

Ray A. Williamson

PUBLICATIONS

BOOKS:

- In progress: *Patterns to Live By: The Sky in Southwest Indian Experience*, with M. Jane Young (Santa Fe: SAR Press).
- In progress: *Moving Beyond Mother Earth: The Cultural Meaning of the Space Age*, with Jannelle Warren-Findley (Champaign: University of Illinois Press).
- 2004: *Bridging the Gap: European C4ISR Capabilities and Transatlantic Interoperability*, ed., with Gordon Adams, Guy Ben-Ari, and John M. Logsdon.
- 2001: *Dual-Purpose Space Technologies: Opportunities and Challenges for U.S. Policymaking*, (Washington, DC: Space Policy Institute)
- 2001: *Space and Military Power in East Asia: The Challenge and Opportunity of Dual-Purpose Space Technologies*, editor, with Rebecca Jimerson, (<http://www.gwu.edu/~spi/>).
- 2001: *Commercial Observation Satellites: At the Leading Edge of Global Transparency*, ed., with John C. Baker and Kevin O'Connell (RAND and ASPRS).
- 2000: *Accessing Space*, Vol. 4 in *Exploring the Unknown, Selected Documents in the History of the U.S. Civil Space Program*, with John M. Logsdon, Roger D. Launius, Russell J. Acker, Stephen J. Garber, and Jonathan L. Friedman, eds, (Washington, DC: U.S. Government Printing Office).
- 2000: *Science and Technology In Historic Preservation*, editor, with Paul Nickens (Kluwer Academic/ Plenum Publishers).
- 1997: *Cowboys and Cave Dwellers: Basketmaker Archaeology in Utah's Grand Gulch*, with F. Blackburn (Santa Fe: School of American Research Press).
- 1996: *Exploring the Unknown: Selected Documents in the History of the U.S. Space Program*, with John M. Logsdon, Linda L. Lear, Jannelle Warren-Findley, and Dwayne Day. (National Aeronautics and Space Administration, NASA SP-4407)
- 1993 *First Houses: Native American Myths of Dwellings and Sacred Structures*, with Jean G. Monroe (Boston: Houghton Mifflin).
- 1992 *Earth and Sky: Visions of the Cosmos in Native American Folklore*, editor, with Claire R. Farrer (Albuquerque: University of New Mexico Press).
- 1988 *Technologies for Prehistoric and Historic Preservation* (Malabar, Florida: Krieger Press) reprint of OTA report.
- 1987 *Living the Sky: The Cosmos of the American Indian* (Norman, OK: University of Oklahoma Press -- paperback edition)
- 1987 *They Dance in the Sky: Native American Star Myths*, with Jean G. Monroe (Boston: Houghton Mifflin).
- 1984 *Living the Sky: The Cosmos of the American Indian* (Boston: Houghton Mifflin).
- 1981 *Archaeoastronomy in the Americas*, editor (Los Altos, CA: Ballena Press)

OTA REPORTS:

OTA reports are authoritative texts on science and technology policy. They range from 50 to 200 pages in length and receive extensive external review for accuracy, balance, and objectivity. The following reports were published by the U.S. Government Printing Office. The project director serves as organizer, writer (in part or whole), and editor of each report. Congress disbanded OTA in September 1995, believing it had no more need for independent, unbiased advice on science and technology issues.)

- 1995 *The National Space Transportation Policy: Issues for Discussion* (contributor) Report.
- 1995 *U.S.-Russian Cooperation in Space* (Project Director) Report.
- 1994 *Civilian Satellite Remote Sensing: A Strategic Approach* (Project Director) Report.
- 1994 *Remotely Sensed Data: Technology, Management, and Markets* (Project Director) Report.
- 1993 *Global Change Research and NASA's Earth Observing System* (Project Director) Background Paper.
- 1993 *The Future of Remote Sensing From Space: Civilian Satellite Systems and Applications* (Project Director) Report.
- 1991 *Exploring the Moon and Mars: Choices for the Nation* (Project Director) Report.
- 1990 *Orbiting Debris: A Space Environmental Problem* (Project Director) Background Paper.
- 1990 *Access to Space: The Future of U.S. Space Transportation Systems* (Project Director) Report.
- 1989 *Round-Trip to Orbit: Alternatives for Human Spaceflight* (Project Director) Report.
- 1988 *Reducing Launch Operations Costs: Technologies and Practices*, (principal analyst and author) Technical Memorandum.
- 1987 *Technologies for Underwater Archaeology and Maritime Preservation* (Project Director) Background Paper.
- 1987 *Technologies for the Preservation of Prehistoric and Historic Landscapes* (Project Director) Background Paper.
- 1987 *Newsgathering from Space* (with R. DalBello) Technical Memorandum
- 1986 *Technologies for Prehistoric and Historic Preservation* (Project Director) Report.
- 1985 *International Cooperation and Competition in Civilian Space Activities* (Project Director) Report.
- 1984 *Remote Sensing and the Private Sector: Issues for Discussion* (Project Director) Technical Memorandum.
- 1983 *UNISPACE '82: A Context for Cooperation and Competition* (Project Director) Technical Memorandum.
- 1982 *Civilian Space Policy and Applications* (Project Director) Report.
- 1981 *Solar Power Satellites* (Project Director) Report.

OTA BACKGROUND PAPERS INTERNALLY PUBLISHED BY OTA:

- 1995 *Reducing the Costs of Collecting Meteorological Data: A Workshop Report* (Project Director) Background Paper.

- 1992 *Remotely Sensed Data From Space: Distribution, Pricing, and Applications*, (Project Director).
- 1992 *NASA's Office of Space Science and Applications: Process Priorities and Goals* (Project Director).
- 1989 *The Big Dumb Booster: A Low Cost Space Transportation Vehicle?* (Project Director).

