the Detection and Mapping of the Scott Inlet. Intera Environmental Consultants Ltd., P.O. Box 4791, Station E, Ottawa, Ont. KIS 5H9 Canada. August 1979. 43pp.
- Klooster, S. and J. Scherz. "Water Quality Determination by Photographic Analysis." Proceedings of the Remote Sensing of Earth Resources Symposium. 2 1973. pp.1187-2000.
- Klooster, S. and J. Scherz. "Water Quality by Photographic Analysis." Photogrammetric Engineering. 40:8 August 1974. pp. 927-936.
- Lillesand, T., T. Scarpace and J. Clapp. "Water Quality in Mixing Zones." Photogrammetric Engineering and Remote Sensing. 42 1975. 285pp.
- Lindell, L. "Mapping of Water Quality Using Landsat Imagery."
 Proceedings of the 15th International Symposium on Remote
 Sensing of Environment. May 1981. (In Press)
- Lowry, H. Michael. Development Of Helicopter Water Quality Monitoring/Sampling Systems. Environmental Monitoring and Support Lab. February 1981. 53pp.
- McCauley, J. "Reservoir Water Quality Monitoring with Orbital Remote Sensors." Ph.D. Thesis. University of Kansas, Lawrence, Kansas. University Microfilms Order Number

77-28892.

- McCauley, J. and H. Yager. "Kansas Water Quality Using ERTS-1." Proceedings of the Fourth Earth Resources Conference.

 March 1975. pp.521-541.
- McCauley, J., H. Yager, G. James, et. al. "ERTS-1 Keservoir Monitoring Studies in Kansas." Kemote Sensing and Water Resources Management, Thomson, Lane and Callany editors. American Water Resource Association. 1973. pp.112-119.
- McCluney, W. Remote Measurement of "Turbidity" and Other Water Quality Parameters. National Aeronautics and Space Administration. GSFC X-913-75-153 September 1975. 60pp.
- McKeon, J., R. Rogers and V. Smith. "Production of a Water Quality Map of Saginaw Bay by Computer Processing of Landsat-2 Data." Proceedings of the 11th International Symposium on Remote Sensing of Environment. 1977. pp.1045-1054.
- McKim, H., C. Merry and R. Layman. "Remote Sensing of Water Quality Using an Airborne Spectroradiometer." Proceedings of the 14th International Symposium on Remote Sensing of Environment. 1980. pp.1353-1362.
- McNeil, W. and K. Thomson. "Remote Measurement of Water Color and its Application to Water Quality Surveillance."

 Proceedings of the Third Annual Remote Sensing of Earth Resources Conference. 3 March 1974. pp.117-146.
- McNeil, W., K. Thomson and J. Jermone. "The Application of Remote Spectral Measurements to Water Quality Monitoring." Canadian Journal of Remote Sensing, 2:1 1970. pp.48-58.
- rliddleton, E. and J. Munday. "Landsat What is Operational in Water Resources?" Proceedings of the 6th Canadian Symposium on Remote Sensing. May 1980.
- Mitsch, W. Kemote Sensing of Water Quality: A State of the Art Report. Florida Water Resources Research Center. Publication Number 21 May 1973. 14pp.
- Moore, G. "Satellite Surveillance of Physical Water Quality Characteristics." Proceedings of the 12th International Symposium on Remote Sensing of Environment. 1978. pp.445-462.

- Moore, D. and I. Haertel. Remote Sensing of Water Quality in Prairie Lakes. South Dakota State University, Water Resources Institution. CWRT-B-093-SDAKA 1975. 72pp.
- Moore, D. and L. Haertel. Remote Sensing of Water Quality in Prairie Lakes. South Dakota State University Remote Sensing Institute. South Dakota State University, Brookings, South Dakota. Project Number B-039-SDAK 1975. 61pp.
- Mugler, J., J. Godfrey, G. Mickman, et. al. "Role of Remote Sensing in Bay Measurements." Application of Remote Sensing to the Chesapeake Bay Region. National Aeronautics and Space Administratical. NASA CP-6 1978. pp.315-321.
- Munday, J. Jr. "Water Quality of Lakes of Southern Ontario from ERTS-1." Proceedings of the Second Canadian Symposium on Remote Sensing. Guelph, Ontario 1974. pp.77-85.
- Ochiai, H. and Takeuchi. The Monitoring of Marine Environmental Problems by Airborne and Landsat MSS Data. Toba Merchant Marine College, Toba-Shi, Japan. June 1979. 1pp.
- Philpot, W. and V. Klemas. The Use of Satellites in Environmental Monitoring of Coastal Waters. College of Marine Studies, University of Delaware, Newark, Delaware. 1979. 79pp.
- Piech, K., J. Schott and K. Stewart. "The Blue-to-Green Keflectance Ratio and Lake Water Quality." Photogrammetric Engineering and Remote Sensing. 44 October 1978. pp.1303-1310.
- Piech, K. and J. Walker. "Photographic Analysis of Water Kesource Color and Quality." Proceedings of the American Society of Photogrammetry 37th Annual Meeting. 1971. pp.258-279.
- Rochon, G. and E. Langham. "Conversion of Radiances into Kadiances for the Study of Water Quality." Proceedings of the Third Canadian Symposium on Remote Sensing, Edmonton, Alberta, Canada. 1975. pp.393-403.
- Rogers, R., N. Shah, J. McKeon, et. al. "Computer Mapping of Water Quality in Saginaw Bay with Landsat Digital Data." Proceedings of the American Society of Photogrammetry 42nd Annual Meeting. February 1976.

- Scarpace, F. and L. Fisher. "The Operational Use of Landsat for Lake Quality Assessment." Proceedings of the Specialty Conference Aerospace Division of the American Society of Civil Engineers, Civil Engineering Applications of Remote Sensing. 13-14 August 1980. pp.88-100.
- Sakata, T., L. Shimoda, K. Tanaka, et. al. "Remote Sensing Investigation on Lake Biwa." Proceedings of the 10th International Symposium on Remote Sensing of Environment. 1975. pp.401-410.
- Scherz, J. "Remote Sensing Considerations for Water Quality Monitoring." Proceedings of the 7th International Symposium on Remote Sensing of Environment. 1971. pp.1071-1088.
- Scherz, J. Assessment of Aquatic Environment by Kemote Sensing.
 University of Wisconsin at Madison, Institute for
 Environmental Studies. IES Report Number 84 1977. 235pp.
- Shook, D., J. Salzman, R. Suehla, et. al. "Quantitative Interpretation of Great Lakes Remote Sensing Data." Journal of Geophysical Research. 85 20 July 1980. pp.3991-3996.
- Smith, A. and R. Blackwell. "Application of Digital Image Processing to Water Quality Monitoring of Lake Tahoe." World Health Organization. Water Quality Bulletin. 5:1 January 1980. pp.3-5.
- Smith, R. C. and W. H. Wilson. "Ship and Satellite Bio-Optical Research in the California Bight." Proceeding of the CUSPAR/SCOR/IUCKM Symposium, Oceanograph, from Space, Venice, Italy. 1980. pp.26-30.
- Sorensen, B. "Important Considerations Regarding Remote Sensing of Marine Water Quality." Proceedings of the 6th Coastal and Marine Applications of Remote Sensing Conference. Dundee, Scotland, 18-19 December 1979. pp.77-83.
- Sorensen, B., S. Moller and E. Gatelli. "Remote Sensing of water Quality in Seven Lakes in Northern Italy." Proceedings of the 12th Congress of the International Society of Photogrammetry. Helsinki, Finland. July 1976.
- Stoermer, E. Application of ERTS Data to Great Lakes Water Quality Hanagement. University of Michigan, Great Lakes Research Division. Proposal to the National Aeronautics and Space Administration. ORA 71-1373-KB! April 1971. 31pp.

- Stoner, J. Water Quality Indices for Specific Water Uses.

 Department of the Interior. Geological Survey Circular 770.
 1978. 12pp.
- Stortz, K. and M. Sydor. "Remote Sensing of Western Lake Superior." Proceedings of the 9th International Symposium on Remote Sensing of Environment. 1974. 933pp.
- Strandberg, C. "Water Quality Analysis." Photogrammetric Engineering. 32 1966. pp.234-248.
- Sturm, B. "Optical Properties of Water Applications of Remote Sensing for Water Quality Determination." Remote Sensing Application in Agriculture and Hydrology. A. A. Balkeman. Rotterdam. 1980. pp.471-495.
- Thomas, P. and P. James. Superflux 2 and 3 Experiment Design Water Sampling and Analysis. National Marine Fisherics Service. Highland, N.J. October 1981. pp.43-60.
- Torii, K. Classification of Land-Water Surfaces by Spectral Characteristics. Japan Foundation for Shipbuilding Advancement, Toranomon Minato-Ku, Tokyo, Japan. 1980. bpp.
- Vukorich, F. and B. W. Crissman. Monitoring the Chesapeake Bay Using Satellite Data for Superflux. Research Triangle Institute. N.C. October 1981. pp. 93-110.
- Whipple, J. "Surveillance of Water Quality." Photogrammetric Engineering. 39 1973. pp.137-145.
- Whitlock, C. Fundamental Analysis of the Linear Multiple Regression Technique for Quantification of Water Quality Parameters from Remote Sensing Data. National Aeronautics and Space Administration. NASA TM X-7400 1977.
- Whitlock, C. and C. Kuo. "A Regression Technique for Evaluation and Quantification for Water Quality Parameters from Remote Sensing Data." Proceedings of the 13th International Symposium on Remote Sensing of Environment. 1979. pp.13o1-1365.
- Yarger, H. and J. McCauley. "Quantitative Water Quality with Landsat and Skylab." Proceedings of the National Aeronautics and Space Administration Earth Resources Survey Symposium. NASA TM X-58168 1975. 347pp.

- Yasuoka, Y., Y. Iikura and T. Miyazak. "Quantitative Description and Analysis of Remote Sensing Water Quality Distributions." Proceedings of the 12th International Symposium on Remote Sensing of Environment. 1978.
- Zwick, N., et. al. "Airborne Estimation of Water Quality Parameters in Lake Untario." Proceedings of the 6th Canadian Symposium on Remote Sensing. 21-23 May 1980, Halifax, N.S., Canada, 1980. 9pp.
- Zwick, H., S. Jain and K. Bukata. A Satellite/Airborne and In-Situ Water Quality Experiment in Lake Ontario. Canadian Center for Remote Sensing. CCRS Number 1024285 Category 1-02-02/2-03-0) 1979. 18pp.
- B. MONITORING FOR DETERMINATION OF EUTROPHICATION AND LAKE CLASSIFICATION
- "Aerial Photos Can be Used to Assess Eutrophication of Lakes." Environmental Science and Technology. 10:3 1976. pp.228-229.
- "An Approach to a Kelative Trophic Index System for Classification of Lakes and Reservoirs." U. S. Environmental Protection Agency, National Eutrophication Survey, Working Paper Number 24. 1974. 44pp.
- Blackwell, K. and D. Boland. "The Trophic Classification of Lakes Using EKTS Multispectral Scanner Data."

 Proceedings of the 41st Annual Meeting of the American Society of Photogrammetry. March 9-14, Washington, D.C.
- Blackwell, R. and D. Boland. Trophic Classification of Selected Colorado Lakes: Lake Classification Through the Amalgamation of Contact-Sensed Data and Digitally Processed Multispectral Scanner Data Acquired by Satellite and Aircraft. U. S. Environmental Protection Agency EPA-600/4-79-005. 1979. 263pp.
- Boesch, D. Application of Numerical Classification in Ecological Investigations of Water Pollution. U. S. Environmental Protection Agency. EPA-600/3-77-033 1977. 263pp.
- Boland, U. Trophic Classification of Lakes Using Landsat-1 (ERTS-1) Multispectral Scanner Data. U. S. Environmental Protection Agency. EPA-600/3-76-037 1976. 263pp.
- Boland, D. and K. Blackwell. "The Landsat-1 Miltispectral

- Scanner as a Tool in the Classification of Inland Lakes." Proceedings of the National Aeronautics and Space Administration Earth Resources Survey Symposium. NASA TM-X-58168 1975. pp.419-442.
- Boland, D. and R. Blackwell. "Trophic Classification of Colorado Lakes Utilizing Contact Data, Landsat and Aircraft Acquired Multispectral Scanner Data." Proceedings of the 4th Joint Conference on Sensing of Environmental Pollutants. November 6-11, 1978. American Chemical Society. 1978 pp.888-894.
- Boland, D., D. Schaeffer, D. Sefton, et. al. Trophic Classification of Selected Illinois Water Bodies: Lake Classification Through Amalgamation of Landsat Hultispectral Scanner and Contact-Sensed Data. U. S. Environmental Protection Agency. EPA-600/3-79-123 December 1979. 226pp.
- Canfield, D. Prediction of Total Phosphorus
 Concentrations and Trophic States in Natural and Artificial
 Lakes: The Importance of Phosphorus Sedimentation. Ph.D.
 Thesis Iowa State University. Ames University Microfilms
 Catalog Number 8000120. 1979.
- Carlson, R. "A Review of the Philosophy and Construction of Trophic State Indices." Lake and Reservoir Classification System. U. S. Environmental Protection Agency. EPA-600/3-79-074 1973. pp.1-52.
- Carlson, R. "A Trophic Index for Lakes." Limnology and Oceanography. 22:2 1977. pp.361-369.
- Chase, P., L. Reed and V. Smith. "Utilization of ERTS-1 Data to Monitor and Classify Eutrophication of Inland Lakes." Proceedings of the National Aeronautics and Space Administration/Goddard Space Flight Center Symposium on Significant Results Obtained from ERTS-1. NASA SP-327 1973. pp.1597-1604.
- "A Compendium of Lake and Reservoir Data Collected by the National Eutrophication Survey in Eastern North Central and Southeastern United States." U. S. Department of Commerce, PB-289-820 September 1978. 266pp.
- Dillion, P. "A Test of a Simple Nutrient Budget Model Prediciting the Phosphorus Concentration in Lake Water." Journal of Fish Research Board of Canada. 31 1974. 1771pp.
- "An Empirical Study of Factors Affecting Blue-Green Versus Non-Blue-Green Algal Dominance in Lakes." Institute for Water

