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### **Education**

Ph.D.	1969	University of Oklahoma	Meteorology
M.Sc.	1963	University of Chicago	Geophysics
A.B.	1961	Sacramento State (CA)	Mathematics

### **Professional Interest**

Throughout his career Dr. Lewis has conducted research that has combined weather analysis with numerical weather prediction. His professional experience has been divided between work in government labs (including operational prediction centers) and academia. In the past decade he has led a national research project focused on the weather over the Gulf of Mexico (Project GUFMEX), explored the use of adjoint methods to study model sensitivity, and contributed to the history of science. In 1998, the Environmental Research Laboratories of NOAA assigned Dr. Lewis to Desert Research Institute on a long-term duty assignment. This assignment was made in connection with a 5-year plan to improve weather forecasting in the Western United States. Central to this effort is the use of adjoint models to clarify the relative importance of the various meteorological fields used to initialize deterministic prediction models.

### **Professional Experience**

1998 – Present	Visiting Research Professor, Desert Research Institute, Division of Atmospheric Sciences, Reno, NV
1991 – Present	Senior Scientist, Environmental Res. Labs, NOAA
1986 – 1991	Chief, Meteorological Research, NSSL/NOAA
1980 – 1986	Research Meteorologist, NOAA/NESDIS
1972 – 1980	Professor, University of Illinois (C-U)
1970 – 1972	Research Meteorologist, Fleet Numerical Wea. Cent.
1968 – 1969	Visiting Assist. Prof., University of Oklahoma
1968	Research Meteorologist, Dev. Div., Nat. Meteor. Cent.
1965 – 1968	NASA Fellow, University of Oklahoma
1964	Seismologist, Shell Development Co.
1961 – 1963	Ford Found. Fellow, Univ. of Chicago
1959 – 1961	Student Trainee (Physics), McClellan AFB

### **Teaching Experience**

University of Oklahoma (1968-69):  
    Dynamic Meteorology (undergrad)  
    Hydrodynamics (grad)

University of Illinois (1972 -1980):  
    Synoptic Meteorology (grad)  
    Thermodynamics (undergrad)  
    Weather Forecasting (undergrad)

University of Oklahoma (1986 - 1998):  
    Data Assimilation (grad)

University of Nevada (1999-2001):  
    Synoptic Meteorology (grad)

## Selected Publications

- Lewis, J., 1972: An operational upper air analysis using the variational method. *Tellus*, **24**, 514-530.
- Lewis, J., and J. Derber, 1985: The use of adjoint equations to solve a variational adjustment problem. *Tellus*, **37A**, 309-322.
- Lewis, J., C. Hayden, R. Merrill, and J. Schneider, 1989: GUFMEX: A study of return flow over the Gulf of Mexico. *Bull. Amer. Meteor. Soc.*, **117**, 1193-1209.
- Lewis, J., 1992: Carl-Gustaf Rossby: A study in mentorship. *Bull. Amer. Meteor. Soc.*, **73**, 1425-1438.
- Lewis, J., W. Martin, and N. Guinasso, 1997: Bowen ratio estimates over the Gulf of Mexico in return flow. *J. Geophys. Res. (Oceans)*, **102**, 10535-10544.
- Lewis, J., K. Raeder, and R. Errico, 2001: Vapor flux associated with return flow over the Gulf of Mexico: a sensitivity study using adjoint modeling. *Tellus*, **53A**, 74-93.
- Koracin, D., J. Lewis, W. Thompson, C. Dorman, and J. Businger, 2001: Transition of stratus into fog along the California Coast: observations and modeling. *J. Atmos. Sci.*, **58**, 1714-1731.
- Lewis, J., D. Koracin, R. Rabin, and J. Businger, 2003: Sea fog off the California coast: Viewed in the context of transient weather systems. *J. Geophys. Res.*, **108** (D15), 4457.
- Lewis, J., 2005: Roots of ensemble forecasting. *Mon. Wea. Rev.*, **133**, 1865-1885.
- Lewis, J., S. Lakshmivarahan, and S. Dhall, 2006: Dynamic Data Assimilation: A Least Squares Approach. Cambridge Univ. Press, 745 pp.

## Collaborations

<u>Subject</u>	<u>Collaborator</u>
Coastal Weather	D. Koracin, DRI
Atmospheric Chemistry	W. Stockwell, DRI
Data Assimilation	S. Lakshmivarahan, U. of Okla.
Adjoint Modeling	R. Errico, K. Raeder, NCAR

## Graduate Advisees (Ph. D. level)

<u>Student</u>	<u>Institution</u>	<u>Field</u>	<u>Year</u>
L. Gidel*	U of Ill.	Physics	1977
Tom Grayson	U of Mich.	Meteorology	1978
S. Bloom*	U of Ill.	Physics	1980
J. Derber	U Wisc	Meteorology	1985
J. Purser	U Wisc	Meteorology	1992
Y. Li	U Okla	Meteorology	1994
J. Bao	Penn State U	Meteorology	1994
W.-L. Chung	U Okla	Computer Sci.	1996
R. Fiedler	U Okla	Computer Sci.	1998

(\*): principal academic advisor, otherwise dissertation co-advisor.