NASA JOHNSON SPACE CENTER ORAL HISTORY PROJECT
BIOGRAPHICAL DATA SHEET

NAME: Diane E. Wickland

ORAL HISTORY: 26 March 2010

EDUCATIONAL BACKGROUND:

B.A. in Botany, University of Wisconsin at Madison, Madison, WI, 1972
M.S. in Botany, University of North Carolina at Chapel Hill, Chapel Hill, NC, 1977
Ph.D. in Biology and Botany, University of North Carolina at Chapel Hill, Chapel Hill, NC, 1983

PRE-NASA EXPERIENCE:

University of Wisconsin, Madison, WI (1972-1973)
- Laboratory Technician, Allergy Laboratory, University Hospital

Highlands Biological Station and the North Carolina Natural Heritage Program, Highlands, NC (1974)
- Field Ecologist, Highlands Biological Station and the North Carolina Natural Heritage Program

University of North Carolina at Chapel Hill, Chapel Hill, NC (1973-1976, 1978)
- Graduate Teaching Assistant, Department of Botany

Tennessee Valley Authority, Norris, TN (1977-1978)
- Field Botanist, Personal Services Contractor

Institute of Ecology, University of Georgia, Aiken, SC (1978-1981, 1982-1983)
- Graduate Research Participant, Savannah River Ecology Laboratory (1978-1981)
- Research Technician III, Savannah River Ecology Laboratory (1982-1983)

North Carolina Botanical Garden Foundation, Chapel Hill, NC (1980-1981)
- Field Botanist, North Carolina Botanical Garden Foundation

NASA EXPERIENCE:

NASA Jet Propulsion Laboratory (JPL), Pasadena, CA (1983-1987)
- Resident Research Associate, Earth and Space Science Division (1983-1985)
- Technical Staff, Earth and Space Science Division (1985-987)

NASA Headquarters (HQ) Washington D.C (1987-present)
- Program Manager, Terrestrial Ecology Program, Land Process Branch, Earth Science and Applications Division (1987-1990)
- Acting Chief, Ecosystem Dynamics and Biogeochemical Cycles Branch, Earth Science and Applications Division (1990-1992)
- Program Manager, Terrestrial Ecology Program, Science Mission Directorate (formerly Office of Earth Science and Mission to Planet Earth) (1992-present)
- Lead, Carbon Cycle and Ecosystems Focus Area, Science Mission Directorate (2004-present)

MISSIONS:

New Millenium Project EO-1

- NMP was established in 1994 as a measure to make Earth Science Enterprise (ESE) missions more cost efficient and reduce risk. NMP also ensured that NASA adhered to the Land Remote Sensing Policy Act of 1992.
- After receiving approval in March 1996, EO-1 launched November 2000 on a Delta II rocket from Vandenburg Air Force Base in California.
- EO-1 was the first NMP mission to fly and its main focus was flight validation for the thirteen instruments aboard the satellite. Three of those were revolutionary land-imaging sensors: the Advanced Land Imager (ALI), the Atmospheric Corrector (AC), and the Hyperion.
- After one year, the instruments had been successfully tested and EO-1 entered its Extended Mission.

Terra

- The Terra satellite was originally known as EOS AM-1 and was the flagship of the Earth Observing System.
- Terra launched 16 December 1999 from Vandenberg Air Force Base in California.
- The satellite was a joint effort of NASA, Japan, and Canada.
- MODIS was one of the land-imaging instruments on Terra.
- Terra provided information on the dynamic processes of the atmosphere, ocean, and land.
- Terra is still in operation, as is its sister satellite Aqua which launched a couple years after Terra.

LBA

- The LBA experiment is one of the largest coordinated scientific endeavors. LBA focuses on the effects of human interference in the Amazon, especially in regards to carbon storage, nutrient dynamics, trace gas fluxes, and the sustainability of the land.
- LBA was initiated by Brazil with international partners including NASA's Terrestrial Ecology and Land Use-Land Cover Programs. These two NASA programs run the LBA-Ecology (Eco) Program, which acts as the coordinating body for the U.S. research of the LBA experiment.
- LBA-Eco research emphasizes carbon storage and exchange, trace gas, nutrient dynamics, and land use and land cover.
- LBA-Ecology has been central to the development of a strong training and education component.
- NASA's satellite information, computer modeling, and its existing infrastructure proved indispensable for the large scale field campaigns of many of the Amazon projects.
- In 2006, NASA's direct participation in LBA ended. NASA LBA-Eco property and equipment was transferred to Brazilian research institutions. BARCA (the Brazilian acronym for LBA) moved forward under a Scientific Expedition License overseen by INPA. U.S. scientists continued to participate in the experiment with NASA acting as a funding sponsor for those scientists.