- Research, Michigan State University, East Lansing, Michigan.
- "ERTS Study of Eutrophication of Inland Lakes. Enclosure 4-Management Proposal." Bendix Aerospace Systems Division and Cranbrook Institute of Space. BSD 1509. June 1971. 10pp.
- Fisher, L. "Multidate Data Extraction for a Statewide Landsat Lake Quality Monitoring Program." Proceedings of the 44th Annual Meeting of the American Society of Photogrammetry. 1978. 196pp.
- Fisher, L. and F. Scarpace. "Trophic Status of Inland Lakes from Landsat." Proceedings of the First Comprehensive Symposium on the Practical Application of Earth Resources Survey Data. National Aeronautics and Space Administration. NASA TMX-58168 June 1975. pp.I-a:443-451.
- Fisher, L., F. Scarpace and R. Thomsen. Multidate
 Data Extraction Procedures for a Statewide Landsat Lake
 Quality Monitoring Program. Environmental Monitoring and
 Data Acquisition Group, The University of Wisconsin-Madison.
 1978.
- Fisher, L., F. Scarpace and R. Thomsen. "Multidate Landsat Lake Quality Monitoring Program." Photogrammetry Engineering and Remote Sensing. 25 April 1979. pp.519-527.
- Fruh, E., K. Steward, G. Lee, et. al. "Measurement of Eutrophication and Trends." Water Pollution Control Federation Journal. 38:8 1966. pp.1237-1258.
- Holmquist, K. "The Landsat Lake Eutrophication Study." M.S. Thesis. Department of Civil and Environmental Engineering, University of Wisconsin at Madison December 1977. 102pp.
- Holmquist, K. and F. Scarpace. The Use of Satellite Imagery for Lake Classification in Wisconsin. Water kesources Center, University of Wisconsin at Madison. Technical Report WIS WRC 77-08 1977.
- Hooper, F. "Eutrophication Indices and their Relation to Other Indices of Ecosystem Changes." Eutrophication: Causes, Consequences, Corrective. National Academy of Science, Washington, D.C. 1969. pp.225-235.
- Horler, D., J. Barber and Λ. Barringer. "Effects of Heavy Metals on the Absorbance and Reflectance Spectra of Plants." International Journal of Remote Sensing. 1:2 April-June 1980. pp.121-136.

- Horstmann, U., K. Ulbricht and D. Schmidt. "Detection of Eutrophication Processes from Air and Space." Proceedings of the 12th International Symposium on Remote Sensing of Environment. 1978. pp.1379-1389.
- Jones, J. and R. Bachmann. "Prediction of Phosphorus and Chlorophyll Levels in Lakes." Journal of the Water Pollution Control Federation. 48:9 1976. pp.2176-2182.
- Kirchner, W. and P. Dillion. An Empirical Method of Estimating the Retention of Phosphorus in Lakes. Water Resources Research. 2:182 1975.
- Lillesand, T., W. Johnson, R. Deuell, et. al. Remote Sensing Applications in Agriculture and Forestry: Assessment of the Trophic Condition of Selected Minnesota Lakes Through Analysis of Landsat Digital Multispectral Scanner Data. Report of Research by the Remote Sensing Laboratory of the College of Forestry and the Agricultural Experiment Station, Institute of Agriculture, Forestry and Home Economics, University of Minnesota, St. Paul, Minnesota. RSL Research Report 81-1 30 June 1981. 29pp.
- Lulla, K. and P. Mausel. "Phytoecozonation of Sevier Lake Region of Utah Using Digitized Landsat MSS Data." American Society of Photogrammetry ACSM ASP Convention, St. Louis, MO. March 1980. 11pp.
- Meinert, D., D. Malone, A. Voss, et. al. Trophic Classification of Tennessee Valley Area Reservoirs Derived from Landsat Multispectral Scanner Data. National Aeronautics and Space Administration. NASA CR-163528 1980. 73pp.
- Moller, S. and G. Maracci. "Monitoring of Eutrophic Depth from Aircraft." Remote Sensing of Environment. 8:4 1979. 349pp.
- Myles, R. "Environment." Proceedings of the National Aeronautics and Space Administration Earth Resources Survey Symposium. III NASA TM X-58168 1975. pp.15-19.
- "National Eutrophication Survey 1975: National Eutrophication Survey Methods 1973-1976." U.S. Environmental Protection Agency. National Eutrophication Survey Working Paper Number 175 1975. 91pp.
- Nichol, J. and W. Collins. "Ecological Monitoring of Balancing Lakes by Multispectral Remote Sensing." Proceedings of the 14th Congress of the International Society for Photogrammetry. Hamburg, West Germany, 13-25 July 1980.

10pp.

- Piech, K., J. Schott and K. Stewart. "The Blue-to-Green Reflectance Ratio and Lake Water Quality." Photogrammetric Engineering and Remote Sensing. 44 October 1978. pp.1303-1310.
- Rast, W. and G. Lee. Summary Analysis of the North American (U. S. Portion) OECD Eutrophication Project, Nutrient Loading --Lake Response Relation Relationship and Trophic State Indices. U. S. Environmental Protection Agency. EPA-600/3-78-008 1978.
- Reckhow, K.h. Quantitative Techniques for the Assessment of Lake Quality. U. S. Environmental Protection Agency. EPA-440/5-79-015 1979.
- Rogers, R. Application of Landsat to the Surveillance and Control of Lake Eutrophication in the Great Lakes Basin. Bendix Aerospace Systems Division, Ann Arbor, Michigan. Final Report to the National Aeronautics and Space Administration. BSR-4291 September 1977. 360pp.
- Rogers, R., L. Reed, N. Shah, et. al. "Automatic Classification of Eutrophication on Inland Lakes from Spacecraft Data." Proceedings of the 9th International Symposium on Remote Sensing of Environment. 1974. pp.981-994.
- "ERTS Study of Eutrophication of Inland Lakes. Enclosure 4-Management Proposal." Bendix Aerospace Systems Division and Cranbrook Institute of Science, Ann Arbor, Michigan. Report Submitted to the National Aeronautics and Space Administration. BSD 1509 June 1971. 9pp.
- Rogers, R., J. HcKeon, V. Smith, et. al. "Summary Report: Application of Landsat to the Surveillance of Lake Eutrophication in the Great Lake Basin." Proceedings of the 44th Annual Meeting of the American Society of Photogrammetry. February 1978. pp.214-225.
- Scarpace, F. and L. Fisher. "The Operational Use of Landsat for Lake Quality Assessment." Proceedings of the Specialty Conference Aerospace Division of the American Society of Civil Engineers, Civil Engineering Applications of Remote Sensing. 13-14 August 1980. pp.88-100.

- Scarpace, F., K. Holmquist and L. Fisher. "Landsat Analysis of Lake Quality for State-Wide Lake Classification."

 Proceedings of the American Society of Photogrammetry and American Congress of Surveying and Mapping Spring Convention. February 1978.
- Scarpace, F., D. Malone, D. Meinert, et. al. "Trophic Classification of Tennessee Valley Area Reservoirs." Proceedings of the American Society of Photogrammetry 45th Annual Meeting. I March 1979. pp.41-55.
- Scherz, J., D. Crane and R. Kogers. "Classifying and Monitoring Water Quality by the Use of Satellite Imagery." Proceedings of the American Society of Photogrammetry and the American Congress of Surveying and Happing Fall Convention. October 1975. pp.320-343.
- Scherz, J. and J. Van Domelen. "Water Quality Indicators
 Obtained from Aircraft and Landsat Images and Their Use in
 Classifying Lakes." Proceedings of the 10th International
 Symposium on Remote Sensing of Environment. 1975.
- Shannon, E. and P. Brezink. "Eutrophication Analysis: A Multivariate Approach." American Society of Civil Engineers. Journal of Sanitary Engineers. 98:SAl 1971. 37pp.
- Sheldon, A. "A Quantitative Approach to the Classification of Inland Waters." Natural Environments, Studies in Theoretical and Applied Analysis. J. Krutilla (Editor). John Hopkins University Press, Baltimore.
- Smith, R. C. and K. S. Baker. Optical Classification of Natural Waters. Limnology and Oceanography. University of California San Diego. Scripps University of Oceanography, Visibility Laboratory. 1978. pp.4-77.
- Smith, V., K. Lee, J. Filkins, et. al. Survey of Chemical Factors in Saginaw Bay (Lake Huron). U. S. Environmental Protection Agency. EPA-600/3-77-125 October 1977. 161pp.
- Sorensen, B. and C. Maracci. "Monitoring of Eutrophic Depth from Aircraft." Photogrammetric Engineering and Remote Sensing. 8:4 1979. pp.349-351.
- Uttormark, P. "TSI and LCI: A Comparison of Two Lake Classification Techniques." Lake and Reservoir Classification System. T. Maloney. U. S. Environmental Protection Agency. EPA-600/3-79-074 1973. pp.101-140.

- "Water Bodies Mapping." Remote Sensing in Canada. 9:1 December 1981. 7pp.
- welby, C. W. and R. Holman. Application of Satellite Remote Sensing to North Carolina Development of a Monitoring Methodology for Trophic States of Lakes in North Carolina. National Aeronautics and Space Administration. NASA CR-150419 1977. 118pp.
- Welby, C., A. Witherspoon and R. Holman. "Monitoring of Water Quality and Trophic States in Shallow Coastal Lakes and Estuaries A Use of Landsat Imagery." Proceedings of the Seventh Annual Remote Sensing of Earth Resources Conference. University of Tennessee. 1978. pp.289-313.
- Welby, C., A. Witherspoon and R. Holman III. "Trophic State Determination for Shallow Coastal Lakes from Landsat Imagery." World Health Organization. Water Quality Bulletin. 5:1 1980. pp.11-14.
- Wezernek, C., F. Tanis and C. Bajza. Trophic Analysis of Inland Lakes. Environmental Research Institute of Michigan. November 1975.
- Wezernek, C., F. Tanis and C. Bajza. "Trophic State Analysis of Inland Lakes." Remote Sensing of Environment. 5:2 1976. pp.147-164.
- Wezernek, C. "The Use of Remote Sensing in Limnological Studies." Proceedings of the 9th International Symposium on Remote Sensing of Environment. 1974. pp.963-980.
- Wrigley, R. "Remote Sensing and Lake Eutrophication." Nature. 250:5463 1974. pp.213-214.
- C. MONITORING FOR LAND USE/WATER QUALITY EFFECTS
- Anderson, D., W. Crowder, L. Gatto, et. al. "Regional Analysis and Water Resources Based on Satellite Imagery. U. S. Army Corps of Engineers Technical Report 241. June 1973. 5Upp. (Cold Regions Research and Engineering Laboratory, Hanover, New Hampshire)
- Anderson, D., H. McKim, W. Crowder, et. al. "Applications of ERTS-1 Imagery to Terrestrial and Marine Environmental Analysis in Alaska." Proceedings of the 3rd ERTS-1 Symposium. 1974 Washington, D.C. pp.1575-1606.

- Ayles, H. and K. Heckey. The Application of Landsat
 Multispectral Radiance Data to Environmental Impact Studies
 on Large Lakes. Canada Center for Remote Sensing.
- Barker, J. Landsat-1 Data as it has been Applied for Land Use and Water Quality Data by the Virginia State Water Control Board; II, Monitoring Water Quality from Landsat. National Aeronautics and Space Administration. NASA TM X-58168 1975. pp.383-481.
- Borton, T., C. Wezernek and R. Kaney. Inland Lakes Water Quality and Watershed Planning: Remote Sensing Technology Applications. Environmental Research Institute of Michigan, Report Number 193500-6-F1. July 1975. 1015pp.
- Browne, F. and P. Bedient. "Analysis of Nonpoint Source Data." Proceedings of the American Society of Civil Engineers National Environmental Engineering Conference. Nashville, Tennessee 1977.
- Carlson, M., K. Peterson, K. Hoffman, et. al. "Applications of kemote Sensing by the State of Nebraska." Proceedings of the 9th International Symposium on Remote Sensing of Environment. 1974. pp.2083-2086.
- Clapp, J. On the Multidisciplinary Research on the Application of Remote Sensing to Water Resources Problem. National Aeronautics and Space Administration.

