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A GUIDE TO AN
EDUCATION AND CAREER
IN
METEOROLOGY

prepared by the

DEPARTMENT OF METEOROLOGY
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A Guide to an
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This brochure is a guide for the undergraduate and pre-undergraduate student who is interested in a career in meteorology. It describes some of the professional duties and educational requirements of a meteorologist.

THE MANY FACETS OF METEOROLOGY

The science of meteorology attempts to describe and provide a basis for understanding all aspects of the earth's atmosphere. While an understanding of the behavior of the atmosphere is essential to forecasting weather, meteorology as a science is concerned with far more than just predicting tomorrow's weather.

Meteorologists deal with the present and past as well as the future. Some meteorologists concentrate on what is happening right now; for example, radar operators keep track of where thunderstorms are occurring or forming. Others are mainly concerned with monitoring the quality of the air and, if needed, issuing warnings that critical pollution levels have been reached. Some meteorologists use their skills to aid in planning power plant sites or preparing environmental impact statements. Other meteorologists study the processes that occur in clouds and use cloud seeding techniques in attempts to increase rainfall. Still others specialize in studying the atmospheres of other planets. Meteorologists also look to the past to seek answers to questions concerning the changing climates of the world. From this they may gain a glimpse of what future climate may be like.

Those meteorologists involved in predicting weather make forecasts for a wide range of time scales. The shortest times consist of warnings that a severe thunderstorm or tornado may occur within the next hour or even less. Flash flood warnings may be issued only a few hours in advance. However, the bulk of weather forecasts are those issued three times each day for the next 36 or 48 hours. Some attempt is made to provide day-by-day forecasts out to 5 days, and recently forecasts have been extended to include the mean conditions for the period from 6 to 10 days in the future. Outlooks for the next month or season are also given. While the routine forecasts for the next day or two are quite accurate, the longer range forecasts have not been very successful. Although portions of the economy, such as utility companies and agricultural interests, have a great need for long range forecasts, it appears that much additional research and experience will be necessary before such forecasts become significantly useful.

While forecasts of severe thunderstorms, blizzards, cold waves, hurricanes and floods most often make the news, even the mundane daily weather forecast helps us to make decisions and plans in situations where weather is important, for example, in outdoor recreational and travel activities. Advance knowledge of weather is extremely important for the farmer, since the weather vir-

tually determines what can and cannot be done in the fields. Commercial airline flights are not permitted to take off without attention to the present and predicted weather conditions along flight paths and at prime and alternate destinations. Private pilots usually keep a close eye on the weather when planning a flight.

Many meteorologists are not actively involved in making forecasts. Some of these are research meteorologists with an ambition to increase our understanding of the atmosphere through the study and solution of a variety of specific problems. Their results often can be applied to other areas of meteorology and frequently improve our ability to forecast and utilize the weather.

Some meteorologists make a career of training future meteorologists or helping laymen to better understand the workings of the atmosphere. As a teacher, the meteorologist seeks to show how weather influences our lives and how we can efficiently use weather forecast information that is available to us.

GETTING STARTED IN METEOROLOGY

For many, an interest in meteorology begins in youth when observation of weather events becomes a hobby. They may make and record daily observations of the weather, build their own weather station and instruments, and even make amateur weather forecasts. From such a beginning, meteorology often becomes a career goal. The hobby and early study of weather sometimes lead to more formal efforts toward an exciting and satisfying lifetime of work.

Not everyone who chooses a career in meteorology starts with an unusually strong interest in weather. Weather may at first receive only casual attention while their interest and energy is given to topics such as mathematics, physics, computer programming, or other sciences. But then they find that meteorology offers a great challenge which encompasses their initial pursuit. Their career in meteorology may then begin, building upon the background they have obtained elsewhere. Or, they may continue to pursue their initial career, bringing their skills to bear on atmospheric problems.

Two important traits usually are evident in the career meteorologist: a strong interest in the physical environment, especially the atmosphere, and an inquiring mind. A keen interest in observing the atmosphere and a desire to understand why it behaves as it does usually are strong motivations. Like the other physical sciences, meteorology demands the logical thought of a disciplined mind.

CAREER OPPORTUNITIES IN METEOROLOGY

While there is a broad range of careers available in meteorology, the employment opportunities for individuals with a bachelor's degree in meteorology are only fair at the present time. Although a large majority of meteorology graduates obtain jobs in their field, it is not uncommon for them to spend several months seeking a position following graduation.

