

PUBLIC HEALTH GIS NEWS AND INFORMATION

January 2001 (No. 38)

Dedicated to CDC/ATSDR scientific excellence and advancement in disease control and prevention using GIS



Selected Contents: Events Calendar (p. 1); (pp. 9-10); Special Reports (pp. 10-14); GIS (pp.20-22); Website(s) of Interest (pp. 22-24);

News from GIS Users (pp. 2-9); GIS Outreach Literature (pp. 14-20); DHHS and Federal Update Final Thoughts (pp.24-26)

I. Public Health GIS (and related) Events

[Note: Calendar events are posted as received; for a more complete listing see prior two bimonthly reports at NCHS GIS website]

☞ Symposia on GIScience and Vector-borne Disease, January 3-5, 2001, Scripps Institute of Oceanography, San Diego, CA [See: <http://dusk.geo.orst.edu/ucgis/news/fall00.html>]

☞ 23rd Annual Minority Health Conference, "Race, Class and Environment: The State of Minority Health," February 16, 2001, Chapel Hill, NC [See: <http://www.sph.unc.edu/oc/courses/minority2001.htm>]

☞ 18th Annual BRFSS (Behavioral Risk Factor Surveillance System) Conference, CDC, March 12-15, 2001, Atlanta, GA [See: <http://www.cdc.gov/nccdphp/brfss/2001conf-callabstracts.htm>]

☞ 14th Annual Geographic Information Sciences Conference, "The Internet and GIS: Evolution of Revolution?," Center for Geographic Information Sciences at Towson University, May 7-8, 2001, Baltimore, MD [See: www.towson.edu/cgis/tugis2001]

☞ Promoting Public Health: A Social Psychological Perspective, May 10-12, 2001, Chambéry, France [See: <http://www.ils.univ-savoie.fr/labopsy/PPH2001.html>]

☞ International Conference on Survey Research Methods: the Challenge of the Internet, May 11-12, 2001, London, England [See: <http://www.asc.org.uk/>]

☞ The Intergraph GeoSpatial Users Community International Conference, June 18-20, 2001, Atlanta, GA [See: www.intergraph.com/geospatialworld]

☞ Joint AWRA/UCOWR Summer Specialty Conference, "Decision Support Systems for Water Resources Management," June 27-30, 2001, Snowbird, UT [See: <http://www.uwin.siu.edu/ucowr/index.html>]

☞ Twenty-First Annual ESRI International User Conference, July 9-13, 2001, San Diego, CA [See: www.esri.com/events/uc]

☞ 2001 Joint Statistical Meetings of the American Statistical Association, August 5 - 9, 2001 Atlanta, Georgia [See: <http://www.amstat.org/meetings/jsm/2001/>]

☞ ICC 2001 "The 20th International Cartographic Conference," August 6-10, 2001, Beijing, China [See: www.sbsm.gov.cn/icc2001]

☞ 64th Annual Meeting of the Rural Sociological Society, "Challenges and Opportunities for Rural Places in the New Millennium," August 15-19, 2001, Albuquerque, NM [See: <http://ruralsociology.org/annual-meeting/2001/index.html>]

☞ 53rd Session of the International Statistical Institute, August 22-29, 2001, Seoul, Korea [See: <http://www.nso.go.kr/isi2001/>]

☞ Centers for Disease Control and Prevention (CDC) 2001 Cancer Conference: "Using Science to Build Comprehensive Cancer Programs: A 2001 Odyssey," September 4-7, 2001, Atlanta, GA [See: <http://www.cdc.gov/cancer/conference2001> (active about February 1)]

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II. GIS News

(Please communicate directly with colleagues on any items)

A. General News and Training Opportunities

1. From **Barbara Kivimae Krimgold**, Academy for Health Services Research and Health Policy (HSRHP): We are pleased to offer you a complimentary copy of the monograph, "Improving Health: It Doesn't Take a Revolution," from the conference on "Income Inequality, Socioeconomic Status and Health" cosponsored by the National Policy Association and HSRHP on April 27, 2000. Contributing cosponsors included: AHRQ, CDC, Commonwealth Fund, Fogarty, Harvard Center for Society and Health, HCFA, HRSA, Kaiser Permanente, MacArthur Foundation Network on SES & Health, NCI, NCHS, NIEHS, NIMH, NIAID, NIDA, NIH/OBSSR, ASPE/HHS, Offices of Minority Health and Womens Health/HHS, and UMichigan Initiative on Health Disparities. You can order this monograph from lawson@ahsrhp.org. The conference report, "Income, Socioeconomic Status and Health: Exploring the Relationships," including more than a dozen scientific papers from the conference will be available in December directly from the National Policy Association, via the website www.npa1.org, or by contacting James Auerbach at NPA at email npajim@npa1.org. [Source: Barbara at voice (202) 292-6711 or email bkrimgold@ahsrhp.org]

2. From **Elizabeth R. Groff**, National Institute of Justice: The National Institute of Justice (NIJ) is pleased to announce the following new solicitation: Examining Minority Trust and Confidence in the Police (SL000448). NIJ is soliciting research to explore the nature and extent of police abuse of authority; the identification, documentation, and evaluation of interventions that may mitigate police abuse of authority; public perceptions of police abuse; and how police actions shape those perceptions. Priority will be given to proposals likely to result in policy and programmatic recommendations. Due Date: February 15, 2001 (Letter of Intent Due Date January 15, 2001). [Contact: Elizabeth, Acting Director, Crime Mapping Research Center, at voice (202) 305-3301 or email groffe@ojp.usdoj.gov or see solicitations at <http://www.ojp.usdoj.gov/nij/new.htm#solicit>]

B. Department of Health and Human Services Agency for Toxic Substances and Disease Registry

3. From **Henry Falk**, Assistant Surgeon General and Assistant Administrator: ATSDR has recently released the latest set of ToxFAQS™ or information sheets on 25 substances found at hazardous waste sites. These include such substances as ammonia, copper, silver, nitrobenzene, plutonium, radium and radon. Information on these substances includes a general overview, how human exposure might occur, toxicological properties and health effects, and where to obtain additional information. [See the listing at www.atsdr.cdc.gov]

4. The Summer/Fall 2000, Vol. 10, No.2, edition of ATSDR's *Hazardous Substances and Public Health*, is devoted to the uses of GIS in the mission of ATSDR. Articles include: "ATSDR Plays Leadership Role in Use of GIS in Public Health (C. Virginia "Ginny" Lee); "ATSDR's New Map Server, GATHER, Provides Internet Access to GIS Data and Products (Janet L. Heitgerd); "The ABCs of GIS" (Melissa Massaro); "GIS Enhances ATSDR Health Assessment Activities at Kelly Air Force Base (David A. Fowler and Andrew L. Dent), and; "Assessing Neighborhood Characteristics of Brownfields and Other Distressed Communities" (Stephanie I. Davis). The newsletter is online at <http://www.atsdr.cdc.gov/HEC/hsphhome.html>.

Centers for Disease Control and Prevention

5. CDC and Emory University's Rollins School of Public Health will co-sponsor two public health courses. "**Epidemiology in Action: Intermediate Methods**," will be held February 26-March 2, 2001, at Emory University. The course is designed for state and local public health professionals. The course will review the fundamentals of descriptive epidemiology and biostatistics, analytic epidemiology and computers as used in epidemiology but will focus on mid-level epidemiologic methods directed at strengthening participants' quantitative skills, with an emphasis on up-to-date data analysis. Topics include field investigations, advanced measures of association, normal and binomial distributions, logistic regression,

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and additional statistical methods. Deadline for applications is January 15, 2001.

"Epi Info 2000: A Course for Teachers of Epidemiologic Computing," will be held March 12-15, 2001, at Emory University. The course is designed for teachers of epidemiologic computing with intermediate to advanced skills in computing. The 4-day course covers hands-on experience with the new Windows® version of Epi Info, programming Epi Info software at the intermediate to advanced level, methods of teaching epidemiologic computing, computerized interactive exercises for teaching epidemiology, and computing. Deadline for applications is February 1, 2001. There are registration fees. [Additional information and applications are available from Emory University, Rollins School of Public Health, at voice (404) 727-3485 or email pvaleri@sph.emory.edu]

6. A four-hour GIS short course **"Geographic Information Systems Applications in Cancer Prevention and Control"** is being planned as part of the 2001 CDC Cancer Conference "Using Science to Build Comprehensive Cancer Programs: A 2001 Odyssey." Current plans are to hold the short course on September 4, 2001, prior to the main conference. The conference will be held in Atlanta. More information will be forthcoming in the next edition.