 NASA CR-136280 1976. 164pp.
- Coltharp, G., D. Graves and M. Hammetter. "Utilization of Remote Sensing Techniques to Detect Land Use Effects on Wildland Water Quality." Proceedings of the 42nd Annual Meeting of the American Society of Photogrammetry. 1976. pp.368-372.
- Cooper, S. The Use of Landsat DCS and Imagery in Reservoir Management and Operation. Army Corps of Engineers, Waltham, Massachusetts. September 1975.
- Council Of State Planning Agencies. Wash.D.C. ERTS. Landsat Supports Data needs for 208 Planning. NASA WASH.D.C. SEPT 1979. 36pp.
- Draeger, W. "Usefulness of Remote Sensing Techniques for the Environmental Monitoring of the Sacramento-San Joaquin Delta." School of Forestry and Conservation, University of California-Berkely. February 1974. 670PP.

- Fostel, H., J. Manley and J. Ormsby. The Use of Landsat Multispectral Data to Derive Land Cover Information for the Location and Quantification of Non-Point Source Water Pollutants. National Aeronautics and Space Adminstration-Goddard Space Flight Center Final Report. 1978. 27pp.
- Fowler, T., P. Castruccio and H. Loats Jr. The Application of Remote Sensing to the Development and Formulation of Hydrologic Planning Models. Ecosystem International, Inc., Gambrille, Maryland. 107pp.
- Goldberg, E. Remote Sensing and Problems of the Hydrosphere.
 Proceedings of a Workshop held at Warner Springs, California,
 29-31 January 1979. National Aeronautics and Space
 Administration. NASA CP-2109 1979.
- George, T. S. "Cost Effectiveness of Conventional and Remote Sensing Techniques for Watershed Planning." Proceedings of the 14th International Symposium on Remote Sensing of Environment. Volume 1. April 1980. 639pp.
- Graves, D. Remote Sensing of Effects of Land-Use Practices on Water Quality. National Aeropautics and Space Administration. NASA CR-144105 1976. 18pp.
- Graves, D. and G. Coltharp. Remote Sensing of Effects of Land Use Practices on Water Quality. National Aeronautics and Space Administration. NASA CR-150306 May 1977.
- Haugen, R. and T. Marlar. Remote Sensing of Land Use and Water Quality Relationships - Wisconsin Shore, Lake Michigan. U. S. Army Cold Regions Research and Engineering Laboratory, Hanover, New Hampshire. July 1978. 1194pp.
- Hessling, A. and T. Mara. "The Use of Satellite Data for Regional Planning." Proceedings of the National Aeronautics and Space Administration Earth Resources Survey Symposium. Volume II-B. NASA TM X-58169 June 1975. pp.356-358.
- Hill, J. Landsat Estuarine Water Quality Assessment of Silviculture and Dredging Activities. U. S. Environmental Protection Agency. EPA-600/4-80-043 August 1980. 130pp.
- Hill, J. and K. Stout. "Impacts of Land Use on Estuarine Water Quality." Proceedings of the 13th International Symposium on Remote Sensing of Environment. 1979. pp.385-395.

- Jackson, T., R. Ragan and W. Fitch. "A Test of Landsat-Based Urban Hydrologic Modeling." Journal of Water Resources Planning and Management Division. 103:WK1 1977.
- Klemas, V., D. Barlett and R. Rogers. "Skylab and ERTS-1 Investigation of Coastal Land Use and Water Properties in Delaware Bay." Scientific Investigations on Skylab Satellite, Progress in Astronautics and Aeronautics, American Institute of Aeronautics and Astronautics. 48 1976. pp.351-371.
- Liang, T., A. McNair and W. Philipson. Cornell University
 Remote Sensing Program —— Application to Waste Disposal Site
 Selection, Study of Drainage Patterns and Water Quality
 Management. National Aeronautics and Space Administration.
 NASA CR-156993 1977.
- Lillesand, T. and W. Tully. "Remote Sensing, Water Quality and Land Use from the Obvious to the Insidious." Proceedings of the American Society of Photogrammetry Fall Convention. October 1975. pp.582-618.
- MacDonald, H., K. Steele, W. Waite, et. al. "Landsat Change Detection Can Aid in Water Quality Monitoring." Proceedings of the American Society of Photogrammetry Fall Technical Meeting. October 1977. pp.192-203.
- MacDonald, H., K. Steele, W. Waite, et. al. Land Use Change Detection With Landsat-2 Data for Monitoring and Predicting Regional Water Quality Degradation. National Aeronautics and Space Administration Earth Resources Survey Program. NASA CR-149581 1977.
- McGinnis, J. Jr., R. Scofield, S. Schneider, et. al.
 "Satellites as an Aid to Water Resource Managers." American
 Society of Civil Engineers. Journal of Water Resources
 Planning and Management Division. 106:WR1 1980.
- McKeon, J., V. Smith and J. Scherz. "Computer Mapping of Watershed Land Use and Water Parameters from Landsat Data." Applications of Remotely Sensed Data in North Central United States. American Institute of Aeronautics and Astronautics. 1975. 39pp.
- "Methods for Identifying and Evaluating the Nature and Extent of Non-Point Sources of Pollutants." U. S. Environmental Protection Agency. EPA-430/9-73-014 1973.
- Oman, G. and M. Sydor. "Use of Remote Sensing in Determination of Chemical Loading of Lake Superior Due to Spring Runoff."

- Canadian Journal of Spectroscopy. 23:2 1978. pp.52-56.
- Omernick, J. The Influence of Land Use on Stream Nutrient Levels. U. S. Environmental Protection Agency. EPA 600/3-76-014 1976.
- Ostrom, B. "Fertilization of the Baltic." Remote Sensing of Environment. 4 1976. pp.305-310.
- Peck, E., R. McQuivey, T. Keefer, et. al. Review of Hydrologic Models for Evaluating Use of Remote Sensing Capabilities. Prepared by Hydex Co. for NASA/GSFC. National Aeronautics and Space Administration. NASA CR-166674. Interim Report for February-March 1981. 88pp.
- Raney, R., C. Wezernek, T. Borton, et. al. "Inland Lakes Water Quality and Watershed Planning An Application of Remote Sensing Technology." Proceedings of the 10th International Symposium on Remote Sensing of Environment. 2 1975. pp.1285-1296.
- Kango, A., J. Foster and V. Salomonson. Extraction and Utilization of Space Acquired Physiographic Data for Water Resources Development. National Aeronautics and Space Administration. GSFC X-913-75-3 January 1975. 28pp.
- Rogers, R., L. Keed, N. Schmidt, et. al. "Landsat-1 Automated Land Use Mapping in Lake and River Watersheds." Proceedings of the American Society of Photogrammetry and American Congress of Surveying and Mapping Fall Convention. October 1975. pp.660-672.
- Rogers, R. and V. Smith. Utilization of ERTS-1 Data to Monitor and Classify Eutrophication in the Great Lakes Basin. Bendix Aerospace System Division, Ann Arbor, Michigan. Submitted to National Aeronautics and Space Administration. BSR 4168 November 1974. 109pp.
- Scherz, J. and A. Stevens. An Introduction to Remote Sensing for Environmental Monitoring. University of Wisconsin at Madison, Remote Sensing Program. Report Number 1, 1970.
- Schlesinger, J., T. Loveland and W. Ripple. Areawide Water Quality Management Program Assessing Non-Point Sources of Pollution in South Dakota. National Aeronautics and Space Administration. NASA-CK-144752.

- Schlesinger, J., B. Ripple and T. Loveland. "The Integration of Landsat With Other Natural Resource Data for 208 Water Quality Planning in South Dakota." Proceedings of the American Society of Photogrammetry Fall Technical Meeting. October 1978. pp.440-456.
- Smith, S. E. "The Application of Remote Sensing Techniques Towards the Management of the Aswan High Dam Reservoir." Proceedings of the 14th International Symposium on Remote Sensing of Environment. Volume 3. April 1980. 1297pp.
- Tomlins, G. and K. Thomson. "Applications of Remote Sensing to Construction Impact Assessment at the Roberts Bank Port, British Columbia." Proceedings of the 6th Canadian Symposium on Remote Sensing. 21-23 May 1980. 11pp.
- IV APPLICATION OF REMOTE SENSING ACCORDING TO WATER BODY TYPE A. OCEANS
- Austin, R. Remote Sensing of the Diffuse Attenuation Coefficient of Ocean Water. Scripps Institution of Oceanography, La Jolla, California. July 1981. 9pp.
- Austin, R. "The Remote Sensing of Spectral Radiance from Below the Ocean Surface." Optical Aspects of Oceanography. Academic Press, New York. 1974. pp.317-344.
- Blaine, L., C. Murphy and W. Barnes. The Ocean Color Scanner Experiment. National Aeronautics and Space Administration. GSFC X-941-77-153 August 1977. 51pp.
- Brown, S., N. Cornell, L. Fabian, et. al. Regimes for Ocean, Outerspace and Weather. The Brookings Institution, Washington, D.C. 1977. 257pp.
- Clark, G., G. Ewing and C. Lorenzen. "Remote Measurement of Ocean Color as an Index of Biological Productivity." Proceedings of the 6th International Symposium of Remote Sensing of Environment. 1969. pp.54-56.
- Clarke, G., G. Ewing and C. Lorenzen. "Spectra of Back-Scattered Light from the Sea Obtained from Aircraft as a Measure of Chlorophyll Concentration." Science. 167 1970. pp.1119-1121.

- Cracknell, A., S. Singh and N. MacFarlane. "Remote Sensing of the North Sea Using Landsat-2 MSS and Nimbus-7 CZCS Data." Proceedings of the 14th International Symposium on Remote Sensing of Environment. 1980. pp.1643-1651.
- Curran, R. "Ocean Turbidity and Chlorophyll as Inferred from ERTS-1 Observations." Proceedings of a Symposium held at Goddard Space Flight Center on the Significant Accomplishments in Science. National Aeronautics and Space Administration. NASA SP-331 1973. pp.109-192.
- Deschamps, P., P. Lecomte and M. Viollier. "Remote Sensing of Ocean Color and Detection of Chlorophyll Content."

 Proceedings of the 11th International Symposium on Remote Sensing of Environment. 1977. pp.1021-1033.
- Duntley, S. "Detection of Ocean Chlorophyll From Earth Orbit."
 Proceedings of the 4th Annual Earth Resources Program Review.
 National Aeronautics and Space Administration Publication.
 Volume IV January 1972.
- Egan, W. "Optical Kemote Sensing of the Sea A Caribbean Example." Proceedings of the 14th International Symposium on Kemote Sensing of Environment. 1980. pp.563-589.
- E1-Sayed, S. Z. and C. C. Trees. "Use of The Coastal Zone Color Scanner(CZCS) in Antarctic Waters." SCOR/SCAR/IABO/ACMRR RIOMASS Handbook.
- El-Sayed, S., H. Reheim, G. Fryxell, et. al. Scientific Investigations in the Gulf of Mexico and Caribbean Sea During the 1974-1975 Calypso Cruise, Parts 1 and 2. Texas A & M University, Center for Marine Resources. December 1975, 262pp.
- Esaias, E. Wayne. Assessment of Superflux Relative to Marine Science and Oceanography. NASA Hampton, VA. October 1981. pp.495-500.
- Ewing, G. Oceanography from Space. Woods Hole Oceanographic Institution, Woods Hole, Massachusetts. 1965. 469pp.
- Gordon, H., D. Clark, J. Hueller, et. al. "Phytoplankton Pigments Derived from the Nimbus-7 Coastal Zone Scanner: Initial Comparisons with Surface Heasurements." Science. 210 3 October 1980. pp.63-66.

- Gordon, H. and W. McCluney. "Estimation of the Depth of Sunlight Penetration in the Sea for Remote Sensing." Applied Optics. 14:2 February 1975. pp.413-416.
- Hovis, W., H. Forman and L. Blaine. Detection of Ocean Color Changes from High Altitude. National Aeronautics and Space Administration. GSFC A-652-73-371 1973.
- Hovis, W. "Remote Sensing of Ocean Color." Optical Engineering. 16:2 1977. pp.158-160.
- Hoyler, R. J., P. E. LaViolette and J. R. Clerk. "Satellite Oceanography Research Development and Technology Transfer." Proceedings of the 14th International Symposium on Remote Sensing of Environment. Volume 1. April 1980. pp.221-228.
- Hypes, W. and C. Ohlhorst. "A Summary of the Test Procedures and Operational Details of a Delaware River and an Ocean Dumping Pollution Monitoring Experiment Conducted 28 August 1975." National Aeronautics and Space Administration. MASA TM X-74005 1977.
- Johnson, R. "Multispectral Analysis of Ocean Dumped Materials." Proceedings of the 11th International Symposium on Remote Sensing of the Environment. 1977. pp.25-29.
- Johnson, W. and D. Morris. "A Hultispectral Analysis of Algal Bloom in the Gulf of Mexico." Proceedings of the American Institute of Aeronautics and Astronautics Conference on Satellite Applications to Marine Technology. AIAA Report Number 77-1565 C43 A78-13657 1977. pp.39-42.
- Johnson, R. W. and S. Bahn. "Synoptic Thermal and Oceanographic Parameter Distributions in the New York Bight Appex."

 Phogrammetric Engineering and Remote Sensing. 48:11

 November 1981. 6pp.
- Kattawar, G. and T. Humphreys. "Remote Sensing of Chlorophyll in Atmosphere-Ocean Environment: A Theoretical Study." Applied Opsics. 15:1 1976. pp.273-282.
- Kemmerer, A., J. Benigno, G. Reese, et. al. "Summary of Selected Early Results from the ERTS-1 Menhaden Experiment." Fishery Bulletin. 72:2 1974. pp.375-389.
- Khorram, S. "Use of Ocean Color Scanner Data in Water Quality Mapping" Photogrammetric Engineering and Remote Sensing. 47:5 May 1981. pp.667-676.