CONGRESSIONAL TESTIMONY:

- 2005 "NASA's Earth Science Program, testimony before the House Committee on Science, U.S. House of Representatives, Washington, DC, April 28.
- 2002 "Meeting State and Local Needs for Space-based Data and Information," Testimony before the Subcommittee on Space and Aeronautics of the Committee on Science, U.S. House of Representatives, Kansas City, KS, May 20.
- 1998 "International Satellite Sales and Launch Services: The Case of China," Testimony before the House Select Committee on U.S. National Security and Military/Commercial Concerns with the People's Republic of China (The Cox Committee).
- 1995 "Financing the Operational Reusable Launch Vehicle," Testimony before the House Subcommittee on Space and Aeronautics, Committee on Science, November 1.
- 1993 "The Market for Data from Commercial Remote Sensing Satellites: Opportunities, Challenges, and Risks." Statement before the Senate Select Committee on Intelligence, June 10.
- 1993 "NASA's Mission to Planet Earth." Statement before the Space Subcommittee of the House Committee on Science, Space, and Technology, May 6.
- 1991 "Options for the U.S. Space Program." Statement before the House Committee on Science, Space, and Technology," January 31.
- 1987 "Technologies for Prehistoric and Historic Landscapes." Statement before the House Subcommittee National Parks and Public Lands of the House Committee on Interior and Insular Affairs, July.
- 1984 "International Cooperation and Competition in Civilian Space Activities." Statement before the Subcommittee on Space Science and Applications of the House Committee on Science and Technology, July 25.
- 1984 "International and Domestic Implications of Transferring Land Remote Sensing to the Private Sector." Statement before the Subcommittee on Science, Technology, and Space, of the Senate Committee on Commerce, Science, and Transportation, March 22.
- 1982 "Civilian Space Policy and Applications." Statement before the Subcommittee on Space Science and Applications of the U.S. House of Representatives Committee on Science and Technology, March 2.
- 1981 "Federal Policy and Satellite Remote Sensing Technology," Statement before the Subcommittee on Space Science and Applications of the U.S. House of Representatives Committee on Science and Technology, July 23.

CONTRIBUTOR TO NATIONAL ACADEMY OF SCIENCE AND OTHER REPORTS:

- 2005 National Research Council, *Assessment of the Benefits of Extending the Tropical Rainfall Measuring Mission: A Perspective from the Research and Operations Communities*, Washington, DC: National Academy Press.
- 2006 Report of the Assessment Committee for the National Space Weather Program, FCM-R24-2006, Washington, DC: Office of the Federal Coordinator for Meteorology.
- 2006 NOAA's *Role in Space-Based Global Precipitation Estimation and Application*, Washington, DC: National Academy Press.

ARTICLES PUBLISHED IN PEER-REVIEWED JOURNALS AND EDITED COLLECTIONS:

- 2006 "ASPRS 10-Year Industry Forecast, Phase IV," *Photogrammetric Engineering and Remote Sensing*, pp.985-1000, Sept. 2006. (with Charles Mondello and George Hepner).
- 2004 "The Evolution of Earth Science Research from Space: NASA's Earth Observing System," (with John H. McElroy), in *Space and Earth Science*, Vol. 6 in *Exploring the Unknown, Selected Documents in the History of the U.S. Civil Space Program*, NASA SP 2004-4407 (Washington, DC: NASA, 2004), pp. 441-473.
- 2004 "Weather Satellites and the Economic Value of Forecasts: Evidence from the Electric Power Industry," (with Henry Hertzfeld and Avery Sen) *Acta Astronautica*, 55, pp. 791-802.
- 2004 *Preparing for the Unknown: Geospatial Technologies for Improving Security in Intermodal Freight and Hazardous Materials Transport*, with Amelia Budge, National Consortium for Safety, Hazards, and Disaster Assessment, July 2004 (peer-reviewed report).
- 2004 "Current U.S. Remote Sensing Policies: Opportunities and Challenges," (with John Baker) *Space Policy*, 20:109-116, May.
- 2004 "10-Year Industry Forecast: Phases I-III -- Study Documentation," (with Charles Mondello and George Hepner) *Photogrammetric Engineering and Remote Sensing*, Vol. 70, No. 1, January 2004, pp. 7-58.
- 2003 "Multi-criteria evaluation of safety and risks along transportation corridors in the Hopi Reservation," (with D. Fuller, M. Jeffe, and D. James), *Applied Geography*, 23, pp. 177-188.
- 2002 "Rocketry and the Origins of Space Flight," (with Roger Launius). In *To Reach the High Frontier: A History of U.S. Launch Vehicles*, Lexington Kentucky, The University Press of Kentucky, pp. 33-69.
- 2002 "The Biggest of Them All: Reconsidering the Saturn V," In *To Reach the High Frontier: A History of U.S. Launch Vehicles*, Lexington Kentucky, The University Press of Kentucky, pp. 301-333.
- 2002 *Remote Sensing for Transportation Security*, with Stanley Morain, Amelia Budge, and George Hepner, National Consortium for Safety, Hazards, and Disaster Assessment, July 2002 (peer-reviewed report).

- 2002 “Lending A Helping Hand: Using Remote Sensing to Support the Response and Recovery Operations at the World Trade Center”, *Photogrammetric Engineering and Remote Sensing*, September, Vol. 68, No. 9, pp. 870-875.
- 2002 “Legal and Policy Issues in Satellite Remote Sensing,” in *Project 2001—Legal Framework for the Commercial Use of Outer Space*, Karl-Heinz Böckstiegel, ed., Vol. 16, *Schriften zum Luft- und Weltraumrecht*, Köln: Carl Heymanns Verlag KG, pp. 165-178.
- 2002: “The Socioeconomic Benefits of Earth Science and Applications Research: Reducing the Risks and Costs of Natural Disasters in the USA,” (with Henry R. Hertzfeld, Joseph Cordes, and John M. Logsdon) *Space Policy* 18: 57-65.
- 2001: “Remote Sensing Policy and the Development of Commercial Remote Sensing,” in: John C. Baker, Kevin O’Connell, and Ray A. Williamson, eds., *Commercial Observation Satellites: At the Leading Edge of Global Transparency*.
- 2001: “Using Geospatial Technologies to Enhance and Sustain Resource Planning on Native Lands,” (with Jhon Goes In Center) *Photogrammetric Engineering and Remote Sensing*, February, Vol. 67, No. 2, pp. 167-169.
- 1999 “The Implications of Emerging Satellite Information Technologies for Global Transparency and International Security” (with John C. Baker). In: Kristin Lord and Bernard Final, *Power and Conflict in the Age of Transparency*. New York: St. Martin’s Press.
- 2000 “The U.S.-Europe Technology Gap in Space Transportation: the View From the United States,” *Space Policy*, 17,
- 1999 “Access to Space: Steps to the Saturn V. In John M. Logsdon, Roger D. Launius, and Stephen J. Garber, eds., *Accessing Space*, Vol. 4 in *Exploring the Unknown, Selected Documents in the History of the U.S. Civil Space Program*, NASA SP 4407 (Washington, DC: NASA, 1999), pp. 1-31.
- 1999 “The Space Shuttle.” In John M. Logsdon, Ray A. Williamson, Roger D. Launius, Russell J. Acker, Stephen J. Garber, and Jonathan L. Friedman, eds, *Accessing Space*, Vol. 4 in *Exploring the Unknown, Selected Documents in the History of the U.S. Civil Space Program*, NASA SP 4407 (Washington, DC: NASA, 1999), pp. 161-193.
- 1999 “The U.S.-Europe Technology Gap in Space Transportation: the View From the United States,” *Nuova Civiltà delle Macchine*, Vol 17, n. 1 or 2.
- 1998 “Implications of Previous Space Commercialization Experiences for the Reusable Launch Vehicle,” (with Richard Obermann), *Space Policy* 14, 17-25.
- 1998 “Observing the Earth From Space,” with Pamela E. Mack. In *Exploring the Unknown: Selected Documents in the History of the U.S. Civil Space Program, Volume III: Using Space*, ed. John M. Logsdon, Roger D. Launius, David H. Onkst, and Stephen J. Garber, NASA SP 4407 pp. 155-176.
- 1998 “Satellite Remote Sensing and Maintaining Environmental Security: The Market Perspective.” In *Space Markets, an ISU Symposium*, Reidel.
- 1998 "American Indian Astronomy," In *The Stars Above, the Earth Below: American Indians*, Roberts Rhinehart and Carnegie Museum of Natural History.
- 1997 “The Landsat Legacy: Remote Sensing Policy and the Development of Commercial Remote Sensing,” in *Photogrammetric Engineering and Remote Sensing*, Vol. 63, No. 7, July, pp. 877-885.

