Earth Lab
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Education

Ph.D., Atmospheric and Space Sciences, University of Michigan, Ann Arbor, MI, 1993
M.S., Electrical Engineering, University of Wisconsin, Madison, WI, 1986
B.S., Electrical Engineering, University of Wisconsin, Madison, WI, 1982

Professional Experience

2017 –	Director of the Analytics Hub, University of Colorado, CIRES Earth Lab Boulder, CO Responsible for computing and data infrastructure, providing remote sensing, computing and data science expertise to Earth Lab, and conducting research in big data analytics.
2014 - 2017	Program Manager, National Snow and Ice Data Center (NSIDC), Boulder, CO Responsible for overall management of operations, mission support and development tasks under the NASA contract for the NASA NSIDC Distributed Active Archive Center.
2011-2014	Principal Systems Engineer, Raytheon IIS, Aurora, CO Responsible for data quality and transition of science data processing algorithms provided by the scientific community into the operational ground data processing system for NOAA's next generation weather and environmental satellites.
2008-2011	Senior Research Scientist, National Ecological Observatory Network, Boulder, CO Led development of airborne LiDAR, imaging spectrometer and camera instrumentation, sensor calibration, data processing algorithms and planning and execution of airborne and field pathfinder campaign to investigate field collection protocols and scaling techniques for airborne data.
2006-2008	Deputy Director of Earth Science Advanced Systems, Ball Aerospace, Boulder, CO Managed the Earth Science Advanced Systems department personnel, budgets, set strategic goals and priorities, directed internal R&D activities with emphasis on growing emerging business opportunities.
2001-2006	Principal System Engineer, Ball Aerospace & Technology Corp., Boulder, CO Systems engineer leading mission and instrument concept development for NASA and NOAA Earth sciences and weather space missions. Co-investigator for the NASA Passive A-band Wind Sounder (PAWS) Instrument Incubator Program, directed R&D optical and detector technology projects, and awarded two patents.
1995-2001	Project Scientist, National Center for Atmospheric Research, Boulder, CO Instrument Scientist responsible for scientific support, engineering analysis, and calibration and validation planning for the development of NASA EOS High Resolution Dynamics Limb Sounder (HIRDLS) satellite instrument.
1993-1995	Postdoctoral Fellow, National Center for Atmospheric Research, Boulder, CO Conducted research on the far infrared spectral characteristics of ice clouds and surface ices on Mars, and infrared methods for observing cirrus clouds and polar stratospheric clouds in the Earth's atmosphere including effects of aerosol and polar stratospheric cloud infrared opacity on the retrieval of methane and nitrous oxide on UARS CLAES measurements.
1989-1993	Research Assistant, University of Michigan, Ann Arbor, MI Conducted radiative transfer modeling and laboratory research of the far infrared spectral characteristics of planetary ices their role in stability of planetary atmospheres.

1987-1989	System Engineer, Westinghouse Electric, Corp., Baltimore, MD Conducted system analysis and testing of a satellite-based visible and infrared cloud imager for the Defense Meteorological Satellite Program (DMSP).
1984-1987	Research Assistant, University of Wisconsin, Madison, WI Conducted experimental research and analysis of over-moded waveguide components at 60 GHz.
1983-1984	Antenna Engineer, Harris Corp., Melbourne, FL Supported development and testing of microwave antenna components for satellite communication systems.

Grants and Funding

2014-2018	Principal Investigator on $8M/year award from NASA Earth System Data and Information System Program
2009-2012	Co-Investigator on $9.96M/3-yr award from NSF Dept. of Biological Infrastructure for "NEON AOP Design Verification Unit and Supporting Risk Reduction Activities."
2005 to 2008	Co-Investigator for $3M/3-year award from the NASA Instrument Incubator Program for development of a "Passive A-band Winds Sensor."
2002 to 2003	Ball Aerospace internal R&D funding: Principal Investigator on a $400K/2-year award for test and characterization of infrared microbolometer detector technology; Principal Investigator on $350K/2-year award for developing a scanning Fabry-Perot A-band sensor for airborne or satellite applications; Technical lead on a $150K project to demonstration of a Dyson imaging spectrometer and small UAS-compatible infrared radiometer.