÷

- Klemas, V., K. Davis and R. Henry. "Satellite and Current Drogue Studies of Ocean-Disposed Waste Drift." Journal of the Water Pollution Control Federation. May 1977. pp.757-763.
- Leung, K. and W. Hovis. "Remote Sensing of Chlorophyll Concentrations from High Altitude." Proceedings of the Second Annual Combined Conference of the Marine Technology Society and the Institute of Electrical and Electronic Engineers. 13-15 September 1976. pp.15E-1 to 15E-4.
- Lewis, B. and V. Collins. Remotely Sensed and Laboratory Spectral Signatures of an Ocean-Dumped Acid Waste. National Aeronautics and Space Administration. NASA TNU-8467 July 1977.
- Naul, G., R. Charnell and R. Qualset. "Computer Enhancement of ERTS-1 Images for Ocean Radiances." Remote Sensing of Environment. 3:4 1974. pp.237-254.
- Maul, G. and H. Gordon. "On the Use of the Earth Resources Technology Satellite (Landsat-1) in Optical Oceanography." Kenote Sensing of Environment. 4:2 1975. pp.95-128.
- McClain, E. "Recent Progress in Earth Satellite Data Applications to Marine Activities." Proceedings of the Joint Conference between the Marine Technology Society and the Institute of Electrical and Electronics Engineers. 1 October 1977.

 pp.14A-1 to 14A-5.
- McClain, E. "Passive Radiometry of the Ocean from Space An Overview." Boundary-Layer Meteorology. 18:1 1980. 18pp.
- Hehl, W. "Analysis of Coastal Zone Color Scanner Imagery Over Mediterranean Coastal Water." Proceedings of the 14th International Symposium on Remote Sensing of Environment. Volume 1. April 1980. 653pp.
- Hemorial University. Satellite Ocean-Related Imagery Applications Program-Final Report. Memorial University of Newfoundland. June 1979. 516pp.
- Miller, J. K. "Variation in Upper Ocean Heat Storage Determined from Satellite Data." Elsevier North Holland, Inc. 11:6 9pp.
- Mueller, J. "Kemote Measurement of Chlorophyll Concentration and Secchi Depth Using the Principal Components of the Ocean's Color Spectrum." Proceedings of the Fourth Annual Earth Resources Program Review. MSC-05937 4 1972.

pp.105-1/105-13.

- rlunday, J. Jr. "Organization of Remote Sensing Capability for Data Needs in Harine Resources Management." Proceedings of the CASTED-COSPAR Workshop on Applications of Space Observations to Marine Resources in the Developing Countries, NOAA/NESS World Weather Building, Camp Springs, Maryland.
- Needham, B. "Observation of Wind-Induced Sea Surface Feature off Pulu Bawean, Java, From Landsat-1." Builetin of the American Meteorological Society. 57:4 April 1976. pp.444-446.
- Needham, B. "Remote Sensing and Analysis of Oceanographic Parameters from ERTS-1." Institute of Electrical and Electronics Engineers Ocean. 1975. pp.793-802.
- Ocean Water and Remote Sensing. Limnology and Oceanography.
 Also University of California, San Diego, Scripps Institute
 of Oceanography, Visibility Laboratory. SIO Ref. 77-2.
- Oertel, F. G. and T. L. Wade. The Relationship Among Sea Surface Roughness Variations, Oceanographic Analysis and Airborne Remote Sensing Analysis. Old Dominion Univ. Norfolk, VA. Dec. 1981. 252pp.
- Ohlhorst, C. Quantitative Mapping of Remote Sensing of an Ocean Acid Waste Dump. National Aeronautics and Space Administration. NASA TP-1275 1978.
- Ohlhorst, C. and B. Gilbert. "Mapping of Particulate Iron in an Ocean Dump." Photogrammetric Engineering and Remote Sensing. 45:8 August 1979. pp.1117-1122.
- Kansey, R. Study of the Remote Measurement of Ocean Color. National Aeronautics and Space Administration. TWA-NASA-1658 1968.
- Rouse, L. and J. Coleman. "Circulation Observations in the Louisiana Bight Using Landsat Imagery." Remote Sensing of Environment. 5:1 1976. pp.55-66.
- Sorensen, D. The North Sea Ocean Color Scanner Experiment 1977 Final Report. Commission of European Communities, Joint Research Center. Ispra, Italy, September 1979. 140pp.
- Sydor, M. "Measurement of Suspended Solids in Lake and Oceans, Using Satellite Remote Sensing Data." A Study of Minnesota Land and Water Resources Using Remote Sensing. 13 January 1980. pp.107-137.

- Tassan, S. "Application of a Global Sensitivity Analysis Model to the Ketrieval of Chlorophyll Concentrations in Water From Remotely Measured Kadiances." Proceedings of the 14th International Symposium on Remote Sensing of Environment. 1980. pp.807-818.
- Tassan, S., ø. Strum and E. Diana. "A Sensitivity Analysis for the Retrieval of Chlorophyll Contents in the Sea from Remotely Sensed Radiances." Proceedings of the 13th International Symposium on Remote Sensing of Environment. 1979. pp.713-727.
- Ulbricht, K., D. Schmidt and U. Horstmann. "Mass Appearance of Blue Green Algae in the Baltic Sea: Evaluation of Multispectral Landsat Scenes by Image Processing."

 Proceedings of an International Conference on Earth Observation from Space and Management of Planetary Resources. Tulouse, Tennessee. March 1978. pp.77-79.
- Viollier, M., P. Deschamps and P. Lecomte. "Airborne Remote Sensing of Chlorophyll Content Under Cloudy Skies as Applied to Tropical Waters in the Gulf of Guinea." Remote Sensing of Environment. 7:3 1978. pp.235-248.
- Wilson, W., K. Austin and R. Smith "Optical Remote Sensing of Chlorophyll in Ocean Waters." Proceedings of the 12th International Symposium on Remote Sensing of Environment. 1978. pp.1103-1114.

B. COASTAL WATERS

- Alfoldi, T. The Use of Satellite Imagery for an Inventory of Coastal Resources in the Atlantic Provinces. Canada Center for Remote Sensing. August 1975.
- American Society of Civil Engineers. "Coastal Sediments '77."
 Proceedings of the Fifth Symposium of the American Society of
 Civil Engineers Waterway, Port, Coastal and Ocean Division.
- Apel, J., R. Charnell and R. Blackwell. "Ocean Internal Waves off the North American and African Coasts from ERTS-1." Proceedings of the 9th International Symposium on Kemote Sensing of Environment. 1974.
- Anderson, D., H. McKim, W. Crowder, et. al. "Applications of ERTS-1 Imagery to Terrestrial and Marine Environmental Analysis in Alaska." Proceedings of the 3rd ERTS-1 Symposium. Washington, D.C., 1974. pp.1575-1606.

- Bowker, D. and W. Witte. "The Use of Landsat for Monitoring Water Parameters in the Coastal Zone." Proceedings of the AIAA Joint Conference on Satellite Applications of Marine Applications. 15-18 November 1977.
- Brown, O. and H. Gordon. "Size-Refractive Index Distribution of Clear Coastal Water Particulates from Light Scattering." Applied Optics. 13:12 1974. pp.2874-2881.
- Colwell, R. N. and S. Khorram. Water Quality Mapping of the Entire San Francisco Bay and Delta From Landsat Multispectral Scanner Data. University of California, Berkeley. 1980. 33pp.
- Cracknell, A. P. and S. M. Sing. "Coastal Zone Research Work at Dundee University Using Remote Sensing Techniques."

 Proceedings of an EARSEL-ESA Symposium. Voss, Norway. May 1981.
- Darnell, W. "Aircraft Versus Spacecraft for Remote Monitoring of Water Quality in U. S. Coastal Zones." Proceedings of the Southeast Region 3 Conference on Imaginative Engineering Through Education and Experience. Institute of Electrical and Electronics Engineers. April 1977. pp.435-441.
- Djuric, D. and H. Leribaux. "On the Determination of Turbulent Diffusivity in Shallow Waters by Aerial Photography of Floating Markers." Limnology and Oceanography. 19:1 1974. pp.138-144.
- Erb, R. The ERTS-1 Investigation (ER-600): ERTS-1 Coastal/ Estuarine Analysis. National Aeronautics and Space Administration. NASA TM X-58118. 258pp.
- Grew, G. "Remote Detection of Chlorophyll- a in Coastal Waters." Proceedings of the 5th Annual Remote Sensing of Earth Resources Conference. 29-31 March 1976.
- Holmes, R. "The Secchi Disk in Turbid Coastal Waters." Limnology and Oceanography. 15 1970. pp.688-694.
- Howarth, P. J. and A. E. Lucas. Remote Sensing for Coastal Studies in Canada. Acmaster University, Dept. of Geography. Hamilton, Ontario. 1979. 31pp.
- Johnson, R. "Mapping of Chlorophyll- a Distributions in Coastal Zones." Photogrammetric Engineering and Remote Sensing. 44 May 1978. pp.617-624.
- Johnson, R. "Quantitative Mapping of Chlorophyll a

- Distributions in Coastal Zones by Kemote Sensing."
 Proceedings of the American Society of Photogrammetry 43rd
 Annual Meeting. 1977. pp.485-502.
- Johnson, R., I. Duedall, R. Glasgow, et. al.
 "Quantitative Mapping of Suspended Solids in Watershed Sludge
 Plumes in the New York Bight Apex." Journal of Water
 Pollution Control Federation. 49:10 1977. pp.2063-2073.
- Johnson, W. and R. Harriss. "Remote Sensing for Water Quality and Biological Measurements in Coastal Waters." Photogrammetric Engineering and Remote Sensing. 46:1 January 1980. pp.77-85.
- Johnson, W. and D. Morris. "A Multispectral Analysis of Algal Bloom in the Gulf of Mexico." Proceedings of the American Institute of Aeronautics and Astronautics Conference on Satellite Applications to Marine Technology. AIAA Report Number 77-1565 C43 A78-13657 1977. pp.39-42.
- Johnston, J. and W. L. Longley. "Remote Sensing and its Kole in Coastal Resource Study." Proceedings of the 14th International Symposium on Remote Sensing of Environment. Volume 3. April 1980. 1789pp..
- Klemas, V. "Remote Sensing of Coastal Environment and Resources." Proceedings of the 14th International Symposium on Remote Sensing of Environment. Volume 1. April 1980. 543pp.
- Klemas, V. Remote Sensing of Coastal Pollutants --- Delaware. College of Marine Studies, University of Delaware, Newark, Delaware. 1978.
- Klemas, V. and D. Bartlett. "Remote Sensing of Coastal Resources." Environmental Management. 2:2 1978. pp.119-126.
- Klemas, V., D. Bartlett, W. Philpot, et. al. "Coastal and Estuarine Studies with EKTS-1 and Skylab." Remote Sensing of Environment. 3 1974. pp.153-174.
- Klemas, V., D. Bartlett and W. Philpot. "Remote Sensing of Coastal Environment and Resources." American Society of Photogrammetry Publication. Proceedings Coastal Mapping, 14-16 August 1978. pp.3-16.
- Klemas, V., D. Bartlett and W. Philpot. "Remote Sensing of Marine Fisheries Resources." ONR Symposium on Advanced Concepts in Ocean Neasurement, Belle W. Baruch Institute for Marine Biology and Coastal Research, University of South Carolina, 25-29 October 1978. 19pp.

- Klemas, V., D. Bartlett and R. Rogers. "Coastal Zone Classification from Satellite Imagery." Photogrammetric Engineering and Remote Sensing. 40:4 1975. pp.499-513.
- Klemas, V., R. Davis, J. Lackie, et. al. "Satellite, Aircraft and Drogue Studies of Coastal Currents and Pollutants." IEEE Transactions on Geoscience Electronics. GE-15:2 April 1977. pp.97-108.
- Klemas, V., K. Davis, H. Wang, et. al. "Remote Sensing of Coastal Currents and Pollutants." Geoscience and Man. 18 December 1977. pp.193-204.
- Klemas, V., M. Otley, W. Philpot, et. al. "Correlation of Coastal Water Turbidity and Current Circulation with ERTS-1 and Skylab Imagery." Proceedings of the 9th International Symposium on Remote Sensing of Environment. 1974. pp.1289-1317.
- Klemas, V., M. Ortely, C. Wetle, et. al. "Monitoring Coastal Water Properties and Current Circulation with ERTS-1." Proceedings of the Third Earth Resources Technology Satellite-1 Symposium. National Aeronautics and Space Administration. NASA SP-351 1973. pp.1387-1411.
- Klemas, V., D. Philpot and G. Davis. Signature of Coastal Pollutants. National Aeronautics and Space Administration. NASA CR-145594 1976.
- "Korean Coastal Water Depth, Sedimentation and Land Cover Mapped by Computer Analysis of Landsat Imagery." National Aeronautics and Space Administration. NASA TM-79546.
- Lim, J., E. Elefan and E. Jara. Coastal Change Assessment of the Nuclear Power Plant Site in Bataan, Philippines Using Landsat Temporal Data. Philippines. Dept. of Natural Resources, Diliman, Quezon City. April 1980. 14pp.
- Lyzenga, D. "Shallow Water Reflectance Modeling with Application to Remote Sensing of the Ocean Floor." Proceedings of the 13th International Symposium on Remote Sensing of Environment. 1979. pp.583-602.
- Mairs, R., R. Macomber, D. Stanczuk, et. al. "Application of ERTS-1 Data to the Protection and Management of New Jersey's Coastal Environment." Proceedings of the 9th International Symposium on Remote Sensing of Environment. 1974. pp.2087-2091.