7. From **Frank Rawls**, NCHS: An **"Introduction to ArcView GIS"** training course is currently scheduled for the Hyattsville facility, at NCHS, May 14-16, 2001. [Contact: Frank at email crawls@cdc.gov]

8. From **Deborah Holtzman**, National Center for Chronic Disease Prevention and Health Promotion: ***Analyses of Social Issues and Public Policy*** (ASAP) is a new electronic journal sponsored by the Society for the Psychological Study of Social Issues (SPSSI). The journal is an outlet for timely and innovative psychological and related social science scholarship with implications for social action and policy. ASAP is designed to facilitate communication between researchers in the social sciences and makers of public policy. The first articles should be available on the website (see <http://www.asap-spssi.org/>) in January, 2001. Additional submissions as well as any ideas about

the format and content of this journal are welcome. [Contact: Rhoda Unger, Editor, at email asap@spssi.org]

9. EPO is pleased to announce the publication of the new edition of ***Principles and Practice of Public Health Surveillance, 2nd edition*** (Teutsch, Churchill, eds), Oxford University Press, 2000. [Questions concerning the publication be referred to Julie Creasy at (404) 649-0808]

National Institutes of Health

10. The National Institute of Environmental Health Sciences (NIEHS), located in central North Carolina, focuses on human health and disease research which result from three interactive elements: environmental factors, genetic susceptibility, and age. *The mission of the NIEHS is to reduce the burden of human illness and dysfunction from environmental causes by further understanding each of these elements and how they interrelate.* Environmental exposures include physical, chemical, and biological agents, as well as multilevel psychosocial and social factors. NIEHS achieves its mission through a multidisciplinary biomedical and behavioral research program, prevention and intervention efforts, and a communication strategy that encompasses training, education, technology transfer, and community outreach. The ultimate goal of these NIEHS activities is to define and understand the mechanism by which social and physical environmental factors influence human health and to transfer this knowledge to the public. Positions for Health Scientist Administrators, Epidemiologists and Behavioral/Social Scientists are available. [Contact: Allen Dearry, Division of Extramural Research and Training, at voice (919) 541-4943 or email dearry@niehs.nih.gov]

11. From **Ron Abeles**, Office of Behavioral and Social Science Research (**Behavioral and Social Sciences 2001 Seminar Series**)- "Beyond Health Disparities: Behavior and Cultural Diversity in Health, by Susan Scrimshaw, University of Illinois at Chicago, February 7, 2001, 3:00-4:00 PM, Masur Auditorium, Bldg. 10; "The Health of US-born vs. Foreign-born African Americans: Implications for Addressing US Health

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Disparities," Raynard S. Kington, NIH Office of Behavioral and Social Sciences Research, Thursday, June 28, 2001, 9:00-10:00 AM, Neuroscience Center, Room D, 6001 Executive Blvd, Rockville, MD. [Contact: Ron, Office of the Director, at voice (301) 402-1146 or email AbelesR@OD.NIH.GOV]

12. From **Ron Abeles**, Office of Behavioral and Social Science Research (IOM study of Health Disparities)-*Understanding and Eliminating Racial and Ethnic Disparities In Health Care*- Statement of Task: The Institute of Medicine (IOM) will conduct a 17-month study to (1) Assess the extent of racial and ethnic differences in health care that are not otherwise attributable to known factors such as access to care (e.g., ability to pay/insurance coverage or comorbidities); (2) Evaluate potential sources of racial and ethnic disparities in health care, including the role of bias, discrimination, and stereotyping at the individual (provider and patient), institutional, and health system levels, and; (3) Provide recommendations regarding interventions to eliminate health care disparities. Sponsor: Office of Minority Health, U.S. Department of Health and Human Services.

Study Description. A large and consistent body of research demonstrates significant variation in the rates of medical procedures by race, even at equivalent levels of access to care. In general, this research indicates that U.S. racial and ethnic minorities are less likely to receive even routine medical procedures and experience a lower quality of health services. For example, relative to whites, African Americans are less likely to receive appropriate cardiac medication (e.g., thrombolytic therapy, aspirin and beta blockers) or to undergo coronary artery bypass surgery, even when variations in such factors as insurance status, income, age, co-morbid conditions, and symptom expression are taken into account. African Americans with end-stage renal disease are less likely to receive hemodialysis and kidney transplantation, and among patients hospitalized for pneumonia, African Americans receive fewer clinical services such as radiographs and intensive care. In terms of quality of care, a recent study of Medicare patients revealed that African American patients with congestive heart failure or pneumonia received poorer quality care than whites, using explicit process criteria

and implicit review by physicians. Further, these differences are associated with greater mortality among African American patients.

These disparities prompted Congress in 1999 to request an IOM study to assess the extent of disparities in the kinds and quality of health care received by U.S. racial and ethnic minorities and non-minorities, explore factors that may contribute to inequities in care, and recommend policies and practices that may eliminate these inequities. A 14-member study committee will be convened to conduct the study. Membership of the committee will include individuals with expertise in clinical medicine, statistics, health care services research, health policy, health professions education, minority health, clinical decision-making, medical sociology and related fields. In addition, up to three liaison panels comprised of individuals with relevant expertise will be convened, representing the views of consumer and advocacy groups, health care providers, and health care payers and institutions. The study questions will be addressed through several sources, as noted below. In addition to a review of relevant scientific literature, information will be gathered via commissioned papers and public workshops to understand the experiences of ethnic minority patients in clinical settings, as well as the perspectives of health care providers, payers, and health systems administrators.

Nominations for the study committee. Several organizations and individuals will be consulted and nominations will be widely sought for individuals to serve on the study committee. Ethnic minority health professions organizations, consumer groups, and other stakeholders will be asked to nominate individuals to serve on the study committee. In addition, the federal sponsor (Office of Minority Health, U.S. DHHS) will be asked to provide nominations. Final selection and approval of committee members will be made in accordance with the policies of the Institute of Medicine and National Academy of Sciences.

Liaison panels. One or more liaison panels will be assembled to provide recommendations to the study committee and to ensure that relevant consumer and professional perspectives are represented at public meetings of the study committee. Ethnic minority professional organizations will be among the groups

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represented by individuals on the liaison panel(s). Panel members will be informed of public meetings of the study committee and will be provided with background information and materials, where appropriate. In addition, the liaison panel(s) will be asked to serve as a resource to the study committee regarding public workshops, commissioned papers, and other study tasks.

Public workshops. The study committee will host two public workshops to gain additional information on aspects of the study charge. While the topics and nature of the workshops must be determined by the study committee, it is expected that the workshops will allow the committee to gain additional perspectives on potential sources of bias in clinical settings, institutional or system-based obstacles that may differentially affect service provision to ethnic minority patients, and other potential sources of health care disparities. In addition, workshops will also explore potential interventions to eliminate bias in health service delivery. At each public workshop meeting, individuals and groups will be invited to present information to the study committee in a roundtable setting, to facilitate discussion and interaction.

Commissioned papers. Up to 12 papers may be commissioned by the study committee to provide in-depth information on selected topics. While the topics will be determined by the study committee, it is expected that the commissioned papers will help provide additional information to address the study charge.

Products. The major product of the committee will be a report that addresses the three questions posed above, and selected commissioned papers. The report will be disseminated widely and is expected to guide future research and intervention efforts, with recommendations directed at health providers, consumers, health professions organizations and training programs, health policymakers, and government agencies. In addition, the full report will be posted on the National Academy's internet website, and a link to the report established with the U.S. DHHS Office of Minority Health. [Contacts: Brian Smedley, Study Director, at voice (202) 334-1351 or email bsmedley@nas.edu, or Adrienne Y. Stith, Program Officer, at voice (202) 334-1939 or email astith@nas.edu]

C. Historical Black Colleges and Universities (HBCUs) and Minority Programs

13. From **Audrey Burwell**, NCHS (Congress Approves Center to Study Health Disparities): Congress has directed the National Institutes of Health to establish a center to study health disparities among the nation's minority populations. The House approved the bill by voice, sending it to the president for his signature. The Senate passed it earlier. The **National Center on Minority Health and Health Disparities** is to coordinate minority health disparity research and information and to identify areas where NIH studies into minority health problems are insufficient. The bill is S.1880 and is available at for viewing at <http://thomas.loc.gov/>. [Audrey at voice (301) 458-4129 or email azb2@cdc.gov]

14. **“Race, Class, and Environment: The State of Minority Health,”** The 23rd Annual Minority Health Conference, February 16, 2001, Chapel Hill, NC. Poster Session abstract deadline is January 12, 2001. The William T. Small, Jr. Keynote Lecture will be presented by Richard Moore, Co-Founder of the Southwest Network for Environmental and Economic Justice and the Southwest Organizing Project, and founder and director of the Bobby Garcia Clinic in Albuquerque, NM. We hope to present a web cast and/or satellite broadcast of the William T. Small, Jr., Keynote Lecture (let us know of your interest and reserve your satellite facility now). [Information, registration, and abstract guidelines at site <http://www.sph.unc.edu/oce/courses/minority2001.htm> or call (919) 966-4032]

15. The **7th Annual Summer Public Health Research Videoconference on Minority Health** will be held June 18-22, 2001, 1:30-4:30pm EDT (Reserve your satellite facility now). This five-day Videoconference covers issues and solutions related to: collecting, analyzing and interpreting data for health disparities research; disentangling and assessing the relationships among race, ethnicity, and socioeconomic status; and community-academic partnerships. Videoconference participants join discussions via toll-free telephone, fax, and e-mail; Keynote Lecture by Camara P. Jones, MD, MPH, PhD, Research Director

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on Social Determinants of Health, NCCDPHP, CDC. If you are interested in hosting a downlink site, please let us know so we can send you updated information as it becomes available. [Information: <http://www.minority.unc.edu> or inquire of Minority Health Project, School of Public Health, University of North Carolina-Chapel Hill at voice (919) 843-6758]

D. Other Related Agency or Business GIS News

16. Editor: The final agenda for the recently conducted **NOAA GeoSpatial Data Workshop**, November 28-December 1, 2000, is available at http://www.eis.noaa.gov/EIS_Workshops.html; There are many topics of interest structured around the themes of NOAA Spatial Data Infrastructure and National Spatial Data Infrastructure.