NOEPPS Preparatory Project (NPP)

- A joint mission with the National Polar-Orbiting Operational Environmental Satellite System (NPOESS) Integrated Program Office (IPO), NPP has two main objectives: ensure the continuation of imaging and sounding products of global change after the EOS missions have completed and provide risk reduction for NPOESS.
- NPP is scheduled to launch January 2011.
- NASA is providing the NPP spacecraft, the launch vehicle, and one of the three advanced sensors, the Advanced Technology Microwave Sounder (ATMS).
- In addition to acting as a risk reduction device for NPOESS, NPP will provide critical data needed to answer ten of the twenty-three questions that are identified in NASA's Earth Science Enterprise Strategic Plan.

AWARDS & CITATIONS:

- National merit Letter of Commendation, 1968
- Wisconsin Honor Scholarship, 1969
- Susan B. Davis Scholarship Cooperative Housing, 1969-1972
- Savannah River Ecology Laboratory Graduate Research Participant, 1978-1981
- **N**ational Research Council Associateship, 1983-1985
- NASA Performance Awards, 1989, 1994-2000, 2002-2005
- Certificate of Appreciation for effective participation in the U.S. National Committee for the Man and the Biosphere (U.S. MAB) Program, 1997
- NASA Certificate of Appreciation for outstanding support to the Instrument Incubator Program and Earth Science Enterprise, 1998
- NASA Group Achievement Award: NASA Grants Management Process Team, 1999
- NASA Goddard Space Flight Center Certificate in recognition of outstanding contributions and dedication to a successful EOS Terra Mission, 2000
- NASA Exceptional Service Medal, 2000
- NASA Group Achievement Award: New Millennium Earth Observing-1 Project Team, 2002
- NASA Space Flight Awareness Award, 2002
- NASA Superfast Award for Leadership of the Carbon Cycle NRA Review Process, 2002
- NASA Earth Science Enterprise Terra Award, 2003
- NASA Cooperative External Achievement Award, 2004
- Climate Change Science Program recognition for outstanding leadership and service as Co-Chair, Carbon Cycle IWG, 2006
- AGU Edward A. Flinn III Award, 2007

SELECT PUBLICATIONS & PATENTS:

Diane E. Wickland, "The relationship between the vegetation and soils of abandoned copper, lead, and zinc mines in the Piedmont of North Carolina," (M.S. thesis, University of North Carolina at Chapel Hill, 1977).

Diane E. Wickland, "Vegetation patterns on derelict heavy metal mine sites in the North Carolina Piedmont," (Ph.D dissertation, University of North Carolina at Chapel Hill, 1983).

D.E. Wickland, "Remote Sensing of Stressed Vegetation in the Carolina Slate Belt," *Proceedings of the International Symposium on Remote Sensing of Environment, Third Thematic Conference*, 2 (January 1985) 609-614.

J.P. Ford, D.E. Wickland, R. R. Sharitz, "Mapping Diverse Forest Cover with Multipolarization Airborne Radar," NASA JPL Aircraft SAR Workshop Proc. (June 15, 1985) 53-54.

R.E. Murphy, M. Baltuck, M. Ruzek, D.E. Wickland, "NASA's Future Land Remote Sensing Program," ESA, Proceedings of the 4th International Colloquium on Spectral Signatures in Remote Sensing, (April 1988) 487-492.

Diane E. Wickland, Ghassem Asrar, and Robert E. Murphy, "NASA 1990 Multisensor Airborne Campaigns (MACs) for Ecosystem and Watershed Studies," 4th Airborne Geoscience Workshop, (January 1, 1991) 71-72.

Diane E. Wickland, "Mission to Planet Earth-The Ecological Perspective," *Ecology*, 72, no. 6 (December 1, 1991) 1923-1933.

P. Sellers, F. Hall, H. Margolis, B. Kelly, D. Baldocchi, G. den Hartog, J. Cihlar, M. Ryan, B. Goodison, P. Crill, K. J. Ranson, D. Lettenmaier, and D. Wickland. "The Boreal Ecosystem-Atmosphere Study (BOREAS): An Overview and Early Results from the 1994 Field Year," *Bulletin of the American Meteorological Society*,76, no. 9 (1995) 1549-1577.

P. Sellars, F. Hall, H. Margolis, B. Kelly, D. Baldocchi, G. den Hartog, J. Cihlar, M. G. Ryan, B. Goodison, P. Crill, K. J. Ranson, D. Lettenmaier, and D. E. Wickland, "The Boreal Ecosystem-Atmosphere Study (BOREAS): An Overview and Early Results," *Proceedings of the 22nd Conference on Agricultural and Forest Meteorology and 12th Conference on Biometeorology, American Meteorological Society*, Boston, MA (January 28 - February 2, 1996) 1-4.

