

Everglades Publications by Tom Dreschel

SECTION LEADER

Watershed Management/Everglades Division
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Education:

- University of Illinois, B. S. Biological Sciences, 1975
- Southern Illinois University, M. A. Zoology (Limnology), 1980
- Florida Institute of Technology, Ed.S. Science Education (Environmental Science), 1995
- Florida Institute of Technology, Ph.D. Science Education (Environmental Science), 1996

Expertise:

For more than twenty-five years, I have been involved the design, implementation and management of environmental research. This has involved environmental/biological analysis, impact assessment, and specifically, surface water analysis and rain chemistry monitoring. In addition, I have been active in science education and mentoring programs for students and teachers.

Employment:

Section Leader/Environmental Scientist, SFWMD, Everglades Division.

Serves as the section leader of the Landscape Analysis, Mapping, and Data Automation section of the Everglades Division of the South Florida Water Management District in West Palm Beach, FL. The section is responsible for remote sensing and analysis of Everglades restoration projects and implementing water quality and landscape change studies. Additional responsibilities lie in the management of data collected in Everglades restoration research (data entry, data base maintenance, provide data analysis and reporting tools, etc.). From October 2005 through the present.

Memberships and Awards:

Sigma Xi, Past President of SFWMD Chapter

NASA Center Directors Guest Award-Kennedy Space Center

NASA STS-1 20th Anniversary Honoree

Space Act Award (KSC Case No. KSC-11375, An Improved Plant Nutrient Delivery System for Microgravity)

NASA Group Achievement Award for the Space Biology Outreach Program

Award of Excellence, Tuskegee/NASA Center for Food and Environmental Systems for Human Exploration of Space

Publications:

Gu, B., S. Miao, C. Edelstein and T. Dreschel. 2008. The Effects of a Prescribed Fire on Dissolved Inorganic Carbon Dynamics in an Everglades Wetland. *Fundamental and Applied Limnology* 171(4):263-272.

Gu, B. and T. Dreschel. 2008. The Effects of Plant Community and Phosphorus Loading on Constructed Wetland Phosphorus Removal Performance in Florida. *Wetlands* 28:81-91.

Shah, N. N., T. W. Dreschel, C. R. Hall, and T. Foster. 2006. Evaluation of a Porous Tube Hydroponics System as a Testbed for Remote Sensing Instrumentation. *Northwestern Undergraduate Research Journal*, Volume 3:23-27.

Trotman, A. A., C. E. Morris, W. A. Hill, W. J. Buchanan, A. M. S. Rao, C. O. Williams, M. R. Washburn, W. C. Lennard, J. R. Barfus, L. A. Lichtenberger, T. W. Dreschel, W. Patterson, and C. N. Bowman. 2005. The Spaceflight and Life Sciences Training Program – Developing Human Capital for Space Exploration through Systematic Scholarship. *Transactions Journal of Aerospace*, pp. 943-951, Society of Automotive Engineers, Warrendale, PA.

Porterfield, D. M., T. W. Dreschel, and M. E. Musgrave. 2000. A Ground-Based Comparison of Nutrient Delivery Technologies Originally Developed for Growing Plants in the Spaceflight Environment. *HortTechnology* 10(1): 179-185.

Wheeler, R. M., C. L. Mackowiak, G. W. Stutte, J. C. Sager, N. C. Yorio, L., M. Ruffe, R. E. Fortson, T. W. Dreschel, W. M. Knott and K. A. Corey. 1996. NASA's Biomass Production Chamber: A Testbed for Bioregenerative Life Support Studies. *Advances in Space Research*, 18(4/5):215-224

Johnson, C. F., T. W. Dreschel, C. S. Brown, and R. M. Wheeler. 1996. Optimization of Moisture Content for Wheat Seedling Germination in a Cellulose Acetate Medium for a Spaceflight Experiment. *Advances in Space Research*, 18(4/5):239-242.

Heagle, A. S., J. E. Miller, B. I. Chevone, T. W. Dreschel, W. J. Manning, P. M. Mc Cool, C. L. Morrison, G. E. Neely, and J. Rebbeck. 1995. Response of a White Clover Indicator System to Tropospheric Ozone at Eight Locations in the United States. *Water, Air and Soil Pollution*, 85:1373-1378.

Cox, W. M., C. S. Brown, and T. W. Dreschel. 1994. Hydroponic Feed with Suction. *NASA Tech Briefs*, 18(9): 128.

Dreschel, T. W., C. S. Brown, W. C. Piastuch, C. R. Hinkle, and W. M. Knott. 1994. Porous tube plant nutrient delivery system development: A device for nutrient delivery in microgravity. *Advances in Space Research*, 14(11):47-51.

Clark, G. J., G. E. Neville, Jr., and T. W. Dreschel. 1994. A root moisture sensor for plants in microgravity. *Advances in Space Research*, 14(11):213-216.

Dreschel, T. W. and C. S. Brown. 1993. Water Conserving Plant-Growth System. *NASA Tech Briefs*, 17(1):89-90.

