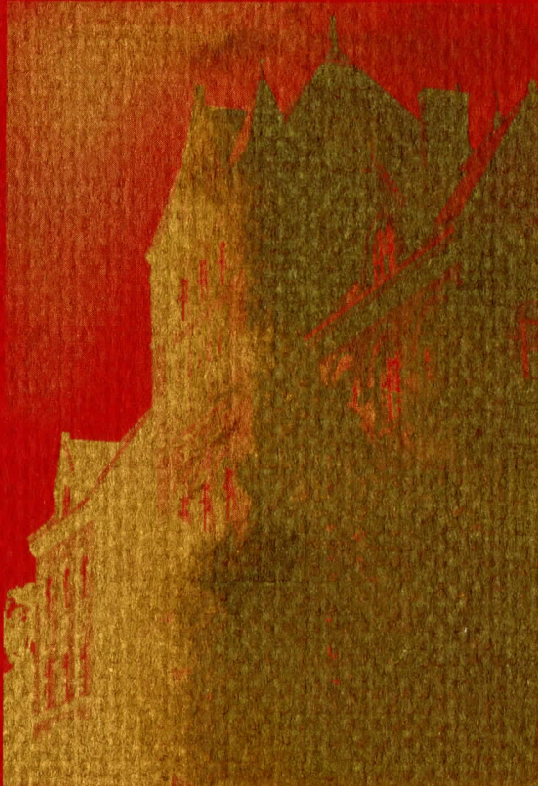


The Department of
Atmospheric and Oceanic Sciences
Symposium



*Sciencos Hall
1948-68*

*Meteorology
1948-1992*

*Atmospheric and Oceanic Sciences
1992-1998*

*A 50th Anniversary
Celebration
September 13-15, 1998*



*Atmospheric, Oceanic,
and Space Sciences Building
1968-1998*

University of Wisconsin - Madison

Atmospheric and Oceanic Sciences Symposium

Golden Anniversary Celebration of the Department

1948 - 1992 Meteorology
1992 - 1998 Atmospheric and Oceanic Sciences

September 13 - 15, 1998
University of Wisconsin Memorial Union

Symposium Organizers:
Professor John A. Young
Professor John E. Kutzbach

Program Brochure:
John Young, Karine Brager, Connie Linehan, Kathleen Morgen & Peter Pokrandt
Cover photos courtesy of University News & Information Service

150th Anniversary Year
University of Wisconsin-Madison

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A History of Meteorology at Wisconsin: 1853-1978	
Glimpses From Our Past: An Album	

Department of Atmospheric and Oceanic Sciences
University of Wisconsin - Madison
1225 West Dayton Street
Madison, Wisconsin 53706
<http://www.meteor.wisc.edu>

SCHEDULE AT-A-GLANCE

	Sunday September 13	Monday September 14	Tuesday September 15	Wednesday September 16
AM		Symposium: The Wisconsin Educational Experience	Symposium: Future Science Directions	Open House AOSS Bldg
PM	Registration	Symposium: Future Educational Directions Symposium: Future Private Sector Directions	Mini-Symposia	
EVE	Symposium: Reid Bryson on "The Beginning"	Banquet Celebration	Informal Continuations	

Atmospheric and Oceanic Sciences Symposium

SCHEDULE OF EVENTS

Location of the Symposium: *University of Wisconsin Memorial Union, Langdon Street*
 * *Tripp Commons (Lakeside second floor)*
 * *Inn Wisconsin (second floor)*
 * *Nearby (second and third floors)*
 * *Banquet in Great Hall*

SUNDAY, SEPTEMBER 13, 1998

1:30 - 5:30 pm	Registration and Informal Reception	* <i>Inn Wisconsin</i>
7:30 pm	Reid A. Bryson, Founder "The Beginning"	* <i>Tripp Commons</i>

MONDAY, SEPTEMBER 14, 1998

* *Tripp Commons*

8:45 am	The Wisconsin Educational Experience: Speakers from the Decades • Prof. John Dutton, Pennsylvania State University • Prof. Jeffrey Kimpel, U of Oklahoma & NSSL Director Refreshment Break • Dr. Martin Hoerling, CIRES, Boulder, Colorado
12:00 noon	Lunch
1:30 pm	Future Directions for Atmosphere-Ocean Science Education • Prof. Perry Samson, University of Michigan • Panel Presentations and Discussion: alumni representatives and UW faculty
3:15 pm	Refreshment Break
3:45 pm	Future Roles and Needs of the Private Sector • Panel Presentations and Discussion: alumni representatives and UW faculty
5:00 pm	Adjourn the day's meeting

	Banquet Evening	* <i>Great Hall</i>
6:15 pm	Cash bar and hors d'oeuvres	
7:00 pm	Banquet meal	
8:30 pm	"Celebration" • Introductions • Recognitions • A gala of anecdotes from the group	

TUESDAY, SEPTEMBER 15, 1998

* *Tripp Commons*

8:45 am

Future Directions for Atmosphere-Ocean Science

- Dr. William Smith, University of Wisconsin/NASA Langley will address observational issues
- Dr. Louis Uccellini, National Weather Service, NOAA will look at trends in meteorology

Refreshment Break

- Prof. Francis Bretherton, University of Wisconsin will address earth system science issues

12:00 noon

Adjourn the Core Symposium

Lunch

1:30 pm

Mini-Symposia

* *nearby rooms*

Sessions will be held simultaneously in neighboring rooms. Detailed programs for each session will be distributed at registration. Generally, sessions will consist of short reviews, presentations, and group discussion by Wisconsin alumni and current staff.

Session Names:

- Remote Sensing and Observations
- Weather System Dynamics
- Climate Systems and Processes
- Private Sector and Education

4:30 pm

WEDNESDAY, SEPTEMBER 16, 1998

* *Atmospheric, Oceanic, and Space Sciences Building, 1225 West Dayton Street*

9:00 am - 12:00 noon Open House

Banquet Celebration

Great Hall, Memorial Union, Langdon Street
Monday, September 14, 1998

6:15 pm Cash Bar & Hors D'oeuvres
7:00 pm Banquet

Mixed seasonal green salad

Main Course

Choice of

Tarragon Chicken Dijonnaise

Tender white meat in a zesty mustard cream sauce accented with herbs

Pork Tenderloin

Sauteed medallions of pork paired with a tasty rhubarb chutney

Eggplant and Pasta

An Italian influenced eggplant sauce served over spinach fettuccini
and garnished with toasted pine nuts

Beverages

choice of coffee, tea, decaf, & milk

Introductions

Reminiscences from the floor

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Atmospheric & Oceanic Sciences Faculty 1948-1998

1948-1986	Reid A. Bryson	1969-1996	Theodore Green III (Civ. Engr.)
1948-1986	Verner E. Suomi	1970-1975	Wayne M. Wendland (Geog.)
1951-1955	Paul C. Ekern (Soils)	1972-1979	Wm. Richard Barchet
1956-1959	Dean O. Staley	1974-1982	Val L. Mitchell (Extension)
1957-1980	Heinz H. Lettau	1977-1987	Gerald F. Herman
1959-1989	Robert A. Ragotzkie	1979-1996	Roland B. Stull
1960-1989	Lyle H. Horn	1980-present	Pao-Kuan Wang
1960-1964	Raymond J. Deland	1982-present	William L. Smith
1962-1980	Werner Schwerdtfeger	1984-1989	Douglas R. Clark (Extension)
1962-1967	Stig A. Rossby	1985-1992	Patricia M. Pauley
1963-1984	Eberhard W. Wahl	1987-present	Gregory J. Tripoli
1964-1995	Donald R. Johnson	1987-present	John R. Anderson
1964-1966	Robert J. Parent (Elect. Engr.)	1988-present	Francis P. Bretherton
1965-present	Charles R. Stearns	1988-present	Matthew H. Hitchman
1965-1972	Douglas H. Sargeant	1988-present	John M. Norman (Soils)
1966-present	John E. Kutzbach	1988-1990	David Battisti
1966-present	John A. Young	1988-1990	Richard E. Moritz
1966-1991	James A. Weinman	1992-present	Steven A. Ackerman
1966-1988	Charles B. Tanner (Soils)	1993-present	Jonathan A. Foley (IES)
1966-1986	Charles E. Anderson	1993-present	Zhengyu Liu
1966-1970	David A. Baerreis (Anthropology)	1994-present	Jonathan E. Martin
1967-present	Stefan L. Hastenrath	1995-present	Michael C. Morgan
1967-1987	Frank S. Sechrist	1996-present	Kimberly Van Scoy
1968-present	David D. Houghton		

Department Chairs

1948-1950	Reid A. Bryson	1976-1979	David D. Houghton
1950-1952	Verner E. Suomi	1979-1982	John E. Kutzbach
1952-1954	Reid A. Bryson	1982-1984	Eberhard W. Wahl
1954-1957	Verner E. Suomi	1984-1987	John A. Young
1957-1961	Reid A. Bryson	1987-1989	Lyle H. Horn
1961-1963	Heinz H. Lettau	1989-1991	John E. Kutzbach
1963-1967	Robert A. Ragotzkie	1991-1994	David D. Houghton
1967-1970	Lyle H. Horn	1994-1997	Pao K. Wang
1970-1973	Eberhard W. Wahl	1997-present	Matthew H. Hitchman
1973-1976	Donald R. Johnson		

Adjunct Faculty

Christopher M. Hayden

Menzel, W. Paul (1985 to present)

Lecturers

Ackerman, Steven A.
Barber, David A.
Eloranta, Edwin W.
Gallimore, Robert G.
Hayden, Christopher M.
Hopkins, Edward J.
Koehler, Thomas L.

Lindstrom, Scott S.
Merrill, Robert
Niebauer, Henry J.
Otto-Bliesner, Bette
Sargeant, Douglas H.
Wolf, Bart J.
Zapotocny, John V.

Visiting Professors

Barchet, Wm. Richard
Carton, James A.
Csanady, Gabriel T.
Gage, Kenneth S.
Holopainen, Eero O.
Klaus, Fraedrich
Niebauer, Henry J.
Orville, Richard E.

Peng, Gongbing
Petersen, Ralph A.
Petterssen, Sverre
Pincus, Robert
Raschke, Eberhard
Shafrir, Uri
Smagorinsky, Joseph
Synowiec, Adam

Research Staff

Auvine, Brian	Lo, Cecil
Basnyat, Rabindra	Lu, Longhua
Borisov, Sergei	Lussky, Glenn
Bradley, E. Frank	McJunkin, David (1993 to present)
Brueske, Kurt	McQueeney, Jeanette (1965-1982)
Businger, Joost	Merrill, Robert
Chang, Chia-Bo	Mooney, Margaret E. (1996 to present)
Collimore, Christopher	Ni, Yun-Qi
Cooper, David	Niebauer, Henry J. (1997 to present)
Curry, Judy	Nossal, Susan (1996 to present)
Derber, John	Otto-Bliesner, Bette
Ebert, Elizabeth	Petersen, Ralph
Ecklund, Glenn	Pokrandt, Peter (1992 to present)
Eloranta, Edwin (1972 to present)	Politowicz, Phillip
Evans, Carol	Polzin, Dierk (1990 to present)
Forrest, Dan	Raymond, William
Gallimore, Robert (1973 to present)	Savage, Michael
Golubev, Yuri	Schlesinger, Robert (1972 to present)
Goodman, Brian	Schreiner, Tony
Greischar, Larry (1986 to present)	Schols, Jacobus
Grunde, Chris	Sharkey, Richard
Hare, Kenneth	Sheehan, Daniel
Hoggatt, Bradley (1996 to present)	Sievers, Manuela
Holmes, Robert	Smith, Shawn
Hopkins, Edward (1985 to present)	Stephens, Monica (1997 to present)
Inui, Tomoko	Steventon, Ray L. (1963-1990)
Jansen, Stephen	Stremikis, John
Jhun, Jong-Ghap	Swanson, Scott
Kelly, Terry	Virji, Hassan
Keller, Linda (1977 to present)	Vonder Haar, Thomas
Koehler, Thomas L.	Wang, Dong-Xiao (1998 to present)
Krueger, Gary	Wang, Jen-Yu
Kruss, Philip	Weidner, George (1983 to present)
Kuhn, Peter	Whittaker, Thomas
Kunitani, Craig	Wolf, Bart
Kutzbach, Gisela	Wu, Lixin (1996 to present)
Lamb, Peter	Yu, Zhiakao
Larson, James	Zapotocny, John
Lettau, Kate	Zhu, Yunlai
Liu, Zhili	

Honorary Fellows and Visiting Scholars

Baumgartner, Albert	Jiang, Guangmei
Bidlot, Jean R.	Kumar Kolli, Rupa
Buchmann, Julio	Lee, Kwang Ho
da Silva, Rubenaldo A.	Lemaitre, Olivier Marie
da Silva Marques, Valdo	Liang, Biqi
Das, P.K.	Lu, Jing hua
Feng, Zhiqiang	Rathor, Hukum Singh
Franssila, Matti	Shen, Ragui
Fu, Cong-bin	Sung, Do Cha
Guo, Yu-fu	Wu, Zhongxian
He, You-hai	Xia, Huan-Qing
Hong, Siu-shung	Xu, Jialu
Hu, Yu-liang	Yu, Zhihao
Huang, Wen-gen	Zhao, Yan-zeng
Inoue, Eichi	

State Climatologists

1953-1955	Albert Joos	1974-1982	Val L. Mitchell
1956-1959	Paul Waite	1984-1989	Douglas R. Clark
1959-1965	Marvin Burley	1989- 1996	Pamela Naber Knox
1965-1973	Hans Rosendal	1996-1998	Matthew J. Menne
1973-1974	Robert Schloemer		

Department Administrators

1956-1973	Marie Riggs	1979-1991	Jean Buehlman
1973-1979	Margaret Hundt	1992-present	Karine Brager

Office Staff

Benck, Lucille	Kennedy, Mary (Sternitzky)
Benson, Gloria	Linehan, Connie (1994 - present)
Brackett, Jane	Lynch, Christine
Davidson, Diane	McSherry, Paula
Decker, Ruth	Rieder, Jane (1961-1982)
Drager, Daniel	Schiess, Debra
Du Charme, Elaine	Singer, Eva
Edwards, Pauline	Sowle, Tom
Engel, Patricia	Stauter, Gay
Finn, Elaine (1970-1994)	Swenson, Judy
Fitzgerald, Eileen	Twist, Mary-Ann (1997 - present)
Hood, Karin	Wolff, Marilyn (1988 - present)

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1998 AOS faculty/staff and their research interests