- 1997 *Toward an Integrated International Data Policy Framework for Earth Observations*, International Space University Report, 97(1). International Space University, Illkirch, France.
- 1996 "Astronomy." In *The Encyclopedia of Native American Indians*, ed. Frederick E. Hoxie (Boston: Houghton Mifflin), pp. 58-60.
- 1994 "U.S. Civilian Space Policy at the Office of Technology Assessment," In A. Grunwald, H. Sax (ed), *Technikbeurteilung in der Raumfahrt: Anforderungen, Methoden, Wirkungen*. (Berlin: Edition Sigma): 211-236.
- 1993 "International Cooperation in Satellite Remote Sensing: Organizational and Structural Issues." In *Space Regimes For the Future*, Gordon MacDonald and Sally Ride, editors, Institute on Global Conflict and Cooperation, University of California, San Diego.
- 1993 "Site Protection, Historic Preservation, and the Archaeological Process: A National Perspective," (with Carol Carnett). *Anasazi Basketmaker: Proceedings of the 1990 Wetherill Grand Gulch Symposium Cultural Resource Series* (Salt Lake City: Utah Bureau of Land Management).
- 1993 "Sun and Sun Serpents: Continuing Observations in Southeastern Utah" (with Carol Ambruster). In Clive Ruggles, ed., *Archaeoastronomy in the 1990s* (Leicestershire, U.K.: Group D Publications, Ltd.)
- 1992 "Astronomical Alignments at Cajon Mesa Ruins, Hovenweep National Monument: An Update," (with Carol Ambruster), *Archaeoastronomy*.
- 1992 "The Civilian Space Program: Charting a New Course," *Space Policy*, November.
- 1992 "Blue Archaeoastronomy," (with Claire R. Farrer) in *Earth and Sky: Visions of the Sky in Native American Folklore*, Ray A. Williamson and Claire R. Farrer, editors (Albuquerque: University of New Mexico Press).
- 1992 "The Celestial Skiff: An Alabama Myth of the Stars," in *Earth and Sky: Visions of the Sky in Native American Folklore*, Ray A. Williamson and Claire R. Farrer, editors (Albuquerque: University of New Mexico Press).
- 1993 "The Animating Breath," (with Claire R. Farrer) in *Earth and Sky: Visions of the Sky in Native American Folklore*, Ray A. Williamson and Claire R. Farrer, editors (Albuquerque: University of New Mexico Press).
- 1991 "Orbital Debris: An Increasing Threat to Space Activities," *Issues in Science and Technology*, Fall, pp. 77-82.
- 1991 "Technology Transfer, Historic Preservation, and Public Policy," *The Public Historian*, Vol. 13, Summer, pp. 15-32 (with Jannelle Warren-Findley).
- 1990 "An Approach to Vandalism of Archaeological Resources" (with Fred Blackburn), in *Coping With Site Looting: Southern Perspectives* (Atlanta: National Park Service).
- 1989 "U.S. Access to Space: A Status Report," *Scientific American*, March (with John M. Logsdon).
- 1987 "Gathering News from Space," (with R. DalBello) *Space Policy*, Vol. 3, No. 4, pp. 298-306.
- 1987 "Outer Space as Frontier: Lessons for Today," *Western Folklore*, Vol 46, No. 4, pp. 255-267.
- 1987 "The United States and International Competition in Space Transportation," *Space Policy*, Vol. 3, pp. 115-121.