Professional Service

NASA Proposal Review Panel: Sustainable Land Imaging Technology Program, 2016
NASA Proposal Review Panel: Science Utilization of SMAP (SUSMAP), 2016
DOE Proposal Review Panelist: Terrestrial Ecosystem Science (TES) University Review, 2013
NASA Proposal Review Panelist: Planetary Instrument Development Program, 2006, 2008, and 2010
Member of the NASA Airborne Science Working Group, 2011
Program Committee Member for SPIE Conference Session on Remote Sensing and Modeling of Ecosystems for Sustainability, 2009 and 2010.
NASA Proposal Review Panelist: NASA Arctic Research of the Composition of the Troposphere from Aircraft and Satellites (ARCTAS), Sept. 2007

Teaching/Mentoring Experience

NSIDC Graduate Student Summer internship – 2016
Technical Consultant – University of Michigan student led M-Cubed project, 2010
Committee member for Ph.D. degree graduate student at University of Colorado, 2008
Committee member for Masters degree graduate student at Colorado State University, 2004 -2005
Mentoring: Ball Aerospace summer engineering internships, 2002 and 2003
Graduate student Instructor: Co-Instructor: Introduction to Planetary Sciences, 1992
Teaching Assistant: Microwave Laboratory, 1985

Honors, Awards

NASA ESTO Certificate of Appreciation for Sustainable Land Imaging Technology Program, 2016
NASA GSFC Group Achievement Award for the NASA EOS Aura Mission, 2005
NASA HQ Group Achievement Award for the NASA/EOS HIRDLS Instrument, 2005
National Center for Atmospheric Research Postdoctoral Fellowship, 1993-1995

Patents

"Method and Apparatus for Providing a Gas Correlation Filter for Remote Sensing of Atmospheric Trace Gases," Patent Number 7050215, awarded May 23, 2006.

"Field Condensing Imaging System for Remote Sensing of Atmospheric Trace Gases," Patent Number 7030991, awarded April 18, 2006.

Publications, Conference Proceedings Papers and Presentations

Grzegorz Miecznik and **Brian R Johnson** (2015). Effects of line-of-sight motion on hyperspectral Fourier transform measurements, J. Appl. Remote Sens., (9) 043510; doi: 10.1117/1.JRS.9.095982.

Brian R. Johnson, Amanda Leon, Siri Jodha Singh Khalsa (2015). Data Management in the Era of a Rapidly Changing Cryosphere, Geoscience and Remote Sensing Symposium (IGARSS), IEEE International, doi: 10.1109/IGARSS.2015.7326028.

Krause, K.S., M.A. Kuester, **B.R. Johnson**, J.T. McCorkel, and T.U. Kampe, (2011). Early Algorithm Development efforts for the National Ecological Observatory Network Airborne Observation Platform Imaging Spectrometer and Waveform LiDAR, Proc. Soc. Photo-Opt Instr. Eng., Vol. 8151.

McCorkel, J.T., M.A. Kuester, **B. R. Johnson**, and T.U. Kampe (2011). NEON Ground Validation Capabilities for Airborne and Space-based Imagers, Proc. Soc. Photo-Opt Instr. Eng., Vol. 8153.

Progress in the Development of Airborne Remote Sensing Instrumentation for the National Ecological Observatory Network (NEON), Thomas U. Kampe, Joel T. McCorkel, Louise Hamlin, Robert O. Green, and Brian R. Johnson, Proc. Soc. Photo-Opt Instr. Eng., Vol. 8156, 2011.

Kampe, T.K., **B.R. Johnson**, M.A. Kuester, and M. Keller (2010). NEON: The First Continental-Scale Ecological Observatory with Airborne Remote Sensing of Vegetation Canopy Biochemistry and Structure, Appl. Remote Sens., Vol. 4, 043510; doi: 10.1117/1.3361375.

Kampe, T.U., G.P. Asner, R. O. Green, M. Eastwood, **B.R. Johnson,** M. Kuester, (2010). Advances in airborne remote sensing of ecosystem processes and properties: toward high-quality measurement on a global scale, Proc. Soc. Photo-Opt Instr. Eng., Vol.7809, 2010.

Johnson, B.R., .U. Kampe, and M.A. Kuester (2010). Development of airborne remote sensing instrumentations for NEON, Proc. Soc. Photo-Opt Instr. Eng., Vol.7809.

Johnson, B.R., T.U. Kampe, M.A. Kuester, and M. Keller, (2009). NEON: The First Continental-Scale Ecological Observatory with Airborne Remote Sensing of Vegetation Canopy Biochemistry and StructureProc. Soc. Photo-Opt Instr. Eng., Vol. 7454.

Miecznik, G., R.P., P. Huang, P.A. Slaymaker, P. Kaptchen, S.Roark, **B.R. Johnson** and D.F. Heath (2007). Passive A-Band Wind Sounder (PAWS) for Measuring Tropospheric Wind Velocity Profile, Proc. Soc. Photo-Opt Instr. Eng., Vol. 6677.