Faculty	Research
Steven A. Ackerman Associate Professor	Remote sensing; radiative energy budgets; cloud-radiative parameterizations; climate change; aerosols
John R. Anderson Professor	Dynamics, climate, general circulation, large-scale motions/dynamics; oceanography/air-sea, numerical weather prediction, computer science
Francis Bretherton Professor	Earth system science, remote sensing, atmospheric and oceanic dynamics
Jonathan A. Foley Assistant Professor	Earth system science; climate dynamics; climate and biosphere interactions; terrestrial biogeochemistry; vegetation ecology; climatic change and human impacts
Stefan Hastenrath Professor	Climate, earth system science, general circulation, large-scale motions/dynamics, tropical
Matthew H. Hitchman Professor	Large scale dynamics; waves; stratosphere and mesosphere; ozone layer, aerosols, climate change
David D. Houghton Professor	Dynamical meteorology and numerical modeling, ocean-atmosphere climate system, synoptic meteorology, mesoscale
John E. Kutzbach Professor	Climate dynamics, climate modeling, simulations of past climates, observations of past climates
Zhengyu Liu Assistant Professor	Numerical modeling and theoretical study of large-scale ocean-atmosphere interaction, ocean circulation and climate dynamics
Jonathan E. Martin Assistant Professor	Analysis of mid-latitude, synoptic-scale weather systems, dynamics and kinematics of front and frontogenesis; cyclogenesis; meso-and synoptic-scale dynamics and precipitation production and distribution in mid-latitude cyclones
W. Paul Menzel Adjunct Professor	Atmospheric physics, satellite remote sensing
Michael C. Morgan Assistant Professor	Analysis, diagnosis and prediction of mid-latitude and tropical synoptic scale phenomena; dynamics (growth, propagation and stability) of quasi-balanced wave motions in the troposphere

1998 AOS faculty/staff and their research interests

Henry J. Niebauer Visiting Professor	Atmosphere-ice-ocean-interaction, field studies and numerical modeling of biophysical interactions in ice infested seas and the Great Lakes
John M. Norman Professor	Synthesis of knowledge from numerous disciplines that are concerned with specific parts of the soil-plant-atmosphere-animal system
Dr. Robert M. Pincus Visiting Assistant Professor	Remote sensing in variable cloud fields
William L. Smith Professor	Remote sensing, atmospheric radiation, satellite meteorology (on leave)
Charles R. Stearns Professor	The use of automatic weather stations to make measurements of meteorological variables in remote regions of the earth.
Gregory J. Tripoli Associate Professor	Mesoscale convective systems, thunder-storms, local wind systems, cloud/mesoscale modeling, microphysics parameterization
Kim A. Van Scoy Assistant Professor	Transient tracers and their application to ocean processes. Temporal variations in ocean circulation and effects on global climate. Air/sea exchange of carbon dioxide and other biogenic gases.
Pao K. Wang Professor	Cloud physics and dynamics, atmospheric chemistry, climate change
John A. Young Professor	Dynamics of atmosphere and ocean; boundary layer dynamics, data assimilation and predictability; tropical meteorology, monsoons, and air-sea interactions.

Staff

Research

Dr. Edwin Eloranta	Lidar observations, turbulence, boundary layers, and physics/optics.
Dr. Robert Gallimore	Coupled atmosphere-ocean model diagnostics (w/ Liu & Houghton)
Dr. Larry Greischar	Tropical climate diagnostics (w/ Hastenrath)
Mr. Bradley Hoggatt	Mesoscale modeling (w/ Tripoli)
Dr. Tomoko Inui	Ocean modeling (w/ Liu)

Staff

Ms. Linda Keller	Atmospheric and Antarctic diagnostics (w/ Houghton & Stearns)
Dr. David McJunkin	Radiocarbon Lab director
Dr. Susan Nossal	Stratospheric studies (w/ Hitchman)
Mr. Peter Pokrandt	Departmental computer systems programmer
Mr. Dierk Polzin	Climate data analysis (w/ Hastenrath)
Dr. Robert Schlesinger	Cumulus cloud modeling (w/ Wang)
Dr. Monica Stephens	Ocean diagnostics and coupled modeling (w/Liu & Van Scoy)
Dr. Dong-Xiao Wang	Inter-decadal ocean variability: analysis and modeling (w/Liu)
Mr. George Weidner	Antarctic automated station system (w/ Stearns)
Dr. Lixin Wu	Ocean theory and modeling (w/ Liu)

Research

Emeritus Faculty

Reid Bryson	Retired 1987. Continues site specific modeling of past climates through Center for Climatic Research
Theodore Green	Retired 1996. Now lives in Merry Point, VA.
Donald R. Johnson	Retired 1994. Continues research on atmospheric diagnostics and serves extensively on national research panels.
Heinz Lettau	Retired 1980. Now lives in Mount Pleasant, SC.
Robert Ragotzkie	Retired 1989. Enjoys traveling and frequent visits in Door County, WI.
James Weinman	Retired 1991. Conducts remote sensing research at NASA-GSFC in Greenbelt, MD.

In Memorium - Faculty

Anderson, Charles E.	Horn, Lyle H.	Schwerdtfeger, Werner	Wahl, Eberhard W.
Baerreis, David A.	Mitchell, Val L.	Suomi, Verner	
Deland, Raymond J.	Parent, Robert J.	Tanner, Charles B.	

Named Professorships
Department of Atmospheric & Oceanic Sciences
(Meteorology)
University of Wisconsin - Madison

1971 *Heinz H. Lettau*
(Increase A. Lapham Professor of Meteorology)

1977 *Verner E. Suomi*
(Harry Wexler Professor of Meteorology)

1979 *Champ B. Tanner*
(Emil Troug Professor of Soils and Meteorology)

1990 *John E. Kutzbach*
(Plaenart-Bascom Professor of Liberal Arts)

Honoring
GOLDEN ASSOCIATIONS
during our fifty years

REID A. BRYSON

1948	Founded our department
1948 - 1986	Faculty member
1970	Founded Institute for Environmental Studies
1986 - present	Professor Emeritus

ROBERT A. RAGOTZKIE

1950 - 1953	PhD program in meteorology and zoology
1959 - 1989	Faculty member
1979 - 1989	UW Sea Grant Director
1989 - present	Professor Emeritus

CHARLES R. STEARNS

1950	B.S. from University of Wisconsin
1952	M.S. from Department of Meteorology
1959 - 1965	Project Associate in Meteorology
1967 -	Ph.D. from Department of Meteorology
1965- present	Faculty Member

Honoring
SILVER ASSOCIATIONS
spanning 25 years
as student, staff, or emeritus

Faculty

1957 - present	Heinz H. Lettau
1964 - present	Donald R. Johnson
1966 - present	John E. Kutzbach
1966 - present	John A. Young
1967 - present	Stefan L. Hastenrath
1968 - present	David D. Houghton

Research Staff

1963 - 1990	Ray L. Steventon
1972 - present	Edwin E. Eloranta
1972 - present	Robert E. Schlesinger
1973 - present	Robert E. Gallimore
1977 - present	Linda M. Keller
1983 - present	George M. Weidner
1985 - present	Edward J. Hopkins

Office Staff

1970 - 1994	Elaine C. Finn
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PhD Degree Recipients

1952-53

Ragotzkie, Robert A. Hasler

1956-57

Wang, Jen Yu Suomi

1959-60

Istilzer, Norman F. Suomi

1960-61

Horn, Lyle H. Bryson

1961-62

Bushnell, Robert H. Suomi
 Dutton, John A. Bryson
 Erkmen, Mehmet M. Lettau
 Kuhn, Peter M. Suomi
 Rossby, Stig A. Suomi

1963-64

Darkow, Grant L. Suomi
 King, Ernest C. Lettau
 Scott, Jon T. Ragotzkie
 Shen, William C. Suomi
 Shulman, Mark D. Bryson
 White, Fred D. Bryson

1964-65

Hamilton, Harry L., Jr. Lettau
 House, Frederick Suomi
 Johnson, Donald R. Horn
 Johnson, Warren B., Jr. Lettau
 McFadden, James D. Ragotzkie
 Super, Arlin B. Lettau

1965-66

Lenschow, Donald H. Lettau
 Lettau, Bernard Ragotzkie
 Sargeant, Douglas H. Suomi

1966-67

Christensen, Walter J., Jr. Bryson
 Kutzbach, John E. Bryson
 Stearns, Charles E. Lettau

1967-68

Cox, Stephen K. Suomi
 Knollenberg, Robert G. Suomi
 Martin, David W. Schwerdtfeger
 Peterson, James T. Bryson
 Sandoval, Angelito R. Bryson
 Smith, Philip J. Horn
 Thomson, Dennis W. Lettau
 Turner, John C. Lettau
 Vonder Haar, Thomas H. Suomi

1968-69

Bullock, Benjamin R. Johnson
 Sikdar, Dharendra N. Suomi
 Staver, Allen E. Schwerdtfeger

1969-70

Anthes, Richard A. Johnson
 Astling, Elford G. Horn
 Cole, Henry S. Bryson
 Dabberdt, Walter F. Lettau
 Hanson, Kirby J. Suomi
 Knapp, Warren W. Schwerdtfeger
 Mitchell, Val L. Bryson
 Song, Rak To Young

PhD Degree Recipients

1970-71

Ahrnsbrak, William F.	Ragotzkie
Bendel, William B.	Wahl
Donley, David L.	Bryson
Driscoll, Dennis M.	Ragotzkie
MacKay, Kenneth P., Jr.	Lettau
Pilipowskyiz, Serhiz	Weinman
Remsberg, Ellis E.	Weinman
Shinn, Joseph H.	Lettau
Sparkman, James K., Jr.	Lettau
Webb, Thomson III	Bryson

McDonald, Neil S.
Suchman, David

Wendland
Houghton

1974-75

Berman, Elizabeth

Suomi

1975-76

Molion, Luiz
Lamb, Peter
Savage, Richard
Ashby, Randolph
Brost, Richard
Zabronsky, Joseph

Lettau
Hastenrath
Weinman
Weinman
Young
Lettau

1971-72

Bauer, Kenneth G.	Kutzbach
Berman, Stephen	Lettau
Eloranta, Edwin W.	Weinman
Gall, Robert L.	Johnson
Hasler, A. Frederick	Suomi
Jasperson, William H.	Sargeant
Lawson, Theodore L.	Wahl
Lo, R. Chin Tsan	Johnson
Mahrt, Larry Joe	Young
Moran, Joseph M.	Bryson
Nicholson, Frank H.	Johnson
Reitan, Clayton H.	Bryson
Schlesinger, Robert C.	Young
Wendland, Wayne M.	Bryson

1976-77

Hollingshead, Marian P.
Wylie, Donald
Stamm, Alfred J.
Nicholson, Sharon
Rutllant, Jose
Hall, Leonard
Davies, Roger
Dosbosy, Ronald
Dittberner, Gerald
Limaye, Sanjaye
Nof, Doron

Lettau
Suomi
Suomi
Lettau
Lettau
Lettau
Weinman
Houghton
Bryson
Suomi
Young

1972-73

Bennett, John R.	Green
Downey, William K.	Johnson
Fox, Robert J.	Weinman
Gallimore, Robert G.	Johnson

1977-78

Uccellini, Louis W.
Riordan, Allen J.
Massman, William
Wash, Carlisle
Kunkel, Kenneth

Johnson
Lettau
Suomi
Johnson
Weinman

1973-74

Barber, David	Horn
Berryman, Bruce F.	Wahl
Kornfield, Jack I.	Suomi

1978-79

Shipley, Scott
Mosher, Fred

Weinman
Suomi

PhD Degree Recipients

Koehler, Thomas L. Samson, Perry J.	Horn Stearns	<u>1983-84</u>	
<u>1979-80</u>			Boers, Reinout Gajewksi, Konrad J. Katzfey, Jack J. Yuen, Chiu-Wai Goodman, Brian O'Connor, William
Blechman, Jerome B. Bromwich, David H. Phillips, Thomas J. Virji, Hassan Otto-Bliesner, Bette Parish, Thomas R. Townsend, Ron	Anderson Schwerdtfeger Kutzbach Kutzbach Houghton Schwerdtfeger Johnson		Weinman Kutzbach Johnson Young Bryson Kutzbach
<u>1980-81</u>		<u>1984-85</u>	
Wobus, Richard Ahlquist, Jon	Young Kutzbach	Black, Tom Wu, Ming-Chin Derber, John Hopkins, Ed	Johnson Hastenrath Horn Kutzbach
<u>1981-82</u>		<u>1985-86</u>	
Bey, Ahmad Kruss, Phil Clark, Douglas Min, Kyung Duck	Lettau Hastenrath Kutzbach Horn	Bates, John Van Tuyl, Andrew Crum, Tim Zapotocny, John	Smith Young Stull Horn
		<u>1986-87</u>	
Diak, George Chu, Pao Lee, Dong Mower, Richard Spencer, Roy Peterson, Robert E. Hyde, Richard A. Redmond, Kelly Weickman, Klaus	Suomi Hastenrath Houghton Suomi Suomi Johnson Houghton Bryson Kutzbach	Garand, Louis Hirst, Anthony Liu, Gin-Rong Skylingstad, Eric Aceituno, Patrico Alberge, Andre Henk Grund, Christian J. Hoerling, Martin P. Jedlovec, Gary Olson, William S. Wolter, Klaus	Suomi Hastenrath Smith Suomi Hastenrath Tanner Weinman Johnson Smith Weinman Hastenrath
<u>1982-83</u>		<u>1987-88</u>	
Nierow, Alan Campbell, William House, Tamzy Kalb, Michael W. Schubert, Siegfried D. Sroga, Jeffrey T.	Houghton Bryson Bryson Houghton Herman Weinman	Ebert, Elizabeth E. Ferreira, Nelson J. Jhun, Jong-Ghap	Herman Smith Young

PhD Degree Recipients

Miller, Norman L.	Wang	<u>1993-94</u>	
Masutani, Michiko	Johnson		
Pierce, Robert B.	Herman	Delworth, Thomas L.	Kutzbach
Kim, Dongsoo	Johnson	Foley, Jonathan A.	Kutzbach
Spaete, Paul E.	Johnson	Hartten, Leslie	Young
		McKeown, Walter	Smith
<u>1988-89</u>		Wu, Xiaohua	Young
Straka, Jerry M.	Wang	Yuan, Zhoujian	Johnson
		Vicente, Gilberto	Anderson
<u>1989-90</u>		Li, Jui-Lin (Frank)	Young
Huang, Allen Hung Lung	Smith	<u>1994-95</u>	
Lindstrom, Scott S.	Houghton		
Wu, Xiangoian	Smith	Gurer, Kemal	Tripoli
Zapotocny, Thomas H.	Johnson	Qu, Yanni	Smith
		Wagner, Richard G.	Hastenrath
<u>1990-91</u>			
		<u>1995-96</u>	
Alexander, Michael	Kutzbach		
Arriaga, Arlindo	Smith	Bhatt, Uma S.	Houghton
Marengo Orsini, Jose	Hastenrath	Tobis, Michael	Anderson
Seman, Charles	Houghton	Knox, John A.	Hitchman
Silberberg, Steven	Johnson		
		<u>1996-97</u>	
<u>1991-92</u>			
		Coe, Michael T.	Kutzbach
Czarnetzki, Alan	Johnson	Kucharik, Christopher J.	Norman
Ji, Wu-Sheng	Wang	Jascourt, Stephen D.	Tripoli
Purser, Robert	Young		
Schneider, Russell	Johnson	<u>1997-98</u>	
Wolf, Bart	Johnson		
		Jacob, Robert L.	Anderson
<u>1992-93</u>		Johnson, Daniel E.	Wang
		Orf, Leigh G.	Anderson
Liu, Zhili	Wang	Vavrus, Stephen J.	Kutzbach
Otles, Zekai	Young	Curtis, Walter R. S. III	Hastenrath
Trepte, Charles R.	Hitchman	Ho, Shu-peng (Ben)	Smith
Zhu, Yunlai	Houghton	Hurlin, William J.	Kutzbach
		Costa, Marcos Heil	Foley
		Huang, Bormin	Smith