- 1987 "International Cooperation and Competition in Space: Challenges for the U.S. Civilian Space Program," in *International Space Policy: Legal and Strategic Options for the Twentieth Century and Beyond*, Dan Papp and John McIntyre (eds.) Westport, CT: Quorum Books, Greenwood Press.
- 1987 "Technology, Preservation Policy, and the National Park Service," *The Public Historian*, Vol. 9, No. 2, Spring.
- 1986 "Light and Shadow, Ritual, and Astronomy in Some Prehistoric Pueblo Structures," In Judge, J., and John Carlson, *Ritual and Astronomy in the Prehistoric American Southwest*, (Albuquerque: Maxwell Museum).
- 1985 "The Industrialization of Space: Prospects and Barriers." In *The Exploitation of Space: Policy Trends in the Military and Commercial Uses of Outer Space*, (ed. P. Stares and M. Schwartz), London, Butterworth), pp. 64-76.
- 1985 "International Cooperation and Competition in Civilian Space Activities," *Space Policy*, Vol. 1, pp. 409-414.
- 1984 "Space as Point of View" (with P. Chandler), *Earth-Oriented Applications of Space Technology*, Vol. 4.
- 1984 "Prospects for International Cooperation in SPS Research, Development and Demonstration" (with A. Wasserman). *Earth-Oriented Applications of Space Technology*, Vol. 4, pp. 45-50, 1984.
- 1983 "Sky Symbolism in a Navajo Rock Art Site, Chaco Canyon National Historical Park, NM," *Archaeoastronomy*, VI, pp. 59-65.
- 1983 "The Formulation of National Space Policy for the Civilian Program." In *Developing the Space Frontier, Vol. 52 in Advances in the Astronautical Sciences*, ed. Albert Naumann and Grover Alexander, American Astronautical Society, 1983.
- 1983 "The Promise of Space and the Difference it Makes: The Search for Golden Age" (with P. Chandler), *Cultural Futures Research* Vol. II, #2, 1983.
- 1982 "The Promise of Land Remote Sensing by Satellite." In *The Global Implications of Space*, (ed. J. Grey), New York: American Institute of Aeronautics and Astronautics.
- 1982 "The Industrialization of Space: Prospects and Barriers", *Futures*, October.
- 1982 "Casa Rinconada, a Twelfth Century Anasazi Kiva," in *Archaeoastronomy in the New World* (ed. A. Aveni), Cambridge University Press.
- 1982 "Assessing the Solar Power Satellite: The OTA Experience" (with S. Weisburd and A. Wasserman). *Space Solar Power Review*, Vol. 3.
- 1981 "Ethnoastronomy: The Zuni Case," (with Jane Young). In *Archeoastronomy in the Americas*, ed. R.A. Williamson, Ballena Press.
- 1981 "North American Archaeoastronomy," in *Archaeoastronomy in the Americas*, ed. R.A. Williamson, Ballena Press.
- 1979 "The 1054 A.D. Supernova and Native American Rock Art" (with J. Brandt). *Archaeoastronomy, Supplement to the Journal for the History of Astronomy*, Vol. 10 No. 1.
- 1978 "Pueblo Bonito and the Sun", *Archaeoastronomy* I, No. 2.
- 1978 "Casa Rinconada as World Symbol," *Archaeoastronomy* I, No. 3, May.
- 1977 "Anasazi Solar Observatories" (with H. J. Fisher, D. O'Flynn). In *Native American Astronomy*, ed. A Aveni, University of Texas Press, Austin, pp. 203-218.

- 1977 "Rock Art Representations of the 1054 Supernova, a Progress Report," (with J. C. Brandt) in *Native American Astronomy*, ed. A. Aveni, University of Texas, Austin, pp. 171-178.
- 1977 "Archaeoastronomy at Pueblo Bonito," *Science* 197, p. 618, (Letter).
- 1975 "Possible Rock Art Records of the Crab Supernova in the Western United States," (with J. Brandt, S. Maran and others). *Archaeoastronomy in Pre-Columbia America*, ed. A. Aveni, University of Texas Press, Austin, pp. 45-58.
- 1975 "The Astronomical Record of Chaco Canyon, New Mexico" (with H. J. Fisher, A.F. Williamson, C. Cochran). *Archaeoastronomy in Pre-Columbia America*, ed. A. Aveni, University of Texas press, Austin, pp. 33-44.
- 1970 "Internal Radial Velocities of Some Selected Small Diameter H II Regions," *Astrophysics and Space Sciences* 6, 45.
- 1970 "H-Alpha Photographs of the Orion Nebula with a Half-Angstrom Filter," (with R. Fisher). *Astronomical Journal* 75, 347.
- 1967 Ph.D. Thesis: "A Study of Radial Velocities in Diffuse Emission Regions Using a Fabry-Perot Interferometer," University of Maryland.

ARTICLES PUBLISHED IN OTHER JOURNALS AND BOOKS:

- 2006 "The Times They Are A Changing," *Imaging Notes*, Vol. 21, No. 2, Summer, pp. 6-7.
- 2006 "Wither the Remote Sensing Marketplace?" *Imaging Notes*, Vol. 21, No. 1, Winter, pp. 6-7.
- 2005 "Improving Surface Transportation Security," *Imaging Notes*, Vol. 20, No. 3, Fall, pp. 10-15 (with Amelia Budget).
- 2005 "The Landsat Saga: Reflecting and Projecting," *Imaging Notes*, Vol. 20, No. 2, Fall, pp. 6-7.
- 2005 "Small Satellite Remote Sensing: A New Driver in Space Development," *Imaging Notes*, Vol. 20, No. 2, Summer, pp.6-7.
- 2005 "China's Rapidly Growing Strength in Remote Sensing," *Imaging Notes*, Vol. 20, No. 1, January (Winter), pp. 10-11.
- 2004 "Fresh Water—The Stuff Of Life And The Focus Of Future Political And Social Tensions," *Imaging Notes*, Vol. 19, No. 4 (Fall), 2004, pp. 8-9.
- "Improving Transportation Security: A Geospatial Approach," *Imaging Notes*, Vol. 19, No. 3 (Summer), pp. 8,9.
- 2004 "A Challenge from Europe: Global Monitoring for Environment and Security," *Imaging Notes*, Vol. 19, No. 2. (Spring), pp. 8-9.
- 2004 "Fully Implementing the U.S. Remote Sensing Policy," *Imaging Notes*, Vol. 19, No. 1. (Winter).
- 2003 "Heritage Conservation Discovers Global Transparency," *Imaging Notes*, Vol. 18, No. 2. (April/May/June).
- 2003 "Crafting a Geospatial Strategy for Transportation Security," *Imaging Notes*, Vol. 18, No. 4 (Oct/Nov/Dec).
- 2003 "Space Weather Information From NOAA's Space Environment Center Is Important To The Economy," *Space News*, 11 July.