17. From **Gita Urban-Mathieux**, US Geological Survey (new spatial data added to **National Atlas of the United States**): The National Atlas has added county based 1970-1994 cancer mortality data from the National Cancer Institute. Twenty forms of cancers are included. Other new map layers added are agriculture census data, four types of invasive plants, average annual precipitation, and offshore protraction diagrams. Please note that the URL for the National Atlas map browser has changed to <http://nationalatlas.gov/natlas/natlasstart.asp>. [Contact: Gita at voice (703) 648-5175 or email burbanma@usgs.gov]

18. From **Kate Demas**, Society for Public Health Education: Call for Papers, Health Promotion Practice (Submission Deadline: May 1, 2001): Topic: **“Eliminating Racial and Ethnic Health Disparities: Mapping a Course for Community Action and Research,”** Theme Issue Editors: Stephen B. Thomas and Kathleen Roe. [Contact: Kate Demas at email kdemas@sophe.org]

19. From the Business Information Finders and Quantitative Literacy Group of the Washington Statistical Society (WSS): **“Data Presentation-A guide to good graphics and tables.”** Quality data presentations ensure user understanding by taking advantage of how users already process information, reduce the number of thought processes required to understand the data, and breakdown fundamental

obstacles to understanding. This workshop will cover when to use graphics and tables, using your data to determine the type of graphic or table, the elements of good graphics and tables, and achieving clarity in presentation. Based on the principles set forth by Tufte and Cleveland, this is a practical workshop to show participants how to improve their presentations of quantitative data. It will be held January 23, 2001, at 7:00pm, at Ernst & Young LLP, 1225 Connecticut Ave. NW, Washington D.C. The speaker is Marianne Zawitz, Bureau of Justice Statistics, and the program is open to all. [Contacts: Joyce McNeill at voice (202)327-7582 or email joyce.mcneill@ey.com; Marianne at email zawitzm@ojp.usdoj.gov]

20. UCGIS Receives Grant from USGS: The U.S. Geological Survey has given UCGIS a grant to hold a series of symposia on **GIScience and vector-borne disease**. Arthur Getis, UCGIS member from San Diego State University, is organizing the first meeting together with Lee DeCola and Steve Guphill of USGS. Also, participating on the planning committee are Professors Gerard Rushton (Iowa) and William Huxhold (President of UCGIS), Antonino Catanzaro (UCSD Medical School), and Suzy Jampoler (Executive Director of UCGIS).

USGS is currently using geographic information systems, remote sensing, and spatial analysis tools to: define geographic distributions of disease cases and relationships to environmental factors; develop and test a model predicting disease activity and transmission rates; characterize the human population at risk; and, devise ecology-based prevention and control measures. Many problems are confronting researchers in this field, including issues of multi-scale complexity (spatial and temporal) and autocorrelation. A major goal of the meetings is to facilitate the development of a network among researchers interested in the integration of geographic analysis to understand vector-borne diseases, such as malaria, dengue, and West Nile virus. This network will be instrumental in identifying these problems, and discussing solutions.

GIScientists from UCGIS member institutions, researchers working on vector-borne disease and participants from USGS will be invited to attend the

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symposia. In addition, the host universities (University of California San Diego, Scripps Institute of Oceanography, San Diego State University), who have organized a Center for Pacific Rim Health Studies, will participate. The results of the meeting will be published on the UCGIS web site, with links to USGS, the Pacific Rim group, and other participating organizations. The symposium will be held in San Diego, California, on January 3-5, 2001, at Scripps Institute of Oceanography. [Contacts: **Arthur Getis** at email arthur.getis@sdsu.edu or **Suzy Jampoler** at execdir@ucgis.org; Additionally see announcement Section I]

21. UCGIS Receives Grant From HUD: UCGIS has received a \$250,000 grant from the Office of Policy Development and Research, Department of Housing and Urban Development. The objective of the grant, *Global Indicators: An Analysis of Urban Indicators Using Geographic Information Science*, is to establish and develop an international collaborative network between American universities and universities in the developing world using GIS-based urban indicators for urban policy research. Selected member universities will develop web-based training programs on the application of geographic information systems for urban policy and decision-making using indicators of urban quality. A UCGIS RFP is currently open and soliciting proposals from member institutions to support the grant's research effort. Information on the proposal application process is available on the UCGIS web page at <http://www.ucgis.org>.

UCGIS will be developing a global network to disseminate the training materials created to support this project. One of the first tasks for the members of the network will be to establish a quantitative baseline of data for major cities in the developing world. It will also put into place mechanisms for the systematic collection of the data to monitor change and assist in developing and evaluating policies and programs to improve housing and living conditions. UCGIS will form a working relationship with the United Nations Habitat program to support this effort.

ESRI, a UCGIS private affiliate, is supporting this grant through software contributions to participating member institutions and international university partners. Each participating university will receive ARC

IMS and ARC SDE to facilitate publishing the urban indicator data on the Internet. In addition, ESRI will donate \$2,500,000 worth of GIS software to cities and universities in developing countries in cooperation with UCGIS and the United Nations Centre for Human Settlements (HABITAT) and its Global Urban Observatory Urban Indicators Program.

UCGIS will host two symposia in support of the project. The first symposium will be held February 2-3, 2001, in Washington DC. Principal Investigators, HUD officials and other outside experts, including United Nations officials, will be invited to discuss implementation of the project. UCGIS anticipates that this program will be expanded beyond the original five sets of university partnerships and that it will be a multi-year effort. To that end, UCGIS is exploring other opportunities for continued funding. [For more information, contact **Suzy Jampoler** at execdir@ucgis.org]

22. From **Rachel Boba**, Police Foundation: I would like to announce the release of the most recent report produced by the Police Foundation's Crime Mapping Laboratory as part of our COPS funding. The report is called "**Guidelines to Implement and Evaluate Crime Analysis and Mapping in Law Enforcement.**" The report is intended to assist police agencies in implementing and evaluating crime analysis and/or crime mapping. It is a comprehensive document that provides how and what types of information to gather to conduct a needs assessment, develop an action plan, and evaluate crime analysis and mapping in a law enforcement agency. In addition to assisting agencies newly implementing crime analysis and/or mapping, this report will also be useful for agencies with established crime analysis and mapping units, as it includes guidelines for how to restructure or revitalize and evaluate an existing unit. The report is available on the COPS website at http://www.usdoj.gov/cops/cp_resources/pubs_prod/s45.htm along with other reports which include the "Crime Analysis and Crime Mapping Information Clearinghouse" (recently updated), "Geocoding in Law Enforcement," all issues of the newsletter Crime Mapping News (8 total), and the "Users' Guide to Mapping Software for Police Agencies" (an update

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will be released in the next few weeks with nearly 40 new products reviewed). [Contact: Rachael at voice (202) 833-1460 or email rboba@policefoundation.org]

23. From **Silvia Hecher**, Pan American Health Organization (PAHO): Please advise all Public Health GIS Users that a new publication in the public health field, the *Pan American Journal of Public Health/Revista Panamericana de Salud Pública*, is now available online through OVID technology. The trilingual *Pan American Journal of Public Health* includes the latest research findings in combating disease, prolonging life, and fostering the physical, mental and social well-being of the population. Founded on 105 years of research publishing experience, the *Pan American Journal of Public Health* provides essential public health information for and about the Americas and the Caribbean including original research, up-to-date health profiles, emerging trends, regional news and reports and special sections on human resources and essential drugs. Each monthly issue contains up to 80 pages of articles specifically written about priority health problems. An abstract in English follows each article, highlighting the most important facts from the article. To obtain a view of the journal and information on a paper subscription, visit the PAHO bookstore at <http://publications.paho.org/paho/english/item.icl?itemid=795>. [Contact: Silvia at voice (202) 974-3070 or email dbitemp4@paho.org]

24. From **Ric Skinner**, NJ Department of Health and Senior Services (**GIS to Assess Late Stage Prostate Cancer Incidence**): The New Jersey Department of Health and Human Services (NJDHSS) has been awarded first year funding by Centers for Disease Control and Prevention for a two-year health geographics software development project. The Geographic Information System (GIS) software application will developed using ESRI GIS software and will enable health care professionals to display and conduct spatial and statistical analysis of late stage prostate cancer at the census tract and county level. Emphasis will be placed on the ability to identify locations of demographic subgroups with high prostate cancer mortality rates or that have a high incidence of cases diagnosed at the late stage.

In year 1 of the project, a prototype GIS desktop software application will be developed, and will include a variety of health, geographic, environmental and demographic data. Data will include: incident prostate cancer cases and prostate cancer deaths in New Jersey from 1994 through 1998; census tract boundaries; centroids for geographic units to facilitate spatial statistical analysis; information on whether a census tract is residential or non-residential (thereby enabling users to exclude non-residential land areas when calculating population density); population demographics; socio-economic data such as income, housing, and education; and health care resource data such as locations of urologists, radiological oncologists, hospitals, clinics. The GIS application will be tested in New Jersey, and then evaluated by a second state using that state's data.

In year 2 of the project, the GIS desktop software application will be revised and expanded for use with the North American Association of Central Cancer Registries database from 1993-1997. The final GIS application (allowing analysis at the census tract and county level) will be made available to state central cancer registries and other potential users. A user guide and tutorial will be developed. [Contact: Ric is Research Scientist and GIS Coordinator with NJDHSS and Principal Investigator of the project. The project will be administered by the Association of Teachers of Preventative Medicine. Ric may be reached at voice (609) 588-3500 or email rskinner@doh.state.nj.us]

25. From *GeoStats USA*, October 2000 (No. 3): Initial products from the 2000 census will be derived from the basic census questions asked of the universe of persons living in the United States on April 1, 2000. Expect the following 100 percent data products to be available during the next twelve months: **March 2001 to April 2001**: Census 2000 Redistricting Data Summary File. State population counts for legislative redistricting; Lowest level geography: blocks; **June 2001 to Sept. 2001**: Demographic Profile. Population totals and selected population and housing characteristics in a single table. Lowest level geography: places; **June 2001 to Sept. 2001**: Congressional District Demographic Profile. Population totals and selected

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population and housing characteristics in a single table for Congressional Districts only. Lowest level geography: Congressional Districts of the 106th Congress.

July 2001: Race and Hispanic or Latino Summary Table. Lowest level geography: governmental units; **June 2001 to Sept. 2001** (state level): Summary File 1 (SF 1). Population counts for 63 race categories and Hispanic/Latino. Lowest level geography: blocks; Population counts for many detailed race and Hispanic or Latino categories, and American Indian and Alaska Native tribes. Lowest level geography: census tracts; Selected population and housing characteristics. Lowest level geography: blocks/census tracts. Data for the 2000 census will be available down to a neighborhood block for basic demographics and down to a group of blocks or "block groups" for all decennial sample data items. [See: <http://www.censuscd.com/newsletter/geostats003.pdf>]

26. From **Frank Houghton**, Public Health Unit, Gisborne, New Zealand: Health GIS in the 'Other Land Down Under' (Pop or fizzle?): New Zealand public health services can perhaps be justly accused of being 'behind the times' in their adoption of geographical information systems. However this looks as though it is about to change, thanks largely to the hard work of ESR (a government established body dedicated to 'promoting excellence through the application of technology' see <http://www.esr.cri.nz/>) and key individuals in the Ministry of Health. December looks as though it will be a key month in determining whether GIS enters the mainstream, or remains forever on the sidelines.