Master's Degree Recipients

1949-50

Thorngate, Charles W. Suomi

1951-52

Kuhn, Peter M. Suomi
 Long, Robert E. Suomi
 Stearns, Charles R. Bryson

1952-53

Kee, Jack D. Suomi
 Draginis, Milton Bryson
 Islitzer, Norman F. Suomi
 Sims, Lee L. Bryson

1953-54

None

1955-56

Lowry, William P. Bryson
 Schuetz, Jon Suomi
 McCutchan, Morris H. Bryson
 Wang, Jen-Yu Suomi

1955-56

Delver, Norbert F. Bryson
 Senn, Harry V. Bryson
 Horn, Lyle H. Bryson

1956-57

None

1957-58

Darkow, Grant L. Suomi

1958-59

Dutton, John A. Bryson
 Frenzel, Carroll Suomi
 Mistry, Purachand D. Suomi

1959-60

Ardis, Corlby V., Jr. Bryson
 Blankenship, James Bryson
 Christensen, W. J., Jr. Bryson
 Johnson, Donald Bryson
 Rossby, Stig Suomi
 Bauer, Ken Lettau
 Corzine, Harold Bryson

1960-61

Lettau, Bernhard Bryson
 Clark, David Bryson
 Lienesch, James Lettau
 Shulman, Mark D. Bryson
 Snyder, Earl P., Jr. Bryson
 Weinstein, Melvin Suomi
 Haines, Donald A. Bryson
 Kutzbach, John E. Lettau

1961-62

Hamilton, Harry L., Jr. Lettau
 House, Frederick B. Suomi
 Schmidt, Evert A. Lettau
 Super, Arlin B. Lettau
 Tucker, Gordon L. Suomi
 Adolph, David G. Bryson

Master's Degree Recipients

Gillard, James H.	Suomi
Johnson, Warren B., Jr.	Lettau
Lenschow, Donald H.	Lettau
Sabatini, Romeo R.	Suomi
Wang, Su Chiang	Wang
Takasugi, Shoji	Suomi
Derouin, Robert	Suomi

1962-63

Astling, Elford G.	Horn
Corcoran, James L.	Horn
Steinkopff, Cassandra T.	Bryson
Stewart, Ronald	Bryson
Dasenko, Darwyn J.	Suomi
Kearns, John	Lettau
Knapp, Warren	Lettau
Turner, John C.	Lettau

1963-64

Sparkman, Barbara	Suomi
Wilson, Clayton A. III	Bryson
Strommen, Norton D.	Schwerdtfeger
Bradshaw, Nick L.	Suomi
Fox, Robert J.	Rosby
Gutman, Gabriel J.	Schwerdtfeger
Knollenberg, Robert G.	Bryson
Carasso, Alfred S.	Horn
Cox, Stepehn K.	Suomi
Lin, Yeong-Jer	Suomi
Smith, Phillip J.	Horn
Smith, William L.	Horn
Thomson, Dennis W.	Horn/Rosby
Vonder Haar, Thomas H.	Suomi

1964-65

Peterson, James T.	Bryson
Finke, Denrod D.	Bryson

Neevel, Paul E.	Suomi
Bullock, Benjamin R.	Horn
Degiovanni, James A.	Wahl
Hasler, Arthur F.	Suomi
Huang, Chin Hua	Suomi
Joseph, Dennis H.	Bryson
Pilipowskyj, Serhij	Weinman/Suomi
Schmidt, Phillip J.	Johnson
Sponholz, Martin P.	Lettau
Stevens, Merrill D.	Schwerdtfeger
Wendland, Wayne M.	Bryson
Bratnik, Michael	Ragotzkie
Damon, Thomas De Loyd	Rosby
Ruzecki, Evon Paul	Ragotzkie

1965-66

Cogan, James L.	Suomi
Kutzbach, Gisela H.	Schwerdtfeger
Martin, David W.	Schwerdtfeger
Wright, William B.	Lettau
Merritt, Lester P.	Rosby
Kobussen, Richard W.	Weinman
Dabberdt, Walter F.	Lettau
Siebers, Jerome O.	Wahl
Bryan, Terry E.	Schwerdtfeger
Menon, Velyudh K.	Ragotzkie

1966-67

Bohlson, John S.	Wahl
Bendel, William B.	Wahl
Frostman, Thomas O.	Schwerdtfeger
Lawson, Theodore L.	Wahl
Nelson, David L.	Wahl
Hanson, Kirby J.	Suomi
Anthes, Richard L.	Johnson
Eloranta, Edwin W.	Weinman
Hankins, Russell A.	Weinman

Master's Degree Recipients

Lambert, John L.
 Mitchell, Val L.
 Smith, Richard E.
 Wuerch, Donald E.
 Smith, Ned P.
 Zabransky, Joseph Jr.

Lettau
 Bryson
 Wahl
 Schwerdtfeger
 Ragotzkie
 Lettau

Nicholson, Francis H.
 Bennett, John A.
 Chiusano, Dale A.
 D'Aleo, Joseph
 Havanac, Peter J.
 Tahboub, Inam Kamal
 Zimmerman, Roger A.
 Kimpel, James F.
 Auvine, Brian A.
 Karst, Otto J.
 Irvine, William S., Jr.

Suomi
 Young
 Houghton
 Sechrist
 Anderson
 Lettau
 Schwerdtfeger
 Hastenrath
 Anderson
 Suomi
 Houghton

1967-68

Ahrnsbrak, William F.
 Hauth, Floyd F.
 Quade, Paul W.
 Rigney, Stephen G.
 Barber, David A.
 Blasing, Terrence J.
 Gallimore, Robert G.
 Jaspersen, William H.
 Lo, Robert C.
 Remsberg, Ellis E.
 Schlesinger, Robert E.

Ragotzkie
 Weinman
 Wahl
 Schwerdtfeger
 Anderson
 Kutzbach
 Lettau
 Lettau
 Johnson
 Weinman
 Ragotzkie

1970-71

Suchman, David
 Dolson, Daniel
 Downey, William K.
 Sanchez, Walter A.
 Steinberg, Mark P.
 Whittaker, Linda M.
 Supornrutana, Somsak
 Wobus, Richard L.
 Christensen, Roger E.
 Young, John T. Jr.
 Grosh, Ronald C.
 Petersen, Ralph C.
 MacKenzie, Thomas A.
 Kornasiewicz, Robert A.

Young
 Sechrist
 Johnson
 Kutzbach
 Hastenrath
 Sechrist
 Lettau
 Young
 Lettau
 Suomi
 Weinman
 Bryson
 Horn
 Stearns

1968-69

Hahn, Douglas G.
 Johnson, Michael H.
 Nagatani, Ronald M.
 Riordan, Allen J.
 Baker, Donald W.
 Berryman, Bruce F.
 Cohen, Edward H.
 Dittberner, Gerald J.
 Frederick, Geroge L., Jr.
 Mahrt, Larry J.
 Friend, Arnold L.
 Gall, Robert S.

Horn
 Suomi
 Young
 Wahl
 Schwerdtfeger
 Wahl
 Bryson
 Sechrist
 Stearns
 Schwerdtfeger
 Lettau
 Johnson

1971-72

Hall, Leonard F.
 Ashby, Randolph W.
 Dick, Glenn B.

Lettau
 Young
 Suomi

1972-73

Curatola, Carl
 Eom, Jae Kyung

Weinman
 Houghton

1969-70

Carlson, Gunnar C.
 Ho, Sheng Ping

Hastenrath
 Suomi

Master's Degree Recipients

Min, Kyung Duck	Horn	Blechman, Jerome	Anderson
Nicholson, Sharon	Lettau	Hopkins, Margaret	Anderson
Naistat, Richard J.	Young	Simon, Glenn	Barchet
Dobosy, Ronald J.	Houghton	Spaete, Paul	Johnson
Ellrod, Gary P.	Anderson	Kunkel, Kenneth	Weinman
March, William J.	Lettau	Peterson, Robert	Wahl
Uccellini, Louis W.	Anderson	Snow, Joseph W.	Schwerdtfeger
Battel, Gary F.	Kutzbach	Karl, Thomas	Schwerdtfeger
Togstad, William E. II	Horn	Koch, Steven	Anderson
Abbey, Robert D.	Young	Lawler, Dennis	Anderson
Nielsen, Norris A.	Wahl	King, John M.	Weinman
Carpenter, Paul F.	Anderson	Kapela, Anton	Horn
Mosher, Frederick R.	Suomi	Otto, Bette Lou	Johnson
Falconer, Phillip D.	Stearns		
Kachelhoffer, Stephen J.	Schwerdtfeger		
Park, Soon-Ung	Suomi		

1973-74

Chu, Pao Shin	Wahl	Kandler, Raymond	Weinman
Stremikis, John	Stearns	Koehler, Thomas	Horn
Heinricy, Dennis	Young	Mielke, Kenneth	Houghton
Massman, William J.	Suomi	Wash, Carlyle	Johnson
Kyle, Thomas H.	Schwerdtfeger	DeBailo, Suliman	Lettau
Hovanec, Russell	Horn	Heller, Leon	Hastenrath
LeBlanc, Robert	Horn	Diak, George	Suomi
Carlson, John D.	Kutzbach	Rose, Wayne	Horn
Moertl, Paul E.	Kutzbach		
Auvuchanon, Mani	Weinman		
Shiple, Scott T.	Weinman		
Grover, Frank H. II	Sechrist		
Fraser, Thomas E.	Sechrist		
Robertson, Alan E.	Kutzbach		
Wylie, Donald P.	Suomi		
Virji, Hassan	Stearns		
Crow, Glenn L.	Stearns		

1974-75

Hennen, Eric	Stearns
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1975-76

Kandler, Raymond	Weinman
Koehler, Thomas	Horn
Mielke, Kenneth	Houghton
Wash, Carlyle	Johnson
DeBailo, Suliman	Lettau
Heller, Leon	Hastenrath
Diak, George	Suomi
Rose, Wayne	Horn

1976-77

Chester, Brenda	Anderson
Lo, Cecil	Barchet
Pollack, John	Kutzbach
Weickmann, Klaus	Barchet
Fortune, Michael	Suomi
Weidner, George	Stearns
Reynolds, Nathaniel	Houghton
Hollingshead, Edward	Wahl
Whittaker, Thomas	Johnson
Wilson, Thomas	Houghton
Chaston, Peter	Stearns
Yuen, (Ken) Chiu-Wai	Suomi

Master's Degree Recipients

Parish, Thomas
 Darrah, Roy
 Richwein, Barry
 Clark, Douglas
 Redmond, Kelly
 McCarthy, Dennis
 Campbell, William
 Pecnick, Michael

Schwerdtfeger
 Horn
 Schwerdtfeger
 Kutzbach
 Bryson
 Young
 Houghton
 Young

Johnson, Gregory L.
 Johnson, Larry R.
 Lilius, Bryan E.
 Savage, Michael L.
 Siebers, Anthony L.

Suomi
 Suomi
 Wahl
 Stearns
 Horn

1977-78

Tuttle, John David
 Hyde, Richard
 Hall, Curtis
 Parker, William
 Lemes, Marco
 Covey, Daryl
 Kaczmarczyk, Ed
 Berge, Arden
 Goodman, Brian
 Katzfey, Jack
 Krause, Gregg
 Lee, Dong Kyou
 Komro, Fred

Weinman
 Horn
 Weinman
 Wahl
 Young
 Hastenrath
 Hastenrath
 Kutzbach
 Bryson
 Johnson
 Suomi
 Houghton
 Schwerdtfeger

Condella, Vincent D.
 Edman, Delain A.
 Gahlinger, Joseph
 Kalb, Michael W.
 Rosen, Arnie
 Secora, David
 Spencer, Roy
 Vergin, James M.
 Hill, Christopher D.
 Long, Craig S.
 Schubert, Siegfried D.
 Winston, Herb
 Zandlo, James A.
 Krejcha, Brian
 McCalla, C.
 McCalla, M.
 Marshment Robin
 LeBlanc, Anne

Suomi
 Sechrist
 Weinman
 Suomi
 Hastenrath
 Horn
 Suomi
 Johnson
 Schwerdtfeger
 Young
 Herman
 Herman
 Smith/Suomi
 Suomi
 Lettau
 Young
 Horn
 Suomi

1978-79

Paulson, Byron
 Ward, Jimmy Don
 Bullock, Carl
 Schreiner, Anthony
 Thomas, Richard
 Bowen, Brent
 Benuzzi, Eugene
 Dengel, Gail Ann Engel
 Lee, David
 Scroga, Jeffrey
 Santek, David
 Block, James H.
 Dzamba, Leonard

Horn
 Young
 Young
 Suomi
 Houghton
 Stearns
 Bryson
 Suomi
 Suomi
 Weinman
 Johnson
 Lettau
 Stearns

1980-81

Buck, John
 Larson, Richard
 Achtor, Thomas
 Adrian, Barton
 Alexander (Bleckman), Amy
 Chen, Chi-Farn
 Curran, John
 Streit, David
 Van Tuyl, Andrew
 Keyser, Dennis

Lettau
 Mitchell
 Horn
 Johnson
 Horn
 Herman
 Horn
 Horn
 Young
 Johnson

Master's Degree Recipients

Bates, Gary
 Schmidt, Brian
 Wu, Ming-Chin
 Gamache, Monique
 Zapotocny, John
 Johnston, Ed (Ned)
 Nase, Dorothea
 Derber, John

Johnson
 Horn
 Hastenrath
 Kutzbach
 Johnson
 Horn
 Houghton
 Horn

Steenrod, Stephen
 Delworth, Tom
 Rosinski, James
 O'Keefe, Raymond
 Liu, Gin Rong
 Nelson, James Phillip III

Suomi
 Houghton
 Johnson
 Johnson
 Smith
 Horn

1981-82

Sill, Gordon
 Fahey, Thomas III
 Gough, William
 Miller, Norman
 Volk, Mitchell
 Skupniiewicz, Charles
 Stout, John E.
 Brylawaki, Robert E.
 William P. Hooper
 Kunitani, Craig D.
 Nash, Eric R.
 Pearson, Doug C.
 Veldon, Christopher S.
 Hirst, Anthony C.
 Keller, David L.
 Olson, Jerry

Houghton
 Wang
 Mitchell
 Stearns
 Hastenrath
 Weinman
 Young
 Weinman
 Houghton
 Stull
 Bryson
 Bryson
 Smith
 Hastenrath
 Suomi
 Horn

Lussky, Glenn R.
 Skyllingstad, Eric D.
 Ramer, James E.
 Hale, Robert
 Gunning, Michael
 Nordgarden, George R.
 Chuang, (Cathy) Chein-hua
 Ebert, Beth
 Ereno, Carlos
 Grund, Chris
 Kerr, Patricia
 Rotzoll, Doris
 Wilde, Nick
 DeBoer, Larry W.
 Fisk, Charles J.
 Langland, Rolf H.
 Lindstrom, Scott
 Mlynczak, Martin G.

