

# Andrew Kenneth Johnston

Smithsonian National Air and Space Museum  
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## Education

PhD candidate in Geography at University of Maryland, College Park. Completion in 2011.  
Dissertation: *Urban Forest Dynamics of the District of Columbia*.

MA Geography, 1998, University of Maryland, College Park. Thesis: *Mapping above ground biomass of boreal forests using visible wavelength remote sensing*.

BA Geography, 1991, George Washington University

## Employment History

1991-Present

### Geographer and Research Specialist

Smithsonian Institution, National Air and Space Museum, Center for Earth and Planetary Studies. Washington DC

#### *Geography Research*

Research remote sensing techniques for observing environmental and geophysical processes, including regional scale landcover changes and forest canopy dynamics. Engage in research projects aimed at better understanding the geology and geophysics of Earth and other terrestrial planets. Refining remote sensing, GIS, and field survey methods for planetary and terrestrial research projects. Perform field work using Global Positioning System equipment.

#### *Geoscience Outreach*

Develop and implement educational outreach activities and museum programs. Create content for public programs and museum exhibits on geography and geospatial technology. Serve as curator and content expert on museum exhibits. Perform frequent lectures on the technology and history of remote sensing. Review geoscience publications for general audiences.

#### *Astronomy Education*

Perform lectures and develop public programs on astronomy. Provide content and develop themes for production of planetarium programming. Perform planetarium lectures. Develop museum publications on the history of space exploration.

2007-2008

### Adjunct Professor

American University, Washington DC

Taught undergraduate astronomy class.

2007-2008

### Adjunct Professor

University of the District of Columbia, Washington DC

Taught physical geography class.

2005-2007

Lecturer

George Washington University, Department of Geography. Washington DC

Taught remote sensing and advanced GIS classes.

1985-1991

Educator and Program Coordinator

Franklin Institute Science Museum. Philadelphia PA

Performed and developed science demonstrations and workshops. Coordinated museum programs, special events and overnight programs.

**Books**

Launius, Roger D., and Johnston, Andrew K., *Smithsonian Atlas of Space Exploration*. HarperCollins Publishers, 2009. ISBN 978-0-06-156526-7.

Johnston, Andrew K., *Earth From Space*. Firefly Books, 2004. ISBN 1-55297-820-6. French translation, 2004. ISBN: 2-89000-771-5. Second Edition, 2007. ISBN: 1-55407-291-3.

**Reviewed Publications**

Zimbelman, J.R., Garry, W.B., Johnston, A.K., Williams, S.H., 2008. Emplacement of the 1907 Mauna Loa basalt flow as derived from precision topography and satellite imaging. *Journal of Volcanology and Geothermal Research* 177. p. 837-847.

Williams R. M. E., Zimbelman, J.R., Johnston, A.K., 2006. Aspects of alluvial fan shape indicative of formation process: A case study in southwestern California with application to Mojave Crater fans on Mars, *Geophysical Research Letters*, 33. p. 103-118.

Grant, J. A., Maxwell, T. A., Johnston, A. K., Kilani, A., Williams, K. K. 2004. Documenting drainage evolution in Bir Kiseiba, southern Egypt: Constraints from ground penetrating radar and implications for Mars. *Journal of Geophysical Research* 109, no. 9, Part 5: E09002.

Goetz, S.J. Prince, S.D., Goward, S.N., Thawley, M.M., Small, J., Johnston, A. 1999, Mapping net primary production and related biophysical variables with remote sensing: application to the BOREAS region. *Journal of Geophysical Research* 104 n. D22 page: 27,719.

**Abstracts and Conference Presentations**

Johnston, A.K. 2011 *Urban Forest Dynamics in the District of Columbia*. Smithsonian Climate Change Research Symposium, Washington DC.

Zimbelman J.R., Williams S.H., Johnston A.K. 2010. Cross-sectional profiles of ripples, megaripples, and dunes: A method for discriminating between formational mechanisms. In *Second International Planetary Dunes Workshop*, p. X-X. LPI Contribution No. 1552, Lunar and Planetary Institute, Houston.

Johnston, A. K., Kerr, M., 2009, Smithsonian Science: Reflections on Earth. Meeting of the National Association of Science Teachers.

Johnston, A. K, 2008, Analysis of Urban Forest Dynamics of Washington DC. Meeting of the American Association of Geographers.