Kuester, M.A., J.K. Lasnik, T.Ramond, T. Lin, **B.R. Johnson**, P. Kaptchen, W. Good (2007). Airborne prototype instrument suite test flight of a low light – high dynamic range imager and visible spectrometer over the Great Salt Lake region, Proc. Soc. Photo-Opt Instr. Eng., Vol. 6677.

Roark, S., R. Pierce, P.Slaymaker, G. Miecznik, **B.R. Johnson**, P. Huang, and P. Kaptchen (2007). Passive A-Band Wind Sounder (PAWS) for Measuring Tropospheric Wind Velocity, NASA Science Technology Conference June 19 – 21.

Kuester, M., J. McCorkel, **B. Johnson**, T. Kampe, P. Johnson, P. Kaptchen, B. Good, K. Smith and J. Lasnik (2007). A Prototype Airborne Visible Imaging Spectrometer (PAVIS), IEEE Aerospace Conference, Big Sky, MT 2007.

Johnson, B.R., G. Miecznik, and T.U. Kampe, (2007). Spectral Errors and Their Affect on Retrieval of Temperature and Water Vapor Profiles in the Presence of Clouds, Hyperspectral Imaging and Sounding of the Environment (HISE), Santa Fe, New Mexico, USA.

Miecznik, G. and **B.R. Johnson** Effects of Jitter Motion on Atmospheric Temperature and Humidity Retrievals from FTS IR Measurements, , Hyperspectral Imaging and Sounding of the Environment (HISE), Santa Fe, New Mexico, USA Feb. 2007.

Johnson, B.R., K.P. Czajkowski, R.P. d'Entremont, J.A. Haggerty, T.U. Kampe, H.E. Snell, J.Turner-Valle (2004). An Airborne Imaging Radiometer (AIR) for Atmospheric and Surface Process Studies, ' SPIE Fourth International Asia-Pacific Environmental Remote Sensing Symposium: Remote Sensing of the Atmosphere, Ocean, Environment, and Space.

Johnson, B.R., T.U. Kampe, W.B. Cook, G. Miecznik, P.C. Novelli, H.E. Snell, and J. Turner-Valle, Imaging Multi-Order Fabry-Perot Spectrometer (IMOFPS) for Spaceborne Measurements of CO, Proc. Soc. Photo-Opt Instr. Eng., Optical Spectroscopic Techniques and Instrumentation for Atmospheric and Space Research V, 2003.

Johnson, B.R. and W.B. Gail (2003). Ball Aerospace & Technologies Corp.: Earth Science and Remote Sensing, IEEE GRSS Newsletter.

Lambert, A., P. L. Bailey, D.P. Edwards, J.C. Gille, **B.R. Johnson**, C.M. Halvorson, S. T. Massie, K. A. Stone (1999). High Resolution Dynamics Limb Sounder Level-2 Algorithm Theoretical Basis Document,Website:http://eospso.gsfc.nasa.gov/eos_homepage/for_scientists/atbd/viewInstrument.php ?instrument=HIRDLS.

Johnson, B.R., J.C. Gille (1999). A Description of the HIRDLS Experiment International Workshop on Submillimeter-Wave Observation of the Earth's Atmosphere from Space, NASDA, Tokyo, Japan.

Johnson, B.R., W. Mankin, and J.C. Gille, A Description of the HIRDLS Radiometric Model (HIRAM), Proc. Soc. Photo-Opt Instr. Eng., Vol. 3437, 147-155, 1998.

Barnett, J.J., A.G. Darbyshire, C.L. Hepplewhite, C.W.P.Palmer, F. Row, P. Venters, R.E.J. Watkins, J.C. Gille, and **B. Johnson** (1998). Pre-Launch Calibration of the HIRDLS Instrument, , Proc. Soc. Photo-Opt Instr. Eng., Vol. 3437, 137-146.

Johnson, B.R. and S.K. Atreya (1996). Feasibility of Determining the Composition of Planetary Ices by Far Infrared Observations: Application to Martian Cloud and Surface Ices, , Icarus, 119, 405-426.

Gille, J., J. Barnett, M. Coffey, W. Mankin, **B. Johnson**, M. Dials, J. Whitney, D. Woodard, P. Arter and W. Rudolf (1994). The High Resolution Dynamics Limb Sounder (HIRDLS) for the Earth Observing System, (Invited Paper), Proc. Soc. Photo-Opt Instr. Eng., 2266, 330-339.

Vernon, R.J., **B.R. Johnson** and D.J. Hoppe, (1985). Design of a TE11-to-HE11 Mode Converter in a Highly Over-Moded Corrugated Circular Waveguide to be used as a Reflector Feed for Plasma Heating, Proceedings of the International IEEE/AP-s Symposium, Vancouver, Canada.