Dreschel, T. W. 1993. Aerator Combined with Bubble Remover. *NASA Tech Briefs*, 17(10):98.

Bushong, W. E., R. C. Fox, C. S. Brown, R. R. Biro, and T. W. Dreschel. 1993. Clinostat Delivers Power to Plant-Growth Cabinets. *NASA Tech Briefs*, 17(12):92-93.

Brown, C. S. and T. W. Dreschel. 1993. Sealed Plant-Growth Chamber for Clinostat. *NASA Tech Briefs*, 17(12):93.

Dreschel, T. W. 1992. Tubular Membrane Plant-Growth Unit. *NASA Tech Briefs*, 16(2):113.

Dreschel, T. W. 1992. Monitoring and Controlling Hydroponic Flow. *NASA Tech Briefs*, 16(2):113-114.

Dreschel, T. W. 1992. Hydroponics. *The McGraw-Hill Encyclopedia of Science and Technology*, Seventh Edition, Volume 8:607-610.

Takahashi, H., C. S. Brown, T. W. Dreschel, and T. K. Scott. 1992. Hydrotropism in pea roots in a porous tube-water delivery system. *HortScience*, 27(5):430-432.

Berry, W. L., G. Goldstein, T. W. Dreschel, R. M. Wheeler, J. C. Sager, and W. M. Knott. 1992. Water relations, gas exchange, and nutrient response to a long term constant water deficit. *Soil Science*, 153(6): 442-451.

Madsen, B. C., T. Kheoh, C. R. Hinkle, and T. W. Dreschel. 1992. Characterization and evaluation of acid rain in East Central Florida from 1978 to 1987. *Water, Air, and Soil Pollution*, 65:7-21.

Brown, C. S., W. M. Cox, T. W. Dreschel, and P. V. Chetirkin. 1992. The Vacuum-Operated

Nutrient Delivery System: Hydroponics for Microgravity. *HortScience*, 27(11):1183-1185.

Dreschel, T. W., R. B. Smith, and D. R. Breining. 1990. Florida Scrub Jay mortality at roadsides. *Florida Field Naturalist*, 18(4):82-83.

Dreschel, T. W. and J. C. Sager. 1989. Control of water and nutrients using a porous tube: A method for growing plants in space. *HortScience*, 24(6):944-947.

Dreschel, T. W., B. C. Madsen, L. A. Maull, C. R. Hinkle, and W. M. Knott. 1989. Precipitation chemistry: Atmospheric loadings to the surface waters of the Indian River Lagoon Basin by rainfall. *Florida Scientist*, 53(3):184-188.

Dreschel, T. W. and C. R. Hall. 1989. Quantification of Hydrochloric acid and particulate deposition resulting from Space Shuttle Launches at John F. Kennedy Space Center, Florida. *Environmental Management*, 14(4):501-507.

Dreschel, T. W. 1988. Basic programming in water and wastewater analysis. *NASA Tech Briefs*, 12(1):78-79.

Hall, C. R., M. J. Provancha, J. A. Provancha, T. W. Dreschel and C. R. Hinkle. 1985. Long-term aquatic monitoring program at Kennedy Space Center (KSC). *Estuaries*, 8(2B): 34A.

Patent:

Dreschel, T. 1990. Plant Nutrient Delivery System having a Porous Tubular Member. Patent # 4,926,585. United States Patent and Trademark Office, Washington, D. C.

Reports and Proceedings:

Dreschel, T. W., C.R. Hall, J. Jones, and A. Brooks. 2001. Controlling Leaf Moisture Using a Porous Tube Plant Culture System. Proceedings of *the 28th Annual Conference on Plant Growth Regulation*, Hydroponic Society of America, July 1-5, 2001, Miami Beach, pp 47-52.

Dreschel, T. W., P.V. Chetirkin, S. Behel, and V. Nazarenko. 2001. Collaborative Ukrainian Experiment-Science and Technology Exchange for Students (CUE-STEPS). Proceedings of *The 38th Annual Space Congress*, Session IIC, Paper #3.

Dreschel, T. W. 1999. Science Communication for the Life Sciences at Kennedy Space Center. Proceedings of *The 36th Annual Space Congress*, Session IID, Paper #1.

Dreschel, T. W. 1996. NASA Kennedy Space Center Educators Workshops: Exploring Their Impacts on Teacher Attitudes and Concerns. Doctoral Dissertation, Department of Science Education, Florida Institute of Technology, Melbourne, Florida.

