

## **CURRICULUM VITAE**

**NAME: Thomas L. Sever**

TITLE: Professor, Atmospheric and Earth Sciences Department, UAHuntsville.

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**EDUCATION:** 1990, Ph.D. in Anthropology/Archeology, University of Colorado, Boulder, CO; 1984, Tulane University, New Orleans, LA, Anthropological Statistics; 1973-1976, MA + 30 Anthropology/Archeology Sangamon State University, Springfield, Illinois; 1967-1971, B.A. Education Harris College, St. Louis, Missouri, Major - English, Minor - Science.

**EXPERIENCE:** 2008-2019. Professor, Atmospheric Science Department, UAHuntsville. 1997-2007, Remote Sensing/GIS Research, National Space Science Technology Center, Marshall Space Flight Center, Huntsville, AL; 1981-1997, Remote Sensing Research, NASA Earth Sciences Division, Stennis Space Center, MS; 1979-1995, University of Southern Mississippi, Assistant Professor; 1978-1981, Lockheed Electronics Corporation, Scientific Supervisor; 5/78-8/78, University of Illinois, Chicago, Archeology Supervisor; 1/76-5/78 McDonnell Planetarium, St. Louis, MO; Astronomy Lecturer; 9/76-5/78, St. Louis University, Associate Professor, Astronomy; 9/77-1/78, Jefferson College, Hillsboro, MO, Instructor, Archeology.

Dr. Tom Sever has over 38 years of experience in environmental/archeological research at NASA before joining the Atmospheric Science Department as a Professor at the University of Alabama-Huntsville in 2008. He has been a pioneer in bringing remote sensing/GIS technology to the disciplines of anthropology and archeology. He has worked with various airborne and satellite systems conducting international research in Israel, Peru, Chile, Mexico, Costa Rica, Guatemala and the U.S. He has also been a pioneer in understanding the role of climate in the rise and collapse of societies as well as the effects of human-induced landscape modification. His awards include the University of Alabama Huntsville, Excellence in Teaching Award for the School of Science (2013), the Oberth Award—American Institute of Aeronautics and Astronautics (2010), the NASA Distinguished Service Award (2008), Society of Professional Archeologists (SOPA) Exceptional Achievement Award (1994), NASA Exceptional Achievement Award (1993), and NASA Exceptional Scientific Achievement Award (1992). In addition to the professional literature his work has been featured in National Geographic, Archaeology Magazine, Omni Magazine, Discovery, Newsweek, New York Times, Smithsonian Air and Space, as well as NOVA and the Discovery Channel. He is currently responsible for developing the undergraduate and graduate program in Earth System Science at the University of Alabama, Huntsville.

## **SELECTED PUBLICATIONS:**

Testing a Quantitative Method for Interpreting Gradiometer Data Collected on a Middle Woodland Platform Mound (1LA111) in Lawrence County, Alabama. Travis Rael, Robert Griffin, and Thomas L. Sever. To be submitted in the summer of 2019.

The Nature and Origins of Linear Features in the Bajo de Azúcar, Guatemala: Implications for Ancient Maya Adaptation to a Changing Environment. *Geoarchaeology*. (N. Dunning, R. Griffin, T. Sever, W. Saturno, J. Jones). 2017.

Analysis of Ancient Footpath Detection Using Remote Sensing to Determine Ancient Settlement, Transportation, and Communication. To be submitted and published in *VINCULOS*, Dr. Payson Sheets Editor, University of Colorado. T. Sever lead author. To be submitted after field survey/excavation verification for image analysis results in Summer 2019.

Testing a Quantitative Method for Interpreting Gradiometer Data Collection on a Middle Woodland Platform Mound (1LA111) in Lawrence County, Alabama. *Journal of Southeastern Archaeology*. Authors: Travis Rael, T. Sever, and R. Griffin. To be submitted after MS defense of Travis Rael in Summer 2018.

Comparison of LIDAR Data and Thermal Infrared Multispectral Scanner Data for Cultural Resource Inventory in Chaco Canyon, New Mexico. Authors: Drs. Thomas L. Sever (UAH) and Timothy DeSmet (Binghamton U. New York). *Journal of Field Archeology*. In preparation.

“Thermal Imaging in Archeological Research: The Potential and Current Limitations.” In preparation. Peer-reviewed paper to be submitted to the *Journal of Archaeological Science*. T. Sever, author.

A Satellite-Based Perspective on Ancient Maya Settlement, Deforestation, and Climate. *Proceedings of Digital Future of World Heritage Conference, Rome, Italy*. T. Sever, author. to be published 2019.

A Satellite-Based Perspective on Ancient Climate in Tropical and Desert Regions. *Society of American Archaeology, San Francisco, CA 2015*. T. Sever, author. To be published 2019.