Kutzbach
 Suomi
 Suomi
 Johnson
 Anderson
 Young
 Wang
 Herman
 Hastenrath
 Weinman
 Johnson
 Anderson
 Stull
 Bryson
 Wahl
 Houghton
 Houghton
 Suomi

1982-83

Naber, Pamela
 Bates, John
 Holderbach, Curtis
 Agsorn, Songkran
 Snook, John
 Schaack, Todd
 Hoerling, Marty
 Hurlin, William
 Jungbluth, Karl
 Zautner, Jeff

Suomi
 Smith
 Johnson
 Houghton
 Johnson
 Johnson
 Sechrist
 Suomi
 Houghton
 Horn

1984-85

Sauter, David
 Ferrare, Richard
 Hackert, Eric
 Knutson, Tom
 Metzger, Edward
 Zapotocny, Thomas
 Carlson, Merrilee
 Martell, Gail
 Peters, Jeffrey H.

Wang
 Weinman
 Hastenrath
 Kutzbach
 Houghton
 Johnson
 Stull
 Horn
 Horn

Master's Degree Recipients

Plummer, David W.
 Sloten, Hugh R.
 Donahue, David R.
 Greenwald, Thomas J.
 Heikkinin, Stacey M.
 Seman, Charles J.

Herman
 Stearns
 Smith
 Wang
 Smith
 Horn

1987-88

Grimm, Peter	Wang
Le Munyon, James	Herman
Vachalek, Roger	Stull
Zhu, Yunlai	Johnson
Frey, Richard	Smith
Hechtel, Leslie	Stull
LaFontaine, Carolyn (Vada)	Kutzbach
Schrab, Kevin	C. Anderson
Carlson, Grant	Stull
Lee, John	Hastenrath
Arriaga, Arlindo	Smith
Field, Glen	Houghton
Rubin, Evan	Houghton

1985-86

Castro, Luiz Carlos De
 Foster, Kerwin C.
 Huang, Hung-Lung Allen
 Grassotti, Christopher
 Yen, Felicia (Chen)
 Kirst, Gary
 Pierce, Bradley
 Slye, Barbara
 Burfeind, Craig
 Earl, Pamela
 Moeller, Christopher
 Breckenridge, Christopher
 Alexander, Michael
 Czarnetzki, Alan
 Wolf, Bart

Hastenrath
 Wang
 Smith
 Suomi
 Young
 Suomi
 Herman
 Houghton
 Weinman
 Houghton
 Smith
 Stearns
 Herman
 Johnson
 Johnson

1988-89

Meyer, Mary	Kutzbach
Wu, Xiaohuo	Pauley
Chung, Hyosang	Smith
Rokke, Laurie	Smith
Bhatt, Uma	Hastenrath
Cavazos, Maria Theresa	Hastenrath
Pan, Qiubao	Young
Prins, Elaine	Horn
Scheuer, Christopher J.	Smith
Sun, Chen-Hui	Stull
Whipple, Mark	Houghton
Gumley, Liam	Smith
Brueske, Kurt	Smith
Yuan, Zhuojian	Johnson
Divakarla, Murty G.	Smith
Fairgrievess, Terrie	Pauley

1986-87

Bramer, Bradley J.
 Hill, David K.
 Schneider, Russell S.
 Wu, Xiangqian
 Marengo, Hugo
 Schmit, Timothy
 Schultz, Mark
 Perrone, Maria
 Phillips, George
 Pyeatt, John

Horn
 Johnson
 Johnson
 Smith
 Wang
 Young
 Pauley
 Smith
 Horn
 Kutzbach

1989-90

Dills, Patrick	J. Anderson
Ji, Wusheng	Wang

Master's Degree Recipients

Basynat, Rabindra
 Nieman, Steve
 Kanak, Katharine
 McKeown, Walter
 Zhang, Hai Yen
 Zhang, Qing

1990-91

Bywaters, Kenneth
 Vetter, Gregory
 Keehn, Peter
 Creasey, Robert
 Jascourt, Stephen
 Johnson, Daniel E.
 Qu, Yanni

1991-92

Gifford, Robert
 Smith, Shawn
 Strabala, Kathleen
 Pokrandt, Peter
 Sea, William
 Baumgardt, Dan
 Lin, Hsin-Mu
 Stru, Douglas

1992-93

Banitt, Jonathan
 Coe, Michael
 Devkota, Lochan
 Farrenkopf, Joseph
 Larson, Norvan
 McKay, Megan
 Nicklis, Achim
 Vavrus, Stephen
 Zaras, Daphne
 Liu, Zhili (Jerry)

Stearns
 Pauley
 Tripoli
 Smith
 Smith
 Stull

Hitchman
 Stearns
 Smith
 Pauley
 Houghton
 Wang
 Smith

Anderson
 Stearns
 Smith
 Tripoli
 Hitchman
 Tripoli
 Wang
 Wang

Tripoli
 Kutzbach
 Johnson
 Stull
 Hastenrath
 Hitchman
 Hastenrath
 Kutzbach
 Smith
 Wang

Lee, Szu-Chia
 Leffel, James
 Liu, Hui-Chun (Emily)
 Xie, Rongrong (Joy)
 Doornbos, Robert
 Hetherington, Grant
 Li, Jason
 Sinkula, Bruce
 Staudenmaier, Mike
 Sun, Fu-Long

1993-94

Bovitz, Christopher
 Lin, Wen-seh
 Santoso, Edi
 Wolf, Walter H.
 Brohm, Grant H.
 Choo, Gyomyung
 Lubin, David B.
 Cassano, John J.
 Curtis III, W. R. Scott
 Feltz, Wayne F.
 Harvey, V. Lynn
 Postel, Gregory A.
 Schowengerdt, Charles D.
 Su, Yonggang
 Wilt, Brett A.
 Yao, Chia-Yi (Joyce)

1994-95

Faust, Susan M.
 Hamill, Paul D.
 Holmes, Robert E.
 Ge, Lan
 Ho, Shu-peng
 Schrieber, Kelly M.
 Klein, Laura M.

Smith
 Stull
 Wang
 Smith
 Stearns
 Wang
 Smith
 Stearns
 Tripoli
 Wang

Tripoli
 Young
 Stull
 Stull
 Stull
 Anderson
 Houghton
 Stearns
 Hastenrath
 Smith
 Hitchman
 Hitchman
 Tripoli
 Stull
 Tripoli
 Hitchman

Smith
 Stearns
 Stearns
 Smith
 Smith
 Stull
 Houghton

Master's Degree Recipients

1995-96

Dostalek, John F.	Ackerman	Carrington, Dana P.	Kutzbach
Elston, Susan A.	Bretherton	Flint, Geoffrey M.	Houghton
Levis, Samuel	Foley	Israelstam, Shana R.	Young
Nalli, Nicholas R.	Smith	Kinyodah, Gideon	Smith
Hoggatt, Bradley D.	Tripoli	Shie, Mei-guei (Rose)	Ackerman
de la Fuente, Lorenzo S. F.	Grad Chair	Zhang, Liping	Liu
DeSlover, Daniel H.	Smith	Korner, Sebastien O.	Martin
Seefeldt, Mark W.	Stearns		

1996-97

Breunling, Michael A.	Tripoli
Huang, Boyin	Liu
Ketchum, Clair E.	Ackerman
Kugi-Feltz, Joleen M.	Hitchman
Olberding, David (Nick)	Morgan
Sisko, Christopher A.	Anderson
Sritangnan, Katanyu	Liu
Yumi, Keiko	Hitchman
Beles, Michael J.	Stearns
Coskren, Kevin J.	Martin
McCullough, Heather L.	Houghton
Thom, Jonathan R.	Stearns
Brinkman, Lorne H.	Wang
Dehner, Stephen G.	Martin
Heinzelman, Jay S.	Young
Lazzara, Matthew A.	Young
Politowicz, Philip A.	Ackerman
Ramos, Raymond A.	Morgan
Singh, Ashutosh	Liu
Thompson, Greig	Stearns

1997-98

Biewer, Theodore M.	Ackerman
Buker, Marcus L.	Hitchman
Gregoria, Danny F.	Morgan
Gregoria, David C.	Martin

Associated Research Centers

Space Science and Engineering Center

1965-present
(The Graduate School)

Directors:

Prof. Verner E. Suomi 1965-1988
Prof. Francis P. Bretherton 1988-present

Cooperative Institute for Meteorological Satellite Studies

1980-present

Directors:

Prof. Verner E. Suomi 1980-1984
Prof. William Smith 1984-1997

Center for Climatic Research

1962-present
(Institute for Environmental Studies 1970-present)

Directors:

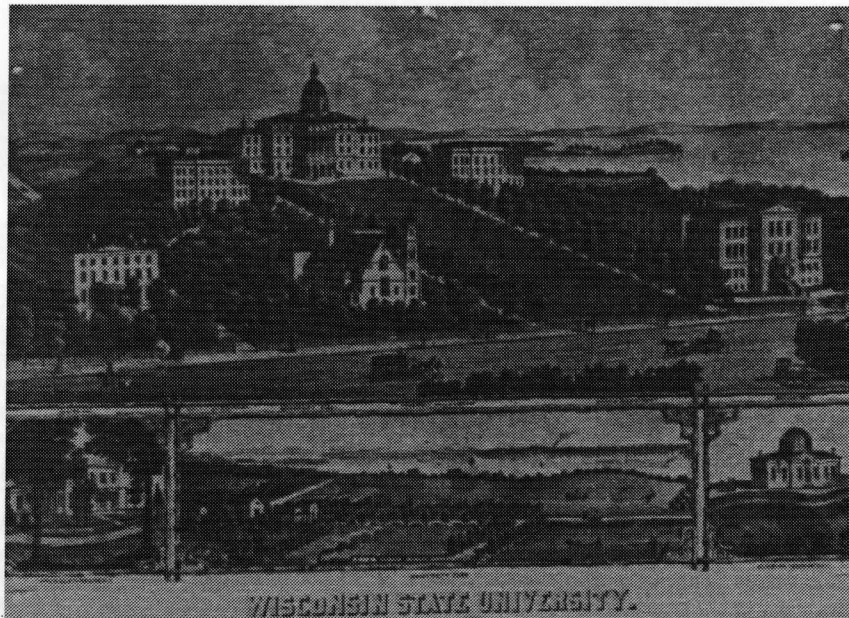
Prof. Reid A. Bryson 1962-1970
Prof. John E. Kutzbach 1970-present

Climate, People, and the Environment Program

(Institute for Environmental Studies)

Director:

Prof. Jonathan A. Foley 1993-present



One Hundred and Twenty-Five Years of Meteorology at the University of Wisconsin

Gisela Kutzbach

1138 Shorewood Blvd., Madison, Wis. 53706

1. Introduction

The roots of meteorology at Wisconsin can be traced to the early years of the University. In 1848 the Regents made plans for the organization of the various departments of the University. They stated that one of the duties of the professor of chemistry and natural history should be "to make and publish meteorological observations" (Curti and Carstensen, 1949). The University was established in 1849. The first professor on campus, J. W. Sterling, began taking meteorological observations in 1853. A small but continuing program of meteorology was present on the campus for almost 100 years (1853-1947), consisting of observations, courses, services, and research. The modern Department of Meteorology was founded in 1948. With the leadership of Prof. Reid A. Bryson and Prof. Verner E. Suomi and the support of the University, the fledging Department grew. On its 30th anniversary, it is a major center for meteorological teaching and research. In this account we will note some of the milestones of the past 125 years—both individuals who had dreams, and institutions (University, state, and national agencies) that helped support and transform these dreams into realities.

2. The early years

In 1853, when Profs. J. W. Sterling and S. H. Carpenter established the first meteorological station, they participated in the earliest nationwide meteorological network in the United States. This network was organized by the director of the Smithsonian Institution, Joseph Henry, who had a strong interest in meteorology. (The Smithsonian Institution's network eventually merged into the network of the United States Weather Bureau, established as a branch of the Signal Office in 1870.)

Professor Sterling's observing station was installed on the roof of North Hall, which was the first University building and served as a teaching facility and a student dormitory. The students living in North Hall were enlisted as observers; among them was John Muir, who later became a world famous naturalist. Muir apparently had difficulties awakening in the morning for classes and observations. It is said that the inventive Muir "devised a bed-tipping mechanism which brought him to the floor with a bounce each morning. He contrived the apparatus after failure of a simpler plan, consisting of tying a string to his big toe and dangling the string out a window so a janitor could jerk the cord at 7 a.m. daily" (Fred, 1969).

Observations at North Hall were discontinued in 1864 when the Smithsonian system collapsed during the Civil War. In 1869 agriculture professor W. W. Daniells

reinstated meteorological observations in Madison. His station, located at Bascom Hall, was incorporated in 1870 into the network of the newly organized Weather Bureau.

In 1878 the Weather Bureau established an official station in downtown Madison. This arrangement apparently was not satisfactory. In 1883 the station was discontinued and the Weather Bureau and the University reestablished collaboration. The instruments of the city Weather Bureau station were turned over to the University's Washburn Astronomical Observatory and meteorological observations were communicated daily to the Signal Office in Washington. Students at the Observatory, who had appointments as "meteorology assistants," carried out a comprehensive observation program for the next 21 years.

Meteorology entered the curriculum of the University during the 1880s via the College of Agriculture. (This was one of the major routes for the acceptance of meteorology into universities and colleges. Other routes were geography, geology, and astronomy.) The situation at Wisconsin was particularly favorable because of the University's strong agricultural program and innovative faculty members. In 1888, University of Wisconsin President T. C. Chamberlain (1887-92) recognized the need for the application of principles of physics to agriculture and recruited his former student F. H. King as the first professor in this new field. King's conception of agricultural physics included meteorology from the beginning. From 1888 onward students in agriculture were required to take King's course in meteorology and climatology, which covered general principles of meteorology, observations and instruments, and applications to agriculture. When King left the University in 1902 to join the United States Soils Bureau, his successor continued to teach meteorology until 1909.

In 1904 meteorology was organized as a separate department of instruction in the College of Letters and Science, and the Weather Bureau reopened an official station in Madison with the University providing quarters in North Hall. The University and government closely coordinated their efforts, and the Weather Bureau official in charge held an appointment as lecturer in meteorology.

