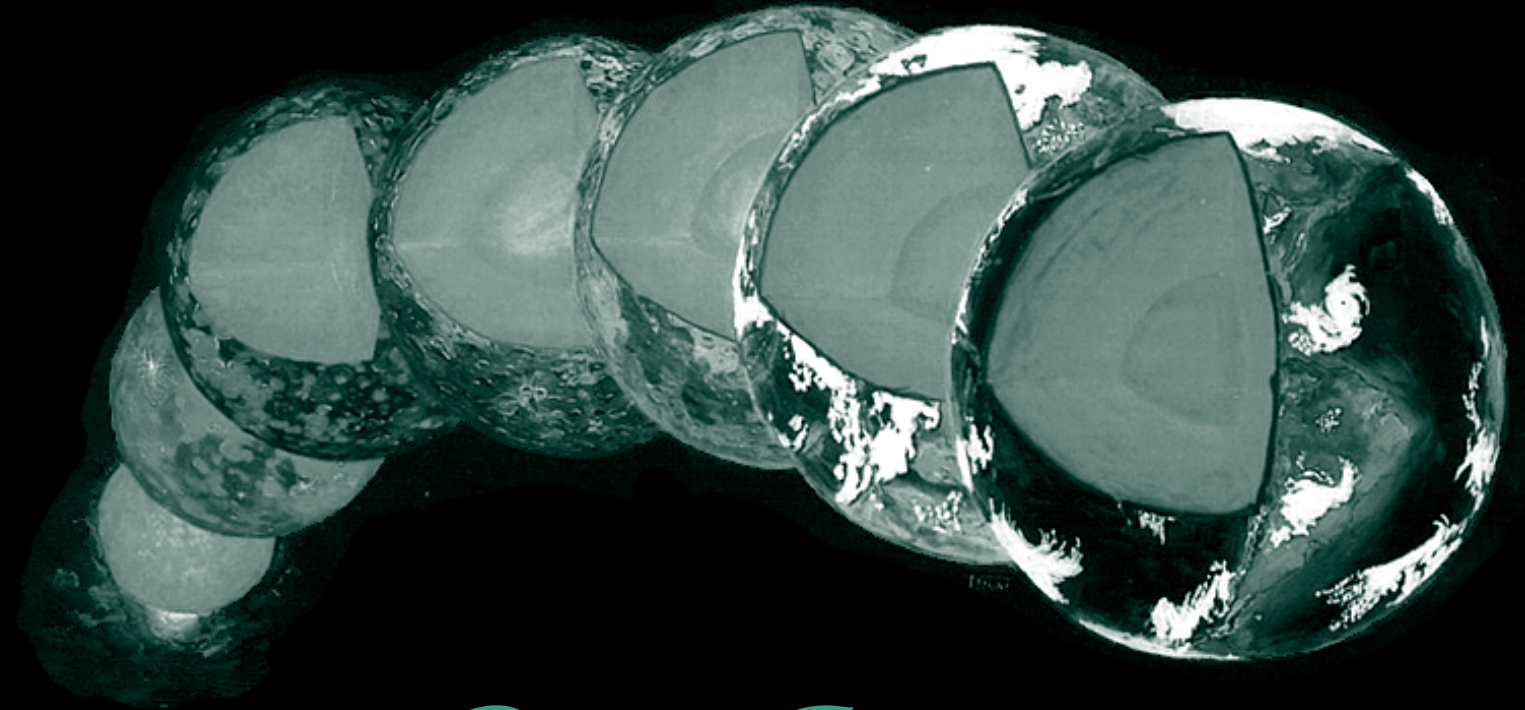


WISCONSIN SPACE GRANT CONSORTIUM PRESENTS:



OUR CHANGING EARTH

13th annual wisconsin SPACE CONFERENCE

Thursday and Friday
August 14 and 15, 2003

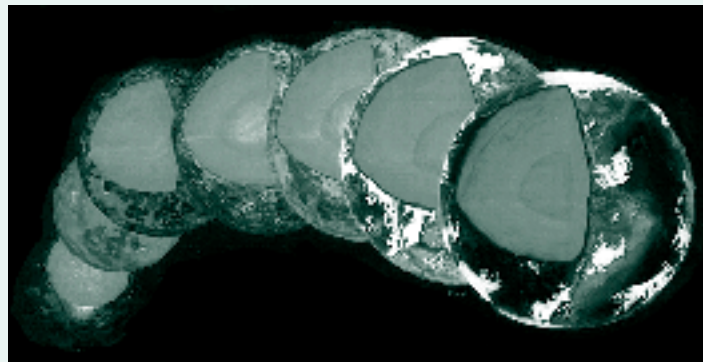
UNIVERSITY OF WISCONSIN-GREEN BAY



Wisconsin Space Grant Consortium Presents:

13th wisconsin Space Conference

August 14 and 15, 2003



Wisconsin Space Grant Consortium

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University of Wisconsin-Parkside
University of Wisconsin-Whitewater
Wisconsin Association of CESA Administrators
Wisconsin Department of Public Instruction
Wisconsin Department of Transportation
Wisconsin Space Business Roundtable



Keynote Speaker

**Dr. Steven Hu, Associate Professor
School of Natural Resource Sciences
University of Nebraska-Lincoln**

Dr. Hu earned his Ph.D. from Department of Atmospheric Science at Colorado State University in 1992. He has been working and known in several areas in atmospheric research, including tropical intraseasonal oscillation, atmospheric convection, and surface process effect on circulation. His primary focus in recent years is on climate variability in the central United States. He is a recent recipient of

the award for excellence in research at the Agricultural Research Division of the UNL. Dr. Hu has been an active participant in NOAA Global Change Programs over the years and has participated in drafting the U.S. Water Cycle Initiative. Before joining the faculty at the University of Nebraska, he served five years as the director of the Missouri Climate Center and as Missouri State Climatologist.

Dr. Hu will speak on recent developments in the understanding of climate variations. These variations challenge some notions that have been held in interpreting short-term (yearly and decadal) predictions, forcing a reexamination of the ways we approach climate change.



Keynote Speaker

**Dr. David Travis, Associate Professor
Department of Geography and Geology
University of Wisconsin-Whitewater**

Dr. Travis received a B.S. and M.S. from the University of Georgia (1987 and 1989) and a Ph.D. from Indiana University (1994), specializing in physical climatology and human impacts on clouds and precipitation. Since arriving at Whitewater in 1994, Dr. Travis has continued research on these topics with the findings published in a variety of national and international peer-reviewed journals.

Dr. Travis's research on jet contrails focuses on two primary objectives. The first has been an ongoing effort to quantify the potential influence of contrails on surface temperature. His work has contributed to a growing body of evidence suggesting that contrails are capable of producing a measurable reduction of temperature range in areas where they are most abundant. This research was widely publicized last summer when his findings related to the post-September 11 aircraft groundings were published in *Nature*. The second objective focuses on quantifying past and future rates of contrail coverage increases, based on projections of air traffic density by the middle of this century. When combined with the first objective, such increases have important implications on future climate change.

Schedule (Tentative*)

Thursday, August 14, 2003

7:30 a.m....Registration/Continental Breakfast

9:00 a.m....Welcome and Introductions

9:15 a.m.... **Keynote Address**

Dr. Steven Hu, Associate Professor
University of Nebraska
*The Changing Climate:
Issues in the 21st Century*

10:15 a.m....Morning Break and Refreshments

10:45 a.m....Concurrent Sessions:

Stream 1: Education

Stream 2: Research

12:15 p.m. .Lunch

1:30 p.m. ...Concurrent Sessions:

Stream 1: Education

Stream 2: Research

3:15 p.m. ...Break and Refreshments

3:45 p.m. ...Concurrent Sessions:

Stream 1: Education

Stream 2: Research

5:15 p.m. ...Adjourn for Day

Friday, August 15, 2003

8:00 a.m....Registration/Continental Breakfast

9:00 a.m.... **Keynote Address**

Dr. David Travis, Associate Professor
University of Wisconsin-Whitewater
*Jet Contrail Influences on Climate:
Knowledge Gained from the Aircraft
Groundings Following the September 11,
2001 Terrorist Attacks and Implications
on Future Climate Change*

10:00 a.m...Morning Break & Refreshments

10:30 a.m....Concurrent Sessions:

Stream 1: Education

Stream 2: Research

Noon.....Awards Luncheon and Speaker

3:00 p.m. ...Conference Adjourned

*Permanent schedule available approximately one week before conference on our website — www.uwgb.edu/wsgc or call 920-465-2941