Prior to about 1970 most students earning the bachelors degree in meteorology went on to careers in the National Weather Service of the federal government. Their initial jobs usually involved taking and transmitting weather observations and briefing pilots. After gaining experience many of these persons advanced to weather forecaster positions. Other graduates entered the National Weather Service as meteorological technicians who are responsible for the operation, calibration and maintenance of weather instruments. However, during the past decade the number of career openings in the National Weather Service has decreased drastically. This is partly due to the lack of growth and even some cutbacks in the total number of positions in the National Weather Service. At the same time the reduction in the Armed Services during the winding down of the Vietnam War in the early 1970's led many Air Force meteorologists to seek and fill what openings occurred in the National Weather Service. While normal retirements will always make some positions available in the National Weather Service, it is unlikely that it will be the major employer of new meteorologists during the next decade.

The decline in career opportunities in the National Weather Service has been somewhat offset by an increase in opportunities in other government agencies such as the Environmental Protection Agency and by a significant increase in opportunities at the state government level and in private firms. At the state level the new positions are usually in departments which are concerned with air pollution and hydrology. During the past decade there has been a pronounced growth in the number of small, private consulting firms which specialize in providing weather forecasts that are tailored to the particular needs of their clients; for example, city street departments that need accurate up-to-date forecasts of impending snow. Similarly, various utilities, agri-businesses and engineering concerns obtain special forecasts which are tailored to their individual needs. These private firms also provide customized forecasts to local radio stations for broadcasts.

An increasing number of positions are becoming available in television and radio. In the past most TV "weathercasters" were announcers with little or no training in meteorology. Meteorology graduates who have a suitable personality for TV or radio can contribute significantly to these mass communication media. As more sophisticated weather information, such as that provided by satellites, become available for public display, the TV stations will rely more and more on trained meteorologists to do the live broadcasts.

Career opportunities for meteorologists also exist in the armed services, particularly the Air Force. As noted in the next section some meteorology students begin their training for these positions by joining the Reserve Officer Training Corps while in college.

There are some, although not many, teaching opportunities in meteorology. Some students who go on to complete the Ph.D. degree obtain teaching positions in colleges or universities. In the larger universities the teaching duties are normally combined with research work. These teachers train future meteorologists and also offer some general courses for non-meteorology majors.

Occasionally a student with a master's degree in meteorology gets a job in a junior college teaching weather and climate courses. Usually these persons teach some other science courses as well. A few students who plan to teach at the high school level take a number of meteorology courses, thereby obtaining a good background for teaching the weather and climate portions of high school earth science or general science courses.

While opportunities for those who serve as a link between the forecaster and the public or industry are developing, there is some demand for persons whose training is concentrated in the theoretical aspects of the science. These meteorologists enter the research area, including academic positions, to contribute to efforts to better understand, predict, and modify the weather. Most, but certainly not all, of them hold the Ph.D. degree. Meteorologists active as forecasters and interpreters for the public or industry more often hold the bachelor's or master's degree.

In summary, career opportunities do exist in meteorology, although they are not as plentiful as they were 10 or 15 years ago. Meteorology students who have training in a second area may have some advantage over those whose training is limited to meteorology. For example, air pollution work requires a good background in chemistry as well as meteorology. Various monitoring activities need persons with training in electronics. A forecaster with knowledge of agriculture can provide better information to agricultural interests than one who only knows meteorology.

The Department of Meteorology office may be consulted for additional career information.

EDUCATION AND TRAINING

The science of meteorology applies the basic laws of physics to the study of the earth's atmosphere. In nearly all of its aspects meteorology relies heavily on mathematics, the tool of the physical sciences. Consequently, a student interested in pursuing a career in meteorology should include a good deal of mathematics as well as physics and chemistry in the high school program. Coursework in algebra, geometry, and trigonometry is important. A student who has more than normal difficulty in mathematics will probably encounter a great deal of difficulty in pursuing a meteorology degree.

Since positions in meteorology require at least a bachelor's degree and the more responsible and better paying positions require a master's or the Ph.D. degree, prospective students should plan on spending at least four and possibly eight or nine years in college or university study. Not all meteorologists major in meteorology as undergraduates. Many major in such areas as mathematics, physics, chemistry, biological sciences, or engineering, and then go on to do graduate study in meteorology. In fact, because meteorological problems often span many disciplines, it is sometimes desirable for a student with broad interests to major in areas other than meteorology as an undergraduate. However, it is advisable for these students to include some meteorology courses in their undergraduate programs even though these courses are outside their undergraduate majors.