- McClain, E. "Recent Progress in Earth Satellite Data Applications to Marine Activities." Proceedings of the Joint Conference between the Marine Technology Society and the Institute of Electrical and Electronics Engineers. 1 October 1977. pp.14A-1 to 14A-5.
- Mehl, W., B. Sturm and W. Melchior. "Analysis of Coastal Zone Color Scanner Imagery Over Mediterranean Coastal Waters." Proceedings of the 14th International Symposium on Remote Sensing of Environment. 1980. pp.653-662.
- Middleton, E. and J. Barker. Hydrographic Charting from Landsat Satellite: a Comparison with Aircraft Imagery. National Aeronautics and Space Administration. GSFC X-923-76-111 1976. 6pp.
- Miller, J., R. Gordon and D. Kamykowski. "Airborne Water Color Neasurements of the Nova Scotia Coast." Canadian Journal of Remote Sensing. 2 1976. 42pp.
- Mueller, J. "Ocean Color Spectra Measured off the Oregon Coast: Characteristic Vector." Applied Optics. 15:2 1976. pp.394-402.
- Mueller, J., D. Ball and E. Middleton. "Parametrization and Preprocessing of Ocean Image Data for Studies of Coastal Oceanography." Proceedings of the Ninth Annual Offshore Technology Conference. May 1977. pp.295-302.
- Munday, J. Jr., E. Joseph, R. Byrne, et. al. Priority Problems and Data Needs in Coastal Zone Oceanography. Virginia Institute of Marine Science, Gloucester Point, Virginia. 1970. 131pp.
- Muneyama, K., et. al. "Measurement of Spectral Upward Radiance at Several Altitudes Over the Sea and Atmospheric Correction of the Radiance by Water Vapor Quantity." Proceedings of the 14th International Symposium on Remote Sensing of Environment. April 1980. pp.1267-1272.
- Muralikrishna, I. V. "Landsat Application to the Study of Coastal Processes." Contribution of Space Observation to Water Resources Management, Symposium Procedings, Bangalore, India. 1980. 4pp.
- Ogrosky, C. "Aerial Photographic Methods for Detection of Submerged Vegetation in Coastal New Jersey." Proceedings of the American Society of Photogrammetry Fall Technical Meeting. October 1978. pp.423-430.

- Pearcy, W. and D. Keene. "Kemote Sensing of water Color and Sea Surface Temperature of the Oregon Coast." Limnology and Oceanography. 19 1974. pp.573-583.
- Philpot, W. and V. Klemas. The Use of Satellites in Environmental Monitoring of Coastal Waters. College of Marine Studies, University of Delaware, Newark, Delaware. 1979. 79pp.
- Polcyn, F. and D. Lyzenga. Remote Bathymetry and Shoal Detection with ERTS-1: ERTS Water Depth - Final Report, Project 193302. National Aeronautics and Space Administration. NASA CR ERIN 193300-51-F April 1975. 55pp.
- Kouse, L. and J. Coleman. "Circulation Observations in the Louisiana Bight Using Landsat Imagery." Remote Sensing of Environment. 5:1 1976. pp.55-66.
- Strum, B., W. Mehl and W. Melchior. "Analysis of Coastal Zone Color Scanner Imagery Over Mediterranean Coastal Waters." 14th International Symposium on Remote Sensing of Environment. San Jose, Costa Rica. April 1980.
- Szekielda, K., D. Suszkowski and P. Tador. "Skylab Investigation of the Upwelling off Northwest Coast of Africa." Proceedings of the National Aeronautics and Space Administration Earth Resources Survey Symposium. NASA TM X-58168 1975. pp.2005-2022.
- Viollier, M. and N. Baussart. "Enhancement of Landsat Imagery for the Monitoring of Coastal Waters. Application to the Southern Part of the North Sea." Proceedings of the 13th International Symposium on Remote Sensing of Environment. April 1979. pp.1093-1105.
- weishlatt, E., J. Zaitzeffi and C. Reeves. "Classification of Turbidity Levels in the Texas Marine Coastal Zone." Proceedings of the Conference on Machine Processing of Remotely Sensed Data. Purdue University. October 1973. pp.3A-42/3A-59.
- Welby, C. and L. Pietrafesa. "Combined Satellite Imagery of Water Circulation." World Health Organization. Water Quality Bulletin. 5:1 January 1980. pp.15-17.
- Whitlock, C. An Estimate of the Influence of Sediment Concentration and Type on Remote Sensing Penetration Depth for Various Coastal Waters. National Aeronautics and Space Administration. NASA TM X-73906 1976.

- Yokoyama, R. Water Quality Investigation of Sanriku Coastal Zone by Remote Sensing. Iwate Univ, Dept. of Computer Science. 1980. 17pp.
- Yost, E. and S. Wenderoth. Remote Sensing of Coastal Waters Using Multispectral Photographic Techniques. Long Island University. Science Engineering Group. Report Number SERG-TK-10 1970. 210pp.
- Zaitzeff, J., P. Cornillon and D. Aubrey. Remote Sensing in the Coastal and Marine Environment. University of Rhode Island. Center for Ocean Management Studies. 1979. 250pp.

C. ESTUARINE WATERS

- Amos, C. Suspended Sediment Analysis of Seawater Using Landsat Imagery, Minas Basin, Nova Scotia. Geological Survey of Canada Paper 76-1C. 1976. pp.55-60.
- Amos, C. and T. Alfoldi. "Determination of Suspended Sediment Concentrations in a Macrotidal System Using Landset Data." Journal of Sedimentary Petrology. 49:1 1979. pp.159-174.
- Anderson, R. "Multispectral Analysis of Aquatic Ecosystems in Chesapeake Bay." Proceedings of the 7th International Symposium on Remote Sensing of Environment. 1971. pp.2217-2227.
- Bowker, D., P. Fleisher, T. Gosink, et. al. "Correlation of ERTS Multispectral Imagery with Suspended Matter and Chlorophyll in the Lower Chesapeake Bay." Proceedings on the Symposium on Significant Results Obtained from ERTS-1. National Aeronautics and Space Administration. NASA SP-327 1973. pp.1291-1298.
- Bowker, D., P. Fleisher, T. Gosink, et. al. "Transmissometry and Suspended Matter in the Lower Chesapeake Bay: Correlation with ERTS Nultispectral Imagery." Proceedings of the American Society of Photogrammetry Fall Convention. 2-5 October 1973 pp.840-847.
- Bowker, D. and W. Witte. "Evaluation of ERTS MSS Digital Data for Monitoring Water in the Lower Chesapeake Bay Area." Proceedings of the 4th Annual Remote Sensing of Earth Resources Conference. 24-26 March 1975.

- Bowker, D. and W. Witte. "Evaluation of Water Samples Collected During Landsat-1 Overpass of the Lower Chesapeake Bay Area." Institute of Electrical and Electronics Engineers. 16:3 1970. 5pp.
- Bowker, D., W. Witte, P. Fleischer, et. al. "An Investigation of the Waters in the Lower Chesapeake Bay." Proceedings of the 10th International Symposium on Remote Sensing of Environment. 1975. pp.411-420.
- Birine, R. and E. Posementier. "Identification of Lateral Spectral Contrasts in the Lower Hudson River Estuary Using Landsat Digital Data." Proceedings of the 14th International Symposium on Remote Sensing of Environment. 1980. pp.1663-1672.
- Chen, W., G. Freas, G. Hickman, et al. eds.
 Application of Remote Sensing to the Chesapeake Bay Region.
 National Aeronautics and Space Administration. NASA CP-6
 Volume 1 and 2 1977. 404pp.
- Coker, A., A. Higer and C. Goodwin. "Detection of Turbidity Dynamics in Tampa Bay, Florida, Using Multispectral Imagery from ERTS-1." Proceedings of the National Aeronautics and Space Administration Symposium on Significant Results Obtained from ERTS-1. NASA SP-327 1973. pp.1715-1726.
- Eisenberg, M. "Water Quality and Shellfish Sanitation."
 Application of Remote Sensing to the Chesapeake Bay Region.
 National Aeronautics and Space Administration.
 NASA CP-6 1978. pp.267-268.
- Erb, R. The ERTS-1 Investigation (ER-600): ERTS-1 Coastal/ Estuarine Analysis. National Aeronautics and Space Administration. NASA TM X-58118. 258pp.
- Gatto, L. Estuarine Processes and Intertidal Habitats in Grays Harbor, Washington. A Demonstration of Remote Sensing Techniques. Final Report for Civil Works Demonstration Project 31094, Office of Chief of Engineers, Washington, D.C. October 1977.
- Graban, W., A. Williamson and J. Smith. "The Use of Landsat for Estuarine Studies. Research Techniques in Coastal Environm School of Geoscience, Louisiana State University, Baton Rouge, Louisia pp.205-214.
- Hill, J. Landsat Estuarine Water Quality Assessment of Silviculture and Dredging Activities. U. S. Environmental Protection Agency. EPA-600/4-80-043 August 1980. 130pp.

- Hill, J. Landsat Estuarine Water Quality Assessment of Silviculture and Dredging Activities. U. S. Environmental Protection Agency. EPA-600/4-80-043 August 1980. 130pp.
- Hill, J and D. Graham. "Using Enhanced Landsat Images for Calibrating Real-Time Estuarine Water Quality Models." World Health Organization Water Quality Bulletin. 5:1 January 1980. pp.20-23.
- Hill, J. and K. Stout. "Impacts of Land Use on Estuarine Water Quality." Proceedings of the 13th International Symposium on Remote Sensing of Environment. 1979. pp.385-395.
- Khorram, S. "Remote Sensing Analysis of Water Quality in the San Francisco Bay Delta." Proceedings of the 13th International Symposium on Remote Sensing of Environment. 1979. pp.1591-1601.
- Klemas, V. "Remote Sensing of Coastal Wetland Vegetation and Estuarine Water Properties." Estuarine Processes. Volume 2 Circulation, Sediments and Transfer of Material in the Estuary. Academic Press, New York. 1977. pp.381-403.
- Klemas, V., D. Bartlett, W. Philpot, et. al. "Coastal and Estuarine Studies with ERTS-1 and Skylab." Remote Sensing of Environment. 3 1974. pp.153-174.
- Klemas, V., D. Barlett and R. Rogers. "Skylap and ERTS-1 Investigation of Coastal Land Use and Water Properties in Delaware Bay." Scientific Investigations on Skylab Satellite, Progress in Astronautics and Aeronautics, American institute of Aeronautics and Astronautics. 48 1976. pp.351-371.
- Klemas, V. and D. Polis. "Remote Sensing of Estuarine Fronts and their Effects on Pollutants." Photogrammetric Engineering and Remote Sensing. 43:5 May 1977. pp.599-012.
- Plairs, R. L. and D. Clark. "Remote Sensing of Estuarine Circulation Dynamics." Photogrammetric Engineering. 39:9 1973. pp.927-938.
- Miller, J., S. Jain, N. O'Neill, et. al. "Interpretation of Airborne Spectral Reflectance Measurements Over Georgian Bay." Remote Sensing of Environment. 6:3 1977. pp.183-200.
- Mugler, J., J. Godfrey, G. Hickman, et. al. "Role of Remote Sensing in Bay Measurements." Application of Remote Sensing

- to the Chesapeake Bay Region. National Aeronautics and Space Administration. NASA CP-6 1978. pp.315-321.
- Munday, J. Jr. Chesapeake Bay Suspended Sediment Distribution and Analysis from Landsat for Calibration and Verification of Numerical Models of Bay Water Quality. Proposal to the Virginia Sea Grant Program. Virginia Polytechnical Institute. 4 April 1980.
- Munday, J. Jr. and P. Zubkoff. "Remote Sensing of Dinoflagellate Blooms in a Turoid Estuary." Photogrammetric Engineering and Remote Sensing. 47:4 April 1981. pp.523-531.
- Saitoh, S., J. Issaka and O. Asaoka. "Marine Pollution Analysis in Tokyo Bay by Landsat 1 and 2." Proceedings of the 13th International Symposium on Remote Sensing of Environment. April 1979. pp.1657-1679.
- Thomas, I. "Sediment/Siltration Monitoring Within a Tidal Basin Using Repetitive Landsat CCT Data." Proceedings of the 12th International Symposium on Remote Sensing of Environment. 1978. pp.1367-1378.
- Welby, C., A. Witnerspoon and K. holman. "Monitoring of Water Quality and Trophic States in Shallow Coastal Lakes and Estuaries A Use of Landsat Imagery." Proceedings of the Seventh Annual Remote Sensing of Earth Resources Conference. University of Tennessee. 1978. pp.289-313.
- Williamson, A. and W. Graban. "Sediment Concentration Happing in Tidal Estuaries." Proceedings of the Third Earth Resources Technology Satellite-1 Symposium. National Aeronautics and Space Administration. NASA SP-351 1973. pp.1347-1386.