The Application of Remote Sensing and GIS Technologies to Archaeological Research, Past, Present, and Future. T. Sever, author. *Society of American Archaeology Publication*. TBP 2019.

“Recent Applications and Innovation in Archaeological Remote Sensing”, *Society of American Archaeology*. April 26, 2014, Austin, Texas. (R. Griffin, N. Dunning, T. Sever). TBP 2017-19.

The Collapse of the Ancient Maya, How Satellite Remote Sensing and Atmospheric Modeling are Providing New Insights. UAH book publication, 2016. T. Sever, author.

Assessing the Risk of Hurricane Hazards on the Maya Civilization Using a Geospatial Information System. Griffin, R., Weigel, A., and T. Sever. (In Preparation).

"Agricultural Landscapes, Deforestation, and Drought Severity." Robert Griffin, Thomas Sever, Robert Oglesby, and U. Nair. In "The Great Maya Droughts in Cultural Context", Gyles Iannone, editor. Colorado Press, 2015.

"The Collapse of the Maya: Could Deforestation have Contributed?" Robert J. Oglesby, Thomas L. Sever, William Saturno, David J. Erickson and J. Srikishen. *Journal of Geophysical Research*. 2010.

"Human-induced Climate Variability upon the Ancient Maya Landscape." Thomas L. Sever, Robert Griffin, U. Nair, and M. Welch. Paper presented at the Society of American Archaeology, Atlanta GA and published in *Ancient Mesoamerica* 2009.

"Biogeography of Tropical Montane Cloud Forests. Part II: Mapping of Orographic Cloud Immersion." U. Nair, S. Asefi, R. Welch, D.K. Ray, R. Lawton, V Manoharan, M. Mulligan, T. Sever, D. Irwin, and A Pounds. DOI: 10.1175/2007JAMC1819.1. *American Meteorological Society*. 2008.

"Putting Us on the Map: Remote Sensing Investigation of the Ancient Maya Landscape." William Saturno. Thomas L. Sever, Daniel E. Irwin, and Burgess Howell. In *Remote Sensing in Archaeology*. Edited by James Wiseman and Farouk El-Baz. Springer, New York. 2007

"Creating and Perpetuating Social Memory Across the Ancient Costa Rican Landscape." Payson D. Sheets and Thomas L. Sever. In *Remote Sensing in Archaeology*. Edited by James Wiseman and Farouk El-Baz. Springer, New York. 2007.

"Mapping the Ancient Maya Landscape from Space." Thomas L. Sever and Daniel E. Irwin. *Our Changing Planet*. NASA. Cambridge University Press (2007).

"Archaeological Remote Sensing: the Interpretation, Mapping, and Measurement of Early Landscapes and Settlements." T. Sever and J. Parry, editors. 3rd edition, Volume 5 of the *Manual of Remote Sensing, Remote Sensing and Human Settlements*, Chapter 9, edited by Merrill Ridd and Jim Hipple, John Wiley & Sons, Hoboken, NJ 07030-5774. 2006.

"Remote Sensing in Central America: Arenal in Costa Rica and Ceren in El Salvador." With P. Sheets and L. Conyers. 3rd edition, Volume 5 of the *Manual of Remote Sensing, Remote Sensing and Human Settlements*, Chapter 9.5, edited by Merrill Ridd and Jim Hipple, John Wiley & Sons, Hoboken, NJ 07030-5774. 2006.

"Future Applications of Remote Sensing to Archeological Research." 3rd edition, Volume 5 of the *Manual of Remote Sensing, Remote Sensing and Human Settlements*, Chapter 11, edited by Merrill Ridd and Jim Hipple, John Wiley & Sons, Hoboken, NJ 07030-5774. 2006.

"Regional Scale Landscape Archaeology: 21st Century Remote Sensing Technology and the Ancient Maya." William A. Saturno, Thomas L. Sever, Daniel E. Irwin and Burgess F. Howell., 3rd edition, Volume 5, Chapter 9.9, edited by Merrill Ridd and Jim Hipple, John Wiley & Sons, Hoboken, NJ 07030-5774. 2006.

"New Approaches to the Use and Integration of Multi-Sensor Remote Sensing for Historic Resource Identification and Evaluation." SERDP Project Report CS-1263. K. Kvamme, E. Ernenwein, M. Hargrave, T. Sever, D. Harmon, and F. Limp. University of Arkansas, Center for Advanced Spatial Technologies. June, 2006.

"Satellite and Airborne Remote Sensing Analysis for the Detection of Ancient Footpaths in Costa Rica. Tom Sever, Payson Sheets, and Daniel Irwin. VINCULOS: Revista de Anthropologia del Museo Nacional de Costa Rica, Volume 28, Numbers 1-2. Published 2005 (Distributed 2006).