While a formal college or university education is essential for a career in meteorology, there are some training programs which complement the formal education. The National Weather Service sponsors a student traineeship program for selected students who are enrolled in undergraduate meteorology programs. The student works at a weather station or a government research facility during the summer gaining important practical experience.

Since routine weather observations as well as experimental programs require the use, maintenance, and sometimes the development of sophisticated instruments, training in electronics often is valuable. Certain technician positions in government service require this type of training rather than a degree in meteorology.

The armed forces, particularly the Air Force, operate technical schools for training weather observers and technicians. Military personnel assigned to weather services usually are sent to one of these schools for training. In some cases the armed services send personnel who have demonstrated aptitude in math and science to universities to pursue degree work, both undergraduate and graduate, in meteorology. Some meteorology undergraduate students join the Reserve Officer Training Corps (ROTC) in college and then go on to a meteorologist-officer position in the Air Force. Others complete a bachelor's degree in meteorology, enlist in the Air Force and are sent to a special officers training program.

THE UNIVERSITY OF WISCONSIN-MADISON FACILITIES AND PROGRAM

In the University of Wisconsin system, the Department of Meteorology on the Madison campus is the academic home for teaching and research activities in the atmospheric sciences. From two professors in 1948, this department now can call on the expertise of twenty faculty members. (The faculty are listed in Appendix II). It is one of the larger and more respected departments in the nation. It shares the 15-story Meteorology and Space Science Building (1225 W. Dayton St.) with the Space Science and Engineering Center (SSEC). Most of the work of SSEC is concerned with either the earth's atmosphere or the atmospheres of other planets.

Also located within the Meteorology and Space Science Building is a joint National Oceanic and Atmospheric Administration (NOAA) - University of Wisconsin institute. It represents a cooperative effort between the federal government and University into atmospheric research, particularly research involving satellite applications. The building also houses some of the offices and research labs of the University of Wisconsin's Institute for Environmental Studies, and the Marine Studies Center.

The faculty and students of the Department of Meteorology have access to up-to-the-minute weather data. A weather monitoring system permits continuous observation of local weather. A radar facsimile machine is also available. Meteorological observations by the latest weather satellites are available through the Space Science and Engineering Center. Research facilities in climatology, cloud physics, lidar, sonar, and

satellite observations permit a broad spectrum of research in the atmospheric sciences to be conducted. Powerful computing facilities are available through the in-house terminals or at the Madison Academic Computing Center located across the street from the Department. Reference library resources are available within the building, in neighboring Weeks Hall, in Science Hall, and in the new Engineering Library.

Instructional facilities within the Meteorology department include some classrooms, and smaller conference rooms. A lecture room is equipped for audio and visual aids, including a large television projection screen. One of the classrooms is located adjacent to the weather data receiving facilities and has a television monitor for viewing satellite or computer generated data. Laboratories for research and training in cloud physics, physical meteorology, instrumentation, synoptic meteorology and past climates are in use.

The Department of Meteorology is part of the College of Letters and Science. Students pursuing a bachelor's degree in meteorology must satisfy the degree requirements of this college as well as those of the department.

Although students in the College of Letters and Science are not required to formally select a major until their junior year, it is desirable to obtain guidance from a faculty member in the area of their potential major as early as possible. In meteorology this guidance is available from the college's Faculty Advising Service or from the department's undergraduate advisor. In the junior year a student should consult the departmental advisor who will help formulate an academic program.

Admission to the meteorology major, normally at the start of the student's junior year, is possible if the following prerequisites are satisfied:

1. Mathematics: three semesters of calculus. At the University of Wisconsin these courses are normally Math 221, 222, 223.
2. Physics: two semesters of calculus-based college physics. (Normally, Physics 207-208)
3. Chemistry: at least one semester of general chemistry.
4. A combined grade point average of 2.25 or better in the mathematics, physics, and chemistry courses described above. These courses are normally taken during the freshman and sophomore years.