C. Justice, D. Starr, D. Wickland, J. Privette, and T. Suttles. EOS Land Validation Coordination: An Update. *The Earth Observe*r, 10, no. 3 (1998) 55-60.

J.A. Smith, D. E. Wickland, M. K. Crawford, J. Cihlar, and J. L. Schnase, "Advancing our Biological and Ecological Predictive Capabilities," Geoscience and Remote Sensing Symposium, *IEEE Proceedings*, 1 (2001) 154-156.

Carlos Nobre, Diane Wickland, and Pavel Kabat. "Large Scale Biosphere-Atmosphere Experiment in Amazonia (LBA)," *Global Change Newsletter*, 45 (March 2001) 1-4.

K. J. Ranson and D. E. Wickland, "EOS Terra: First Data and Mission Status," *Global Change Newsletter*, 45 (March 2001) 23-31.

Ralph Root and Diane Wickland, "Hyperspectral Technology Transfer to the U.S. Department of Interior: Summary of Results of the NASA/DOI Hyperspectral Technology Transfer Project," *Proceedings of the Tenth JPL Airborne Earth Science Workshop* (December 2001) 331-342.

Josef R. Cihlar, Scott Denning, Frank Ahern, Olivier Arino, Alan Belward, Francis Bretherton, Wolfgang Cramer, Gerard Dedieu, Christopher Field, Roger Francey, Rene Gommes, James Gosz, Kathy Hibbard, Tamotsu Igarashi, Pavel Kabat, Dick Olson, Stephen Plummer, Ichtiaque Rasool, Michael Raupach, Robert Scholes, John Townshend, Riccardo Valentini, and Diane Wickland, "Initiative to Quantify Terrestrial Carbon Sources and Sinks," *EOS, Transactions*, American Geophysical Union, 83 no. 1 (2002) 6-7.

Diane E. WIckland, Roger Dahlman, Jessica Orrego, Richard A. Birdsey, Paula Bontempi, Marilyn Buford, Nancy Cavallaro, Sue Conard, Rachael Craig, Michael Jawson, Anna Palmisano, Don Rice, Ed Sheffner, David Shultz, Bryce Stokes, Kathy Tedesco, and Charles Trees, "Carbon Cycle," in *Strategic Plan for the U.S. Climate Change Sicence Program: A Report by the Climate Change Science Program and the Subcommittee on Global Change Research*, Washington D.C. (2003) 71-82.

Diane E. Wickland, Carolyn T. Hunsaker, David D. Breshears, William K. Michener, "Professional Certification: Increasing Ecologists' Effectiveness," *Frontiers in Ecology and the Environment*, 5, (2007) 399.

Jaime E. Nickeson, Jeffrey T. Morisette, Jeffery L. Privette, Christopher O. Justice, Diane E. Wickland, "Coordinating Earth Observing System Land Validation," *Eos Transactions American Geophysical Union*,. 88, 7 (February 2007).

Shunlin, Liang, Michael Schaepman, Thomas Jackson, David Jupp, Xiaowen Li, Jiyuan Liu, Ronggao Liu, Alan Strahler, John R. Townshend, and Diane Wickland, "Emerging Issues in Land Remote Sensing," Chapter 19 in *Advances in Land Remote Sensing*, (Springer Netherlands: 2008) 485-494.

REFERENCES:

Carlos Nobre, Diane Wickland, and Pavel Kabat. "Large Scale Biosphere-Atmosphere Experiment in Amazonia (LBA)," *Global Change Newsletter*, 45 (March 2001) 1-4.

Diane E. Wickland, "Large Scale Biosphere-Atmosphere Experiment in Amazonia (LBA)," Presentation http://www.lbaeco.org/lbaeco/meeting10/presentations/talks/Plenary1_Wickland.pdf (accessed 25 June 2009).

Diane E. Wickland Curriculum Vitae

Goddard Space Flight Center, "EO-1 Baseline Mission Pages," NASA Earth Science Enterprise, http://eo1.gsfc.nasa.gov/new/baseline/index.html (accessed 25 June 2009).

Goddard Space Flight Center, "EO-1 Validation Report," NASA Earth Science Enterprise, http://eo1.gsfc.nasa.gov/new/validationReport/index.html (accessed 25 June 2009).