- 2002 "Improving Transportation Security With Remote Sensing Technologies," *Imaging Notes*, Vol. 17, No. 6, November/December, pp. 22-23.
- 2002 "Landsat: A Continuing Story?," *Space News*, 29 July 2001, p.
- 2002 "Information as Security: Remote Sensing, Transportation Lifelines, and Homeland Security," *Imaging Notes*, Vol. 15, No. 4, May/June, p. 13.
- 2000 "U.S. Hobbles Space Industry with Export Control Policy," (with Gordon Adams) *Space News*, 5 June 2000, p. 19.
- 2000 "Examine U.S. Remote Sensing Policy," *Space News*, April 3, p. 19.
- 2000 "Preparing for the New Globalism: The ISU Experience," *SpaceTimes* (with Carol L. Carnett), Jan/Feb, pp 15-18.
- 2000 "A Demanding, Exciting Educational Experience," *EarthSpace Review* (with Carol L. Carnett), Vol. 9, no. 1, pp. 47-49.
- 2000 "A Fitting Tribute to Congressman George E. Brown," *Space News*, 11 Oct., p.
- 1999 "Time to Repair the Damage to Industry," *Space News*, 14 June, p. 26.
- 1999 "The GPS Challenge," *Space News*, 15 March, p. 13.
- 1998 "Maintaining the Technology Edge," *Space News*, 5-11 Oct., p. 15
- 1997 "Making Data Useful," *Space News*, Vol. 8 (42), Nov. 3-9, p. 13.
- 1997 "Testing U.S. Mettle in Space," *Space News*, Vol. 8, July 14-20, p. 25.
- 1997 "An International Response to Environmental Security Threats: the Contribution of Space Systems," *Russian Space Bulletin* Vol. 4 (1): 10-11 (with John Logsdon).
- 1997 "The Legacy of Landsat," *Space News*, Vol. 8 (5), p. 13.
- 1996 "A Realistic Space Policy," *Space News*, Vol. 7, No. 41, Oct. 21-27, pp. 15, 17.
- 1996 "Environmental Security and NASA's Mission to Planet Earth." In *Pecora 13 Proceedings*, Sioux Falls, SD.
- 1996 "Promising an Integrated Observing Strategy," *Space News*, Vol. 7, No. 22, June 3-9, pp. 13, 17.
- 1996 "Understanding the Risk," *Space News*, Vol. 7, No. 10, March 11-17, p. 13.
- 1995 "RLV Needs Right Mix of Incentives," *Space News*, Vol. 6, No. 46, December 4-10, p. 15.
- 1995 "International Cooperation in Earth Observations," *Space Times*, Jan.-Feb., pp.4-8 (with Mark Goodman).
- 1995 "The Solar Power Satellite: Looking Back to Look Ahead," *Proceedings of the Twelfth Symposium on Space Nuclear Power and Propulsion*, University of New Mexico, January.
- 1994 "Assessing U.S. Civilian Remote Sensing Satellites and Data," *Space Times*, vol. 33, No. 1, pp. 6-10.
- 1993 "Light and Shadow in the Anasazi World: Architectural Remnants of a Solar Calendar." In *Mysteries of the American West*, ed., Ferenc Szaz. Fulcrum Press.
- 1993 "Addressing the orbital debris problem: Congress and the international policy challenge" (with Richard Obermann). In *Proceedings of the SPIE Orbital Debris Symposium*, Orlando, Florida, 1993.
- 1993 "Celestial Design," *Odyssey*, June 1993.
- 1992 "Reaching Mars: A 21st Century Challenge," *Odyssey*, September.
- 1992 "Space Junk: A Growing Hazard," *Odyssey*, January.
- 1990 "The Next 40 Years in Space," (coeditor) *A Summary of the 40th Congress of the International Astronautical Federation, Torremolinos, Spain*, October 1989.

- 1989 "Heavy Lift Launch Vehicles," *Final Frontier*, February.
- 1988 "Mediasat: Technology, the Media, and the Government," *Report on the Fourth National Space Symposium* (Colorado Springs: National Space Foundation).
- 1988 "America's New Civilian Space Policy," *Orlando Sentinel Insight*, February 21.
- 1986 "Space Program Looks for Course Back Into Orbit," *The Orlando Sentinel Insight*. Sunday, July 27, H-1.
- 1986 "What's Ahead for the Space Program?" *The Orlando Sentinel Insight*. Sunday, February 16, H-1.
- 1985 "The Living Earth and The Outdoor Museum," (with Fred Blackburn). In *Is the Earth a Living Organism?*, ed. James Swann, Audubon Expedition Institute.
- 1985 "Unbuckling Orion's Belt: Extending the Human Presence in Outer Space." In *Space Exploration and Colonization*, (St. Louis: Institute for Theological Encounter with Science and Technology), pp. 8-22.
- 1985 "Working with Others: The Long-Term View," *Space World*, March.
- 1982 "OTA Eyes Space Applications, Science, International Competition," *Astronautics and Aeronautics*, Vol. 20, no. 10, p. 18-20.
- 1982 "Celestial Anasazi Rock Art" and "Rock Art of the Rio Grande" in *Canyon Country Rock Art*, (ed. F.A. Barnes) Salt Lake City: Wasatch Publishers, Inc.
- 1981 "The Global Implications of Space Activities - A Conference Report." *Insight*, Vol. 5.
- 1978 "This Continent's First Astronomers - Native Americans," *Smithsonian Magazine*, October.
- 1978 "The Ancient Vermont Conference in Retrospect," *Ancient Vermont*, Castleton, Vermont.
- 1978 "An Equinox Sun Petroglyph Panel at Hovenweep National Monument" (with Jane Young), in *Proceedings of American Rock Art Research Association, 1978*.
- 1973 "Possible Records of the Crab Nebula Supernova in the Western United States" (with J. Brandt, S. Maran and others). Presented at American Astronomical Society Meeting, Las Cruces, New Mexico, January.
- 1974 "Plastering Day" (with Abigail Williamson) *The College*, 26, 18. (An account of ferro-cement boat building techniques.)

INVITED PAPERS, RESEARCH REPORTS, LECTURES, BOOK REVIEWS:

- 2006 "Remote Sensing for Disaster Response: Challenges and Opportunities," Fourth International Workshop on Remote Sensing for Disaster Response, Cambridge, England, 25-27 September.
- 2006 "Documenting Impacts of Space Weather and Estimating Benefits of Forecasts," Space Weather Week, Boulder Colorado, April 2006.
- 2006 "Emerging Issues in Using Space for Managing the Planet: Policy and Economics," presented at the American Meteorological Society Annual Meeting, Atlanta, GA, February (with H. Hertzfeld).
- 2005 "Linking the Information Needs of Natural and Cultural Heritage Preservation: Technology, Policy and Institutions," presented at the Eurisy conference on the "Use of Space Technologies for the Conservation of Natural and Cultural Heritage", Campeche, Mexico, December.