Completion of the major requires that the student obtain a grade point average equal to or better than 2.0 in the intermediate and advanced level courses required for the major:

1. Fourteen (14) credits in the core course sequence Meteorology 321, 322, 323. See Appendix 1 for the list of meteorology courses.
2. At least six (6) but not more than twenty-six (26) additional credits in other meteorology courses numbered above 300, except Met. 330 which does not count toward the minimum of 6 additional credits.
3. One course in mathematics, computer science, or statistics beyond calculus which is approved by the student's advisor; e.g., differential equations, linear math, computer sciences, statistics, etc.

The course program shown on page 8 is an example of a typical bachelor of science degree with a major in meteorology. This schedule presupposes: a) an adequate command of the English language upon entrance, b) at least three years of one foreign language in high school; and c) moderately strong high school mathematics which includes algebra, geometry, and trigonometry. Prospective majors are urged to discuss their program with the Faculty Advising Service or the departmental advisor.

Degree requirements for the College of Letters and Science are included in the sample program. The order of the mathematics and physics courses shown is essentially fixed, although a student who lacks a strong high school background in math may wish to take a more basic math course in their first semester of his freshman year and start Math 221 in the second semester. The scheduling of language (if needed), humanities, literature, social studies, and biological science courses are more flexible. Students seeking a strong science program in preparation for post-graduate study should add more advanced courses in mathematics, physics, or other sciences to their program.

The Department of Meteorology participates in the L & S General Honors Program. Honors credit is given for Meteorology 100, 121, 122, 321, 322, 323, 404, 405, and 420. Arrangements for honors credit in other meteorology courses can be made with the consent of the instructor and the department's honors advisor. In the senior year an honors thesis, Meteorology 681 and 682 for six credits, will be required. The requirements for the L & S General Honors Program as stated in the catalog must be fulfilled.

One Example of a Bachelor of Science Degree Program

<u>SEMESTER I</u>		<u>SEMESTER II</u>	
Freshman Year			
	<u>Credits</u>		<u>Credits</u>
Math 221	5	Math 222	5
Soc. Studies	3	Chemistry*	5
Humanities	3	Soc. Studies	3
Meteorology 100	3-4	Humanities	3
	<u>14-15</u>		<u>16</u>

Sophomore Year			
Math 223	5	Math #	3
Physics 207	5	Physics 208	5
Hum/Lit.	3	Hum/Lit.	3
Elective	2-3	Soc. Studies	3
	<u>15-16</u>	Electives	2-3
			<u>16-17</u>

Junior Year			
Meteor. 321	4	Meteor 322	5
Bio. Science	3	Meteor +	3-4
Soc. Studies	3	Bio. Science	3
Computer Sci.	3	Electives	4-5
Electives	3-4		<u>15-17</u>
	<u>16-17</u>		

Senior Year			
Met. 323	5	Meteor +	3
Meteor +	3	Meteor +	3
Math. Comp. Sci.	3	Meteor +	3
Electives	4-5	Electives	6-7
	<u>15-16</u>		<u>15-16</u>

THIS EXAMPLE PRESUMES THAT A STUDENT HAS COMPLETED 3 YEARS OF ONE FOREIGN LANGUAGE IN HIGH SCHOOL

* Chemistry 108 fulfills the chemistry requirement, but the two-semester sequence Chem. 103-104 gives a better chemistry background

Mathematics, Computer science or statistics course beyond calculus; only one is required but additional work is recommended.

+ Meteorology courses should be chosen to provide a broad background in various aspects of meteorology. Additional meteorology courses may be elected, but the total number of meteorology credits should not exceed 40.

SELECTING METEOROLOGY COURSES

Appendix I lists the Department of Meteorology courses, and Appendix II briefly describes its faculty. The introductory level courses (those numbered in the 100's) are primarily for the non-major, although it is recommended that potential majors take a course from this group (preferably 110 or 100) as an elective early in their academic careers to see if their interest in meteorology is genuine and to obtain an overview of the field. All majors are expected to complete the core courses (Met. 321, 322, 323.) In exceptional cases the two-semester sequence Meteorology 501 and 502 may be substituted for the core course sequence.

Undergraduate majors normally take more than 6 credits beyond the core sequence. Although students are urged to sample a variety of courses, they should also consider their career interest in selecting these additional courses.

Students interested in a career in weather forecasting should include the synoptic laboratory courses Meteorology 352 and 353, and consider 622 (Satellite Applications) and 651 (Synoptic-Dynamic Lab). If they plan to incorporate forecasting with TV or radio work, they might also consider taking some communication arts courses.