Developments in the field are being fostered by political imperatives that are changing the structure and operation of public health services in NZ. Health GIS has received a considerable impetus from the distribution of EpiSurv to all Public Health Units (PHUs) by ESR. This system records all notifiable diseases and incorporates an address geocoding engine (For a demonstration of the results of this national surveillance program see PHEW- Public Health Early Warning System at <http://www.phew.govt.nz/>). The adoption of this technology has also been fostered by the State financing the distribution of one copy of a leading desk-top GIS package and digitized

topographical maps to each PHU. December commences with a National Small Area Analysis Workshop in the capital, which will be followed by a series of 4 regional workshops designed to foster and facilitate the use of GIS in Public Health Services. Professor Tony Gatrell, (Health GeoInformatics expert from Lancaster University in the UK) is being flown over to contribute to these sessions. This will be followed by a special Health Stream being incorporated into SIRC2000 (Spatial Information Research Colloquium 2000), the annual colloquium held at the University of Otago, Dunedin (see <http://www.otago.ac.nz/sirc>). What the outcome of all of this hard work, encouragement and resources will be is uncertain, but the future looks bright for health GIS in NZ. [Contact: Frank, Health Geographer, Tairāwhiti Healthcare, at email FrankH@thl.co.nz]

III. GIS Outreach

[Editor: All requests for Public Health GIS User Group assistance are welcome; please note that the use of trade names and commercial sources that may appear in Public Health GIS News and Information is for identification only and does not imply endorsement by CDC or ATSDR]

☞ From: **Michael J. Keevican**, KEY, Inc.: I am a consultant (computer programming) currently with the Johns Hopkins Hospital Department of Pathology as one of my clients. After seeing some of the applications from your site, I became interested in several variations on using GIS. Could there be a use for Dermatologists to map, using GIS, moles on areas of a patient. Then, with the actual image, they could insert comments, etc., for future use and also for presentations? On return visits these images could be compared to the current area of the body to check for any changes in the characteristics of any individual mole. Could a similar application applied to tissue applied on slides for Pathology presentations? [Contact: Mike at voice (410) 974-9236 or email keycorp@BellAtlantic.net]

☞ From **Mary Ann Greene**, Dartmouth College: I'm a graduate student at Dartmouth and looking for a linkage file or program to convert ZIP Codes to county. I read in *Public Health GIS News and Information* (May2000) that there are files available online, and wondered if you could tell me how to find them?

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[Contact: Mary Ann at email mary.a.greene@Dartmouth.edu]

Early response from **Jon Sperling**, Census Bureau: If you could wait a few months, I am working on creating our final ZIP Code areas for Census 2000 data. County/ZIP Code Tabulation Area (ZCTA)-our representation of postal ZIP Codes-equivalencies will be available soon after. This also should be available at the State and County Quick Facts page on our home page (www.census.gov) where you can type a place or ZIP Code and get the county(s) associated with it. [Contact: Jon at email jsperling@geo.census.gov]

☞ From **Joan Aron**, Public Health Consultant: I am working on a project for online Web-based training materials for malaria control in developing countries. One of the aims of the course is to improve the critical thinking of managers about the (mis)interpretation of epidemiological data, including GIS data, and the implications for making disease control decisions. Therefore, one of the goals of adaptation to the Web environment is providing online material that can sharpen the student's skills in this area. I have addressed these general issues in a textbook *Ecosystem Change and Public Health: A Global Perspective* that will be published by Johns Hopkins University Press in the spring. It would be nice to refer to some easy-to-use online GIS program so that students could play with different simple ways of representing geographic data (using numbers of cases per district, using cases/population per district, different cut points for high/medium/low, etc.). Since this is not primarily a GIS course, the GIS portion has to be a component that is feasible in a short period of time. Then one could direct students to other sites/courses for followup in greater detail. Any suggestions would be appreciated. [Contact: Joan, president of Science Communication Studies, a nonprofit research and education organization formed to promote cross-disciplinary communication of science, at email JoanAron@mmscnet.org]

☞ **Shannon Rushworth**, KwaZulu-Natal Department of Health, Pietermaritzburg, South Africa: The province of KwaZulu-Natal has recently (August 2000-to present) been plagued by cholera. The disease is spreading. Currently we are mapping the new cases but would love

to undertake more predictive modeling. I have developed a database linked to a GIS which can map the areas which have positive cholera cases. The following attribute data has been collected: Institution where patient was seen; Age; Gender; Date of notification; Died (Yes/No); Date of Death; Place (this is the spatial data that allows the GIS to do its thing). I have also looked at our census data and extracted area where people have no toilet or/and use river, dam, stream or/and spring water-there appears to be a strong correlation. What more can I do- some ideas would be wonderful? I have done some research and am struggling to find any predictive work-obvious there is a lot of work on mapping cholera. Any (all) suggestions would be most welcome! [Contact: Shannon, Geographic Information Systems Unit, at email rushs@dohho.kzntl.gov.za]

IV. Special Reports

“GIS and Environmental Health: Locating Wells for a Groundwater Monitoring Program in Mahoning County” by Wesley Vins, Kimberly Vaughn and Matthew Stefanak, Mahoning County, Youngstown, OH

Background

Local health departments have often been handicapped by their limited ability to respond to public concerns about drinking water contamination. The cost of water testing is usually too high to allow extensive testing for chemical contaminants and health department staff often lack background information about water quality in the area to determine if water quality has been affected.

The District Board of Health has overcome some of these handicaps in recent years, thanks to a \$200,000 endowment from Browning-Ferris Industries of Ohio and ongoing operational support from the Mahoning County Solid Waste Management District. The Board of Health established a Laboratory Services Division in 1993 to provide timely, accurate, and affordable water and waste testing for public health-related concerns.

A priority objective for Laboratory Services is semi-annual testing of homeowners' water wells in the vicinity of the sanitary landfills that together import almost one million tons of solid waste each year into

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Mahoning County. Early in the planning process of identifying private water wells for semi-annual monitoring, Laboratory Services contracted with the Ohio Department of Natural Resources (ODNR) to create a well log database at ODNR that allows Board of Health staff to have internet-based access to information about the 10,000 wells in Mahoning County for which well logs exist. The database allows users to identify wells by homeowner name, street address, or political subdivision of the property.

Semi-annually for the last three years, Laboratory Services has been testing about 100 wells within a one-quarter mile radius of the six active and closed landfills in Mahoning County. Water line extensions around two of these landfills have induced a number of homeowners to abandon their wells and connect to the community water supply. The diminishing number of wells used for drinking water in the immediate vicinity of these landfills has prompted the Board of Health to identify and recruit additional well users within a broader radius around the landfills for the groundwater monitoring program.

Environmental health concerns often have important spatial and geographic dimensions. By capturing these spatial dimensions and linking them with other important attributes, geographic information systems (GIS) can be powerful tools for detecting relationships between potential sources of environmental exposure and health effects (Roper, 1999). GIS has previously been employed in other environmental programs at the District Board of Health. GIS maps of positive rabies cases were developed to show the movement of raccoon-strain rabies into Mahoning County in 1997 (Stefanak, 1999). This information helped to determine points for surveillance and the oral vaccine baiting area for the fall and spring bait distributions.

The purpose of this paper is to describe how GIS technology was used to locate and plot water wells within concentric radii around landfill perimeters and prioritize efforts to recruit well owners for participation in an expanded testing program.

Methods

Street address ranges that fell within one mile of the perimeter of each active and closed landfill in

Mahoning County were identified from street maps produced by the Mahoning County Engineer. The ODNR well log database was then queried to locate well logs for all water wells within the identified street address ranges. Using the Haines and other local reference directories, the names of current property owners for wells with a well log on file with ODNR were verified and updated if ownership had changed since the well log was filed. The current well owners' names and street addresses were then entered into an Excel spreadsheet. Addresses were matched to address ranges contained in the 1995 Mahoning County TIGER file produced by the U.S. Bureau of the Census. Geographic coordinates (latitude and longitude) and distances from the landfills in quarter-mile increments were assigned to each address in the Excel spreadsheet using a geocoding feature of Atlas GIS Version 2.1 (Strategic Mapping, Inc., 1992) running on a 400 MHz stand-alone personal computer at the Mahoning County Planning Commission. Atlas GIS was used to number and locate the wells within quarter-mile radii around the landfills up to a one-mile distance from landfill perimeters. The well locations were then plotted within quarter-mile radii on maps generated for each of the six landfills.

Service area maps from Consumers Ohio Water Service, the public water supplier serving areas around two of the landfills, were consulted and overlaid with the street address ranges within one mile of the landfills to determine which well owners had access to public water supplies and thus would not be candidates for the expanded groundwater monitoring program. In the final phase, wells in the Excel spreadsheet currently enrolled in the semi-annual testing program were coded to determine what fraction of all wells within one mile of each of the landfills had been tested.