- 2004 "High Resolution Digital Imagery and the Precolumbian Trails of Southeast Utah", with Michael Jeffe & Winston Hurst, presented at the International Conference on Remote Sensing in Archaeology, Beijing, China, October.
- 2004 "Emerging issues in using space for managing the planet: policy and economics," (with H. Hertzfeld and Avery Sen), IAC-04-IAA.5.13.1.01, presented at the 55th International Astronautical Congress, Vancouver, Canada, Oct. 4-8, 2004.
- 2004 "Earth Observations: Increasing Transparency, Increasing Capability," University of New Mexico, Albuquerque, New Mexico, April 13, invited lecture.
- 2004 "Global Monitoring of Environment and Security (GMES): European Space Policy for Earth Observations," Aerospace Corporation, El Segundo, California, 15 March.
- 2004 "Institutional and Policy Hurdles in Applying Advanced Remote Sensing Technologies to Response and Recovery," Presented at the American Society of Civil Engineers, Houston, March 7-9, 2004.
- 2003 "Measuring the Economic Value of Weather Information" (with H. Hertzfeld). Presented at the AIAA SPACE 2003 Conference and Exposition, Long Beach, California, Sept. 23-25, 2003.
- 2003 "Weather Satellites and the Economic Value of Forecasts: Evidence from the Electric Power Industry," IA-03-IAA-3.1.03 (with H. Hertzfeld & A. Sen). Presented at the 54th Annual International Astronautical Congress, Bremen Germany, Sept. 28-Oct. 3, 2003.
- 2003 "The Value of the Socio-Economic Effects of Space Weather, Presentation to the NATO Advanced Research Workshop on the Effects of Space Weather on Technology Infrastructure, Rhodes, Greece, March.
- 2002 "The Socio-Economic Value of Improved Weather and Climate Information," Report to NASA, December.
- 2002 "Meeting a Daunting Challenge: Remote Sensing and Transportation Lifeline Security," Presentation to The Aerospace Corporation, Corporate Headquarters, 3 December 2002.
- 2002 "Security and Transportation Lifelines," presented at the Pecora Conference, Denver, CO, November 10-15, 2002.
- 2002 "Satellite Remote Sensing And Transportation Lifelines: Safety And Risk Analysis Along Rural Southwest Roads", presented at the Pecora Conference, Denver, CO, November 10-15, 2002 (with Douglas Fuller, Michael Jeffe, and Dalton James).
- 2002 "Remote Sensing and Transportation Security," presented at the Pecora Conference, Denver, CO, November 10-15, 2002.
- 2002 "Satellite Remote Sensing for Archaeology and Historic Preservation: Mapping the Ancient Trails of Southeast Utah," presented at the Eurisy Conference, Space Applications for Heritage Conservation, Strasbourg, France, November 5-8, 2002 (with Winston Hurst and Michael Jeffe).
- 2002 "Socioeconomic Benefits of Earth Science Research," IAF-02-B.5.01, presented at the 53rd International Astronautical Congress, Houston, TX, October 10-18, 2002 (with Henry Hertzfeld).
- 2002 "International Cooperation And The Transition From Experimental Research To Operational Sensors", IAC-02-B.1.07, presented at the 53rd International Astronautical Congress, Houston, TX, October 10-18, 2002 (with Richard Obermann).

- 2002 “Satellite Remote Sensing and Transportation Lifelines: Safety and Risk Analysis Along Rural Roads,” IAF-01-B.5.08, presented at the 53rd International Astronautical Congress, Houston, TX, October 10-18, 2002 (with Douglas Fuller and Michael Jeffe).
- 2001 “Dual-Purpose Space Systems,” Invited lecture to The Aerospace Corporation, Los Angeles, CA, October 16, 2001.
- 2001 “Satellite Remote Sensing and Transportation: Increasing Safety, Reducing Hazards”, presented at the 52nd International Astronautical Congress, October 1-5, 2001, Toulouse, France, IAF-01-B.5.02 (with Douglas Fuller).
- 2001 “Providing Long Term, Moderate Resolution Earth Observation Data: Time to Consider an International Solution?” presented at the 52nd International Astronautical Congress, October 1-5, 2001, Toulouse, France, IAF-01-B.1.02 (with Richard Obermann).
- 2001 “Operating a Commercial Reusable Launch Vehicle: Economic, Legal, and Policy Considerations,” presented at the 52nd International Astronautical Congress, October 1-5, 2001, Toulouse, France, IAA.1.2 (with Henry Hertzfeld).
- 2001 “100-Eyed Argus: The Promise and Challenge of Commercial Remote Sensing,” presented at the American Society of Photogrammetry Annual Meeting, St. Louis, MO, April 2001.
- 2001 “Geospatial Methods for Improving Trafficability on Rural Roads: The Hopi Example,” presented at the American Society of Photogrammetry Annual Meeting, St. Louis, MO, April (with Richard Watson and Douglas Fuller).
- 2001 “International Legal and Policy Issues in Commercial Remote Sensing,” presented at Project 2001, the International Colloquium, on the Law of Outer Space, Koeln, Germany, May 29-31.
- 2000 “The Use of GIS and Remote Sensing in the Evaluation of Ancestral Puebloan Agricultural Technologies.” Presented at the National Conference of the American Society of Photogrammetry and Remote Sensing, Washington, DC, May.
- 2000 “Geospatial Methods for Improving Trafficability on Rural Roads: The Hopi Example,” Presented at the ESRI Southwest Users Group Conference, Moab, Utah, November (with Richard Watson)
- 1999 “The Prairie Dog’s View: A Wealth of Spatial Data....(But watch out for Coyote!), Presented at Eagle’s View of Mother Earth: Tradition, Persistence, and Change, San Juan College, Farmington, NM October 28-30.
- 1999 “Extending the Utility of Satellite Data and Information: Opportunities for New Partnerships,” Presented at the 50th International Astronautical Congress, Amsterdam, October, 1999 (IAF 99-B.1.05).
- 1999 “The Challenge of Applying Earth Observations to Earthly Needs: A Policy Perspective,”(with Richard Obermann) Presented at the 50th International Astronautical Congress, Amsterdam, October, 1999 (IAA-99-IAA.1.4.01).
- 1999 “Revealing the Earth: The Globalization of Transparency,” Presented at the conference, No More Secrets? Policy Implications of Commercial Remote Sensing Satellites, Carnegie Endowment for International Peace, Washington, DC, 26 May.
- 1999 “Revealing the Earth: The Revolution in Satellite Remote Sensing,” (with John C. Baker) Annual meeting of the American Society of Photogrammetry and Remote Sensing, 20 May 1999, Portland, Oregon.