For those whose interest lies in environmental monitoring Meteorology 420 (Instrumentation), 535 (Atmospheric Dispersion and Pollution), 360 (Climatic Principles for Engineering and Environmental Design) and 623 (Electronic Aids to Measurements) are important courses to consider.

Students who lean toward climatology as a career area should consider the courses 510 (Climatological Analysis), 511 Dynamic Climatology, 503 (Climatology) and 523 (Past Climates and Climatic Change).

A career involving meteorology applied to agricultural problems would benefit from the courses 403 (Micrometeorology), 532 (Microclimatology), 420 (Instrumentation), 623 (Electronic Aids to Measurements) and 520 (Bioclimatology).

A student leaning toward a career involving theory of large-scale atmospheric motions should consider Meteorology 551 (Geophysical Fluid Dynamics), 611 (Dynamics of Large-Scale Motions), 651 (Synoptic-Dynamic Laboratory) and 641 (Numerical Modelling).

Careers involving physical processes of the atmosphere would benefit from Meteorology 404 (Physical Meteorology) and 406 (Radiation). If the physical processes to be studied include clouds and precipitation, the courses 407 (Cloud Physics) and 408 (Cloud Dynamics) are vital, and if field work is involved, 420 (Instrumentation) and 623 (Electronic Aids) are important.

The above are only examples of the concentrations a student can consider beyond the core sequence. There are numerous other combinations that could be valuable. Students are urged to consult with faculty members in choosing courses beyond the core.

Appendix I

Meteorology Course Titles

100	Weather and Climate	501	General Meteorology I
105	Survey of Oceanography	502	General Meteorology II
110	Concepts of Atmospheric Sciences	503	Climatology
121	Atmospheric Environment of man	510	Climatological Analysis
122	Climatic Environments of the Past	511	Dynamic Climatology
161	Weather for Sailors	520	Bioclimatology
162	Weather for Winter Sports	523	Past Climates and Climatic Change
163	Weather for Sport Flying	531	Climates of the Continents
321	Atmospheric Science I	532	Microclimatology
322	Atmospheric Science II	535	Atmospheric Dispersion and Pollution
323	Atmospheric Science III	551	Geophysical Fluid Dynamics
330	Solar Radiation and Wind Energy	601	Challenging Problems of Atmospheric Science
352	Synoptic Lab I	611	Dynamics of Large-Scale Motions
353	Synoptic Lab II	622	Meteorological Satellite Applications
360	Climatic Principles for Engineering & Environmental Design	623	Electronic Aids to Measurements
403	Micrometeorology	641	Numerical Modeling in Meteorology
404	Physical Meteorology	651	Synoptic-Dynamic Lab
405	Basic Aeronomy	654	Glaciology
406	Radiation in the Atmosphere	662	Air-Sea Interaction
407	Cloud Physics	663	Fundamentals of Oceanic and Atmospheric Convection
408	Cloud Dynamics	681	Senior Honor Thesis I
420	Meteorological Instrumentation	682	Senior Honor Thesis II
440	Tropical Meteorology	699	Advanced Independent Reading
450	Operational Forecasting Procedures		
460	Physical Oceanography I		
461	Physical Oceanography II		

Appendix II

Staff of the Department

Anderson, Charles E., Professor of Meteorology

Ph.D. Massachusetts Institute of Technology, 1960 (Meteorology)

Joined staff in 1966. Also active in Afro-American Studies. Previously employed in various Federal and private positions as atmospheric scientist and science administrator. Special areas of interest: General area of physical meteorology, emphasis on cloud physics and dynamics and severe local storms and tornadoes.

Bryson, Reid A., Professor of Meteorology, also Director of Institute for Environmental Studies and Professor of Geography

Ph.D. University of Chicago, 1948 (Meteorology)
Sc.D. (hon.) Denison University, 1971

Joined University of Wisconsin faculty in 1946 with joint appointment in Geology and Geography. Founded Department of Meteorology in 1948 and has been associated with it since then. Active in wide variety of University activities. Special areas of interest: Climatology, paleoclimatology and interdisciplinary studies related to the environment of man.