Conference Contacts

Registration Information:

Janet
920-465-2642 or

1-800-892-2118

mcneilj@uwgb.edu
www.uwgb.edu/outreach/ProfEd

Program Information:

McNeil Sharon D. Brandt
920-465-2941

brandts@uwgb.edu
www.uwgb.edu/wsgc

ABOUT WISCONSIN SPACE GRANT CONSORTIUM (WSGC)

The Wisconsin Space Grant Consortium (WSGC), formed in 1991, is a Wisconsin-wide network of public and private universities and colleges, industries, government agencies, nonprofit associations, and other entities. The purpose of the Consortium is to coordinate and improve Wisconsin's future in aerospace, science, design, and technology. The focus of the Consortium is to stimulate aerospace research, education, and outreach activities throughout the State. WSGC encourages cooperative programs among universities, aerospace industry, and government and encourages interdisciplinary, interuniversity, and university/industry training, research, and public service. It aids in the recruitment and training of professionals, especially women, underrepresented minorities, and the developmentally challenged, for careers in aerospace science, design and technology.

Conference Fee

Conference fee includes registration materials and parking* for the conference plus:

Thursday, August 14

Continental breakfast, morning refreshments, luncheon and afternoon refreshments

Friday, August 15

Continental breakfast, morning refreshments and awards luncheon

No refund if cancelled after August 5, 2003.

* Parking instructions will be received with confirmation letter.

Conference Location and Accommodations

University of Wisconsin-Green Bay

2420 Nicolet Drive, Green Bay, WI 54311-7001

Lodging is available on the UW-Green Bay campus. Newly constructed, fully furnished 4-bedroom apartment suites offering 1200 square feet of living space, with full kitchen, one bathroom, and air conditioning. Location is a short walk (about 5 minutes) to conference facilities and Cofrin Arboretum trails. Linen, bedding, and towels are provided. All rooms are non-smoking. To view layout of suites, visit <http://www.uwgb.edu/housing/tour/apt-n.htm>. See registration form for rates. Alternative lodging can be arranged independently at the AmeriHost Inn (920-406-8200), approximately 5 minutes from campus.

Wisconsin Space Conference: Our Changing Earth Registration Deadline: August 1, 2003

Please Print:

Name _____

Organization _____

Address _____

City _____

State _____ Zip _____

Phone _____

Fax _____

E-mail _____

Roommate preference: 1) _____

2) _____ 3) _____

Payment:

Charge card: MasterCard Visa Check

Make checks payable to: University of Wisconsin-Green Bay

Name on card _____

Card No. _____

Exp. date _____

To Register

No refunds for cancellations after August 5, 2003.

Mail to: Janet McNeil, Outreach and Extension

University of Wisconsin-Green Bay

2420 Nicolet Drive

Green Bay, WI 54311-7001

Phone (MC/Visa only): Janet McNeil at 920-465-2642 or 800-892-2118

On-line: www.uwgb.edu/outreach/ProfEd

Conference Fee

Faculty.....\$50

Professional\$50

K-12 Teacher.....\$25

Student.....\$25

Other (specify)\$50

Awards Luncheon.....\$15
(for nonparticipants)

Fee total \$ _____

Conference Lodging on UW-Green Bay campus (4 bedroom suites)

\$28 per night/person (w/3 others in suite)

\$56 per night/person (w/1 other in suite)

\$112 per night/person (entire suite)

Room will be needed for:

_____ Wednesday night, August 13 only

_____ Thursday night, August 14 only

_____ Wednesday and Thursday nights,

August 13 and 14

Lodging total \$ _____

Total payment \$ _____

Vegetarian meals please

I request CEU credits

Wisconsin Space Grant Consortium

Presents:

THIRTEENTH ANNUAL WISCONSIN SPACE CONFERENCE

“Our Changing Earth”

University of Wisconsin-Green Bay
Green Bay, Wisconsin

Thursday - Friday, August 14-15, 2003

Sponsored by:
Wisconsin Space Grant Consortium
and
University of Wisconsin – Green Bay

CONFERENCE 2003 PROGRAM

Thursday, August 14, 2003

7:30-9:00 am Registration/Continental Breakfast Mary Ann Cofrin (MAC), Outside Room 113

*** Plenary Session ***

9:00-9:15 **Welcome and Introductions** **MAC Hall, Room 208**
R. Aileen Yingst, Director, Wisconsin Space Grant Consortium