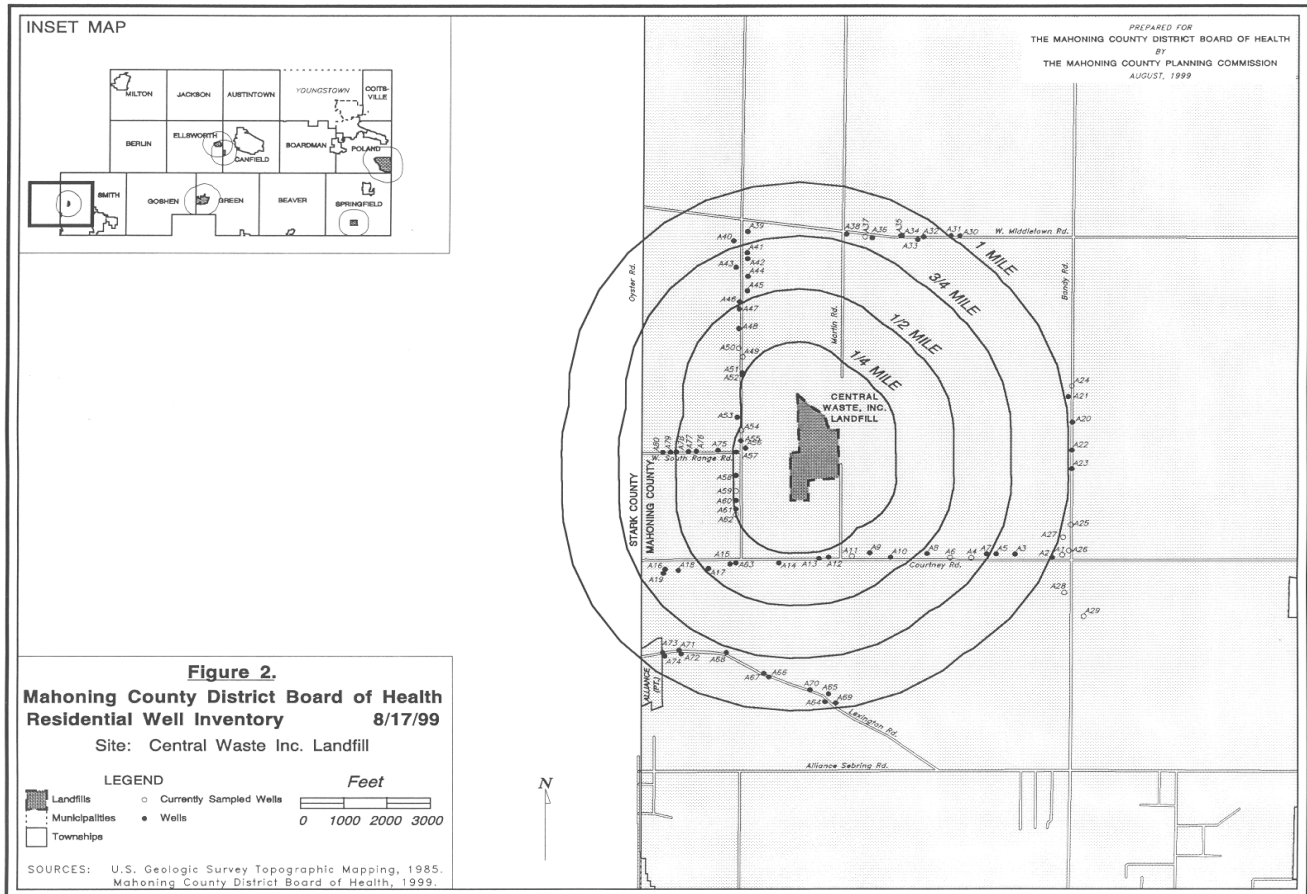
Results

Approximately 127 hours of District Board of Health and Mahoning County Planning Commission staff time during the months of June-August 1999 were required to complete the project. Figure 1 [Editor: labeled Fig. 2] depicts the location of all wells identified around the Central Waste, Inc. landfill in Smith Township.

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Similar maps were generated with Atlas GIS for the other five landfills in Mahoning County. Table 1 shows the complete inventory of wells located through the project within a one-mile radius of the landfills and the fraction of these wells currently tested by the Laboratory Services groundwater monitoring program. The number of wells within the proposed one-mile monitoring radius (1,142) was reduced by 340 when properties with access to public water supplies were excluded, leaving 802 wells as potential candidates for an expanded groundwater monitoring program. Of these 802 wells, 101 (13%) are currently being tested.

In the course of the project inventory, it was revealed that 3,688 of the 10,325 (36%) Mahoning County well logs on file at ODNR lacked a complete street address. Some of these wells may be located within the inventory area but would have been excluded

from our street address range query of the ODNR well log database, resulting in a less-than-complete inventory of wells in the proposed one-mile monitoring radius. In a subsequent agreement with ODNR, Youngstown State University undergraduate environmental studies interns at the District Board of Health were able to complete the street address information for approximately 50 percent of these 3,688 wells using the Haines and other local reference directories. ODNR has agreed to update their well log database with this information and geocode the entire well log inventory for Mahoning County.

GIS IS INVALUABLE FOR PUBLIC HEALTH PLANNING IN MAHONING COUNTY, OH

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Table 1. Drinking Water Well Inventory

Site	Number of Wells Within One Mile	Number of Wells Sampled Semi-annually	Percentage of Wells Sampled
Central Waste, Inc.	80	19	24%
County Land Development Sanitary Landfill	246	20	8%
Hilltop and Croy Road Landfills	339	14	4%
Mahoning Landfill	311	32	10%
Carbon Limestone Sanitary Landfill	166	16	10%
TOTALS	1142	101	9%

Discussion

In 1854, John Snow plotted the geographic distributed of cholera deaths in London and demonstrated the association between these deaths and contaminated water supplies. Modern GIS technology has enabled us to depict spatial relationships between potential sources of groundwater pollution and drinking water sources in Mahoning County with relative ease and precision. The maps and well inventories generated by this project have been used in presentations at township trustee meetings in each of the townships with a landfill and to the County Solid Waste Management Policy Committee.

The compelling visual presentation of this data has helped to reaffirm political and funding support for the expanded groundwater monitoring program. The well inventory database will be used to recruit more homeowners to the semi-annual testing program through letters and phone contacts with homeowners. As a consequence, the District Board of Health expects to increase the number of wells enrolled in the semi-annual testing program by 50 percent by June 2001.

References

1. Roper WL, Mays GP. GIS and public health policy: a new frontier for improving community health. *J Public Health Management Practice*, 1999, 5(2), vi-vii.
2. Stefanak MA, Vaughn KA, Shaheen JF. Positive raccoon-strain rabies in Mahoning County, Ohio, 1997. *J Public Health Management Practice*, 1999, 5(2), 33-34

[Editor: Wesley Vins is a Sanitarian at the Mahoning County District Board of Health, Youngstown, Ohio. Kimberly Vaughn is GIS Administrator at the

Mahoning County Planning Commission, Youngstown, Ohio. Matthew Stefanak is Health Commissioner of the Mahoning County General Health District, Youngstown, Ohio and can be contacted at email mchealth@cboss.com]

Technical Talk

National Oceanic and Atmospheric Administration (NOAA)-ArcView® Metadata Collector v2.0 Extension. Product Description: The **ArcView® Metadata Collector** is an easy-to-use application that can be utilized by any ArcView 3.x user for creating Federal Geographic Data Committee (FGDC)-compliant metadata. The tool can create metadata for any data type supported by ArcView, including ARC/INFO coverages, ArcView shapefiles, as well as any supported image formats. Tool functions include: Automatic extraction of information (metadata) such as bounding coordinates, map projections, and attribute information; Storage of information into .dbf files that can be edited, if needed, and reused for subsequent metadata records; Generation of output in both text and HTML formats, and also generation of an INFO file that will become part of that coverage if you are creating metadata for an ARC/INFO coverage. [This ArcView GIS extension is not supported by ESRI, but is available at no charge from the NOAA Web site at: <http://www.csc.noaa.gov/metadata/text/download.html>]

A new CD-ROM is now available from the National Climatic Data Center that contains the new **Climate**

Atlas of the Contiguous United States. It replaces a popular paper Atlas last published in 1968. The period of record of the data for most of the maps is 1961-1990. The new CD Atlas contains 737 color maps of climatic elements such as temperature, precipitation, snow, wind, pressure, etc., chosen to portray the climate of the contiguous US. Its primary purpose is to show the 'normal' or average condition for various meteorological parameters. Maps of extreme events are also included. Maps for Alaska and Hawaii will be released in the Spring of 2001. The user may install the Atlas onto a local drive, or run the Atlas from the CD. From the Atlas interface, the user chooses an element (Temperature, or Precipitation, or Snow, etc.) and a parameter of that element (mean, or maximum, or record extreme, etc.). The Atlas displays maps of the selected element/parameter using ESRI's ArcExplorer, which is included on the CD. ArcExplorer provides GIS capabilities, such as zoom, query, identify, and theme layering. Additionally, the CD contains all of the data (in "dbf" format) used to produce the Atlas. The Online Store cost for this one volume CD-ROM is \$130 plus \$11 shipping and handling, which is a 25% savings from the offline cost. [One can place an order, view sample maps, or learn more information about this product at: <http://nndc.noaa.gov/?http://ols.nndc.noaa.gov/plolstore/plsql/olstore.prodspecific?prodnum=C00519-CDR-A0001>]

V. GIS and Related Presentations and Literature

(This section may include literature citations, abstracts, syntheses, etc., and submissions are invited)

Ward M, Nuckols J, Weigel S, Maxwell S, Cantor K, Miller R. **Geographic information systems. A new tool in environmental epidemiology.** *Annals of Epidemiology*, 10(7):477, 2000 October 1. Abstract: PURPOSE: Geographic Information Systems (GIS) are useful tools for identifying populations with potential exposure to environmental contaminants. Using a GIS, features of the local environment around an individual's home, work, or school can be described. We present two examples illustrating methods and issues in identifying populations potentially exposed to agricultural pesticides and to toxic releases from the Toxic Release Inventory (TRI). METHODS: We used USDA Farm Service Agency records as ground

reference data to classify a late summer 1984 satellite image into crop species in 3 counties in Nebraska. We located residences from a case-control study of non-Hodgkin's lymphoma (NHL) on the crop maps and calculated the distance to crop fields. Residences from a 4-center study of NHL were mapped and the distance to TRI sites was determined. RESULTS: Twenty-two percent of residences had crop fields within 500 meters of the home, an intermediate distance for the range of drift effects from pesticide applications. After accounting for the extent of primary drift from ground applications of pesticides, we estimated that 30 percent of residences were potentially exposed to crop pesticides. In the 4-center study, residence locations determined by address-matching methods and by a global positioning system were compared; the population 1 mile from specific TRI sites is described. CONCLUSIONS: These examples demonstrate the utility of a GIS in environmental epidemiology studies. A GIS can be a useful addition to questionnaire and other methods of exposure assessment in health studies.

