

Alan M. MacEachren

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PROFESSIONAL PREPARATION

Ohio University, Geography, B.A., 1974; Univ. of Kansas, Geography, M.A. 1976 & Ph.D., 1979

RELEVANT BACKGROUND

MacEachren has played a central role nationally and internationally in defining the research agenda for human-centered geovisualization and in building cross-disciplinary links to related efforts in scientific and information visualization and exploratory data analysis in statistics. He served as the first **chair** for the International Cartographic Association *Commission on Visualization* (and that organization's **liaison** to the ACM **SIGGRAPH Carto** Project), and was elected in 2003 to a second four-year term as **chair** of the expanded ICA *Commission on Visualization & Virtual Environments*. In addition, he is **author** two books, **co-editor** of two additional books, and has been **co-editor** of six journal special issues (*Cartography & GIS*, 1992; *Computers in Geoscience*, 1997; *Inter. J. of Geographical Information Science* 1999; *Cartography & GIS*, 2001 & 2005; *Computer Graphics & Applications*, forthcoming), the 2001 issue of *C&GIS* documents an international research agenda development project he co- led (see: www.geovista.psu.edu/publications/cgis/ammcgis.pdf).

In 1998 MacEachren was awarded the **Wilson Research Award**, by the Penn State College of Earth and Mineral Science, for contributions toward a cognitive-semiotic theory of geospatial representation and visualization. In addition to this theoretical work, he has conducted numerous map and GIS-related **usability studies** (including several for the National Center for Health Statistics and the National Cancer Institute). In 2004, he was named to a 3-year rotating **Miller Chair of Geography** at Penn State University and received the award for **Exceptional Scholarly Contributions to the Practice of Cartography**, Canadian Cartographic Association, 2004. In 2005 he was named as an **Honorary Fellow of the International Cartographic Association**, one of only 44 since 1974.

MacEachren was a member of the **National Research Council (NRC) Rediscovering Geography Committee**, (1993-1997) and the **NRC CSTB Committee on the Intersections Between Geospatial Information and Information Technology**. He is a current member of the program committee for a workshop on Visualizing Uncertain Information being organized by the **NRC Board of Mathematical Sciences and Their Applications (BMSA) Committee of Applied and Theoretical Statistics (CATS)**, and is a member of the **Department of Homeland Security National Visual Analytics Center (NVAC) Committee** to prepare the NVAC research agenda report.

In his role as a **Faculty Fellow** in the Penn State Center for Academic Computing (1998-2000), MacEachren worked actively with Center staff to expand Penn State (and Center) expertise and capabilities related to design, use, and assessment of virtual environment technologies and visually-enabled collaborative methods and tools for both research and instruction.

APPOINTMENTS

Penn State University:

2004-2007 E. Willard and Ruby S. Miller Professor

Director, GeoVISTA Center, fall, 1998-present;

Faculty Fellow, Center for Academic Computing, 1998-2000;

Professor of Geography, (1992-present);

Co-Director, Geographic Information Analysis Core, PSU Population Research Institute, 1996-1999;

Associate Prof., Geography and **Director**, Deasy GeoGraphics Laboratory, PSU. (1985-1992).

University of Colorado-Boulder: **Assistant Prof.**, Geography (1983-1985);

Virginia Tech: **Assist. Prof.**, Geography and **Director**, Cartography&Spatial Analysis Lab (1979-83)

Selected Books:

MacEachren, A. M. 1995, *How Maps Work: Representation, Visualization and Design*. New York: Guilford Press.

Dykes, J., MacEachren, A. M., & Kraak, M.-J. (Eds.). 2005, *Exploring Geovisualization*. Amsterdam: Elsevier.

10 representative refereed publications 2003-present:

MacEachren, A. M., Hardisty, F., Dai, X. P., & Pickle, L. 2003, Supporting visual analysis of federal geospatial statistics. *Communications of the ACM*, **46**(1), 59-60.

MacEachren, A. M. & Brewer, I. 2004, Developing a conceptual framework for visually-enabled geocollaboration. *International Journal of Geographical Information Science*, **18**(1), 1-34.

MacEachren, A. M., Gahegan, M., Pike, W., Brewer, I., Cai, G., Lengerich, E., & Hardisty, F. 2004, Geovisualization for knowledge construction and decision-support. *Computer Graphics & Applications*, **24**(1), 13-17.

MacEachren, A. M., Cai, G., Sharma, R., Rauschert, I., Brewer, I., Bolelli, L., Shaparenko, B., Fuhrmann, S., & Wang, H. 2005, Enabling collaborative geoinformation access and decision-making through a natural, multimodal interface. *International Journal of Geographical Information Science*, **19**(3), 293-317.

MacEachren, A. M., Gahegan, M., & Pike, W. 2004, Visualization for Constructing and Sharing Concepts. *Proceedings of the National Academy of Science*, invited paper for Sackler Colloquium on Mapping Knowledge Domains, Irvine, CA, May 9-11, 2003, pp. 5279-5286.

Guo, D., Gahegan, M., MacEachren, A. M., & Zhou, B. 2005, Multivariate Analysis and Geovisualization with an Integrated Geographic Knowledge Discovery Approach. *Cartography and Geographic Information Science*, **32**(2): 113-132

MacEachren, A. M., Robinson, A., Hopper, S., Gardner, S., Murray, R., & Gahegan, M. 2005, Visualizing Geospatial Information Uncertainty: What we know and what we need to know. *Cartographic and Geographic Information Science*, **32**(3), 139-160.

Cai, G., Sharma, R., MacEachren, A. M., Rauschert, I., & Brewer, I. in press, Human-GIS Interaction Issues in Crisis Management. *International Journal of Risk Assessment and Management*.

MacEachren, A. M., Pike, W., Yu, C., Brewer, I., Weaver, S., Gahegan, M., & Yarnal, B. in press, Building a GeoCollaboratory: Supporting Human-Environment Regional Observatory (HERO) Collaborative Science Activities. *Computers, Environment & Urban Systems*

MacEachren, A. M. & Cai, G. in press, Supporting Group Work in Crisis Management: Visually mediated human-GIS-human dialogue. *Environment and Planning A*.