Green, Theodore III, Professor of Meteorology and Civil Engineering and Director of Marine Studies Center

Ph.D. Stanford University, 1965 (Engineering Mechanics)

Joined staff in 1969. Previously Assistant Professor (Oceanography) at U.S. Naval Postgraduate School, Monterey. Also active in the Sea Grant Program. Special areas of interest: Sea-air interaction and dynamics of water surfaces, ocean waves and general fluid motions.

Hastenrath, Stefan L., Professor of Meteorology

Ph.D. University of Bonn (Germany) 1959 (Meteorology)

Joined staff in 1967. Previously Assistant Professor, University of Cologne 1959/60 National Meteorological Service of El Salvador 1960/63, Project Associate, this Department 1963/65, Associate Professor, University of Wisconsin at Milwaukee 1965/67. Special areas of interest: climate, tropics and glaciers.

Herman, Gerald F., Assistant Professor of Meteorology

Sc.D. Massachusetts Institute of Technology, 1975 (Meteorology)

Joined staff in 1977. Also Faculty Research Associate, NASA Goddard Laboratory for Atmospheric Science. Special areas of interest: Boundary layer dynamics; radiative transfer; Arctic meteorology; stratospheric meteorology; general circulation modelling.

Horn, Lyle H., Professor of Meteorology

Ph.D. University of Wisconsin, 1960 (Meteorology)

Joined staff in 1960. Four years USAF Weather Service. Special areas of interest: Synoptics and atmospheric energetics, climatology, use of satellite data in synoptic and climatological studies.

Houghton, David D., Professor of Meteorology

Ph.D. University of Washington, 1963 (Atmospheric Sciences)

Joined staff in 1968. Previously in research position at National Center for Atmospheric Research, Boulder. Special areas of interest: Atmospheric dynamics, numerical modeling of general circulation, synoptic-scale and mesoscale; initialization; gravity waves; satellite mesoscale cloud wind and temperature data; seasonal cycle dynamics.

Johnson, Donald R., Professor of Meteorology

Ph.D. University of Wisconsin, 1965 (Meteorology)

Joined staff in 1964. Previously for seven years weather officer, USAF. Special areas of interest: Dynamics of large-scale atmospheric motions, statistical techniques and synoptic applications.

Kutzbach, John E., Professor of Meteorology and Environmental Studies

Ph.D. University of Wisconsin, 1966 (Meteorology)

Joined staff in 1966. Currently Chairman of the Department of Meteorology. He is also Director of the Center for Climatic Research in the Institute for Environmental Studies. Research Fellowship at University of Bonn (1978) and British Meteorological Office (1968) and served as weather officer, USAF (1961/63). Special areas of interest: Dynamic climatology, paleoclimatology and climatic change.

Lettau, Heinz H., Increase A. Lapham Professor of Meteorology and Professor of Civil Engineering (Emeritus after July, 1980).

Ph.D. University of Leipzig (Germany), 1931 (Geophysics and Met)

Ph.D. habil, University of Leipzig, 1937 (Geophysics)

Joined staff in 1958. Previously Professor in Leipzig and in Königsberg, Germany. Research Scientist AF Geophysics Research Directorate. Special areas of interest: Micrometeorology, boundary layer problems, climatology, physical meteorology.

Mitchell, Val L., Associate Professor of Meteorology and State Climatologist in the Geological and Natural History Survey - Extension

Ph.D. University of Wisconsin, 1969 (Meteorology)

Joined staff in 1974. Previously Associate Professor at Montana State University. Special areas of interest: Weather modification and air pollution research, environmental impact of weather modification. Former consultant on climatology for University of Montana School of Forestry, Ski Yellowstone, Inc., and University of Michigan School of Natural Resources.

Ragotzkie, Robert A., Professor of Meteorology, Director of Marine Studies Center (University of Wisconsin-Madison) and Director, Sea Grant Program, University of Wisconsin.

Ph.D. University of Wisconsin, 1953, (Meteorology and Zoology)

Joined staff in 1958. Before that, Director, Marine Institute, University of Georgia. Also directly involved in Graduate School Ph.D. program for Oceanography and Limnology and in various interdisciplinary activities at University of Wisconsin. Chairman of Department 1964/67. Special areas of interest: Physical oceanography, limnology and physical-biological interrelations in lakes and coastal areas.

Schwerdtfeger, Werner, Professor of Meteorology (Emeritus after July, 1980).