- 1999 "One-Hundred Eyed Argus: The Globalization of Remote Sensing," Presented at the National Forum On Remote Sensing Applications to Transportation, U.S. Department of Transportation and NASA, 11 May.
- 1999 "Balancing Economic and Security Factors in Observing Earth," Conference on Space and International Relations: Challenges for the 21st Century Woodrow Wilson Center for Scholars and The Space Policy Institute, 25 March.
- 1998 "Using Remote Sensing and GIS to Enhance Understanding of Climate Change and Climate Variability on Indian Lands," presented at the Annual Meeting of the American Indian Science and Engineering Society (AISES), Denver, CO, December.
- 1998 "Using Geospatial Technologies to Enhance and Sustain Resource Planning on Native Lands," presented at the Native Peoples, Native Homelands Climate Change Workshop, Albuquerque (with Jhon Goes In Center).
- 1998 "The U.S.-Europe Technology Gap in Space Transportation: the View From the United States," Presented at the conference: The Impact of American Mass Culture in Europe from the Second World War to the Present Day, Università Degli Studi Bologna, March.
- 1997 "The Future of Earth Observations from Space: Opportunities and Challenges" Invited paper prepared for the United Nations Committee on the Peaceful Uses of Outer Space (with John C. Baker).
- 1997 "Mission to Planet Earth: The Policy Context," Presented at the Colloquium on NASA's Mission to Planet Earth, Space Policy Institute, May.
- 1997 "Building Remote Sensing Capacity Among Conservation NGOs: Report on a Training Workshop." Report to NASA.
- 1997 "Implications of Previous Space Commercialization Experiences for the Reusable Launch Vehicle," Presented at the Annual Congress of the International Astronautical Federation, Torino, Italy, October 5-10 (with Richard Obermann).
- 1997 "International Earth Observations Data Policy: Challenges and Opportunities," Presented at the Annual Congress of the International Astronautical Federation, Torino, Italy, October 5-10.
- 1997 "Space Investment Opportunities in the Next Century: Remote Sensing," 35th Goddard Memorial Symposium, Goddard Space Flight Center, MD, March 4-5.
- 1996 "Opportunities for Earth Observations," AFCEA '96, Washington, DC, June.
- 1995 "Civilian Satellite Remote Sensing: Public-Private Partnerships," Eighth Annual Conference on Geographic Information Systems, Towson State University, Towson, MD, June.
- 1995 "Solar Power from Space: Assessing the Social and Economic Need," Conference on Alternative Power from Space, University of New Mexico, January.
- 1994 "International Cooperation in Earth Observations," with Mark Goodman, 45th Congress of the International Astronautical Federation, Jerusalem, October 9-14.
- 1994 "New Challenges in International Orbital Debris Policy," with Richard Obermann, 45th Congress of the International Astronautical Federation, Jerusalem, October 9-14 (IAF-94-B.1.060).
- 1994 "Remote Sensing from Space: Putting the Data to Work," The Federal Geographic Technology Conference, September.

- 1994 "Environmental Policy Development: Data Desirables and Policy-Relevant Questions," Co-chair of session, U.S. Global Change Policy Symposium, National Press Club, April.
- 1994 "The Need for a Strategic Plan for U.S. Remote Sensing Efforts," National Media Laboratory Review, January.
- 1993 "Future Space Policy Issues," Space Talk '93, Utah State University, Logan Utah.
- 1993 "Addressing the orbital debris problem: Congress and the international policy challenge", with Richard Obermann, 44th Congress of the International Astronautical Federation, Graz, Austria, October.
- 1993 "Congressional Perspectives on Global Change Research," Global Change Policy Symposium, National Press Club, Washington, DC.
- 1993 "Geographic Information Systems and Satellite Remote Sensing," National Geo Data Forum, Tysons Corner, VA.
- 1993 "The Future of Remote Sensing from Space: Policy Issues and Opportunities," Symposium on Remote Sensing and Global Environmental Change," Graz, Austria.
- 1993 "Comments on 'The President, Congress, and the Declaration of the U.S. Space Program in the 1970s,'" Symposium on Presidential Leadership, Congress, and the U.S. Space Program, Washington, DC.
- 1992 "The Future of the Space Program," The Brookings Institution Seminar on Science and Technology Policy, Williamsburg.
- 1992 "Site Protection and Reverse Archaeology in the Grand Gulch, Utah" (with Carol Carnett) Society for American Archaeology Annual Meeting, Pittsburg, April.
- 1992 "Archaeology, Technology Transfer, and Public Policy," Society for American Archaeology Annual Meeting, Pittsburg, April.
- 1992 "A Call from Congress for Priority Setting," American Association for the Advancement of Science Symposium on Setting Priorities for Space Research, Chicago, February.
- 1991 "Space Transportation Policy," Council on Foreign Relations Special Seminar on U.S. Commercial Space Policy, March.
- 1991 "The Americas' Overview," Space Summit 1991: An International Outlook on Space Programs, Huntsville, Alabama, October.
- 1991 Review of Prehistoric Astronomy in the Southwest, *American Antiquity*.
- 1991 "Big Science vs. Little Science in Space," Foreign Service Institute Course, "Science, Technology, and American Foreign Policy," June.
- 1990 "Public Policy Panel," Division of Planetary Sciences, Charlottesville, VA, October 23.
- 1990 "International Cooperation and Competition in Space Transportation," Foreign Service Institute Course, "Science, Technology, and American Foreign Policy," June.
- 1990 "In Search of Brave New Worlds: Extending the Human Presence in Outer Space," University of Alabama, Huntsville, April.
- 1989 "The OTA Report: Antecedents and Results," Conference on Technologies for Prehistoric and Historic Preservation: A California Perspective, University of California, Riverside, November.
- 1989 "National Space Transportation Policies," Arizona Looks to the Future Conference, Tucson, AZ, October.