Muth SQ, Potterat JJ, Rothenburg RB. **Birds of a feather: using a rotational box plot to assess ascertainment bias.** *International J Epidemiology* 2000; 29:899-904. BACKGROUND: Comparability of study participants with non-participants is customarily assessed by contrasting the distributions of sociodemographic characteristics. Such comparisons do not necessarily provide insight into whether or not participants of a given subgroup are similar to non-participants of the same subgroup. A geographical information system (GIS) may provide such insight by visually displaying the spatial distributions of participants and non-participants. In a previously reported study of heterosexuals at elevated risk for human immunodeficiency virus (HIV), traditional methods suggested distributional differences in the demographic characteristics of participants and non-participants. METHODS: Based on residential address co-ordinates for each subgroup member, we used the subgroup's centroid as the origin and constructed a 360 degrees series of overlapping box plots of the distance of subgroup members to the origin, thereby producing closed polygons for each of the box plot demarcators. RESULTS: These rotational box plots revealed similar

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geographical distributions for most participant and non-participant subgroups, with the exception of African-American men and women. **CONCLUSIONS:** Observed differences resulted in part from the study design, and provided some insight into sampling problems encountered in social network studies. Based on Tobler's supposition that 'nearby things tend to be alike', the rotational box plot is a useful additional tool for investigating sample bias. [Editor: In response to how he automated this process, lead author Steve Muth writes- I actually used a SAS routine that *writes* an Avenue script. Contact: Steve, El Paso County Dept. of Health and Environment, Department of STD/AIDS, Colorado Springs, CO, at voice (719) 575-8610 or email smuth@qwest.net]

Sheehan TJ, Gershman ST, MacDougall LA, Danley RA, Mroszczyk M, Sorensen AM, Kulldorff M. **Geographic assessment of breast cancer screening by towns, ZIP codes, and census tracts.** *J Public Health Management Practice* 2000; 6(6):48-57. Abstract: Early detection is the primary way to control breast cancer, and mammography screening can reduce breast cancer mortality 20 to 40 percent among women aged 50 years and older. Geographic areas with a high proportion of cases with late-stage diagnoses may reflect gaps in screening efforts. We used a spatial scan statistic, adjusting for the multitude of possible region locations and sizes, to test whether any particular region of Massachusetts had statistically significant excesses of late-stage diagnoses during the period 1982 to 1986. The novel geographic analysis technique utilized here can also be used in the control of other types of cancer.

Books and Reports

Jay Lee and David W.S. Wong, *Statistical Analysis with ArcView GIS^R*, JohnWiley & Sons, Inc., New York: 2000 (December) . I believe GIS Users will benefit from this book. It is not long, nor is it difficult reading, but it is timely and helps one to better understand the integration of spatial statistical analysis with GIS. It is useful for exploring, with ArcView GIS, spatial points and patterns. In a practical approach, one will examine quadrat and nearest neighbor analyses, spatial autocorrelation (global and local), and the formulation and application of spatial weights matrices. Their goal

that GIS are be limited to the display of spatial data but "are most useful when used to perform data analysis" is well conveyed. There is a companion website that includes ArcView GIS scripts so users can apply the techniques immediately. I suspect there will be those with other GIS softwares who will want something similar for their toolkit. Both Jay and David are geographers and associate professors, respectively, at Kent State and George Mason Universities. [See: www.wiley.com/lee] Editor

Reports

Integrating Behavioral And Social Sciences With Public Health, (eds.) Neil Schneiderman, Marjorie A. Speers, Julia M. Silva, Henry Tomes, and Jacquelyn H. Gentry, released in October 2000, by the American Psychological Association. This book is a product from a CDC-sponsored conference on this topic (see BSSWG Newsletter, June 1998 at <http://intranet.cdc.gov/bsswg/newsletters.htm>). The authors of the book examine the ways that community-based behavioral and social science have been applied to major public health concerns. By its nature, public health is complex: drug addiction, HIV, cancer, violence, and cardiovascular disease are health threats notoriously difficult to control. Scientific advances have the potential to prevent disease and other health problems, yet when applied to communities, the actual results are often less than spectacular. Psychological and other social factors within specific communities can, and often do, influence human behavior in negative ways that limit the effectiveness of technological and biomedical approaches. Applying the constructive knowledge gained from behavioral and social research to public health represents a promising new direction. The authors in this volume provide insight on the promise by discussing mobilization, prevention programs, intervention evaluations, and research. Not only a showcase of successful integration, this volume is also a challenge to public health specialists and behavioral and social scientists to integrate their work in more effective ways. **CONTENTS:** 1. Behavioral, Social Science and Public Health in the 21st Century, Neil Schneiderman and Marjorie Speers; 2. Creating Social and Public Health Environments to Sustain Behavior Change: Lessons form Obesity Research,

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Margaret Chesney, Rebecca Thurston, and Katrina Thomas; 3.Socioeconomic Factors in the Behavioral and Psychosocial Epidemiology of Cardiovascular Disease, John Lynch; 4.Community Intervention as an Instrument for Cardiovascular Health Promotion: The North Karelia Project–Rationale, Experiences and Results, Pekka Puska and Antti Uutela; 5.Exposure to Urban Violence: shifting from an Individual to an Ecological Perspective, Ray Lorion; 6.Action-Research: Informing Male Violence Against Women Interventions, Sarah Cook and Mary Koss; 7.Strategies for Preventing HIV Infection Among Injecting Drug Users: Taking Interventions to the People, Don Des Jarlais and Samuel R. Friedman; 8.Community Involvement in HIV/AIDS Prevention, Seth Kalichman, Anton Somlai, and Kathleen Sikkema; 9.Social and Behavioral Interventions to Increase Breast Cancer Screening, Barbara Rimer, Helen Meissner, Nancy Breen, Julie Legler, and Cathy Coyne; 10.Integrating Perspectives on Prevention of Unintentional Injuries, Andrea Gielen and Deborah Girasek; 11.Community Mobilization for Prevention and Health Promotion CAN Work, Abraham Wandersman; 12.Assessing the Economic Costs and Benefits of Behavioral Interventions, David Holtgrave and Steven Pinkerton; 13.Toward a Psychosocially Healthy Work Environment: Broader roles for Psychologists and Sociologists, Robert Karasek; 14.Evaluation of Community-Based Health Programs: An Alternate Perspective, Robert Goodman; 15.Efficacy and Effectiveness Trials in Health Promotion and Disease Prevention: Design and Analysis of Group-Randomized Trials, David Murray; 16.Empowerment Evaluation and Self-Determination: A Practical Approach Toward Program Improvement and Capacity Building, David Fetterman, and; 17.Public Health and Religion, Diane Becker. [Ordering information for the book can be found at: <http://www.apa.org/books/431644A.html>]

Morbidity and Mortality Weekly Report

Selected articles from CDC's *Morbidity and Mortality Weekly Report* (MMWR): Vol. 49, No. RR-16-*Reducing Tobacco Use Reducing Tobacco Use A Report of the Surgeon General*; Vol. 49, No. 50-Multistate Outbreak of Listeriosis-United States, 2000; Blood Lead Levels in Young Children-United States

and Selected States, 1996-1999; Notice to Readers: *Epidemiology in Action: Intermediate Methods*; Notice to Readers: *Epi Info 2000: A Course for Teachers of Epidemiologic Computing*; *Recommendations and Reports*, Vol. 49, No. RR-15; Use of Anthrax Vaccine in the United States Vol. 49, No. 49- Unpowered Scooter-Related Injuries-United States, 1998-2000; Human Rabies-California, Georgia, Minnesota, New York, and Wisconsin, 2000; Public Health Dispatch: Human Rabies-Quebec, Canada, 2000; Notice to Readers: *Recommendations From Meeting on Strategies for Improving Global Measles Control*, May 11-12, 2000; *Recommendations and Reports*, Vol. 49, No. RR-14- *Recommendations for Blood Lead Screening of Young Children Enrolled in Medicaid: Targeting a Group at High Risk*; *Surveillance Summaries*, Vol. 49, No. SS-11- Abortion Surveillance-United States, 1997; Vol. 49, No. 48- Influenza Activity-United States, 2000-01 Season; Respiratory Syncytial Virus Activity-United States, 1999-2000 Season; Public Health Dispatch: Outbreak of Poliomyelitis-Dominican Republic and Haiti, 2000; Vol. 49, No. 47- HIV-Related Knowledge and Stigma-United States, 2000; Outbreak of Rift Valley Fever-Yemen, August-October 2000; Declines in Lung Cancer Rates-California, 1988-1997; Public Health Dispatch: Outbreak of Poliomyelitis-Cape Verde, 2000; Notice to Readers: Alcohol Involvement in Fatal Motor-Vehicle Crashes-United States, 1998-1999 Vol. 49, No. 46- Drug-Susceptible Tuberculosis Outbreak in a State Correctional Facility Housing HIV-Infected Inmates-South Carolina, 1999-2000; Update: West Nile Virus Activity-Eastern United States, 2000; Measles, Rubella, and Congenital Rubella Syndrome-United States and Mexico, 1997-1999; Vol. 49, No. 45- Public Health Consequences Among First Responders to Emergency Events Associated with Illicit Methamphetamine Laboratories-Selected States, 1996-1999; Progress Toward Poliomyelitis Eradication-Eastern Mediterranean Region, 1999-September 2000; Notice to Readers: Operation ABC Mobilization (America Buckles Up Children) Mobilization Week-November 20-26, 2000; Vol. 49, No. 44- Incidence of Pap Test Abnormalities Within 3 Years of a Normal Pap Test-United States, 1991-1998; Coccidioidomycosis in Travelers Returning From Mexico-Pennsylvania, 2000; Influenza Activity-United States and Worldwide, April-