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- National Aeronautics and Space Administration, J. F. Kennedy Space Center, Florida.
- Dreschel, T., J. Hodges, S. Dutczak, and R. Fronk. 1996. Measuring the Concerns and Beliefs of Teachers: A Possible Means for Evaluating the Efficacy of NASA Teacher Enhancement Workshops. Proceedings of *The 33rd Annual Space Congress*, Session IIC, Paper #1.
- Dreschel, T., R. Young, J. Hodges, and J. Ragsdale. 1995. Implementation of a NASA Life Sciences Workshop as Part of the Summer Teacher Enhancement Program. Proceedings of *The 32nd Annual Space Congress*, Session IIIC, Paper #9.
- Piastuch, W. C., T. W. Dreschel, J. O. Bledsoe, and C. S Brown. 1995. A Small, Closed, Computer Controlled Chamber for Study of Atmospheric and Water Availability Effects on Plant Growth and Metabolism. Mimeogr. Paper # 95-7656 presented at the American Society of Agricultural Engineers Summer Meeting, Chicago, Illinois.
- Heagle, A. S., J. E. Miller, B. Chevone, T. W. Dreschel, W. J. Manning, P. McCool, C. L. Morrison, G. E. Neeley, and J. Rebbeck. 1995. Response of a White Clover Indicator System to Tropospheric Ozone at Eight Locations in the United States. Paper presented to *The 5th International Conference on Acidic Deposition*. Gothenburg, Sweden, 26-30 June, 1995.
- Madsen, B. C. and T. W. Dreschel. 1994. Emission Trends of Sulfur Dioxide and Nitrogen Oxides in the Southeastern United States and Their Influence on Precipitation Composition. Paper presented to *The International Specialty Conference on Acid Rain and Electric Utilities: Permits, Allowances, Monitoring and Meteorology*. Tempe, AZ, January 23-25, 1995.
- Dreschel, T. W., C. W. Carlson, H. W. Wells, K. F. Anderson, W. M. Knott and W. Munsey. 1993. Physical testing for the Microgravity Plant Nutrient Experiment. Mimeogr. Paper #93-4007 presented at the American Society of Agricultural Engineers Summer Meeting.
- Dreschel, T. W., C. S. Brown, C. R. Hinkle, J. C. Sager, R. M. Wheeler, and W. M. Knott. 1992. A Summary of Porous Tube Nutrient Delivery System Investigations from 1985 to 1991. NASA Technical Memorandum # 107546, The National Aeronautics and Space Administration, J. F. Kennedy Space Center, Florida.
- Dreschel, T. W., R. M. Wheeler, C. R. Hinkle, J. C. Sager, and W. M. Knott. 1991. Investigating combustion for processing inedible biomass produced in NASA's Biomass Production Chamber. NASA Technical Memorandum # 103821, The National Aeronautics and Space Administration, J. F. Kennedy Space Center, Florida.
- Dreschel, T. W., C. F. Bauer, M. S. Koller, and J. C. Sager. 1991. A prototype closed aquaculture system for controlled ecological life support applications. In: Engineering Aspects of Intensive Aquaculture, *Northeast Regional Agricultural Engineering Service*, #NRAES-49, Ithaca, New York, pp. 48-56.
- Madsen, B. C., T. Kheoh, C. R. Hinkle, and T. W. Dreschel. 1990. Acid rain monitoring in East-Central Florida from 1977 to the present. In: Proceedings of *The Florida Acidic Deposition Conference*.
- Dreschel, T. W., R. M. Wheeler, J. C. Sager, and W. M. Knott. 1989. Factors affecting plant growth in membrane nutrient delivery. In R. D. MacElroy, ed. *Controlled Ecological Life Support Systems: CELSS '89 Workshop*, NASA Technical Memorandum #102277, Ames Research Center, Moffett Field, California.

Madsen, B. C., T. W. Dreschel, and C. R. Hinkle. 1989. Characterization and evaluation of acid rain in Central Florida from 1978 to 1987, ten year summary report. NASA Technical Memorandum #102149, the National Aeronautics and Space Administration, J. F. Kennedy Space Center, Florida.

Dreschel, T. W. 1989, 1988, 1987, 1986 and 1985. Basic programs for water and waste water analysis. In: The Cosmic Software Catalog, NASA's Computer Software Management and Information Center, the University of Georgia, Athens, Georgia.

Dreschel, T. W., J. C. Sager, and R. M. Wheeler. 1988. Status of porous tube plant growth unit research. Mimeogr. Paper #88-4524 presented to *The American Society of Agricultural Engineers*.

Dreschel, T. W., C. R. Hinkle, W. M. Knott, R. P. Prince, and J. C. Sager. 1987. Development of a membrane nutrient system. In: Proceedings of *The NASA Space Life Sciences Symposium*, Washington, D. C.

Dreschel, T. W., R. P. Prince, C. R. Hinkle, and W. M. Knott. 1987. Porous membrane utilization in plant nutrient delivery. Mimeogr. Paper #87-4025 presented to *The American Society of Agricultural Engineers*.

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Dreschel, T. W. and C. R. Hinkle. 1984. Acid deposition, pH and inorganic carbon interactions: Simulation of Space Shuttle launch cloud effects on estuarine systems. NASA Technical Memorandum #83094, The National Aeronautics and Space Administration, J. F. Kennedy Space Center, Florida.

Dreschel, T. W. 1980. Physical and chemical causes of black water stratification in a strip mine lake. Masters Thesis, Southern Illinois University, Carbondale, Illinois.