D. INLAND WATER BODIES

- Abiodun, A. "Satellite Survey of Particulate Distribution Patterns in Lake Kainji (Nigeria)." Kemote Sensing of Environment. 5:2 1976. pp.109-123.
- Abiodun, A. and H. Adeniji. "Movement of Water Columns in Lake Kainji (Nigeria)." Remote Sensing of Environment. 7:3 1978. pp.227-234.
- Alexander, V., J. Hellor and K. Barsdate. Suspended Sediments and Kelated Limnology of an Alpine Lake System --- Peters Lake and Schraeder Lake. Alaska University, Fairbanks. 31 January 1977. 16pp.

- Anderson, N. Harold. Remote Sensing of Water Quality in Reservoirs and Lakes in Semi-Arid Climates. California. Univ. Berkely, Dec. 1975. 143pp.
- Anderson, D., W. Crowder, L. Gatto, et. al. "Regional Analysis and Water Resources Based on Satellite Imagery. U. S. Army Corps of Engineers Technical Report 241. (Cold Regions Research and Engineering Laboratory, Hanover, New Hampshire). June 1973. 50pp.
- "An Approach to a Kelative Trophic Index System for Classification of Lakes and Reservoirs." U. S. Environmental Protection Agency, National Eutrophication Survey, Working Paper Number 24, 1974. 44pp.
- "Assessment of Water Quality in Lakes by the Use of Bioindices from Satellite Imagery, A Case History of 208 Water Quality Management Planning." U. S. Environmental Protection Agency EPA-440/3-77-019 January 1978. 10pp.
- Ayls, h. and K. Heckey. The Application of Landsat Multispectral Radiance Data to Environmental Impact Studies on Large Lakes. Canada Center for Remote Sensing.
- Azura, P. and L. Hidalgo. "A Study of Suspended Solids in the Requena Dam by Remote Sensing." Proceedings of the 11th International Symposium on Remote Sensing of Environment. 1977. pp.495-504.
- Barker, J. "Landsat-1 Data as it has been Applied for Land Use and Water Quality Data by the Virginia State Water Control Board, II, Monitoring Water Quality from Landsat." National Aeronautics and Space Administration. NASA TM X-58168 1975 pp.383-481.
- Barker, J. Honitoring Water Quality from Landsat Satellite Observation of Virginia. National Aeronautics and Space Administration. MASA Th X-71006 1975. 40pp.
- Bennett, P. and H. Sydor. "Use of ERTS in Heasurement of Water Quality in Lake Superior and the Duluth Superior Harbor." Remote Sensing of Earth Resources. Volume 111. University Tennessee, Tullahoma. 1974. pp.85-92.
- Blackwell, K. and D. Boland. "The Trophic Classification of Lakes Using ERTS Hultispectral Scanner Data."

 Proceedings of the 41st Annual Meeting of the American Society of Photogrammetry. March 9-14, 1978. Washington, D. C.

- Blackwell, R. and D. Boland. Trophic Classification of Selected Colorado Lakes: Lake Classification Through the Amalgamation of Contact-Sensed Data and Digitally Processed Hultispectral Scanner Data Acquired by Satellite and Aircraft. U. S. Environmental Protection Agency EPA-600/4-79-005 1979. 263pp.
- Boland, D. Trophic Classification of Lakes Using Landsat-1 (ERTS-1) Hultispectral Scanner Data. U. S. Environmental Protection Agency. EPA-600/3-76-037 1976. 253pp.
- Boland, D. and K. Blackwell. "The Landsat-1 Multispectral Scanner as a Tool in the Classification of Inland Lakes." Proceedings of the National Aeronautics and Space Administration Earth Resources Survey Symposium. NASA TM-X-58168 1975. pp.419-442.
- Boland, D. and R. Blackwell. "Trophic Classification of Colorado Lakes Utilizing Contact Data, Landsat and Aircraft Acquired Multispectral Scanner Data." Proceedings of the 4th Joint Conference on Sensing of Environmental Pollutants. November 6-11, 1978. American Chemical Society. 1978 pp.888-894.
- Boland, D., D. Schaeffer, D. Sefton, et. al. Trophic Classification of Selected Illinois Water Bodies: Lake Classification Through Amalgamation of Landsat Multispectral Scanner and Contact-Sensed Data. U. S. Environmental Protection Agency. EPA-600/3-79-123 December 1979. 226pp.
- Borton, T., C. Wezernek and R. Raney. Inland Lakes Water Quality and Watershed Planning: Kemote Sensing Technology Applications. Environmental Research Institute of Michigan, Report Number 193500-6-F1 July 1975. 1015pp.
- Brooks, D., A. Mace, M. Meyer, et. al. Assessment of Water Quality Status and Trends in Minnesota by Remote Sensing Techniques. University of Minnesota OWRT-A-033-MINN December 1977. 66pp.
- Bukata, R., W. Maras and J. Burton. "Space Observations of Lake Coastal Processes During Periods of Storm Activity." Proceedings of the 2nd Canadian Symposium on Remote Sensing. 29 April-1 May 1974.
- Canfield, D. Prediction of Total Phosphorus
 Concentrations and Trophic States in Natural and Artificial
 Lakes: The Importance of Phosphorus Sedimentation, Ph.D.
 Thesis Iowa State University, Ames University Microfilms
 Catalog Number 8000120, 1979.

- Chase, P., L. Reed and V. Smith. "Utilization of ERTS-1 Data to Monitor and Classify Eutrophicaion of Inland Lakes." Proceedings of the National Aeronautics and Space Administration/Goddard Space Flight Center Symposium on Significant Results Obtained from ERTS-1. NASA SP-327 1973. pp.1597-1604.
- Cibuzar, A. Mapping of Chlorophyll-a Concentrations and Secchi Disc Depth Within Region 5 Using Landsat Digital Data. A. W. Research Laboratories. 1978. 25pp.
- Cook, J. "Regional Surface water and ban Inventories Via Landsat Bultispectral Scanner." Proceedings of the 14th International Symposium on Remote Sensing of Environment. 1980. pp.1159-1164.
- Cooper, S. The Use of Landsat DCS and Imagery in Reservoir Management and Operation. Army Corps of Engineers, waltham, Massachusetts. September 1975.
- Cowardin, L., F. Golet and E. LaKoe. Classification of Wetlands and Deep-Water Habitats of the United States. U.S. Department of Interior, Fish and Wildlife Service. October 1977. 100pp.
- Djuric, D. and H. Leribaux. "On the Determination of Turbulent Diffusivity in Shallow Waters by Aerial Photography of Florting Markers." Limnology and Oceanography. 19:1 1974. pp.138-144.
- "ERTS Study of Eutrophication of Inland Lakes. Enclosure 4-Hanagement Proposal." Bendix Aerospace Systems Division and Cranbrook Institute of Science, Ann Arbor, Michigan. Report Submitted to the National Aeronautics and Space Administration. BSD 1509 June 1971. 9pp.
- Fisher, L. and F. Scarpace. "Trophic Status of Inland Lakes from Landsat." Proceedings of the First Comprehensive Symposium on the Practical Application of Earth Resources Survey Data. National Aeronautics and Space Administration. NASA TNX-58168 June 1975. pp.1-a:443-451.
- Fisher, L., F. Scarpace and R. Thomsen. Multidate
 Data Extraction Procedures for a Statewide Landsat Lake
 Quality Monitoring Program. Environmental Monitoring and
 Data Acquisition Group, The University of Wisconsin-Madison.
 1978.

- Gervin, J. and M. Harshall. "Landsat Investigation of Water Quality in Lake Okeechobee." Proceedings of the American Society of Photogrammetry-American Congress of Surveying and Happing. 27 February-5 Harch 1977. pp.105-106.
- Goldman, C., R. Richards, H. Fearl, et. al.
 "Limnological Studies and Remote Sensing of the Upper Truckee
 River Sediment Plume in Lake Tanoe, California-Nevada."
 Remote Sensing of Environment. 3:1 1974. pp.49-67.
- Gustafson, T. and N. Adams. Remote Sensing of "Myriophyllum spicatum L." in a Shallow, Eutrophic Lake. American Water Resources Association. Procedures Number 17 1973. pp.387-391.
- Gustafson, T. and H. Adams. The Remote Sensing of Aquatic Macrophytes. Part I. Color Infrared Aerial Photography as a Tool for Identification and Happing of Littoral Vegetation. Part II. Aerial Photography as a Quantitative Tool for the Investigation of Aquatic Ecosystems. Institute for Environmental Studies, University of Wisconsin at Hadison. Remote Sensing Program Publication. 1973. 25pp.
- Hergenradar, G. Application of Remote Sensing in the Determination of Water Quality in Nebraska Reservoirs. National Aeronautics and Space Administration. NASA CR-148776 July 1976. 2745pp.
- Hidalgo, L. L. "The Infrared Photography and the Limbological Study of the Boockman Dam." Proceedings of the 14th International Symposium on Remote Sensing of Environment. Volume 3. April 1980. 1611pp.
- Holmquist, K. "The Landsat Lake Eutrophication Study." M. S. Thesis. Department of Civil and Environmental Engineering, University of Wisconsin at Madison December 1977, 102pp.
- Holmquist, K. and F. Scarpace. The Use of Satellite Imagery for Lake Classification in Wisconsin. Water Resources Center, University of Wisconsin at Madison. Technical Report WIS WRC 77-08 1977.
- Ioka, M., K. Torii and J. Fukuma. Preliminary Analysis of the Thermal Distribution, while Cuality and Flow Pattern in Chukai Using MSS Data. Kyoto Univ, Dept.of Agricultural Engineering, Yoshida-Honmachi, Sanko-Ku, Kyoto, Japan. 1979. 10pp.

- Johnson, R. "Application of Aircraft Multispectral Scanners to Quantitative Analysis and Mapping of Water Quality Parameters in the James River, Virginia." COSPAR Space Research, Volume XVII. M. J. Rycroft and A. C. Strickland, editors. Pergamon Press, Inc. 1977. pp.25-31.
- Johnson, J., P. Cressy and W. Dallam. "Utilization of Landsat Data for Water Quality Surveys in the Choptank River." Proceedings of the National Aeronautics and Space Administration Earth Resources Survey Symposium.

 NASA TM X-58168 1975. pp.2325-2350.
- Kirby, M. An Analysis of Digital Landsat Techniques for the Detection and Mapping of the Scott Inlet. Intera Environmental Consultants Ltd., P.O. Box 4791, Station E, Ottawa, Ont. KIS 5H9 Canada. August 1979. 43pp.
- Leonhart, L. and L. Everett. "Application of Remote Sensing to River Basin Control Programs." Proceedings of the Third Conference on Earth Resources Observation and Information Analysis Systems, University of Tennessee. Harch 1974. pp.147-159.
- Lillesand, T., W. Johnson, R. Deuell, et. al. Remote Sensing Applications in Agriculture and Forestry: Assessment of the Trophic Condition of Selected Minnesota Lakes Through Analysis of Landsat Digital Multispectral Scanner Data. Report of Research by the Remote Sensing Laboratory of the College of Forestry and the Agricultural Experiment Station, Institute of Agriculture, Forestry and Home Economics, University of Minnesota, St. Paul, Minnesota, RSL Research Report 81-1. 30 June 1981. 29pp.
- Lindell, L. "Experiences from Correlations of Landsat Data Versus Transmission of Light and Colorophyll-a." Verh. Internat. Verein. Limnol. 1981. pp. 406-409.
- McCauley, J. "Keservoir Water Quality Monitoring with Orbita! Kemote Sensors." Ph.D. Thesis. University of Kansas, Lawrence, Kansas. University Microfilms Order Number 77-28892.
- Proceedings of the Fourth Earth Resources Conference.

 Harch 1975. pp.521-541.
- McCauley, J., h. Yager, G. James, et. al. "ERTS-1 Reservoir monitoring Studies in Kansas." Remote Sensing and Water Resources Management, Thomson, Lane and Callany editors.

 American Water Resources Association. 1973. pp.112-119.

- Pickeon, J., R. Rogers and V. Smith. "Production of a Water Quality Map of Saginaw Bay by Computer Processing of Landsat-2 Data." Proceedings of the 11th International Symposium on Remote Sensing of Environment. 1977. pp.1045-1054.
- Meinert, D., D. Malone, A. Voss, et. al. Trophic Classification of Tennessee Valley Area Reservoirs Derived from Landsat multispectral Scanner Data. Mational Aeronautics and Space Administration. NASA CR-163528 1980. 73pp.
- Merry, C. Airborne Spectroradiometer Data Compared with Ground Water Turbidity Measurements at Lake Powell, Utah. Army Cold Regions Research and Engineering Laboratory, Manover, New Mampshire. National Aeronautics and Space Administration. Ch-155290 1977. 44pp.
- Hoore, D. and I. haertel. Remote Sensing of Water Quality in Prairie Lakes. South Dakota State University, Water Resources Institution. CWRT-B-093-SDAKA 1975.
- Prairie Lakes. South Dakota State University Remote Sensing Institute, South Dakota State University, Brookings, South Dakota. Project Number B-039-SDAK 1975. 61pp.
- Hunday, J. Jr. "Lake Ontario Water Mass Determination from ERTS-1." Proceedings of the 9th International Symposium on Remote Sensing of Environment. 1974. pp.1355-1368.
- Funday, J. Jr. "Water Quality of Lakes of Southern Ontario from ERTS-1." Proceedings of the Second Canadian Symposium on Remote Sensing. Guelph, Ontario 1974. pp.77-85.
- Wichol, J. and W. Collins. "Ecological Monitoring of Balancing Lakes by Multispectral Remote Sensing." Proceedings of the 14th Congress of the International Society for Photogrammetry. Hamburg, West Germany, 13-25 July 1980. 10pp.
- Oman, G. and M. Sydor. "Use of Remote Sensing in Determination of Chemical Loading of Lake Superior Due to Spring Runoff." Canadian Journal of Spectroscopy. 23:2 1978. pp.52-56.
- Parada, N. and T. Sausen. Tres Marias Reservoir, Minas Gerais State: Study of the Dispersion of Suspended Sediments in Surface Waters Using Orbital Images. National Aeronautics and Space Administration. NASA CR-163774 1980.