Goddard Space Flight Center, " NASA Plays Key Role in Largest Environmental Experiment," NASA Goddard Space Flight Center, (27 July 2004) http://www.nasa.gov/centers/goddard/news/topstory/2004/0727lba.html (accessed 25 June 2009).

Goddard Space Flight Center, "NPP Launch," NASA http://jointmission.gsfc.nasa.gov/launch.html (accessed 25 June 2009).

Goddard Space Flight Center, "NPOESS Preparatory Project Mission," NASA http://nppwww.gsfc.nasa.gov/science/ (accessed 25 June 2009).

United States, "Implementing Arrangement Between the Government of the United States of America and the Government of the Federative Republic of Brazil for Cooperation on Environmental Scientific research in the Large Scale Biosphere-Atmosphere Experiment in Amazonia," http://www.lbaeco.org/lbaeco/invest/docs/eng_ia_2006.pdf (accessed 25 June 2009).

K. J. Ranson and D. E. Wickland, "EOS Terra: First Data and Mission Status," *Global Change Newsletter*, 45 (March 2001) 23-31.

LBA-Ecology Science Team, "LBA-Ecology Experiment Plan: Ecological Researchin the Large Scale Biosphere-Atmosphere Experiment in Amazonia," LBA-Ecology Program (August 1999) http://www.lbaeco.org/lbaeco/invest/docs/explan/explanv1/explanv1.htm (accessed 25 June 2009).

LBA-Ecology Program, "LBA Ecology Phase I Activities and Analysis," LBA-Ecology http://www.lbaeco.org/lbaeco/invest/docs/reports/LBA-E.PhaseI.PDF (accessed 25 June 2009).

LBA-Eco "NASA Scientist Diane Wickland Honored with Flinn Award," NASA http://www.lbaeco.org/lbaeo/out/news_events/wickland_award.htm (accessed 25 June 2009).

Ministerio de Ciencia e Tecnologia, "The Large Scale Biosphere Atmosphere Experiment in Amazonia: Introduction," LBA, http://lba.inpa.gov.br/lba/lba_ingles/?p=1&1g=eng (accessed 25 June 2009).

Mike Bettwy, "Growth in Amazon Cropland May Impact Climate and Deforestation Patterns," NASA Goddard Space Flight Center, (19 September 2006) http://www.nasa.gov/centers/goddard/news/topstory/2006/amazon_crops .html. (accessed 25 June 2009).

NASA's Earth Observing System, "NPOESS Preparatory Project (NPP)," NASA http://eospso.gsfc.nasa.gov/eos_homepage/mission_profiles/show_mission.php?id=19 (accessed 25 June 2009).

NASA News, "Ball Aerospace Picked to Provide NPP Spacecraft Bus," NASA http://www.gsfc.nasa.gov/news-release/releases/2002/h02-96.htm (accessed 25 June 2009).

NASA Press Kit, "Terra: Flagship of the Earth Observing System," NASA (November 1999) http://www.nasa.gov/pdf/156293main_terra_press_kit.pdf (accessed 25 June 2009).

NASA Science "Dr. Diane Wickland, Terrestrial Ecology Program Scientist" NASA http://nasascience.nasa.gov/about-us/organization-and-leadership/terrestrial-ecology-program-scientist (accessed 19 June 2009).

NASA Science, "NPOESS Preparatory Project" NASA, http://nasascience.nasa.gov/missions/npoess-preparatory-project-npp (accessed 9 July 2009).

Oak Ridge National Laboratory, "ORNL DAAC Projects," ORNL DAAC http://daac.ornl.gov/projects.shtml (accessed 25 June 2009).

Oak Ridge National Laboratory, "ORNL DAAC Who We Are," ORNL DAAC, http://daac.ornl.gov/who.shtml (accessed 25 June 2009).

Oak Ridge National Laboratory, "ORNL DAAC User Working Group," ORNL DAAC http://daac.ornl.gov/UWG/publicuwg.html (accessed 25 June 2009).

Research Associateship Programs Fellowships Office, "NRC Associateship Program Directory," National Research Council, http://nrc58.nas.edu/pgasurvey/data/aodir/gen_page.asp?mode=detail&sql=idnumber='83 4315 (accessed 23 June 2009).

Terra, "Terra: About MODIS," NASA Terra, http://terra.nasa.gov /About MODIS/about_modis.html (accessed 25 June 2009).

Terra, "Terra," NASA Science, http://nasascience.nasa.gov/missions/terra (accessed 25 June 2009).

U.S. MAB "Diane Wickland Named New Vice Chair of the U.S. MAB National Committee," U.S. MAB, http: //www.dosfan.lib.uic.edu/ERC/mab_bulletin/mabv20n2.html (accessed 25 June 2009).

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