Welcome

Bruce Shepard, Chancellor, University of Wisconsin-Green Bay

Session 1: Keynote Address:

9:15-10:15 *The Changing Climate: Issues in the 21st Century*, Steven Hu, Associate Professor, School of Natural Resources, University of Nebraska-Lincoln

10:15-10:45 Morning Break and Refreshments Outside MAC 113

*** Plenary Session ***

10:45-12:15 **Session 2: Special Student Presentations** **MAC 208**

Moderator: R. Aileen Yingst, Director, Wisconsin Space Grant Consortium

Student Satellite Program

Student Rocket Payload Launch, Wet Behind the Ears Engineering Team: Anthony Guzzo and Eric Jacob, Undergraduates, Milwaukee School of Engineering

Launching the First Wisconsin High-Altitude Balloon, Undergraduate Team: Nicholas Beyer, Marquette University; Eric Jacob and Lee Sharping, Milwaukee School of Engineering; Shannon Smith, University of Wisconsin-Green Bay

KC-135 Student Microgravity Flights

Zero-G Aerogel Formation: Developing Engineering for Weightless Materials Processing, Stephen Steiner, Undergraduate, Department of Chemistry, University of Wisconsin-Madison

Design Study of a Non-Mechanical Electromagnetic Compressor for Two-Phase Flow in Microgravity, Ryan Curtis and Mike Fidler, Undergraduates, Department of Engineering Physics, University of Wisconsin-Madison

12:15-1:30 Lunch Niagra A&B, University Union

***** Concurrent Sessions -- Research Stream *****

1:30-3:00 **Session 3R(1): Biological Sciences and Medicine** **MAC 113**

Moderator: Gerald Kulcinski, Associate Dean, College of Engineering, University of Wisconsin-Madison

Effects of Fatigue on Lower Extremity Stiffness, Thomas Kernozek, Associate Professor, Department of Physical Therapy and Robert Ragan, Associate Professor, Department of Physics, UW-LaCrosse

Deciphering Programmed Cell Death Pathways in Model Plant Systems, Deborah Bishop, Scientist, BioPharmaceutical Technology Institute Center, Promega Corporation

Session 3R(2): Materials and Mechanical Engineering

Moderator: Gerald Kulcinski, Associate Dean, College of Engineering, University of Wisconsin-Madison

Application of Vorticity to Electronics Thermal Management, Timothy Dake, Graduate Student, Department of Mechanical and Industrial Engineering, Marquette University

Mean Flow Approximation for a Slab rocket Motor with Tapered Sidewalls, Oliver Sams, Graduate Student, Department of Mechanical and Industrial Engineering, Marquette University

The Bidirectional Vortex, Anand Vyas, Graduate Student, Department of Mechanical and Industrial Engineering, Marquette University

Precursor Transformation Method for Damage Detection in Composite Structures, Habib Tabatabai, Associate Professor, Kiran Lamichhane, Graduate Student, College of Engineering and Applied Science, UW-Milwaukee

3:00-3:30 Afternoon Break and Refreshments Outside Mac 113

3:30-5:00

Session 4R: Physics

MAC 113

Moderator: Michael Jackson, Associate Professor, Department of Physics, University of Wisconsin-La Crosse

Calculating the Quark/Anti-Quark Potential via the Transverse Lattice, Matthew Bierman, Undergraduate Student, UW-La Crosse

Analysis of the IR-LMR Spectrum of NCN, Chris DiRocco, Undergraduate Student, Department of Physics, University of Wisconsin-LaCrosse

Development of Three-Laser Heterodyne Frequency Measurement System, Paul Noffke, Undergraduate Student, Department of Physics, University of Wisconsin-LaCrosse

Vacuum Metamorphosis and the Accelerating Cosmos, William Komp, Graduate Student, Department of Physics, UW-Milwaukee

Radiation Shielding for Space Flight, Steve Blattnig, Physicist, Analytical and Computational Methods Branch in the Structures and Materials Competency, NASA Langley Research Center (Previously at UW-Milwaukee)

Radiation Transport for Shielding Applications, Ryan Norman, Graduate Student, Department of Physics, University of Wisconsin-Milwaukee