- Pluhowsky, E. "Remote Sensing of Turbidity Plumes in Lake Ontario." Journal of Research of U.S. Geological Survey. September-October 1973. pp.609-614.
- Raney, R., C. Wezernek, T. Borton, et. al. "Inland Lakes Water Quality and Watershed Planning - An Application of Kemote Sensing Technology." Proceedings of the 10th International Symposium on Remote Sensing of Environment. 1975. pp.1285-1296.
- Ritchie, J., J. McHenry, F. Schiebe, et. al. "The Relationship of Reflected Sclar Radiation and the Concentration of Sediment in the Surface Waters of Reservoirs." Proceedings of the Third Remote Sensing of Earth Resources Conference.. University of Tennessee. III 1974. pp.57-72.
- Ritchie, J. and F. Schiebe. "Remote Sensing of Suspended Sediments in Lake Chicot, Arkansas." Proceedings of the American Society of Photogrammetry 45th Annual Meeting. March 1979. pp.29-39.
- Ritchie, J., F. Schiebe, B. Wilson, et. al. "Sun Angle, Reflected Solar Radiation and Suspended Sediments in North Hississippi Reservoirs." Proceedings of the Fourth Remote Sensing of Earth Resorces Conference. University of Tennessee. March 1975. pp.555-563.
- Rogers, R. Application of Landsat to the Surveillance and Control of Lake Eutrophication in the Great Lakes Basin. Bendix Aerospace Systems Division, Ann Arbor, Michigan. Final Report to the National Aeronautics and Space Administration. BSR-4291 September 1977. 360pp.
- Rogers, R., L. Reed, N. Shah, et. al. "Automatic Classification of Eutrophication on Inland Lakes from Spacecraft Data."

 Proceedings of the 9th International Symposium on Remote Sensing of Frvironment. 1974. pp.981-994.
- Rogers, R., J. McKeon, V. Smith, et. al. "Summary Report:
 Application of Landsat to the Surveillance of Lake
 Eutrophication in the Great Lake Basin." Proceedings of the
 44th Annual Meeting of the American Society of
 Photogrammetry. February 1978. pp.214-225.
- Rogers, R., L. Roed, N. Schmidt, et. al. "Landsat-1 Automatic Land Use Mapping in Lake and River Watersheds." Proceedings of the American Society of Photogrammetry and American Congress of Surveying and Mapping Fall Convention. October 1975. pp.660-672.

- Rogers, R., L. Reed and E. Smith. "Computer Mapping of Turbidity and Circulation Patterns in Saginaw Bay, Michigan (Lake Muron) from ERTS Data." Proceedings of the American Society of Photogrammetry 41st Annual Meeting. March 1975. pp.415-429.
- Rogers, R., N. Shab, J. McKeon, et. al. "Computer Mapping of Water Onality in Saginaw Bay with Landsat Digital Data."

 Proceedings of the American Society of Photogrammetry 42nd Annual Meeting. February 1976.
- Rogers, R., N. Shah, J. McKeon, et. al. "Application of Landsat to the Surveillance and Control of Eutrophication in Saginaw Bay." Proceedings of the 10th International Symposium on Remote Sensing of Environment. 1975. pp.437-446.
- Ross, I. CACRS Water Resources Work Group Report: Kemote Sensing - Waver Quality Activities of Great Lakes Survey Unit Ontario Ministry of the Environment, Toronto. May 1979. /pp.
- Sakata, T., L. Shimoda, K. Tanaka, et. al. "Remote Sensing Investigation on Lake Biwa." Proceedings of the 10th International Symposium on Remote Sensing of Environment. 1975. pp.401-410.
- Scarpace, F., K. Holmquist and L. Fisher. "Landsat Analysis of Lake Quality for State Wide Lake Classification." Proceedings of the American Society of Photogrammetry and American Congress of Surveying and Mapping Spring Convention. February 1978.
- Scarpace, F., D. Malone, D. Meinert, et. al. "Trophic Classification of Tennessee Valley Area Reservoirs." Proceedings of the American Society of Photogrammetry 45th Annual Meeting. March 1979. pp.41-55.
- Scherz, J. Assessment of Aquatic Environment by Remote Sensing.
 University of Wisconsin at Madison, Institute for
 Environmental Studies. IES Report Number 84 1977. 235pp.
- Schiebe, F. and J. Ritchie. "Color Measurements and Suspended Sediments in North Mississippi Reservoirs." Proceedings of the Fourth Annual Remote Sensing of Earth Resources Conferences. University of Tennessee. March 1975.
- Schlesinger, J., B. Ripple and T. Loveland. "The Integration of Landsat With Other Natural Resource Data for 208 Water Quality Planning in South Dakota." Proceedings of the American Society of Photogrammetry Fall Technical Meeting.

- October 1978. pp.440-456.
- Shih, S. "Use of Landsat Data to Improve the Water Budget Computation in Lake Okeechobee, Florida." Journal of Hydrology. 48 1980. pp.237-249.
- Shook, D., J. Salzman, R. Suehla, et. al. "Quantitative Interpretation of Great Lakes Remote Sensing Data." Journal of Geophysical Research. 20 July 1980. pp.3991-3996.
- Smith, A. and R. Blackwell. "Application of Digital Image Processing to Water Quality Monitoring of Lake Tahoe." World Health Organization. Water Quality Bulletin. 5:1 January 1980. pp.3-5.
- Sorensen, B., S. Moller and E. Gatelli. "Remote Sensing of Water Quality in Seven Lakes in Northern Italy." Proceedings of the 12th Congress of the International Society of Photogrammetry. Helsinki, Finland July 1976.
- Stoermer, E. Application of ERTS Pales. Great Lakes Water Quality Management. University of Pales again, Great Lakes Research Division. Proposal to the sectional Adronautics and Space Administration. ORA 71-1373-KB April 1971. 31pp.
- Stortz, K. and M. Sydor. "Remote Sensing of Western Lake Superior." Proceedings of the 9th International Symposium on Remote Sensing of Environment. 1974. 933pp.
- Striffler W. Application of Remote Sensing in Hydrology. Colorodo State Univ. Fort Collins. Sept 1980. 89pp.
- Strong, A. and B. Eadie. "Satellite Observations of Calcium Carbonate Precipitations in the Great Lakes." Limnology and Oceanography. 23:5 1978. pp.677-887.
- Strong, A., H. Stumpf, J. Hart, et. al. "Extensive Summer Upwelling on Lake Michigan During 1973 Observed by NOAA-2 and ERTS-1 Satellites." Proceedings of the 9th International Symposium on Remote Sensing of Environment. 1974. pp.923-932.
- Sydor, M. "Measurement of Suspended Solids in Lake and Oceans, Using Satellite Remote Sensing Data." A Study of Minnesota Land and Water Resources Using Remote Sensing. 13 January 1980. pp.107-137.

- "Water Mapping from Satellite Data: an Automated Procedure."
 National Aeronautics and Space Administration. Johnson
 Space Center Publication JSC-09978 1975. 16pp.
- Welpy, C. W. and K. Holman. Application of Satellite Kemote Sensing to North Carolina Development of a Monitoring Methodology for Trophic States of Lakes in North Carolina. National Aeronautics and Space Administration. NASA CR-150419 1977. 118pp.
- Welby, C., A. Witherspoon and R. Holman III. "Trophic State Determination for Shallow Coastal Lakes from Landsat Imagery." World Health Orginazition. Water Quality Bulletin. 5:1 1980. pp.11-14.
- Wezernek, C., F. Tanis and C. Bajza. Trophic Analysis of Inland Lakes. Environmental Research Institute of Michigan. November 1975.
- wezernek, C., F. Tanis and C. Bajza. "Trophic State Analysis of Inland Lakes." Remote Sensing of Environment. 5:2 1976. pp.147-164.
- Yarger, H., J. Coiner, G. Janes, et. al. "ERTS-1 Study of Reservoirs in Kansas." Proceedings of the 8th International Symposium on Remote Sensing of Environment. 1972. 1477pp.
- Yasuoka, Y. and T. Miyanzaki. A Study on the Use of Remote Sensing to Assess Water Quality of Lake Kasumigaura. Japan Nat. Inst. for Environmental Studies. 1979. 27pp.
- Zwick, H., et. al. "Airborne Estimation of Water Quality Parameters in Lake Ontario." Proceedings of the 6th Canadian Symposium on Remote Sensing. 21-23 May 1980, Halifax, N.S., Canada, 1980. Paper Number 77. 9pp.
- Zwick, H., S. Jain and R. Bukata. A Satellite/Airborne and In-Situ Water Quality Experiment in Lake Ontario. Canadian Center for Remote Sensing. CCRS Number 1024285 Category 1-02-02/2-03-00 1979. 18pp.

- V MANIPULATION, PROCESSING AND INTERPRETATION OF REMOTELY SENSED DIGITAL WATER DATA
- A. PREPROCESSING/PROCESSING, CALIBRATIONS AND CORRECTIONS (NON ATMOSPHERIC)
- Alfoldi, T. Reference Notes to the Landsat MSS High Gain Data. In preparation, Canada Center for Remote Sensing. Uttawa, Canada.
- Crane, R. "Preprocessing Techniques to Reduce Atmospheric and Sensor Variability in Multispectral Scanner Data."

 Proceedings of the 7th International Symposium on Remote Sensing of Environment. 1971. pp.1345-1355.
- Gordon, ii. "Reductions of Error Introduced in the Processing of Coastal Zone Color Scanner-Type Imagery Resulting from Sensor Calibration and Solar Irradiance Uncertainly."

 Applied Optics. 20:2 15 January 1981. pp.207-210.
- Hovis, W. "Nimbus-7 Coastal Zone Color Scanner: System Description and Initial Imagery." Science. 210 30 October 1980. pp.60-63.
- Johnson, F. Satellite Environment Handbook. Stanford University Press, Stanford, California. 1965. pp.96-97.
- Kim, H. "A Design Study for an Advanced Ocean Color Scanner System." Boundary-Layer Meteorology. 18:2 1980. pp.315-327.
- Landgrebe, D., L. Biehl and W. Simmons. "An Empirical Study of Scanner System Parameters." IEEE Transactions on Geoscience Electronics. GE-15:3 July 1977. pp.120-130.
- McGill , C. and M. Svedlow. "Image Registration Error Variance as Measure of Overlay Quality." IEEE Transactions on Geoscience Electronics. GE-14:1 January 1976. pp.44-49.
- Puccinelli, E. "Ground Location of Satellite Scanner Data."

 Photogrammetric Engineering and Remote Sensing. 92:4 April 1976. pp.537-543.
- Rochon, G. and E. Langham. "Conversion of Radiances into Radiances for the Study of Water Quality." Proceedings of the Third Canadian Symposium on Remote Sensing, Edmonton, Alberta, Canada. 1975. pp.393-403.

- Slater, P. "Theoretical Principles of Spectroradiometric Instruments; Color Theory and Specification." Remote Sensing: Optics and Optical Systems. Chapter 7. Addison-Wesley Publishing Company, Inc., Advanced Book Program, Reading, Massachusetts. 1980. 56pp.
- Talay, A. T. Usage and Limitations of Characteristic Vector Analysis of Remote Sensing Multispectral Data for the Identification and Quantification of Water Quality Parameters. Ph.D. Thesis. Old Dominion Univ. Norfolk, VA. 1981. 394pp.
- Thomason, F. Analysis of Dynamic Range of ERTS-1 Data Collected with High and Low Gain Options. Environmental Research Institute of Michigan. December 1974.
- Ulbricht, K. "Comparative Experimental Study on the Use of Original and Compressed Multispectral Landsat Data for Applied Research." Proceedings of the 14th International Symposium on Remote Sensing of Environment. April 1980. pp.967-977.
- Van Wie, P. and M. Stem. "A Landsat Digital Image Rectification System." IEEE Transactions on Geoscience Electronics. GE-15:3 July 1973. pp.130-137.
- Vanderburg, G. "Line Detection in Satellite Imagery." IEEE Transactions on Geoscience Electronics. GE-14:1 January 1976. pp.37-44.

B. ATMOSPHERIC EFFECTS

- Ahern, F., D. C. denough, S. Jain, et. al. "Landsat Atmospheric Corrections at the Canada Center for Remote Sensing." Proceedings of the 4th Canadian Symposium on Remote Sensing. 16-18 May 1977. Quebec City, Quebec, Canada. pp.583-594.
- Amern, F., D. Goodenough, S. Jain, et. al. "Use of Clean Lakes as Standard Reflectors for Atmospheric Heasurement." Proceedings of the 11th International Symposium on Remote Sensing of Environment. 1977. pp.731-755.
- Anding, D. "Overview of Atmospheric Effects on Remote Sensing Applications." Proceedings of a Seminar on Atmospheric Effects on Radiative Transfer. Society of Photo-Optical Instrumentation Engineers. San Diego, California August 1979. pp.126-134.