Ph.D. University of Leipzig, Germany, 1931 (Geophysics and Meteorology)

Ph.D. habil, University of Konigsberg, 1936, (Meteorology)

Joined staff in 1962. Previously Professor at Universities at Konigsberg, Vienna, Munich, Buenos Aires and Melbourne. Nine years experience in weather reconnaissance flights in Europe and twelve years as science advisor in Argentina. Special areas of interest: Circulation of the atmosphere and synoptics, with special emphasis on polar weather and climate.

Sechrist, Frank S., Associate Professor of Meteorology

Ph.D. Penn State University, 1967 (Meteorology)

Joined staff in 1967. Previous work in hurricane hunter aircraft with U.S. Navy (1956/60). Special areas of interest: Synoptic meteorology, structure and energetics of extratropical cyclones, forecast dissemination and public service role of meteorologists.

Smith, William A., Adjunct Professor of Meteorology and Associate
Director of Space Science and Engineering Center

Ph.D. University of Wisconsin, 1966 (Meteorology)

Currently Chief of the Mesoscale Applications Branch of the National Environmental Satellite Service (NESS), located at the University of Wisconsin-Madison since 1977. Principal Investigator of the Earth Radiation Budget radiometer flown on the Nimbus-6 satellite.

Stearns, Charles R., Professor of Meteorology

Ph.D. University of Wisconsin, 1966 (Meteorology)

Joined staff in 1965. Previous work on private meteorological/technical company and as project associate in Department, in charge of various experimental and field programs. Special areas of interest: Boundary and surface layer meteorology, micrometeorological processes, instrumentation, environmental measurement devices.

Stull, Roland B., Assistant Professor of Meteorology

Ph.D. University of Washington, 1975 (Atmospheric Sciences)

Joined staff in 1979. Served four years as numerical prediction meteorologist in USAF. Special areas of interest: Turbulence, diffusion, air pollution, boundary layer dynamics, micrometeorology, atmospheric gravity waves, cumulus dynamics, aeronautical meteorology.

Suomi, Verner E., Professor of Meteorology and Director of Space
Science and Engineering Center

Ph.D. University of Chicago, 1953 (Meteorology)

Joined staff in 1948. Member of the U.S. Academy of Engineering and Foreign Academies. Chairman of U.S. Committee for GARP. Wexler Professorship. Instrumental in developing U.S. weather satellites and radiometric instrumentation. Special areas of interest: Development and utilization of global satellite experiments, atmospheric radiation, problems in forecasting.

Tanner, Champ B., Professor of Meteorology and Soils

Ph.D. University of Wisconsin, 1950 (Soils)

Main department is Soils in College of Agriculture and Life Sciences. Truog Professorship. Teaches in our Department. Special areas of interest: Microclimatology and processes of heat, moisture and momentum flux at the soil-plant-atmosphere interface.

Wahl, Eberhard W., Professor of Meteorology

Ph.D. University of Berlin, Germany, 1937 (Astronomy)

Joined staff in 1963. Previous work at University of Berlin, N.W. German Weather Service, U.S. Air Force Geophysics Research Directorate (1949/58) and USAF Project Space Track (Senior Scientist and Technical Director 1958/63). Special areas of interest: Dynamic climatology and large-scale circulation processes. Application of statistical methods to extended range forecasting.

Weinman, James A., Professor of Meteorology

Ph.D. University of Wisconsin, 1957 (Physics)

Joined staff in 1963. Previous work at Carnegie Institute and with high-energy physics group at Argonne National Laboratory. Special areas of interest: Atmospheric radiation and optics, lidar systems, particulate loading of atmospheric layers, physical meteorology.

Young, John A., Professor of Meteorology

Ph.D. Massachusetts Institute of Technology, 1966 (Meteorology)

Joined staff in 1966. Previously postdoctoral fellowship at University of Oslo, Norway (1965/66) and summer research with the U.S. Weather Bureau. Special areas of interest: Atmospheric dynamics and numerical modeling; boundary layers, monsoons and ocean interactions; research aircraft observations.

The Departmental Office, located in Room 849 Space Science Building, is staffed by Jeanne Buehlman, Program Assistant; Jane Rieder, Specialist-Academic Support; and secretaries Elaine Finn, Eva Singer and Pat Engel.

If more information is desired, contact the departmental office (Room 849) Space Science Building, 1225 West Dayton Street, Madison, Wisconsin 53706.