"Vision espacial del escenario geographico-arqueologico de los mayas"; Kurjack, Edward B., Rickman, D. and Sever, Tom; 2004 In Homenaje a Jaime Litvak; eds Benavides, A., Manzanilla, L. And Mirambell, L.; Serie Arqueologia, Instituto Nacional de Antropologia e Historia, Mexico, D.F., pp 345-356. 2004 (Distributed 2005).

"Earth Imaging Transforms Archaeology in Costa Rica." Daniel E. Irwin, T.L. Sever, and P.D. Sheets. Imaging Notes, Volume 18, No. 3. Summer 2003.

"Landscape Archeology: Remote Sensing Investigation of the Ancient Maya in the Peten Rainforest of Northern Guatemala." T. L. Sever and D. E. Irwin. In Ancient Mesoamerica, Vol. 14, No. 1, pp. 113-122, 2003.

"Monitoring the Mesoamerican Biological Corridor Using Multi-Scale and Multi-Temporal Remote Sensing." Steven A. Sader, Daniel J. Hayes, Thomas L. Sever and Daniel E. Irwin. Conference Proceedings of the Pecora 15/Land Satellite Information IV/ISPRS Commission I/FIEOS, 2002.

"From Wright Flyers to Aerial Thermography: The 1910 Wright Brother's Hangar at Huffman Prairie." With M. Hargrave, D. Babson, and D. Butler. Symposium Papers @ the Libraries. Wright Brothers Symposium, Wright State University, Dayton, OH. September 28, 2001.

<http://www.libraries.wright.edu/special/symposium/hargrave.html>

"Remote Sensing Methods." Chapter 2, in Science and Technology in Historic Preservation, edited by Ray Williamson and Paul Nickens. Advances in Archaeological and Museum Science, volume 4. Kluwer Academic and Plenum Press, 2000.

"Land Use/ Land Cover Change Detection: Using Satellite Imagery and Aerial Photography to Monitor Landscape Level Deforestation Trends in Guatemala's Peten, Region." With Conrad Reining, Peter Kristensen, Dan Irwin, Steve Sader, John Musinsky, Carlos Soza, and James Nations. World Resources Institute/ Conservation International, 2000.

"The Ancient Maya Landscape from Space." In Thirteen Ways of Looking at a Tropical Forest, edited by James D. Nations. Published by Conservation International, Washington D.C., 1999.

"Validating Prehistoric and Current Social Phenomena Upon the Landscape, Peten, Guatemala." Special Publication of the National Academy of Sciences/National Research Council on "People and Pixels: Linking Remote Sensing and Social Science." National Academy Press, May, 1998.

"Human Migration and Agricultural Expansion: An Impending Threat to the Maya Biosphere Reserve." Journal of Forestry. With S. Sader, C. Reining, and C. Soza. Vol. 95, No. 12, Dec '97.

"Time-series Tropical Forest Change Detection: a Visual and Quantitative Approach." With S. Sader and J. Smoot. In SPIE, 2818:2-12, 1996.

"Appendix I: Wright-Patterson Remote Sensing Report." In Archaeological, Geophysical, and Remote Sensing Investigation of the 1910 Wright Brother's Hanger, Wright-Patterson Air Force Base, Ohio, David Babson, Michael L. Hargrave, Thomas L. Sever, John S. Isaacson, and James A. Zeidler. Cultural Resources Research Center, U.S. Army Construction Engineering Research Laboratories, Champaign, IL.

"Remote Sensing." In American Journal of Archaeology, 99:83-84, 1995.

"Forest Change Estimates for the Northern Peten Region of Guatemala- 1986 to 1990." In Human Ecology, Vol.22, No. 3, 1994.

"Remote Sensing in the Arenal Region." In Archaeology, Volcanism, and Remote Sensing in the Arenal Region, Costa Rica, edited by P. Sheets and B. McKee. U. of Texas Press, Austin, 1994.

"Prehistoric Footpaths in Costa Rica: Remote Sensing and Field Verification. In Archaeology, Volcanism, and Remote Sensing in the Arenal Region, Costa Rica. U. of Texas Press, 1994.

"Prehistory and Volcanism in the Arenal Area, Costa Rica", with P. Sheets et al. In Journal of Field Archaeology, Volume 18: Number 4, Winter 1991.

"Applications of Ecological Concepts and Remote Sensing Technologies in Archeological Site Reconnaissance", with F. Miller and D. Lee. In Applications of Space-Age Technology in Anthropology, edited by Clifford Behrens and Thomas Sever. NASA, Stennis Space Center, MS, 1991.