- Braslau, N. and J. Dave. "Effects of Aerosols on the Transfer of Solar Energy Through Realistic Model Atmospheres. Part I: Non-Absorbing Aerosols and Part II: Partially Absorbing Aerosols." Journal of Applied Meterology. 12 1973. 601pp.
- Corradini, C. and G. Tonna. "Some Computations Concerning the Actual Light Scattering Coefficient as Measured in Blaze and Fog." Applied Optics. 18:11 1 June 1979. pp.1706-1707.
- Crane, R. "Preprocessing Techniques to Reduce Atmospheric and Sensor Variability in Multispectral Scanner Data." Proceedings of the 7th International Symposium on Remote Sensing of Environment. 1971. pp.1345-1355.
- Dana, R. "Solar and Atmospheric Effects on Satellite Imagery Derived from Aircraft Reflectance Measures." Proceedings of the 10th International Symposium on Remote Sensing of Environment. 1975. pp.683-703.
- Fraser, R. "Effects of the Atmosphere on ERTS Observations."
 Proceedings of the Symposium on Significant Accomplishments
 in Science: Goddard Space Flight Center. National Aeronautics
 and Space Administration. NASA SP-331 1973. 223pp.
- Fraser, R. "Computed Atmospheric Effects on ERTS Observations. Significant Results Obtained from ERTS-1." Proceedings of the Symposium on Significant Results Obtained from the Earth Resources Technology Satellite-1. National Aeronautics and Space Adminstration. NASA SP-327 1973. pp.1567-1573.
- Fraser, R., O. Banethi and A. Al-Abbas. "The Effects of the Atmosphere on the Classification of Satellite Observations to Identify Surface Features." Remote Sensing of Environment. 6 1977. pp. 229-249.
- Gordon, H. and D. Clark. "Atmospheric Effects in the Kemote Sensing of Phytoplankton Pigments." Boundary-Layer Heteorology. 18 March 1980. pp.299-313.
- Gordon, H. R. Removal of Atmospheric Effects from Satellite Inagery of the Oceans. Applied Optics, 17. 1978. pp.1631-1636.
- Gordon, N. R. A Preliminary Assessment of the Nimbus-7 CZCS
 Atmospheric Correction Algorithm in a Horizontally Inhomogeneous Atmosphere. Oceanography from Space. Pleneum Publishing Corporation. 1981. pp.257-256.

ORIGINAL PAGE IS

- Gordon, H., J. Mueller and R. Wrigley. "Atmospheric Correction of Nimbus-7 Coastal Zone Color Scanner Imagery." Remote Sensing of Atmospheres and Oceans. 1980. pp.457-480.
- Origgs, n. "Determination of Aerosol Content in the Atmosphere." Proceedings of the 9th International Symposium on Remote Sensing of Environment. 1974. pp.471-481.
- herman, B., S. Browning and K. Curran. "The Effect of Atmospheric Aerosols on Scattered Sunlight." Journal of Atmospheric Science. 28 1971. 419pp.
- Lambeck, P. and J. Potter. "Compensation for Atmospheric Effects in Landsat Data." Proceedings of the LACIE Symposium, Technical Session. JSC, Houston, Texas, 23-26 October 1978. pp.723-738.
- Halila, W. and R. Nalepka. "Atmospheric Effects in ERTS-1 Data and Advanced Information Extraction Techniques." Proceedings of the Symposium of Significant Results obtained from Earth Resources Technology Satellite-1. National Aeronautics and Space Administration.. NASA SP-327 1973. pp.1097-1104.
- Fitchell, O., E. Delp III and P. Chen. "Filtering to Remove Cloud Cover in Satellite Imagery." IEEE Transactions on Geoscience Electronics. GE-15:3 July 1973. pp.137-141.
- riueller, J., D. Ball and E. Fiiddleton. "Parametrization and Preprocessing of Ocean Image Data for Studies of Coastal Oceanography." Proceedings of the Ninth Annual Offshore Technology Conference. Flay 1977. pp.295-302.
- Muneyama, K. "Heasurement of Spectral Upward Radiance at Several Altitudes Over the Sea and Atmospheric Correction of the Radiance by Water Vapor Quality." Proceedings of the 14th International Symposium on Remote Sensing of Environment. Volume 2. April 1980. 126pp.
- Plass, G., T. numphreys and G. Kattawar. "Ocean-Atmosphere Interface: Its Influence on Radiation." Applied Optics. 20:6 15 m rch 1981. pp.917-931.
- Plass, G. and G. Kattawar. "Radiative Transfer in an Atmospheric-Ocean System." Applied Optics. 8:2 1969. pp.455-466.
- Potter, J. "Correcting Landsat Data for Changes in Sun Angle, Haze Level and Background Reflectance." Proceedings of the 3rd Annual Symposium on Machine Processing of Remotely Sensed Data. 1976. pp.2-6.

- Potter, J. "The Correction of Landsat Data for the Effects of Haze, Sun Angle and Background Reflectance." Proceedings of the 4th Annual Symposium on Hachine Processing of Remotely Sensed Data. 1977. pp.24-31.
- Potter, J. and M. Shelton. "Effects of Atmospheric Haze and Sun Angle on Automatic Classification of ERTS-1 Data."

 Proceedings of the 13th International Symposium on Remote Sensing of Environment. 1974. pp.865-874.
- Rogers, R. "A Technique for Correcting ERTS Data for Solar and Atmospheric Effects." Proceedings of the Symposium on Significant Results Obtained from the Earth Resources Technology Satellite-1. National Aeronautics and Space Administration. 1 1973. pp.1115-1122.
- Sorensen, D. "Recommendations of the International Workshop on Atmospheric Correction of Satellite Observation of Sea Water Color." Proceedings of the International Workshop on Atmospheric Correction of Sea Water Color. Ispra, Italy, 20-22 March 1979. 53pp.
- Turner, K. "Contaminated Atmospheres and Remote Sensing."
 Proceedings of the Third Annual Remote Sensing of Earth
 Resources Conference. University of Tennessee. 1974.
 pp.755-774.
- Wilson, W. "Heasurements of Atmospheric Transmittance in a Haritime Environment." Proceedings of the Society of Photo-Optical Instrumentation Engineers. Volume 195 August 1979. 7pp.
- Wilson, W. H. Atmospheric Corrections of Remotely Sensed Data. Institute of Ocean Sciences, Patricia Bay, Sidney, B. C. Canada. June 1976. pp.14-21.
- C. AGALYSIS AND INTERPRETATION (SPECIAL TECHNIQUES AND CONSIDERATIONS FOR WATER STUDIES)
- Alfoldi, T. and J. Hunday Jr. "Water Quality Analysis by Digital Chromaticity Happing of Landsat Data." Canadian Journal of Remote Sensing. 4 1978. pp.108-126.
- Austin, R. w. Goastal Zone Color Scanner Radiometry. Ocean Optics VI. 1979. pp.170-200.
- Burton, J. A Preliminary Review of Water Quality Remote Sensing Techniques. Howard University, Washington, D.C.

ORIGINAL PAGE IS

January 1974.

- Bush, G. Multisensor Surveillance Data Augmentation and Prediction with Optical Multipath Signal. Ph.D. Thesis. Rhode Island University, Kingston, Rhode Island. 1980.
- Coberly, W., J. Tubbs and P. O. Dell. "The Influence of False Color Infrared Display on Training Field Identification." Remote Senisng of Environment. 8:3 August 1979. pp.225-236.
- Cox, T., H. Hitchcock and S. Weber. "Processing Remotely Sensed Data for Dimensional Analysis." IEEE Transactions on Geoscience Electronics. CE-14:1 January 1976. pp.54-57.
- Doerffer, R. "The Effects of Patchiness Within Single Picture Elements of an Ocean Color Scanner." Proceedings of the Workshop on the EURASEP Ocean Color Scanner Experiment 30-31 October 1979. pp.83-88.
- Eppler, W. "Canonical Analysis for Increased Speed and Channel Selection." IEEE Transactions on Geoscience Electronics. GE-14:1 January 1976. pp.26-33.
- Gower, J. and I. Daniel. The Use of ERTS-1 Computer Compatible Tapes with Respect to Harine Research. Canadian Fisheries and Marine Service. Pacific Marine Science Report 74-2 1974. pp.33-53.
- Graham, D. "Field Study for Landsat Water Quality Verification." Proceedings of a Speciality Conference of the Aerospace Division of the American Society of Civil Engineers. Civil Engineering Applications of Remote Sensing. Hadison, Wisconsin. August 1980. pp.101-107.
- Grew, G. "Characteristic Vector Analysis as a Technique for Signature Extraction of Ocean Color Data." Proceedings of the 6th Annual Remote Sensing of Earth Resources Conference. 29-31 March 1977.
- Havens, K., T. Minter and S. Thadani. "Estimation of the Probability of Error Without Ground Truth and Known Probilities." IEEE Transactions on Geoscience Electronics. GE-15:3 July 1973. pp.147-152.
- Holyer, R. "Towards Universal Multispectral Suspended Sediment Algorithms." Remote Sensing of Environment. 7:4 1978. pp.323-338.
- Jain, S., J. Miller and W. McNeil. "An Evaluation of a Mathematical Model for Water Color Spectral Analysis."

ORIGINAL PAGE IS

- Proceedings of the 3rd Canadian Symposium of Remote Sensing. 22-24 September 1975. 289pp.
- Kettig, R. and D. Landgrebe. "Classification of Multispectral Image Data by Extraction and Classification of Momogeneous Objects." IEEE Transactions on Geoscience Electronics. GE-14:1 January 1976. pp.19-26.
- Lyzenga, D. and F. Polcyn. Techniques for the Extraction of Water Depth Information from Landsat Digital Data. Prepared for Defense Happing Agency by EKIM. Contract Number 800-77-C-0053 Harch 1979.
- Halila, W. Image Enhancement and Advanced Information Extraction Techniques for ERTS-1 Data. Environmental Research Institute of Michigan, Ann Arbor, Michigan. June 1975.
- Harsn, S. E. and R. J. Lyon. Quantitative Kelationships of Near Surface Spectra to Landsat Radiometric Data. Stanford Univ. Dept. of Applied Earth Sciences, Stanford CA-94305. 1979. 53pp.
- Maul, G., R. Charnell and K. Qualset. "Computer Enhancement of ERTS-1 Images for Ocean Radiances." Remote Sensing of Environment. 3:4 1974. pp.237-254.
- Moik, J. Digital Processing of Remotely Sensed Images.
 National Aeronautics and Space Administration. NASA SP-431
 1981.
- Hueller, J., D. Ball and E. middleton. "Parametrization and Preprocessing of Ocean Image Data for Studies of Coastal Oceanography." Impreedings of the Minth Annual Offshore Technology Conference. May 1977. pp.295-302.
- Hunday, J. Jr. and T. Alfoldi. "Chromaticity Changes from Isoluminous Techniques used to Enhance Hultispectral Kemote Sensing Data." Remote Sensing of Environment. 4 1975. pp.221-230.
- Munday, J. Jr. and T. Alfoldi. "Landsat Test of Diffuse Reflectance Models for Aquatic Suspended Solids Measurements." Remote Sensing of Environment. August 1978. pp.169-183.
- Hunday, J. Jr., T. Alfoldi and C. Amos. "Verification and Application of a System for Automated Hultidate Landsat measurement of Suspended Sediments." Proceedings of the 5th Willam T. Pecora Memorial Symposium. Satellite hydrology. Sioux Falls, South Dakota. June 1980. 35pp.

- Piech, K., J. Schott and K. Stevart. "The Blue-to-Green Reflectance Ratio and Lake water Quality." Photogrammetric Engineering and Remote Sensing. 44 October 1978. pp.1303-1310.
- Sinnock, S. and W. Delhorn. "Reflections Concerning Bachine Mided Analysis of ERTS-1 MSS Data: Common Fallacies and Misconceptions." Proceedings of the Fourth Annual Remote Sensing of Earth Resources Conference. University of Tennessee. 1975. pp.691-733.
- Swain, P. and Davis. Remote Sensing: the Quantitative Approach. mcGraw-Hill, Inc. New York. 1978. 396pp.
- Swain, P. and h. hauska. "The Decission Tree Classifier." IEEE Transactions on Geoscience Electronics. GE-15:3 July 19/3. pp.142-147.
- "Water mapping from Satellite Data: an Automated Procedure." Mational Aeronautics and Space Administration. Johnson Space Center Publication JSC-09978 1975. 16pp.
- Whitlock, C. Fundamental Analysis of the Linear multiple Regression Technique for Quantification of Water Quality Parameters from Remote Sensing Data. National Aeronautics and Space Administration. NASA Th X-7400 1977.
- whitlock, C., et. al. Investigation of Effects of Background Water on Upwelled Reflectance Spectra and Techniques for Analysis of bilute Primary-Treated Sewage Sludge. National Aeronautics and Space Administration. RASA TP-1440 August 1979. 33pp.
- Whitlock, C. and C. Kuo. "A Regression Technique for Evaluation and Quantification for water Quality Parameters from Remote Sensing Data." Proceedings of the 13th International Symposium on Remote Sensing of Environment. 1979. pp.1351-1365.

END DATE NOV. 10, 1983