The first Weather Bureau official in North Hall, J. C. Bartlett, began teaching courses in elementary and advanced meteorology and in climatology upon his arrival in 1904. He expanded his teaching program over the next 4 years and introduced lab work and "atmospheric dynamics, based upon discussions of Ferrel, Bigelow and Hann" (*University Catalog*, 1904). Bartlett was clearly abreast of the newest advances in the field. In 1907 meteorology became an elective course in the College of Engineering.

Bartlett was transferred in 1908. His successor, Eric R. Miller, maintained a meteorological program at the University for the next 36 years. Miller's courses were open to students in the liberal education program, students of related fields, and students specializing

in meteorology. However, meteorology could not be taken as a major, and no degrees were granted. Courses included general and theoretical meteorology, physical climatology, climate and man, history of meteorology, and meteorological instruments and methods. In 1912 Miller introduced a course on solar radiation and he taught aeronautical meteorology and air mass analysis from 1933.

Miller conducted a considerable amount of research, collaborating with a number of University professors. He published in the *Monthly Weather Review* a series of papers on solar radiation measurements that he had initiated at the North Hall station in 1911. Miller's observations (on 8 June 1912) of reduced solar radiation following the Katmai eruption (6 June 1912) were widely noted (Kimball, 1913). For over two decades he investigated dust storms passing over the United States and published the results.

In 1920 Miller began broadcasting weather reports over the University radio station. His broadcasts were heard regularly for the next 24 years and he "became almost a legend to Madison and area residents." He was described as "the first [regional forecaster] in the United States to broadcast weather reports regularly over a radio station" (*Capitol Times*, 1952). In 1942, the catalog of the University of Wisconsin listed Miller as chairman of the meteorology department and geography professors G. T. Trewartha and V. C. Finch as staff. Miller retired in 1944. He continued teaching for another year as emeritus lecturer in meteorology before moving to California.

Miller's departure signalled the end of the first chapter of meteorology at the University. It was a period in which observation, teaching, service, and research were all part of the meteorology program. It also was a period during which meteorology became firmly established in the University. The ground was prepared for the second program of meteorology at the University that began 30 years ago.

3. The Department of Meteorology

In 1943 the Division of Physical Sciences of the University of Wisconsin appointed a committee to make recommendations on the future of meteorology at Wisconsin. This committee recommended that the meteorology program be expanded by adding a senior meteorologist to the faculty and by continuing cooperation with the United States Weather Bureau. In the summer of 1946 an appointment was offered to Reid A. Bryson, who had been an instructor in the wartime meteorological training program at the University of Chicago and a forecaster in the war in the Pacific. Bryson had visited the campus in the spring of 1946 while working on his Ph.D. in meteorology at the University of Chicago. He accepted an appointment as assistant professor in meteorology and geology, housed in the geography department.

Bryson introduced a new teaching program in meteorology in the fall of 1946. He was appointed to

an interdepartmental committee by Dean Baldwin of the College of Agriculture to develop a program for the coordination of agricultural and meteorological data in cooperation with the United States Weather Bureau. This committee was replaced by an all-University steering committee in 1947. On the initiative of Bryson, the steering committee began working toward organizing a department of meteorology. Establishment of a separate department, it was hoped, would make it possible to bring Verner E. Suomi to Wisconsin. At that time, Suomi, who was a friend of Bryson, directed the Instrumentation Laboratory of the Department of Meteorology at the University of Chicago. Bryson first discussed the "Wisconsin idea" with Suomi in 1946, on a fishing trip in northern Minnesota.

The plans for a new department of meteorology were presented to Dean Ingraham of the College of Letters and Science early in 1948. The Dean soon informed Bryson that a department would be formed and that he should go ahead in recruiting Suomi. Suomi accepted an assistant professorship with a joint appointment in meteorology and biometry and physics in the spring of 1948.

a. The first year

The new Department of Meteorology was formally established on 1 July 1948, with Bryson as chairman (Bryson and Suomi alternated the chairmanship of the department during the first decade). The Department was housed in two rooms on the second floor of Science Hall, and was furnished with surplus furniture and homemade bookshelves. Secretarial work was done by a half-time student helper. There was one graduate student during the first semester, and 15 nonmajors. During 1948 a course in paleoclimatology was added to the regular curriculum, and oceanography and micrometeorology were added in 1949. An undergraduate major was established in 1950, offering 12 courses in meteorology, with an average enrollment of 15 students per course.

The Department maintained an active research, teaching, and service program from the beginning and, significantly, from the beginning there was fruitful interaction with other departments (particularly in the Colleges of Agriculture and Engineering) and continuing support by the University. Interactions with agencies and institutions outside the University soon followed. During his first 2 weeks at Wisconsin, Suomi began setting a long-term pattern by going on two trips (to La Crosse, Wis., and Little Falls, Minn.).

The first field research started in August 1948 when Bryson and Suomi installed five rain gages in "the biggest flower pot in the world." This was the name they gave to the corn field of the University Marsh Farm, adjacent to the campus and Lake Mendota. The micrometeorological research on the heat and water budget of the marsh farm led to the development of a radiation meter that measured the net radiation at the earth's surface directly. This work was supported by a grant from the Wisconsin Alumni Research

Foundation. Years later, Suomi's radiation instruments were orbiting the planet and measuring the earth's heat budget.

In spring 1949 Bryson and Suomi embarked on a second major research project, lake research in Lake Mendota (then considered the most studied lake in the world). Together with research assistant James Verber, they commenced studies of lake currents. In June, while Suomi and Bryson were fishing up North, the secretary was supposed to collect the research material for the first lake current measurements—30 empty cans (for floats) and umbrellas (for current drogues). She got the Physical Plant to provide 30 empty paint cans. Thirty umbrellas were not to be found. The lake research, also supported by the Wisconsin Alumni Research Foundation, grew rapidly into a major research project involving a number of students and assistants as well as interdepartmental efforts; it played an important role in the development of the Department during the 1950s.

Also in 1949, Suomi completed work on the sonic anemometer that he had started at Chicago. Two 3 cm radar units, which he had transferred from Chicago, were erected on top of North Hall. The College of Agriculture provided the first IBM electric keypunch machine, which was used for studies in applied climatology by Lothar A. Joos. Joos had become Eric Miller's successor as Weather Bureau official for the Madison campus station and he stayed in close contact with the Department until his departure in 1955. Joos and the University radio station collaborated in establishing routine weather observations at the FM-network transmitters distributed across the state. Engineers at the transmitter sites reported their local weather observations directly over the radio. These so-called "weather roundups," introduced in 1949, were unique in the country.

Within the first years of its existence the Department had shown extraordinary activity, representing the "distillation of 100 years of distinguished Wisconsin accident and design" (*Wisconsin Alumnus*, 1948).

b. 1950-57

During the 1950s the Department grew slowly but steadily. The first Ph.D. was awarded in 1953 (to Robert A. Ragotzkie) and the second in 1957; enrollment of graduate students increased. In 1956 Prof. Dean O. Staley joined the faculty and taught atmospheric dynamics until 1960.

Major grants awarded by state and federal agencies document the strong research activity during this period. In the early 1950s, the Wisconsin Valley Improvement Cooperation provided funding for work in applied climatology. Professors Bryson and Suomi collaborated with others on studies of weather and climate as related to Wisconsin agriculture. Some of their work was in collaboration with the United States Weather Bureau state climatologist Joos (and his successors) and the University of Wisconsin agricultural experiment station. The early support of the Wisconsin

Alumni Research Foundation through the Graduate School has already been noted. The Geophysics Research Directorate of the United States Air Force Cambridge Research Center provided money for research in dynamic climatology and surface energy budget studies from the mid-1950s into the 1960s, and for turbulence studies with the sonic anemometer developed by Suomi.

Mrs. Marie Riggs, departmental secretary, kept the Department "humming along" from her arrival in the mid-1950s until retirement in 1973.

c. 1957-63

The Department entered a period of rapid growth about 1957. That year marked the beginning of the International Geophysical Year (IGY) and the Sputnik launch—two events that greatly stimulated student interest in meteorology, widened the scope of research and teaching in the field, and resulted in significant increases in the availability of research funds. The graduate program at Wisconsin soon overshadowed the undergraduate. Graduate enrollment jumped from seven in 1957 to 44 in 1961. By 1963, nine Ph.D.s and 36 M.S. degrees had been awarded and 26 of the 50 graduate students were Ph.D. candidates. The faculty size made equally impressive increases: Heinz H. Lettau (1957), Robert A. Ragotzkie (1959), Raymond J. Deland (1960-64), Lyle H. Horn (1960), Stig A. Rossby (1962-67), Werner Schwerdtfeger (1962), and Eberhard Wahl (1963). The Department had "growing pains" and, in 1958, moved into the 4th and 5th floors of Science Hall.

Professor Lettau was awarded a grant from the Electronic Research and Development Agency of the United States Army for studies of the structure of the atmosphere near the earth's surface. A summer cottage near Second Point at Lake Mendota became headquarters for micrometeorological field research and Lake Mendota grew a winter crop of bushel baskets and Christmas trees for Lettau's wind profile modification experiments.

Beginning in 1957, the Geography Branch of the United States Office of Naval Research supported a program of subarctic climatology research by Bryson, who was joined by Ragotzkie in 1959. Under this program there developed pioneering efforts in remote sensing of water and land surfaces from aircraft. These studies ultimately led to a Great Lakes research program and the creation of the Marine Studies Center in 1967.

The Center for Climatic Research was established by Professor Bryson in 1963 when he was awarded the Department's first National Science Foundation (NSF) grant for "Interdisciplinary research in climatology." The Center's program included research on present-day climates with special attention to oceanic, polar, and desert areas. A Carbon-14 Laboratory and Pollen and Tree-ring Laboratory were added for studies of past climates. A rented store provided the first quarters for the new Center.

Professor Suomi, with Weather Bureau and NASA support, designed a radiation experiment to study the energy budget of the earth; the experiment was successfully flown on the satellite Explorer VII (1959), and the *Wisconsin State Journal* headlines proclaimed that the University of Wisconsin had "entered the Space Age." Subsequent experiments were carried on meteorological satellites of the TIROS series. Under the leadership of Suomi, the Space Science and Engineering Center was created in 1965 to coordinate University projects related to space research.

Professor Horn developed a new program of research in atmospheric energetics, funded by the United States Weather Bureau; and Professor Schwerdtfeger began work on Antarctic meteorology, funded by NSF.

During its first 15 years the Department had engaged frequently in research projects that crossed traditional disciplinary lines. Its strongest fields were climatology and paleoclimatology, satellite meteorology, micrometeorology, atmospheric dynamics, and limnology. While research funding had remained at a fairly constant level of about \$50 000 per year before the IGY, it had increased to almost \$700 000 per year by 1963.

In most United States cities meteorological observing activities were transferred to outlying airports during the 1950s and 1960s. On 30 April 1963, the North Hall observing station was closed, exactly 110 years after Professor Sterling's first observations. However, the United States Weather Bureau State Climatology Office, established in 1954, remained associated with the Department.

d. 1963-68

The growth of the Department continued through the mid-1960s; the faculty doubled in size between 1963 and 1968: Profs. Donald R. Johnson, James A. Weinman (1964), Douglas H. Sargeant (1965-72), Charles R. Stearns, Champ B. Tanner (1965), Charles E. Anderson, John E. Kutzbach, John A. Young (1966), Frank Sechrist, Stefan L. Hastenrath (1967), and David D. Houghton (1968) joined the staff. By 1968 research grants totalled more than \$1 000 000 per year. Forty Wisconsin Ph.D.s had been awarded since 1948. Members of the Department assumed roles as experts and consultants on the national and international level. In recognition of their work Suomi and Lettau were awarded the C.-G. Rossby medal of the American Meteorological Society and Suomi was awarded the National Science Medal in 1977.

Even more so than in earlier periods, research programs of the Department made it evident that the "boundaries of the Department" had become the "boundaries of the world." Field programs extended from the South Pole to the Arctic, from beneath the surface of the earth to other planets.

In 1963, the faculty published a plan for continued growth into the 1970s. This plan called for expansion of the staff and demonstrated the need for a new research facility in view of inadequate space for research and

teaching and the fragmentation of the Department in five locations. The University supported the staff expansion of 1963-68 and the plan for a new facility reached fruition in 1968 with the dedication of the 15-story Meteorology and Space Science Building. The plaque in the lobby reads:

This building, dedicated to the understanding of man's physical environment and its use for the benefit of mankind, was provided by the people of the State of Wisconsin and of the Nation through the National Aeronautics and Space Administration and the National Science Foundation

Thus the old tradition of state and federal cooperation had continued.

The new building was shared by the Department and the Space Science and Engineering Center. The Center for Climatic Research and the Marine Studies Center also moved into the new facility. From the beginning, the links between the Department and these three research centers were mutually beneficial. The Department provided academic bases and graduate student "homes" for researchers in the Centers, which, in turn, provided research opportunities, technical facilities, and financial support for members of the Department.

e. 1968-78

In 1970, Professor Bryson was named director of the newly formed Institute for Environmental Studies, bringing to fruition the interdisciplinary approach to the environmental sciences that Bryson had emphasized from the beginning. During the 1960s Professor Ragotzkie developed an Oceanography and Limnology Graduate Program and the University of Wisconsin became a Sea Grant Institution in 1968. Under Ragotzkie's directorship the University was designated a Sea Grant College in 1972. Professor Anderson served as Chairman of the University's Department of Afro-American Studies (1970-71 and 1974-77).

Further additions to the faculty included Profs. Theodore Green (1969) and W. Richard Barchet (1972-79). In 1975 the State of Wisconsin, through the UW-Extension, established support of a State Climatology Office (after the Weather Bureau had terminated federal support), headed by Prof. Val L. Mitchell. In 1977 Prof. Gerald F. Herman joined the staff, working part-time at NASA's Goddard Laboratory. Most recently, a NOAA research lab moved from Washington, D.C., to Wisconsin to work with the Department and the Space Science and Engineering Center on satellite remote sensing of the atmosphere and weather prediction. Adjunct Prof. William L. Smith, the lab director, also teaches in the Department.

Research funding, including the associated Centers, has reached a level of \$2.5 million. By 1978 the University had awarded 105 Ph.D.s in meteorology. There are now about 100 graduate students and over 40

courses are offered on a wide variety of subjects at both undergraduate and graduate levels. Certain meteorology courses are cross-listed with other departments within the College of Letters and Science and the College of Engineering. Meteorology faculty members have joint appointments with Soil Sciences, Civil and Environmental Engineering, Geography, Afro-American Studies, the Institute for Environmental Studies, Integrated Liberal Studies, and the UW-Extension. Over the years, the position of Chairman has been held by Professors Bryson, Suomi, Lettau, Ragotzkie, Horn, Wahl, Johnson, and Houghton (currently).