- 1989 "Workshop on Priorities in Space Research," National Academy of Sciences Space Studies Board, Seattle, WA, July.
- 1989 "Workshop on Space Debris," workshop chairman, U.S. Space Foundation 5th Annual Meeting, Colorado Springs, CO, April.
- 1989 "Archaeoastronomy in the Americas: Testing the Hypotheses," symposium organizer and chairman, Annual Meeting of the Society for American Archaeology, Atlanta, Georgia, April.
- 1989 "A Possible Sunwatching Station in Davis Canyon, Utah," (with Carol Ambruster) Annual Meeting of the Society for American Archaeology, Atlanta, Georgia.
- 1989 "Sun Symbols, Sunbeams, and Shadow," Conference: Spirit Windows: Native American Rock Art of Southeast Utah, Edge of the Cedars Museum, Utah, April.
- 1988 "Living the Sky: New Results in Southwest Archaeoastronomy Research," Newport Beach Museum of Natural History, November.
- 1988 "Reducing Launch Operations Costs: New Technologies and Practices," American Institute of Aeronautics and Astronautics Economics Technical Committee meeting, NASA Lewis Research Center, Cleveland, Ohio, October 18-19, 1988.
- 1988 "In Search of Brave New Worlds: Extending the Human Presence in Space," The New Wilderness: Values in America's Space Program. The University of New Mexico, Albuquerque, NM (August 26-27).
- 1988 "A Possible Sunwatching Station in Davis Canyon, Utah," with Carol Ambruster, 1988 Pecos Conference, Cortez, Colorado.
- 1988 "Issues in International Space Activities," Space Exploration: Scientific Luxury, Commercial Enterprise, or Prudent Investment in the Technologies of the Future? The Ditchley Foundation, Ditchley Park, Oxfordshire, England.
- 1988 Review: Europe's Future in Space: A Joint Policy Report, in *Space Policy* 4, August, pp. 254-5.
- 1988 "The Civilian and Military Space Programs," University of Central Florida, Third Annual University of Central Florida Space Policy Symposium, Orlando, Florida.
- 1988 "Tools for Documenting and Preserving Cultural Resources," Southeastern National Conference of State Historic Preservation Officers," Richmond, Virginia.
- 1987 "Space Policy," Challenges for Tomorrow's Schools: A Perspective from Space, NASA Lewis conference, Orlando, Florida.
- 1987 "Access to Space," Advisory Committee to the Bureau of Oceans and International Environmental and Scientific Affairs, Department of State.
- 1987 "Technologies for Prehistoric and Historic Preservation," National Trust for Historic Preservation Annual Conference, Washington, DC.
- 1987 "U.S. Leadership in Space: What's Our Role in the World Scene?" Nuclear Power Science After Chernobyl and Challenger, Virginia Tech, Blacksburg, Virginia.
- 1987 "Preservation Technology," Federal Archeological Program Management Course, National Park Service, Harpers Ferry, West Virginia.
- 1987 Review: Earth and Sky: Papers from the Northridge Conference on Archaeoastronomy Arlene Benson & Tom Hoskinson, (eds.), *Archaeoastronomy, Supplement to the Journal for the History of Astronomy*.
- 1987 "International Competition in Space Transportation," National Association of Public Administrators Annual Conference, Boston.

- 1987 "Technologies for Prehistoric and Historic Preservation," National Council on Public History Annual Conference.
- 1987 "The U.S. Space Program: Challenges for the 1990s," Brookings Institution Conference, Outlook on Issues in Science and Technology, Williamsburg, Virginia.
- 1986 "The Celestial Skiff: An Alabama Indian Myth of the Stars," October meeting of the American Folklore Society, Baltimore, Maryland, October, 1986.
- 1986 "The Crisis in Space Transportation: A View from Capitol Hill," Conference on the Crisis in Space Transportation, Washington, DC.
- 1986 "Living the Sky," American Association for the Advancement of Science Sunrise Seminar.
- 1986 "The U.S. Civilian Space Program," Radio and Television News Directors Association Panel on the Future of the U.S. Space Program, Jules Bergmann, moderator.
- 1986 "Technologies for Prehistoric and Historic Preservation," (with Mary Lee Jefferson) 1986 meeting of the Society for American Archaeology, New Orleans.
- 1986 "Archaeoastronomy and Archaeological Preservation," The Second Oxford International Conference on Archaeoastronomy, Merida, Yucatan, January 12-17, 1986.
- 1985 Review: The Cold and the Dark, and The Effects on the Atmosphere of a Major Nuclear Exchange, *Futures*, 17, pp. 414-417.
- 1984 "International Cooperation and Competition in Space," National Defense University Conference, America Plans for Space, December 6-7, 1984.
- 1984 "International Cooperation in Space," Invited participant in the Ditchley Foundations conference on New Problems in International Relations Arising from New Technologies, Ditchley Park, Oxfordshire England, October 5-7, 1984.
- 1984 "Living the Sky," University of Delaware Lecture Series.
- 1983 "Space Science in the International Community," American Astronomical Society, 161st Meeting, Boston.
- 1982 "Federal Policy Towards Private Investment in Space: Opportunities and Barriers," American Association for the Advancement of Science, Washington, D.C., January.
- 1982 Review: The First Astronomers, Book Review. In *Archaeoastronomy V*.
- 1981 "The Importance of Ethnology in American Archaeoastronomy," International Astronomical Union Conference on Archaeoastronomy, Oxford.
- 1980 "Southwest Indian Rock Art," Smithsonian Residents Associates Lecture.
- 1979 "Early Native American Astronomy," American Association for the Advancement of Science, symposium on "Hispanic and Indian Scientific Heritage and Contemporary Role Models," Houston, January.
- 1979 "Recent Archaeoastronomy in Four Corners, USA," (with H. Fisher), American Astronomical Society Meeting, Mexico City, January.
- 1979 "Pueblo Star Constellations" (with V. D. Chamberlain and J. Young), American Astronomical Society Meeting, Mexico City, January.
- 1979 "Archaeoastronomy," invited paper, American Association for the Advancement of Science meeting, Houston, January.
- 1978 The Historical Supernovae, Book Review, *Archaeoastronomy I*, No. 5, November.

- 1978 "Some Possible Anasazi Horizon Sunwatching Stations," (with C. Benson and J. Young), 11th annual Chacmool Conference, Calgary, October.
- 1978 "The Hovenweep Towers" (with H. J. Fisher), American Anthropological Association meeting, Houston, Texas.
- 1977 "Pueblo Sunwatching Practice," College Lecture, University of Delaware and St. John's College, New Mexico.
- 1975 "The Size of the Universe," College Lecture, St. John's College, Annapolis.
- 1973 "Archaeoastronomy in the Southwest United States," College Lecture, St. John's College, Santa Fe and Annapolis.

SOFTWARE REVIEWS

- 1995 "Return to the Moon." CD-ROM. In *Final Frontier*, May/June, p. 4.
- 1995 "TheSky." CD-ROM. In *Final Frontier*, July/August.

MAJOR TELEVISION APPEARANCES

- 2003 *The Columbia Disaster*, Canadian Broadcasting Company
- 2000 *Spy Satellites?* NHK, Japanese Television
- 1996 *America's First Astronomers*, The Discovery Channel.
- 1993 USIA Worldnet Dialogue Program, "Preserving Cultural Heritage."
- 1986 WHYY (Philadelphia), Series, "In the Beginning."
- 1983 KNME (Albuquerque), *The Illustrated Daily*, 1/2 hour special on archaeoastronomy
- 1978 "In Search of Ancient Astronomy," *In Search Of...*, 1/2 hour documentary on archaeoastronomy in the Americas.