- Johnston, A. K., 2003, Investigating Terrestrial and Planetary Geophysical Processes Using High precision GPS Equipment. Meeting of the American Association of Geographers.
- Johnston, A. K., 2002, Mapping the Source of Great Rivers: Potomac and Amazon. Meeting of the American Association of Geographers.
- Johnston, A. K., 2001, Remote Sensing of Landcover change in the Washington DC area. Meeting of the American Association of Geographers.
- Zimbelman, J.R., A.K. Johnston, 2002, New Precision Topographic Measurements of the Carrizozo and McCartys Basalt Flows, New Mexico, New Mexico Geological Society Guidebook, 53rd Field Conference, p. 121-127
- Johnston, A. K., M. Lefsky, G. Parker, 1999, Remote Sensing of Forest Canopy Structure Using Landsat TM and Laser Altimetry Data. Spring American Geophysical Union meeting, abstract A32B-11.
- Johnston, A. K., M. Bulmer, F.Engle 1998, Topographic mapping with high-precision GPS for geophysics fieldwork in challenging environments. AGU Fall meeting. *EOS Trans. AGU*, 79(45), U21A-24.
- Johnston, A. K., F.Engle, M. Bulmer, 1998, Topographic mapping of the Lloqueta river basin, Peru. Meeting of the American Association of Geographers.
- Zimbelman, J. R., A.K. Johnston, S.D Patel, 1998, Photogeologic Constraints on the Emplacement of the Medusae Fossae Formation, Mars: Lunar and Planetary Science Conference.
- Johnston, A. K., T. Watters, 1996, Assessing spatial growth of the Washington metropolitan area using thematic mapper data: Proceedings of ASPRS Annual Convention, p. 74-76.
- Zimbleman, J. R., A.K. Johnston, C.G. Lovett, 1996, Preliminary geologic map of the Bellona Fossae quadrangle on Venus: *EOS, Trans. Am. Geophys. U.*, v. 77, p. F443.
- Jacobberger, P. A., A. Johnston, 1994, Landscape evolution in a savanna ecosystem: soils and drainage development at Mpala Ranch, Kenya. Meeting of the Geological Society of America.

## Articles

- Johnston, A. K., 2005, Earth Puzzles, *Muse* vol. 9, no. 3.
- Zimbelman, J. R., and A. K. Johnston, 2002. Improved topography of the Carrizozo lava flow: Implications for emplacement conditions. *Bulletin of the New Mexico Museum of Natural History and Science*.
- Zimbelman, J.R., A.K. Johnston, 2001, in *Volcanology in New Mexico*, NM Mus. Nat. Hist. Sci. Bull. 18 (L.S. Crumpler and S.G. Lucas, Eds.), 131-136
- Bulmer, M. H., F. Engle, A. Johnston, 1997, Report on Sabancaya Volcano, *Bulletin of the Global Volcanism Network*, Washington DC, Smithsonian Institution, Nov. 97, p. 14-15.
- Bulmer, M. H., F. Engle, A. Johnston, G. Salas, 1997, Observations of current activity at Sabancaya Volcano, Southern Peru, and a field assessment in the Colca Canyon of the effects of the 1990 eruption, London, Royal Geographic Society.
- Johnston, A.K., F. Engle, 1995, Building a World Wide Web exhibit. *Arid Lands Newsletter* 38.
- Cole, D., A.K. Johnston, 1994, DRAGON Image Processing, *GIS World* vol. 7, no. 9.

## Exhibits and Museum Productions

- Earth From Space*. Produced content and served as curator of traveling exhibit (2006).
- Infinity Express*. Developed content and edited planetarium show (2001).

*GPS: A New Constellation*. Co-wrote museum exhibit and web site (1999).  
*Bright Edges of the World: The Earth's Drylands*. Co-wrote exhibit and web site (1995).

## **Teaching**

University of the District of Columbia, Washington DC (2007-2008)  
    Geography 104: World Physical Geography  
American University, Washington DC (2007-2008)  
    Physics 220: Astronomy  
George Washington University, Washington DC (2005-2007)  
    Geography 107: Introduction to Remote Sensing  
    Geography 121: Advanced Geographic Information Systems  
National Museums of Kenya, Nairobi, Kenya (1994)  
    Geographic Information Systems Training Class