The research facilities of the Department include laboratories for work in micrometeorology, paleoclimatology, cloud physics, meteorological optics and radar and lidar probings of the atmosphere, and the computing facilities for general circulation and climate research and the analysis of satellite data. The Department has excellent facilities for research in synoptic meteorology, including teletypewriter and facsimile service, a weather radar, and the capability of receiving and analyzing real-time observations from geostationary and polar-orbiting satellites. Computing facilities include a Man-computer Interactive Data Access System (McIDAS), which is a computer-video display system developed by Space Science and Engineering primarily for the processing of information obtained from satellites.

Members of the faculty of the Department have contributed to the planning of the Global Weather Experiment, and the Department and its related Centers are actively participating in the Global Weather Experiment. Research on climate, the "impacts" of weather and climate on agriculture and other activities, and new approaches to the dissemination of weather and climate information are developing.

It started with Professor Sterling's first observations in 1853. Professors Bryson and Suomi initiated a 30-year period of growth and diversification in teaching, research, and service. In this, the Department of Meteorology forms part of the "Wisconsin Idea," which evolved on the shores of Lake Mendota.

Acknowledgments. I wish to thank the faculty members of the Department for finding material and recalling details. I am also grateful to L. A. Joos, M. Riggs, and M. Hundt for their help.

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Candid photos from the 30th Anniversary Celebration, Department of Meteorology, University of Wisconsin-Madison



(Top row) (Left) Dr. Roger Davies, University of Wisconsin; Dr. Milton Halem, Goddard Space Flight Center; Dr. Gerald Herman, University of Wisconsin; and Dr. David Houghton, University of Wisconsin. (Center) Chancellor Werner Baum, University of Wisconsin-Milwaukee; Prof. Verner Suomi, University of Wisconsin; and Prof. Heinz Lettau, University of Wisconsin. (Right) Prof. Verner Suomi, University of Wisconsin; Dr. David Johnson, National Environmental Satellite Service; Dr. William Smith, National Environmental Satellite Service/Space Science and Engineering Center/Meteorology Department; and Mr. Joe Rigney, National Weather Service.

(Second row) (Left) Vice Chancellor Bryant Kearn, University of Wisconsin; Mrs. Bryant Kearn; Prof. Stephen Kleene, University of Wisconsin; and Mrs. Stephen Kleene. (Center) Prof. Heinz Lettau, University of Wisconsin, makes a presentation. (Right) Prof. Eberhard Wahl, University of Wisconsin; and Emeritus Dean Mark Ingraham, University of Wisconsin.

(Third row) (Left) Prof. John Kutzbach, University of Wisconsin; and Prof. David Houghton, University of Wisconsin. (Center) Mr. Eric Hennen, Dairyland Cooperative; Mrs. Eric Hennen; Dr. Richard Brost, Old Dominion University; and Prof. Charles Stearns, University of Wisconsin. (Right) Dr. Bernard Lettau, National Science Foundation; Prof. Werner Schwerdtfeger, University of Wisconsin; and Mr. Joe Rigney, National Weather Service.

(Fourth row) Mr. Bryan Lilius, University of Wisconsin; and Prof. Werner Schwerdtfeger, University of Wisconsin. ●



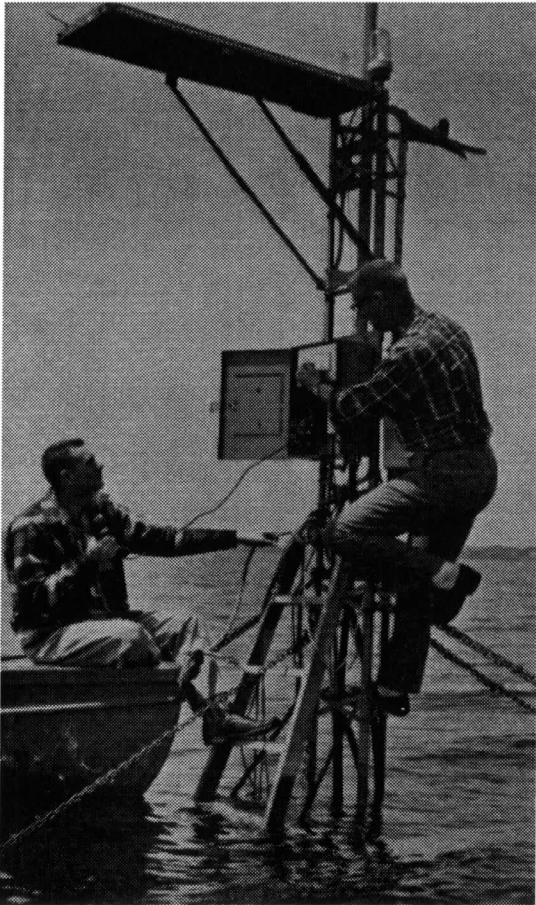
Research with the Cessna in Canada (1961)



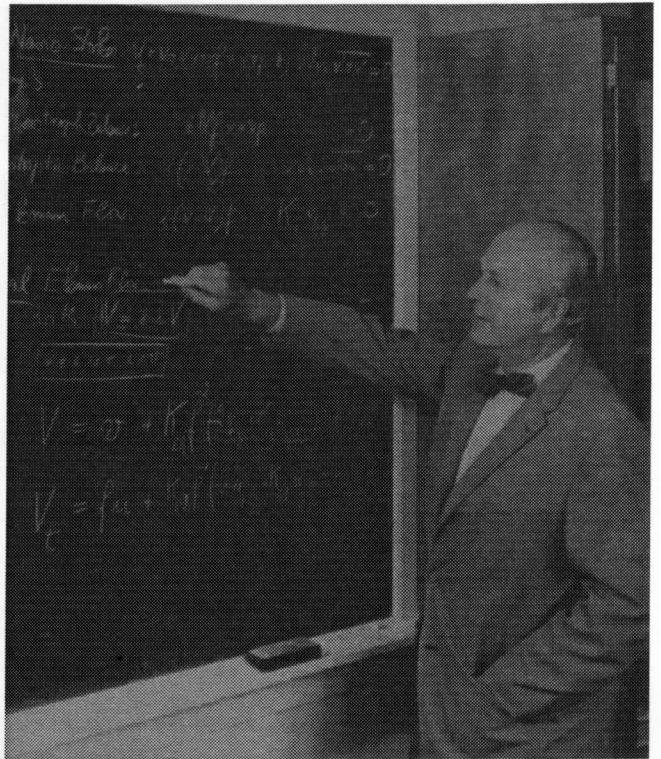
G. Likens and Prof. Ragotzkie
measure currents with tracers on an
Antarctic Lake (1963)



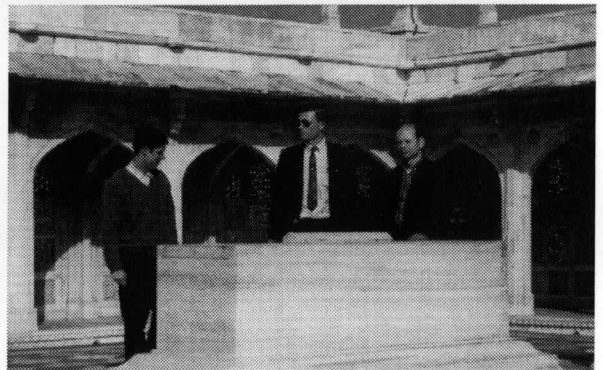
Suomi and "Explorer VII" Satellite
Cape Canaveral, 1959



Reid Bryson and Chuck Stearns
Lake Mendota - Second Point, 1962



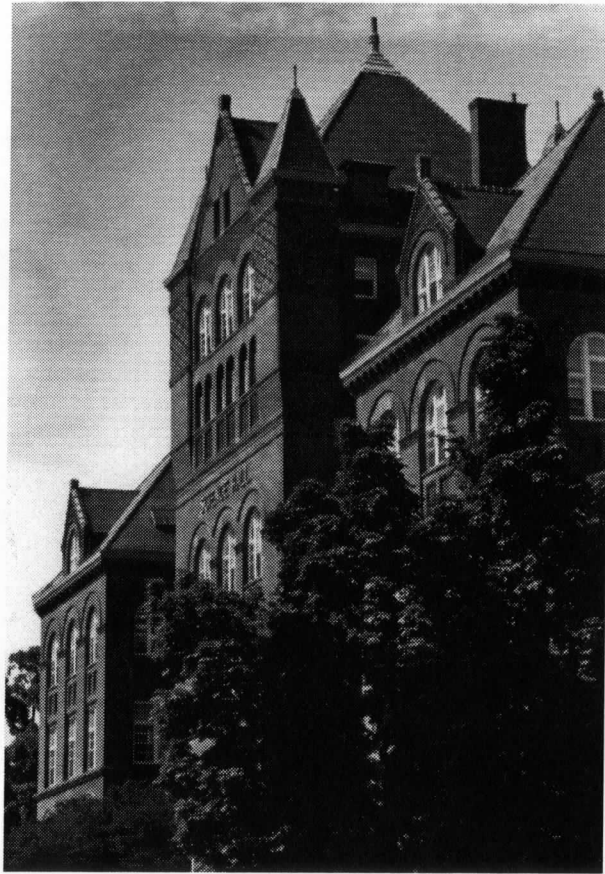
Heinz Lettau, Science Hall, 1967



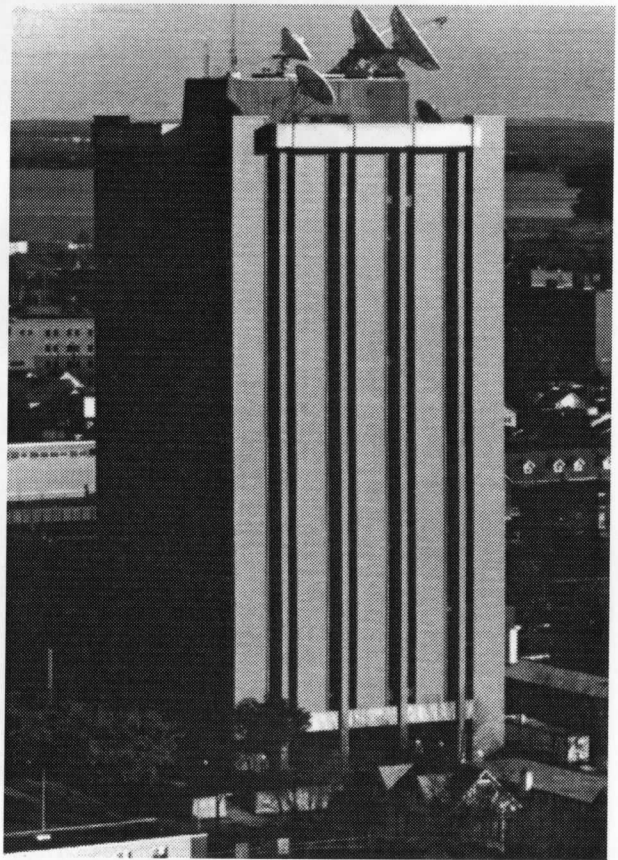
Bryson's India Project, 1968
John Young, W. Ahrnsbrak, and
Jim Weinman



Hastenrath, Stearns, and Bryson, Peru 1964



*Science Hall
1948-68*



*Atmospheric, Oceanic,
and Space Sciences Building
1968-1998*



Marie Riggs



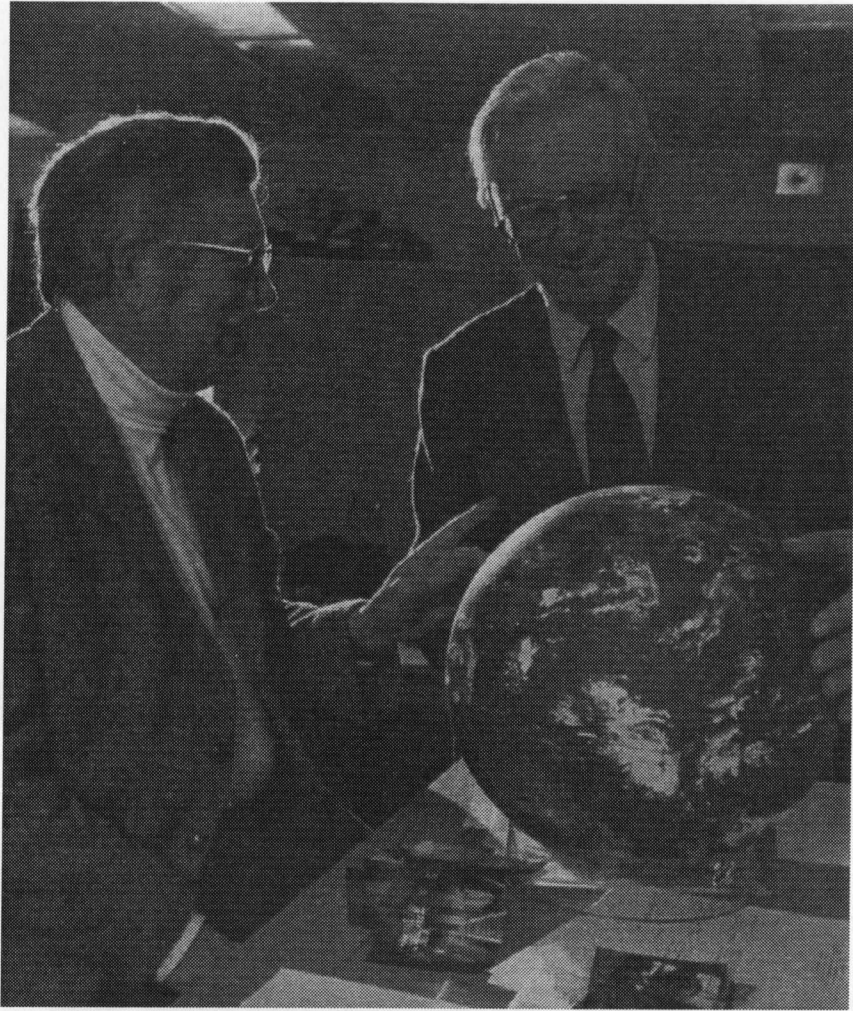
Jeanne Beuhlman



Jane Rieder



Elaine Finn



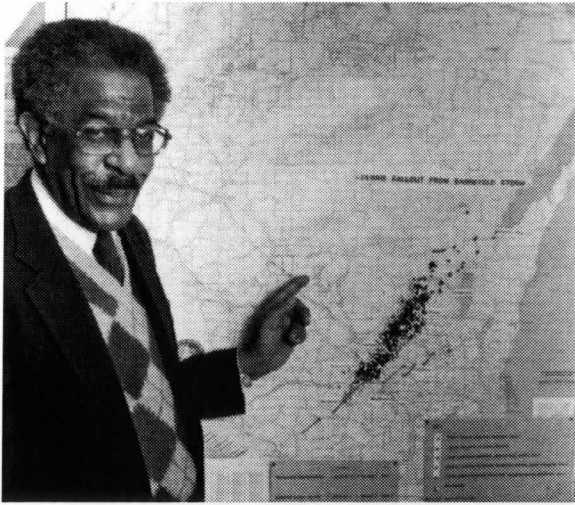
Reid Bryson and Verner Soumi in 1987



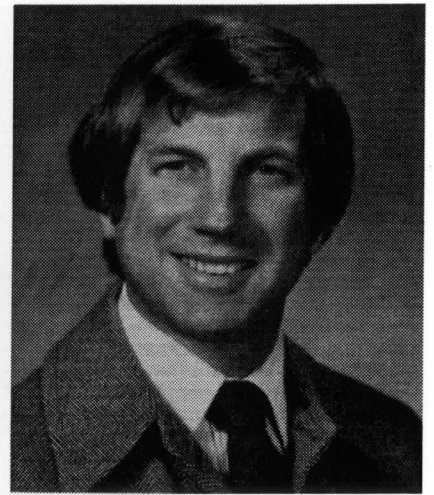
Reid Bryson with Graduate Student T. House