***** Concurrent Sessions -- Education Stream *****

1:30-3:00

Session 3E: K-12 Curriculum Enhancement

MAC 111

Introduction: Tom Achteor, Research Scientist and Executive Director for Science, Space Science and Engineering Center, University of Wisconsin-Madison

Weather Workshop, Development of Satellite Meteorology Classroom Curriculum for Middle School and High School Teachers, Margaret Mooney, Outreach Specialist, Cooperative Institute for Meteorological Satellite Studies, Space Science and Engineering Center, University of Wisconsin-Madison

3:00-3:30

Afternoon Break and Refreshments

Outside Mac

113

3:30-5:00

Session 4E: Higher Education & K-12 Curriculum Enhancement MAC 111

Moderator: Karen Valley, Aviation Education Consultant, Bureau of Aeronautics, Wisconsin Department of Transportation

Aviation Career Education – Take Off! Chrystal McCollum, Public Relations Coordinator, General Mitchell International Airport, Milwaukee

The 11th Summer Workshop in Atmospheric, Earth and Space Science, Tom Achtor, Research Scientist and Executive Director for Science, Space Science and Engineering Center, University of Wisconsin-Madison

Rockets for Schools for Elementary Students, Carol Lutz, Great Lakes Spaceport Education Foundation

Computational Fluid Dynamics in Applied Aerospace Engineering, Dianqi Fang, Graduate Student, Department of Mechanical and Industrial Engineering, Marquette University for Joseph Majdalani, Professor, Marquette University

***** Adjourn for Day *****

**Wisconsin Space Conference
Friday, August 15, 2003**

8:00-9:00 a.m. Late Registration/Continental Breakfast Outside MAC 113

***** Plenary Session *****

9:00-10:00 **Session 5: Keynote Address** MAC 208

Introduction: R. Aileen Yingst, Director, Wisconsin Space Grant Consortium

Jet Contrail Influences on Climate: Knowledge Gained from the Aircraft Groundings Following the September 11, 2001 Terrorist Attacks and Implications on Future Climate Change, Dr. David Travis, Associate Professor, Department of Geography and Geology, University of Wisconsin-Whitewater

10:00-10:30 Morning Break and Refreshments Outside MAC 113

***** Concurrent Sessions -- Research Stream *****

10:30-12:00 pm **Session 6R(1): Astronomy** MAC 113

Moderator: Dr. David Travis, Associate Professor, Department of Geography and Geology, University of Wisconsin-Whitewater

Evolution of Brightest Cluster Galaxies, Andrew Glenn, Graduate Student, Astronomy Department, UW-Madison

Photometric Observation of Celestial Bodies, Andrew Nencka, Undergraduate Student, Marquette University

The Changing AGN Population, Aaron Steffen, Graduate Student, Department of Astronomy, UW-Madison

Session 6R(2): Chemical and Mathematical Sciences

Moderator: Dr. David Travis, Associate Professor, Department of Geography and Geology, University of Wisconsin-Whitewater

Chemical signatures on Mars: What are we looking for? Vera Kolb, Professor, Department of Chemistry, UW-Parkside

Degradation of Gas-Phase Contaminants using Photocatalytic Oxidation. Michael Zorn, Assistant Professor, Department of Natural and Applied Sciences, UW-Green Bay

Ground Based Lightning Observations of Radiations and Emissions, Dieudonne D. Phanord, Professor, Department of Mathematical Sciences, University of Nevada, Las Vegas (previously with University of Wisconsin-Whitewater)

***** Concurrent Sessions -- Education Stream *****

10:30-12:00 pm **Session 6E: K-12 Curriculum Enhancement** **MAC 111**

Introduction: Wayne Olm, Education Liaison, Wisconsin Space Grant Consortium

Integrating Space Science into the Classroom, Scott Thompson, Undergraduate Student, Department of Education, University of Wisconsin-Green Bay

12:00-12:20 Group Photograph As Directed

12:25-2:00 **Wisconsin Space Grant Consortium Awards Luncheon** Niagara A&B

Special Address

Introduction: R. Aileen Yingst, Director, Wisconsin Space Grant Consortium

College of Menominee Nation - Channeling Change on the Menominee Reservation, Dr. Verna Fowler, President, College of the Menominee Nation

2:00-2:30 **Awards Ceremony**

R. Aileen Yingst, Director, Wisconsin Space Grant Consortium
Program Associate Directors

2:30 p.m. Conference Adjourned

***** Adjournment *****