## **Field Expedition Survey Support**

Great Sand Dunes, Colorado (2009, 2010)  
Ibex Dunes - Death Valley, California (2005)  
Mauna Loa, Hawaii (2004)  
Great Basin, Nevada (2003)  
Mojave Desert, Nevada / California (2003)  
Western Desert and Bir Kiseba, Egypt (2001, 2002)  
Orange County, Virginia (2001)  
McCarty's and Carrizozo Lava Flows, New Mexico (2000, 2001, 2002)  
Source of the Amazon Expedition, Peru (2000)  
Calvert Cliffs, Maryland (1999)  
Mt. Lassen, California (1999)  
Colorado River Valley, Arizona (1999)  
Western Desert, Egypt (1998)  
Nevado Sabancaya, Peru (1998)  
Lloqueta River - Colca Valley, Peru (1997)  
Mojave Desert, California (1996)  
Mpala Research Centre, Laikipia, Kenya (1993, 1994, 1995)

## **Public Presentations**

Kirby Science Discovery Center, Sioux Falls SD (2010)  
Stamford Museum and Nature Center, Stamford CT (2010)  
Great Sand Dunes National Park, Colorado (2009, 2010)  
Department of Interior Museum, Washington DC (2009)  
Kingsport Public Library, Kingsport TN (2009)  
Rittenhouse Astronomical Society, Philadelphia PA (2008)  
Durham Museum, Omaha NE (2008)  
North Branch Nature Center, Montpelier VT (2008, 2009)  
University of Northern Iowa Museum, Cedar Falls IA (2008)  
National Museum of the American Indian, Washington DC (2007, 2008)  
University of Maryland Observatory, College Park MD (2006)

Franklin Institute Science Museum, Philadelphia PA (2006, 2007, 2008, 2009)  
Heritage Academy, Columbus MS (2005)  
Smithsonian Kite Festival, Washington DC (2003, 2004, 2005)  
Detroit Science Center, Detroit MI (2003)  
Smithsonian Scholars in the Schools / Tacoma Public Schools, Tacoma WA (2002)  
Smithsonian Scholars in the Schools / Clark County Public Schools, Las Vegas NV (2001)  
American International School, Lusaka, Zambia (2001)  
National Zoological Park, Washington DC (1998, 1999, 2001, 2004)  
Smithsonian Folklife Festival, Washington DC (1996, 2000, 2008, 2010)  
Children's Museum of Rhode Island, Pawtucket RI (1996)  
Providence Public Library, Providence RI (1996)  
Roger Williams Park Natural History Museum, Providence RI (1996)  
National Museum of Natural History, Washington DC (1995, 1998, 2001, 2008)  
Cranbrook Institute of Science, Cranbrook MI (1994)  
Smithsonian International Gallery, Washington DC (1993, 2007)  
University of Maryland Dept. of Geography, College Park MD (1993, 2006)

### **Invited Lectures and Special Presentations**

Delaware Astronomical Society, Wilmington DE (2011)  
National Space and Astronomy Museum planning workshop, Canberra, Australia (2011)  
Precise Time and Time Interval meeting, Reston VA (2010)  
Casey Trees Endowment, Washington DC (2010, 2011)  
National Museum of American History, Washington DC (2010, 2011)  
George Washington University Museum Studies Program, Washington DC (2009)  
Geological Society of Washington, Washington DC (2009)  
Institute of Navigation Conference, Savannah GA (2008)  
National Science Resources Center, Washington DC (2008)  
Johns Hopkins University Museum Studies Program, Washington DC (2008, 2009)  
Washington Technology Geospatial Seminar, Falls Church VA (2007)  
Wolfsonian - Florida International University, Miami Beach FL (2007)  
American Association of Museums Media and Technology Committee, Boston MA (2006)  
American Chemical Society Conference, Washington DC (2005)  
Maryland Institute College of Art, Baltimore MD (2005)  
Smithsonian Institution Dibner Library, Washington DC (2004)  
Transforming Medical Imaging Conference, Bethesda MD (2004)  
Alice Ferguson Foundation, Accokeek MD (2002)  
George Mason University, Fairfax VA (2001, 2002, 2003, 2004, 2006)  
Challenger Center / DC Public Schools, Washington DC (2000, 2001, 2002, 2003)  
George Washington University Dept. of Geography, Washington DC (1998, 1999)  
Claremont College, Claremont CA (1998)  
University of the District of Columbia, Washington DC (1998)  
National Zoo Conservation Research Center, Front Royal VA (1996)  
Olympic Park Institute, Port Angeles WA (1996)  
Museum Magnet School / DC Public Schools, Washington DC (1995, 1997)  
Mpala Research Centre, Laikipia, Kenya (1994)  
Smithsonian Associates (1993, 1995)