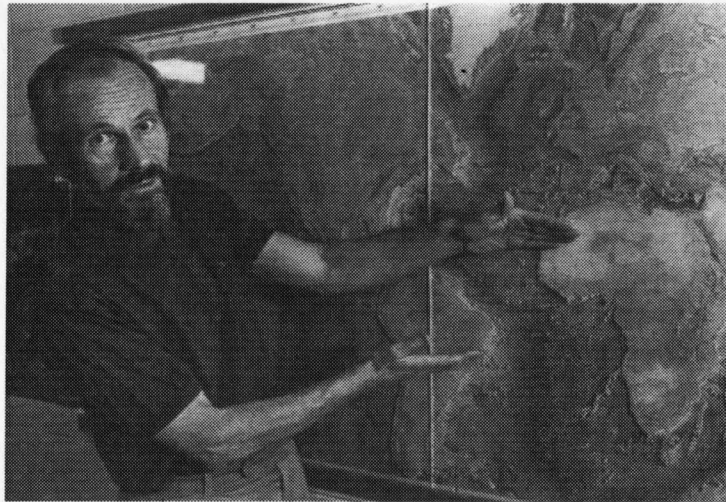
Verner Soumi (1990)



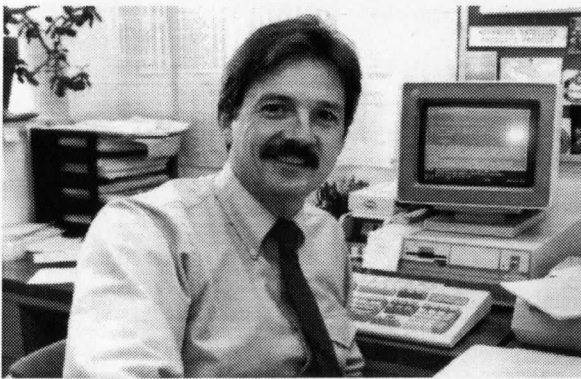
Charles Anderson, 1985



Bill Smith - early 1980's



Stefan Hastenrath - 1990



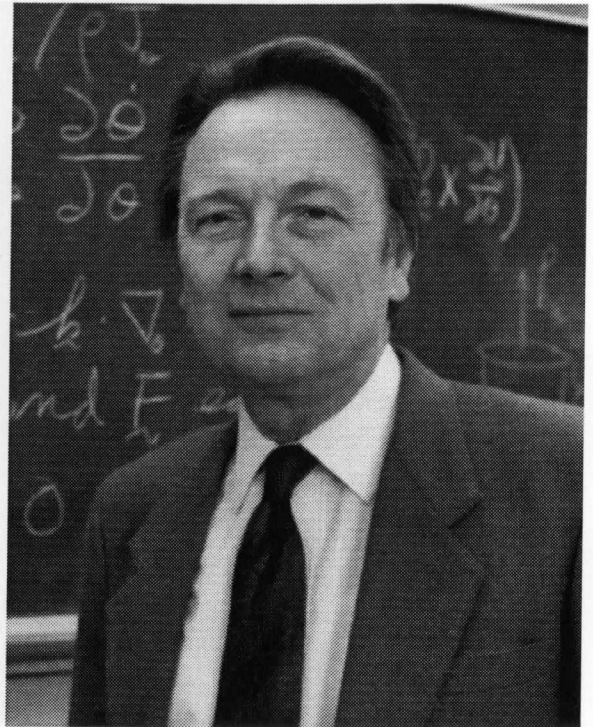
Paul Menzel - Late 1980's



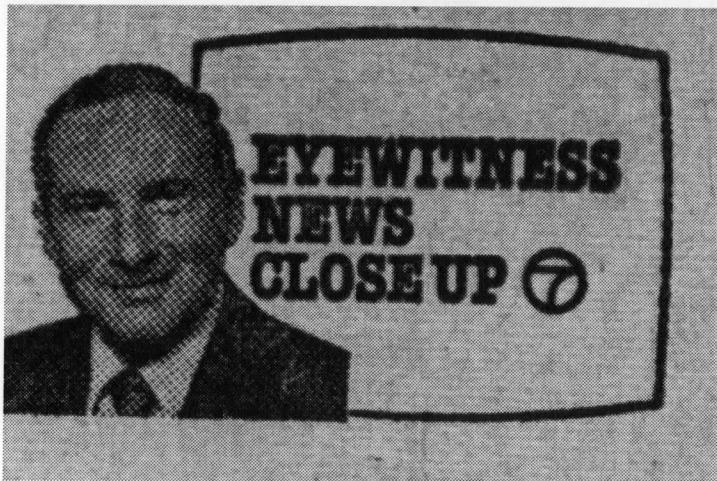
Pete Pokrandt (1989)



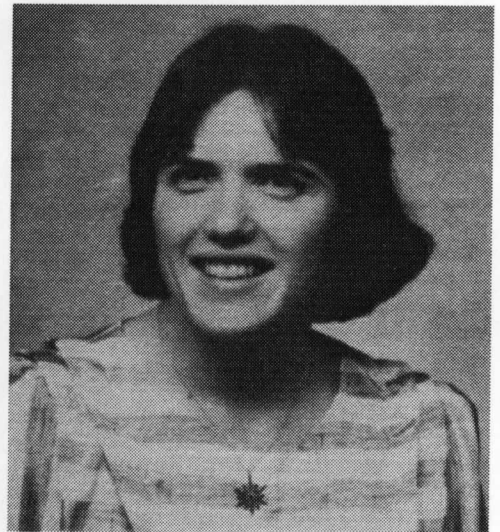
Lyle Horn (1987)



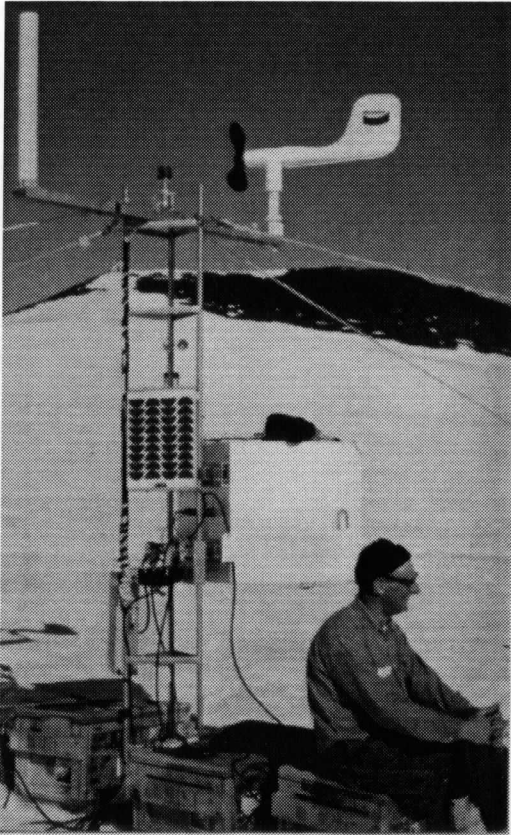
Don Johnson (1990)



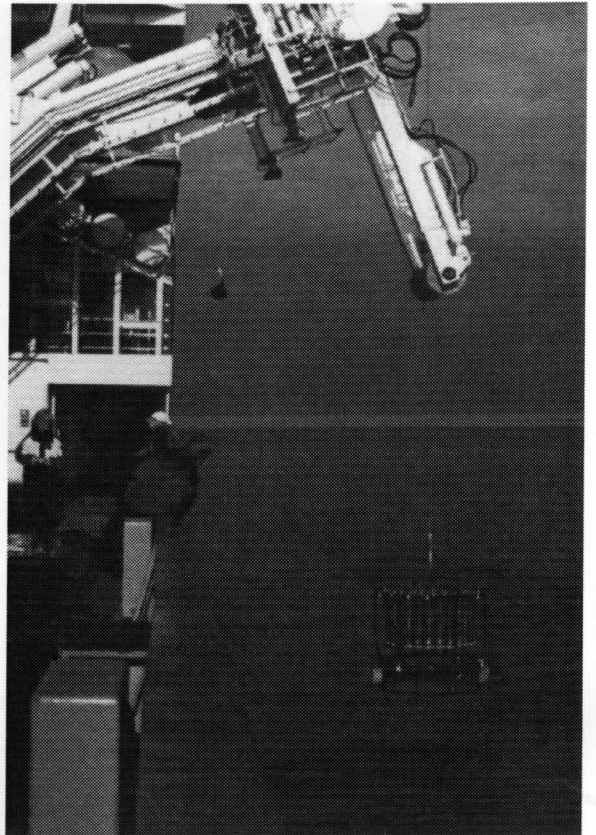
Frank Sechrist (1979)



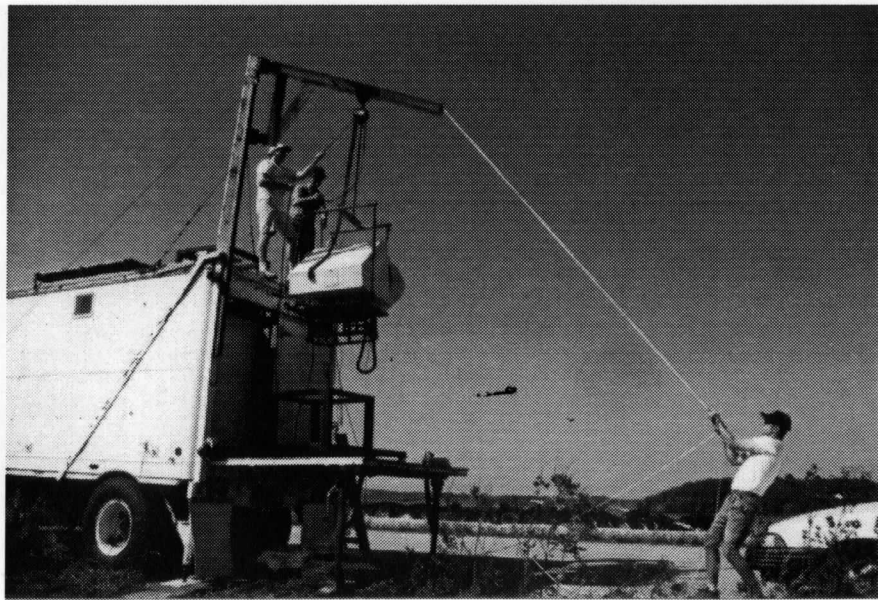
Pat Pauley (1985)



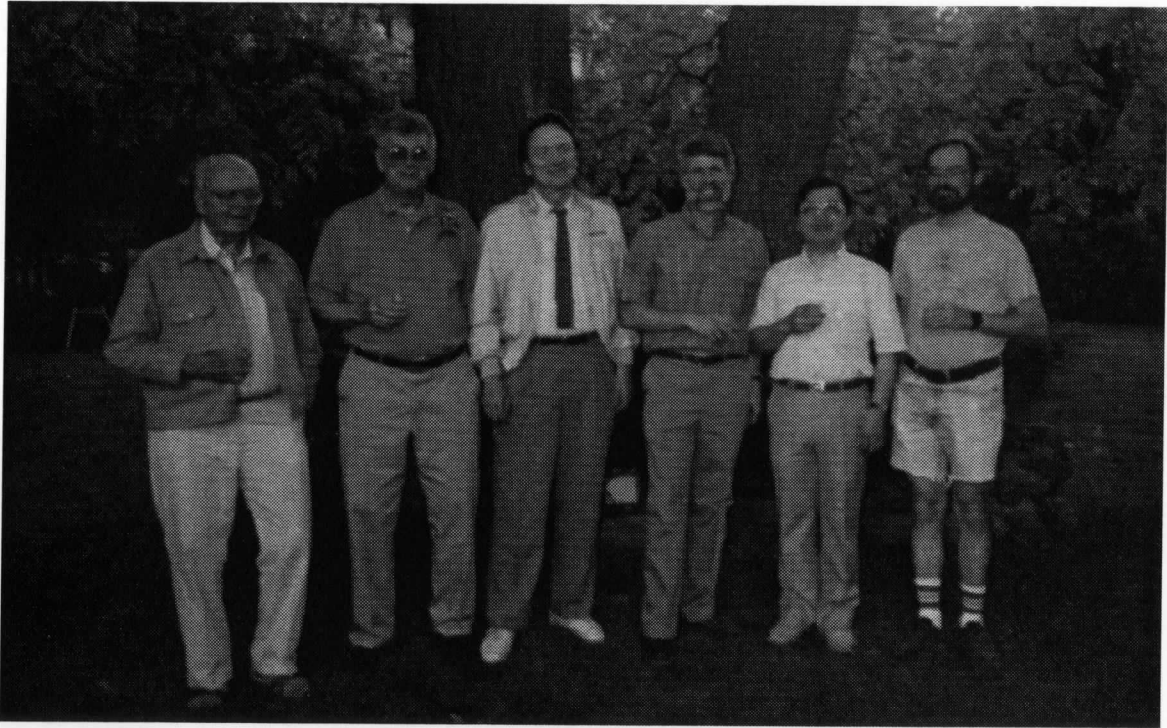
Chuck Stearns, Antarctica, 1981



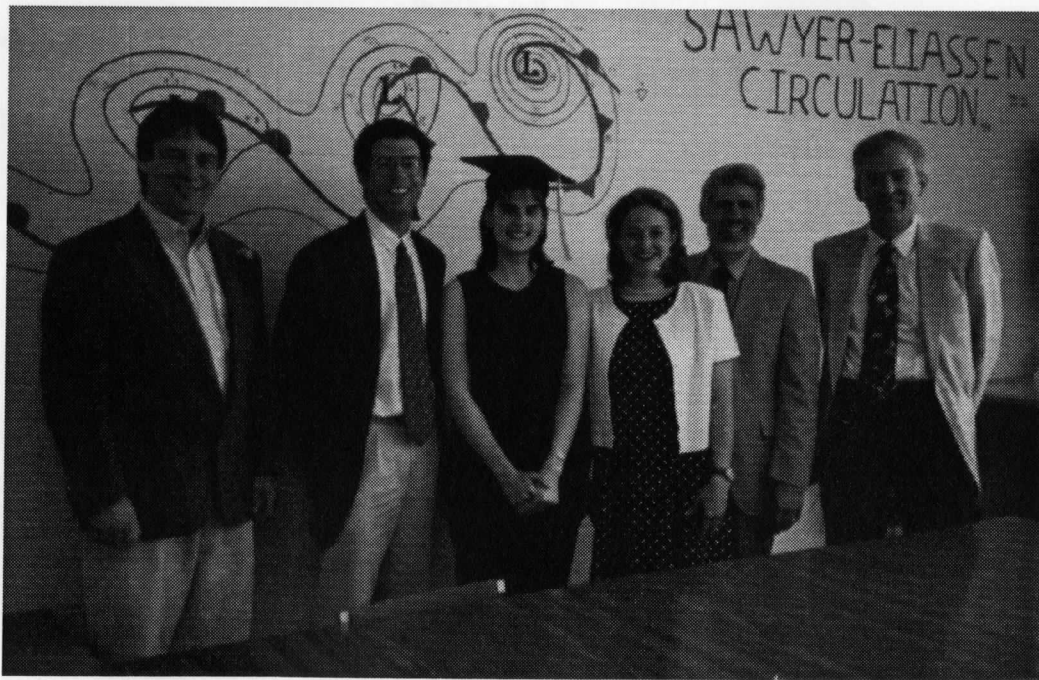
Kim Van Scoy's Group - 1996
Greenland Sea Tracer Study