October 2000; *MMWR Recommendations and Reports*, Vol. 49, No. RR-12- *Strategies for Reducing Exposure to Environmental Tobacco Smoke, Increasing Tobacco-Use Cessation, and Reducing Initiation in Communities and Health-Care Systems*. [Readers may subscribe to MMWR, without cost, at <http://www.cdc.gov/subscribe.html>]

Other Related Presentations and Literature

Annual Meeting of Association of American Geographers: Feb-March 2001 [Preview of this session]

"GIS Applications for State and Local Public Health Departments"

[Editor: This session is designed to promote the use of GIS in U.S. and overseas public health departments. Papers were invited for applications in a variety of epidemiologic themes including disease surveillance and prevention, health promotion and planning, environmental risk assessment, and spatial statistical methods and analysis; A selected bibliography is included]

1. "Using GIS to reduce Infant Mortality in Baton Rouge: Combining Spatial Analysis and Community Outreach," **Andrew Curtis**, Department of Geography and Anthropology, Louisiana State University. Abstract: Infant Mortality in Baton Rouge, especially in the African American community is unacceptably high. Although the Healthy Families infant mortality goal for the nation was 7 per 1000 by the year 2000, the rates for African Americans in Baton Rouge during 1997 and 1998 were 19.4 and 18.9 respectively. This paper shows how GIS has been used to address this problem. GIS is a tool, which when combined with new forms of spatial analysis (spatial filter, geographic weighted regression) can be used to identify clusters of infant deaths and associated risk factors. Vital records can also be linked within the GIS in order to allow for analysis of the mother's history. However, the real advantage of using GIS is in identifying the impact space can have as a risk factor for infant mortality. Although previous research has identified risk factors associated with infant deaths, such as pre-term delivery, low birth weight, race, use of alcohol etc., these studies have not attempted to see how these risks vary across space.

It may be naïve to think that the same risk factor, such as low birth weight, will impact a similar mother at two different locations of the same city in the same way, let alone between mothers from different

cities. This study will examine how risk factors interact spatially. In this way GIS will help to change the way public health workers and researchers think about birth related problems. GIS also offers a more practical solution to this type of problem, as the end result of the analysis is an identifiable area of the map. This allows members of the CityMatCH team, a coalition of different organizations formed to address high infant mortality in the area, to target actual communities in the city with outreach programs. [Contact: Andrew at email acurti1@lsu.edu]

2. "Disease Pattern Analysis: Preparing for the Study of Dengue Transmission Using Spatial Statistics in a GIS Environment," **Arthur Getis and Kenneth Gray**, Department of Geography, San Diego State University, San Diego, CA; **Amy Morrison and Thomas W. Scott**, Department of Entomology, University of California, Davis, Davis, CA, and; **Kevin Russell, Douglas Watts, and Michael Zyzak**, NMRC, Unit 3800, APO AA 34031 Lima, Peru. Abstract: Control of dengue depends on the control of its mosquito vector *Aedes aegypti*. Characterization of the spatial distribution of the mosquito population is necessary to define the most appropriate geographic scale to carry out entomological surveillance programs. We describe spatial statistical analyses of data from an on going NIH funded study in Iquitos, Peru. Results presented here concern exhaustive entomological surveys in two neighborhoods. In each household, all water-holding containers were characterized, adult mosquitoes, larvae, and pupae were captured and counted. Two consecutive surveys were carried out in each neighborhood; each lasting one month. House locations were georeferenced and managed in ArcView. Prepared for use in ArcView, we used K-function, weighted K-function, and local statistics in order to examine the spatial clustering patterns of larvae, pupae, and adult mosquitoes. Results indicate that adult mosquito counts and water containers containing pupae are heavily clustered within 10 meters (1-3 houses). Our analysis indicates that vector density should be measured and summarized at a geographic scale equivalent to this distance.

Simultaneously, and successively, sample sets of serological data were gathered in the study area. These reveal the location of individuals affected by

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dengue and make possible spatial correlative analysis of serological and entomological data. This then allows for the identification and description of transmission characteristics of the disease. The results of the serological study are available elsewhere. Keyword: spatial statistics, geographic information systems, dengue. [Contact: Art at email arthur.getis@sdsu.edu]

3. *“Assessing the Statistical Significance of Disease Clusters Using Kernel-Based Methods in GIS,”* **Peter A. Rogerson**, Department of Geography and National Center for Geographic Information and Analysis, University at Buffalo, Buffalo, NY. Abstract: Many statistical methods for detecting significant disease clusters have been developed, for situations where the location of the cluster is not known beforehand. Almost all of these methods rely upon Monte Carlo simulation or some similar method to assess the statistical significance of potential clusters. In addition, more descriptive measures, such as kernel-based estimates of incidence rates or standardized mortality ratios, provide the analyst with a visual depiction of potential clusters. In this paper we develop and apply analytical methods that have been used to study similar problems of clustering in the context of three-dimensional MRI images of blood flow in the brain. Local statistics for each region are first derived by using a Gaussian-based kernel to create a smoothed map of incidence rates. The width of the kernel is chosen to match the size of the potential cluster. Then a critical value for the maximum local statistic is derived; this critical value is dependent upon the size of the study area, the width of the kernel, and the probability of a Type I error. The maximum local statistic is then compared with the critical value to determine whether significant clustering is present. Application is made using GIS to breast cancer data in New York State and to cancer data from the state of Kentucky. [Contact: Peter at email rogerson@acsu.buffalo.edu]

4. *“Selection of Areal Units for Mapping Cancer Incidence and Mortality Rates by State Cancer Registries,”* **Gerard Rushton**, Department of Geography, The University of Iowa, Iowa City, IO. Abstract: Many state cancer registries are being asked to make cancer incidence and mortality data available

through web sites and other means. Controversy in several states surrounds selection of the appropriate areal unit for releasing and displaying this information. In this paper I present advice I gave the New York and California State Departments of Health in two invited public presentations. I recommend that geocoded cancer surveillance and demographic data be maintained for basic spatial units. These are then manipulated in adaptive spatial algorithms designed to meet the particular needs of the many different users of this information. Several such algorithms are described. The question of THE appropriate spatial unit for mapping is not the appropriate question. [Contact: Gerry at email Gerard-rushton@uiowa.edu]

5. *“GIS-Derived Density Surfaces and LSPs Of Afflicted Persons,”* **Susan Elshaw Thrall**, Computer Science Department, Lake City Community College, Lake City, FL; **Grant Ian Thrall**, Department of Geography, University of Florida, Gainesville, FL, and **Charles M. Croner**, Office of Research and Methodology, National Center for Health Statistics, Centers for Disease Control and Prevention, Hyattsville, MD. Abstract: A variety of GIS-based spatial analytic methods, that have been developed and applied in business geography, are appropriate for use in public health care planning. The GIS-based kernel method of deriving retail customer density surfaces, using the same GIS software and procedures, also can be used in public health to derive surfaces of persons with either contagious ailments, exposures suspected of being associated with the environment, or a variety of other health-related conditions. Based on geocoded information, related lifestyle segmentation profiles (LSPs) have demonstrated success in targeting likely consumers in business geography. Neighborhood contextual characteristics of consumers can be easily identified on a map. Likewise, LSPs can be used to facilitate more focused or cost-effective disease surveillance and prevention interventions for State and local public health departments.

We present a case study using GIS-based kernel density surface estimation and LSP databases regarding an issue of litigation between a State and several healthcare providers. The State contends that selected healthcare providers that receive state assistance in the

form of block grants have not been providing healthcare in accordance to the provisions of the contract. The contract stipulates that the healthcare providers will provide services to persons that are without the means to otherwise pay for medical services. Using address records of discharged patients, we apply a GIS-based kernel density surface generating method to derive trade areas for the contracted hospitals. The procedure can substantiate whether or not there is a significant frequency of needy persons that travel outside of selected hospital trade areas to receive medical treatment. Evidence of significant travel outside of the contracted hospital's trade area might suggest or support litigation that the contracted healthcare providers are discouraging those patients from receiving healthcare from their facility. LSPs of the discharged patients are derived. LSPs are used to characterize patients that remain within the hospital's trade area for medical services, in contrast to those who travel outside of the trade area. Keywords: GIS, kernel density estimation, public health [Contact: Susan at email thralls@mail.lakecity.cc.fl.us]

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on a variety of key health data issues. The Committee is composed of 18 individuals from the private sector, sixteen of whom are appointed by the Secretary of HHS for terms of four years each; with about four new members being appointed each year. Two additional members are selected by Congress]