"Prehistoric Footpaths in Costa Rica: Transportation and Communication in a Tropical Rainforest" with P. Sheets. In C. Trombold's (Ed.) Ancient Road Networks and Settlement Hierarchies in the New World. Cambridge University Press, Cambridge, 1991.

"Analysis of Prehistoric Roadways In Chaco Canyon Using Remotely Sensed Digital Data" with D. Wagner. In C. Trombold's (Ed.) Ancient Roads Networks and Settlement Hierarchies in the New World. Cambridge University Press, Cambridge, 1991.

Remote Sensing Applications in Archeological Research: Tracing Prehistoric Human Impact Upon the Environment. Doctoral dissertation, University of Colorado. University Microfilms, Ann Arbor, Michigan. 1990.

Applications of Space-Age Technology in Anthropology. November 28, 1990, Conference Proceedings. NASA, John. C. Stennis Space Center. Tom Sever and Cliff Behrens.

Application of Remote Sensing in Tropical Forests, with A.T. Joyce and J.C. Luvall. Invited Paper at the Space Conference of the Americas. San Jose, Costa Rica. March, 1990. Vol. 1, pp. 195-200.

Prehistoric Footpaths in Costa Rica: Remote Sensing and Field Verification. In Archaeology and Volcanism in the Arenal Area, Costa Rica. Thomas L. Sever, Brian McKee, and Payson Sheets. Ed. by Payson Sheets and Brian McKee. MS, University of Colorado, Boulder, 1990.

"High Tech Wizardy". In Archaeology, November/December 1988.

"Remote Sensing". Chapter 14 of Benchmarks In Time and Culture: Introductory Essays in the Methodology of Syro-Palestinian Archaeology. Scholars Press. March, 1988.

Cultural and Ecological Applications of Remote Sensing. Final Report of a Conference Sponsored by the National Science Foundation. With Daniel Gross and Paul Shankman. University of Colorado, Boulder. April, 1988.

"Remote Sensing and GIS Analysis Large Scale Survey Design in North Mississippi." Southeastern Archaeology. With Jay Johnson, Scott Madry, and Harry Hoff. 7(2) Winter 1988.

"Airborne Archeology." World Book Encyclopedia Science Yearbook. 1987.

Conference on Remote Sensing: Potential For the Future. NASA, Stennis Space Center, Science and Technology Laboratory, SSC, MS. January, 1985.

Feasibility Study to Determine the Utility Of Advanced Remote Sensing Technology in Archeological Investigations. Report No. 227. NASA, Stennis Space Center, Science and Technology Laboratory, SSC, MS. December, 1983.

Advances In Remote Sensing Archeological Studies. Resource Development Journal, Vol. 2, No. 1. January, 1983.

Remote Sensing Feasibility Study in Colombia. NASA/Science and Technology Laboratory, SSC, MS. January 1983.

Feasibility Study for Target Identification Using Remote Sensing Techniques. NASA/Science and Technology Laboratory, SSC, MS, December, 1982.

America's First Astronomers. St. Louis Post Dispatch. September 29, 1978.

The Obsession With the Star Sirius: Past and Present. Griffith Observer, Los Angeles, California. September, 1976.

An Investigation Into the Interrelationship of Astronomy, Architecture, and Religion. Sangamon State University. 1974.

## **AWARDS**

- 2013 University of Alabama Huntsville, School of Science Excellence in Teaching Award
- 2010 Oberth Award—American Institute of Aeronautics and Astronautics
- 2008 NASA Distinguished Service Award
- 2006 NASA Group Achievement Award: SERVIR Project
- 2005 NASA Group Achievement Award: SERVIR Project
- 2005 NASA Science Directorate MSFC Core Value Quality Award
- 2005 NASA Appreciation Award
- 2004 NASA Special Service Award
- 2004 NASA Exceptional Scientific Achievement Award
- 2004 NASA Science Directorate MSFC Core Value Innovation Award
- 2002 NASA Group Achievement Award: Central America Research Team
- 1994 Society of Professional Archeologists (SOPA), Exceptional Achievement Award.
- 1993 NASA Exceptional Achievement Award
- 1992 NASA Scientific Achievement Award
- 1990 Earl Morris Award, University of Colorado, Boulder.
- 1989 NASA Group Achievement Award
- 1987 \$40,000 National Science Foundation Research Award-Costa Rica (with Dr. Payson Sheets, University of Colorado)
- 1986 \$20,000 National Geographic Society Research Award-Yucatan
- 1986 Graduate Tuition Scholarship, Space Sciences, University of Colorado, Boulder, CO
- 1986 NASA Outstanding Performance
- 1984 NASA Outstanding Performance
- 1984 NASA Special Achievement Award
- 1983 NASA Outstanding Performance
- 1977 Earthwatch Fellowship, Peru