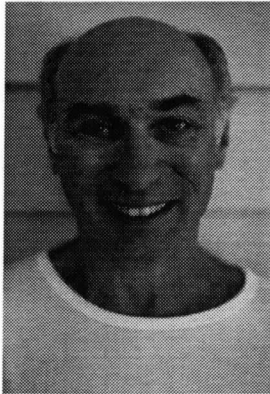
Ed Eloranta's Lidar Observing Group - 1997



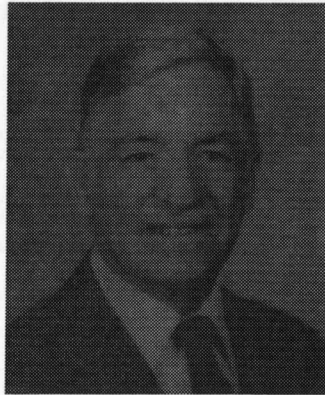
Five Decades of AOS Faculty in 1990
Lettau (80), Bryson (70), Johnson (60), Young (50), Wang (40), Stull (40)



B.S. Graduation Party, 1997
Traci Hasse and Melissa Tuttle with their Professors
Tripoli, Martin, Young and Houghton



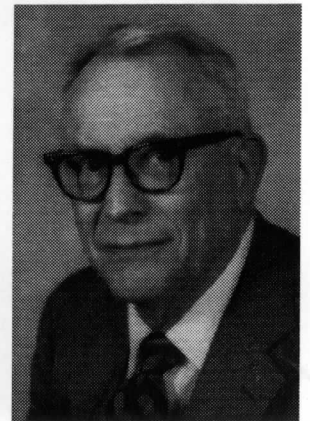
Ted Green



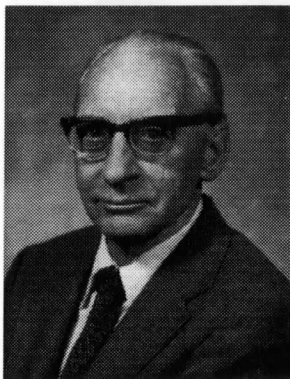
Bob Ragotzkie



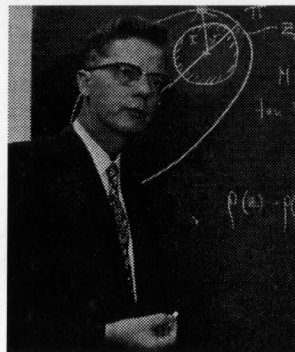
Roland Stull



Champ Tanner



Werner Schwerdtfeger



Eberhard Wahl (1962)



Jerry Herman (1983)



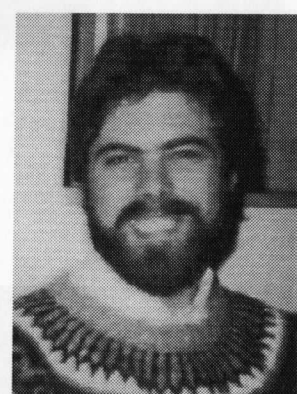
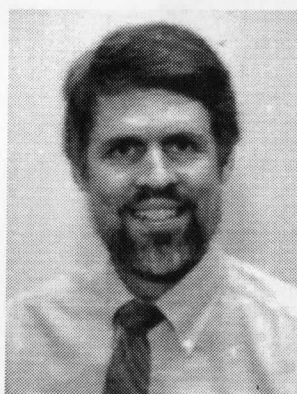
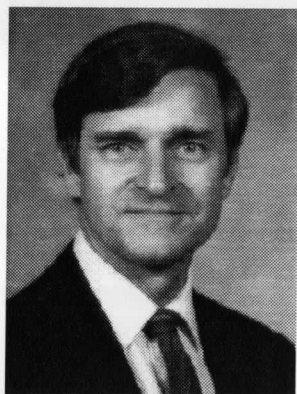
Jim Weinman (1983)
"Synoptician for a Day"

Department Chairs



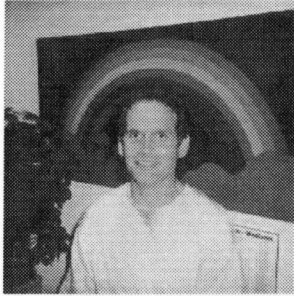
1948-1978

Top: Wahl, Horn, Houghton, Johnson. Bottom: Bryson, Suomi, Lettau, Ragotzkie

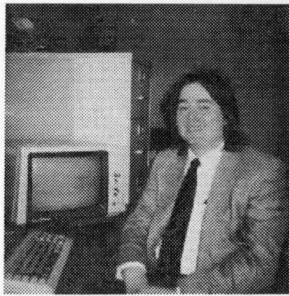


New Chairs: 1978-1998
Kutzbach, Young, Wang, Hitchman

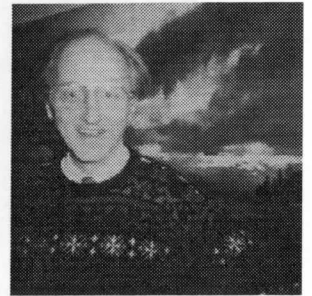
Current Faculty Members



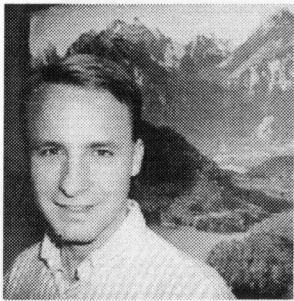
Steve Ackerman



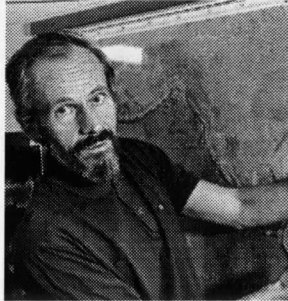
John Anderson



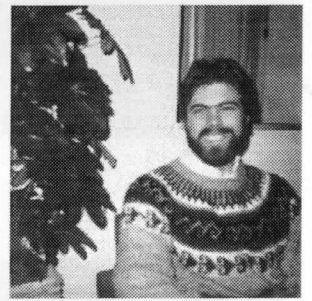
Francis Bretherton



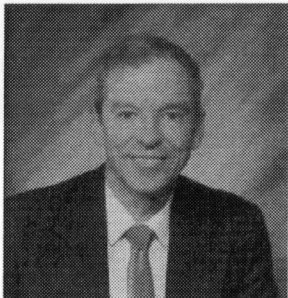
Jon Foley



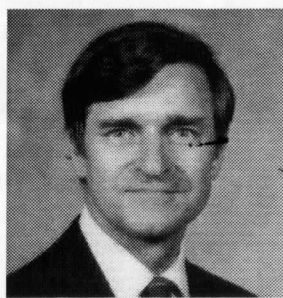
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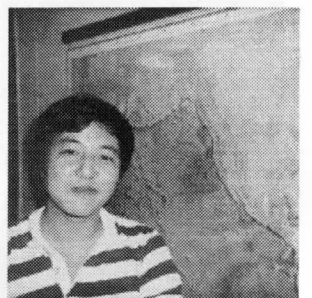
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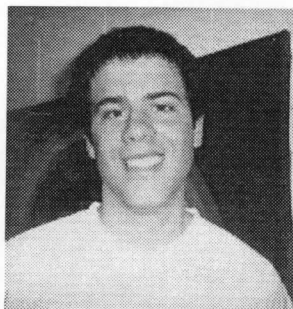
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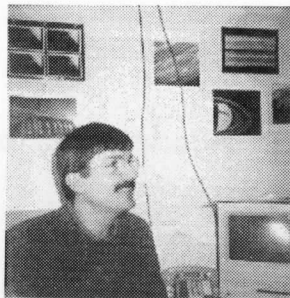
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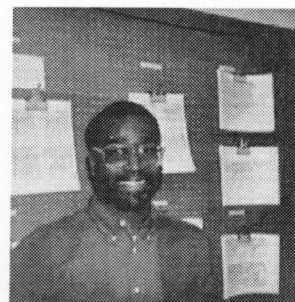
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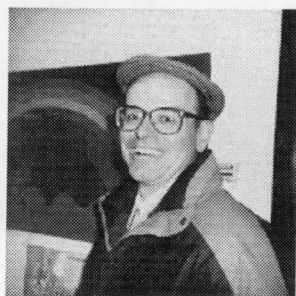
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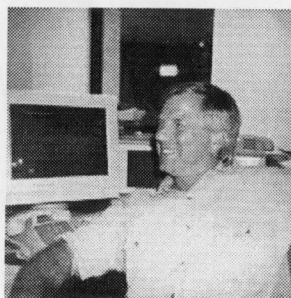
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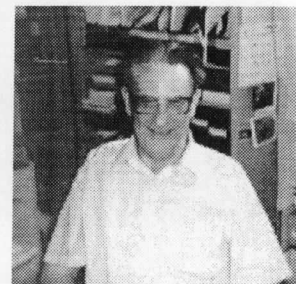
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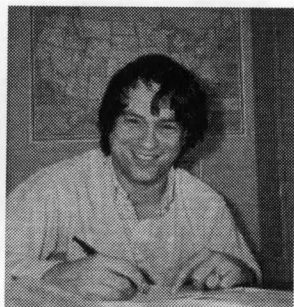
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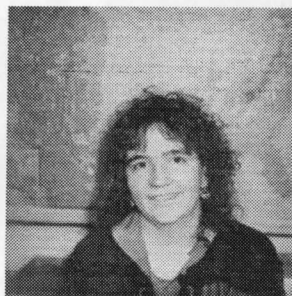
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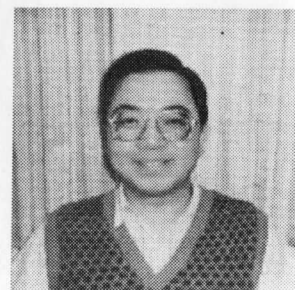
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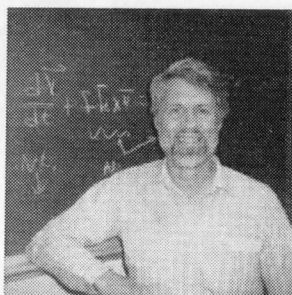
Greg Tripoli



Kim Van Scoy

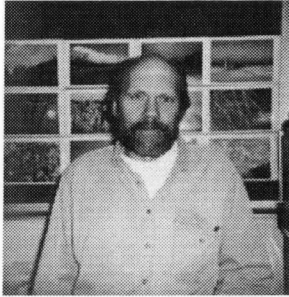


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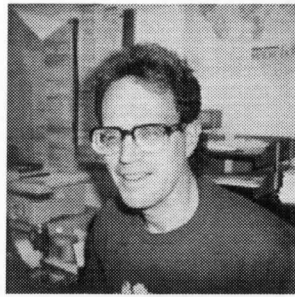


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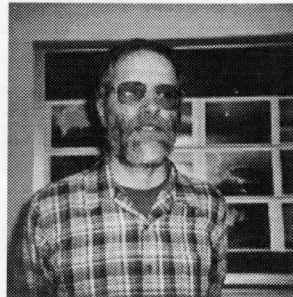
Academic Staff



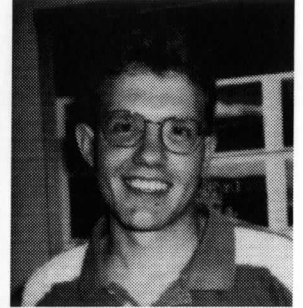
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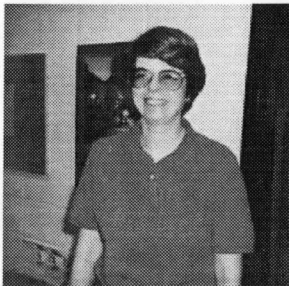
Bob Gallimore



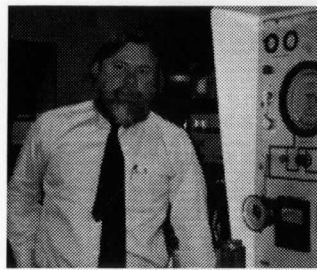
Larry Greischar



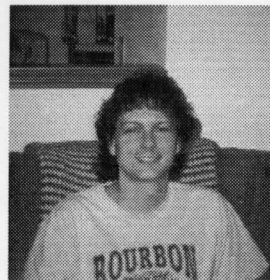
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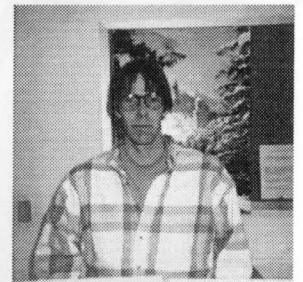
Linda Keller



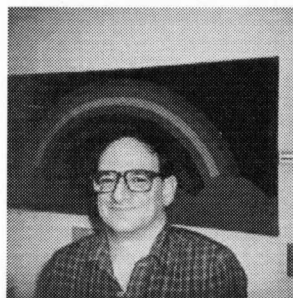
David McJunkin



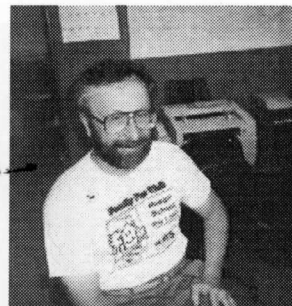
Pete Pokrandt



Dierk Polzin



Bob Schlessinger



George Weidner

Office Staff



Karine Brager



Connie Linehan



Mary-Ann Twist



Marilyn Wolff