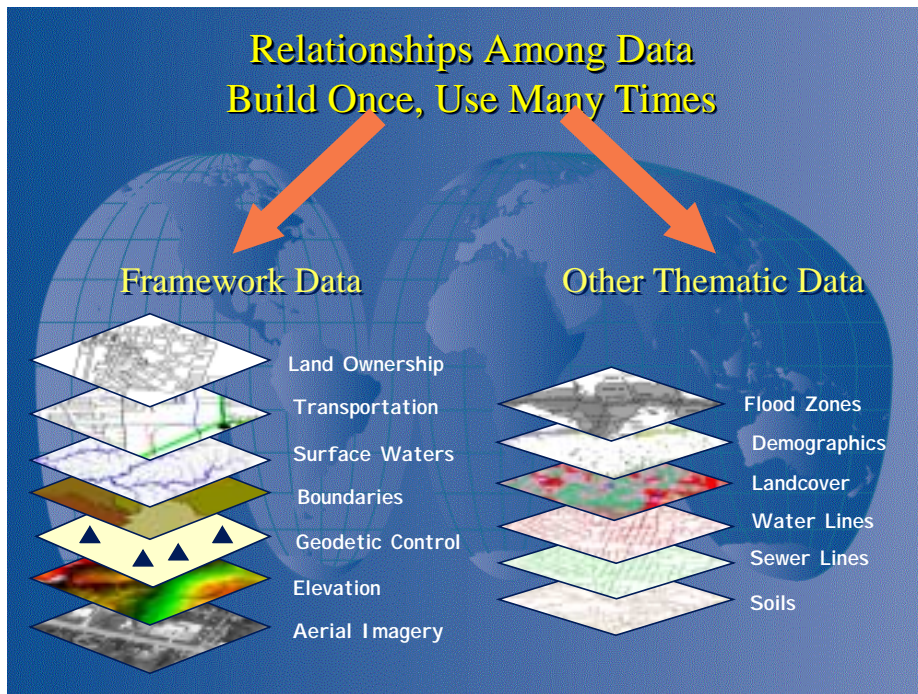
Information about NCVHS meetings may be accessed at the NCVHS homepage <http://www.ncvhs.hhs.gov/>

Federal Geographic Data Committee (FGDC)

[The Federal Geographic Data Committee (FGDC) is an interagency committee, organized in 1990 under OMB Circular A-16, that promotes the coordinated use, sharing, and dissemination of geospatial data on a national basis. The FGDC is composed of representatives from seventeen Cabinet level and independent federal agencies. The FGDC coordinates the development of the National Spatial Data Infrastructure (NSDI). The NSDI encompasses policies, standards, and procedures for organizations to cooperatively produce and share geographic data. The 17 federal agencies that make up the FGDC (pending DHHS membership) are developing the NSDI in cooperation with organizations from state, local and tribal governments, the academic community, and the private sector. See <http://www.fgdc.gov>]

VI. Related Census, DHHS and Other Federal Developments

News from the National Committee on Vital and Health Statistics [The NCVHS serves as the statutory [42 U.S.C. 242k(k)] public advisory body to the Secretary of Health and Human Services in the area of health data and statistics. In that capacity, the Committee provides advice and assistance to the Department and serves as a forum for interaction with interested private sector groups



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FGDC December 5, 2000 Coordination Meeting Notes

(The full report will be posted at the FGDC website:

http://www.fgdc.gov/fgdc/coorwg/2000/cwgmin_2000.html)

2001 NSDI Cooperative Agreements Program (CAP)-

Approximately \$1,000,000 is available for supporting CAP projects in FY 2001. There are four funding categories: support for metadata implementers needing training and experience documenting data holdings; metadata trainers to provide training and assistance to organizations needing that assistance; technical projects implementing clearinghouse integration with web mapping (based on OpenGIS Web Mapping Specifications), and; projects supporting collaborative framework projects over common geography in the US and Canada. The open period for the 2001 CAP program will begin January 2001. [Contact: See <http://www.fgdc.gov/funding/duck/2000cap.pdf> or contact David Painter, FGDC staff, at voice (703) 648-5513 or email dpainter@usgs.gov]

E-MAP - Dave Nystrom, HUD and Todd Rogers, ESRI presented an urban land planning tool for users who will not know that they are using a GIS. This is a HTML product and a result of collaboration between HUD, EPA, Census and ESRI. Information is linked to demographic, environmental, housing and programmatic databases for geographic display. E-MAP can be accessed at <http://hud.gov/emaps>.

FGDC November 7, 2000 Coordination Meeting Notes

"Geographic Information for Policy Makers: Power of Place to Support Decision Making." Hank Garde, State of New Jersey, demonstrated the CD-ROM presentation "Geographic Information for Policy Makers: Power of Place to Support Decision Making." The CD is in response to the FGDC Design Study Team recommendation to develop tools that can be used to help build a better understanding and awareness of the value of spatial data and the NSDI. The development of the CD is an effort that involved NSGIC, FGDC and a local government and private sector representative. The CD consists of slide and video presentations that can be used to help explaining GIS, GeoSpatial data and the NSDI to management and decision-makers. Policy "drivers" such as crime, environment, hazards etc., which occur geographically, are used persuasively to show managers the results of basing good decisions on good geographic information. State, regional and

local case studies are provided to quantify the difference that efficient GIS allows. CD can assist in quickly making the case of GIS investment in transitioning to the new administration. The CD is a work in progress and organizations are encouraged to begin using it and provide feedback and more and detailed case studies. For more information contact Hank Garde or Bruce McKenzie who will also make copies of the CD will available to FGDC Agencies and Stakeholders. The material will also available at the FGDC Website.

OMB GeoSpatial Initiative Update- John Moeller, FGDC Staff Chief, reported that the OMB GeoSpatial Initiative Webpage has been established. Organizations interested in forming an Implementation Team (I-Team), can register through the Web Form. Templates providing guidance are available for states expressing interest in I-Team implementation. This is a guidance document for organizations to work against and consists of a one-page example of what the plan should consist of. The Framework Map Graphic Clearinghouse initiative headed by Doug Nebert, FGDC, has received comments on its implementation and will be on-line in a few weeks. This should be a good resource for I-teams. Looking for I teams to provide local bottom up focus where states and local federal agency participants will bring together those interested, and for federal theme lead agencies to assist and participate with I-team as needed. It is expected that federal agencies will participate extensively with I-Teams.

The lead Federal agencies designated in OMB circular A-16 with respect to each Framework layer are: Digital Ortho Photography, USGS and NRCS; Elevation, USGS; Geodetic Control, NGS; Administrative Boundaries, Census; Ground Transportation, DOT; Hydrography, USGS, EPA; Cadastral, BLM. Beginning October 15, each State or region establishing an I-Team may submit a general working plan and time schedule to complete the state or region's 7 basic Framework layers, and other layers and categories of data agreed upon by the Team, to the Federal Partners for posting on the FGDC Website. Plans should be consistent with the principles of the NSDI and should address maintenance requirements, distribution strategies, performance and outcome

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measures, data stewardship responsibilities, known financial requirements and options, and relevant public policy issues such as public access, privacy and security. Plans should be in 90-120 day segments, so that progress and performance can be more readily measured, and work product disseminated more quickly to the public and the FGDC Clearinghouse. Plans should identify "burning issues" such as flood plain mapping, transportation gridlock, safety, GASB 34 compliance, economic development, and wetlands and other environmental protection.

The FGDC should ask each Team to use, develop, and test Framework standards and implementation tools. If standards and implementation tools exist, Teams should use them and test them. If they don't exist, a Team should work with the appropriate lead Federal agencies to develop standards, and then use and test them. The FGDC will ask Federal Partners and Teams to coordinate in the development of needed standards and implementation tools. [For I-Team template form and further information on "OMB Information Initiative: Collecting Information in The Information Age," GeoSpatial Information Roundtable, Summary of Proceedings, see <http://www.fgdc.gov/I-Team.html>]

Map-on-Demand Kiosks are Coming for USGS Maps

Have you ever seen a map vending machine? Well, hold on, because the U.S. Geological Survey and Wildflower Productions are exploring new technology that will let you walk into a USGS office and print a customized topographic map from a self-service kiosk. By storing maps digitally and combining them with Wildflower map-on-demand software, the kiosks will help USGS customers get the exact map they need by insuring that maps are never out of stock and allowing customers to define their own map boundaries. "The vending machine concept for serving USGS maps will put these maps at the public's fingertips at a time of growing geographic awareness," said Hedy Rossmeissl, USGS senior program advisor. "Customizable maps such as those produced using Wildflower software are the way of the future."

As part of a cooperative research and development agreement, the USGS and Wildflower will begin by developing systems that offer USGS

topographic maps for geographic areas that are in high demand. The USGS's initial contribution will include paper maps for scanning, digital elevation data, and geographic names data. Wildflower will be responsible for the majority of the data production: scanning, georeferencing, storing and integrating the data with its map-on-demand software and kiosk hardware.

Wildflower will place three or more prototype kiosks for public use in the USGS Earth Science Information Centers. These will be in Denver, CO, Menlo Park, CA, and Reston, VA. Using the database in the kiosks, customers will be able to center their map on their area of interest regardless of quadrangle boundaries. Maps will also incorporate shaded relief to make it easier for customers to interpret the contour lines on the maps. The responses of customers will be a key factor in determining the additional map information that will be incorporated into the map-on-demand kiosks. [Contact: Kathy Covert at email klcovert@usgs.gov or visit http://www.usgs.gov/public/press/public_affairs/press_releases/pr1211m.html]

Web Site(s) of Interest for this Edition

<http://landview.census.gov/geo/landview/lv4page.html>
LandView® IV: The Federal Geographic Data Viewer. The LandView IV product replaces LandView III and contains both database management software and mapping software that: (a) Presents detailed information for EPA-regulated sites and maps their locations, (b) Maps point features from the U.S. Geological Survey's Geographic Names Information System (GNIS)- the GNIS contains geographic names for all known populated places, features, and areas in the United States that are identified by a proper name, (c) Maps a detailed network of major and minor roads, rivers, and railroads for the entire United States based on TIGER/Line® 1998 files, and (d) contains 1990 Census demographic and socioeconomic data from the U.S. Census Bureau along with 1990 Census maps of legal entities (states, counties, cities & towns, and congressional districts) and statistical entities (such as census tracts and block groups). LandView IV on DVD provides a seamless set of maps and data for the entire U.S. on one disc and, for the first time, allows for radius calculations across combinations of state boundaries.

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<http://www.diggo.org/about/mission/index.cfm> The objective of the Digital Government Program or dg.o is to support innovative projects that effectively and broadly address through research the potential improvement of agency, interagency, and intergovernmental operations and/or government/citizen interaction. Such research is expected to enable the generation and use of a continuous stream of advanced information technologies for early adoption and integration into the government information systems community. The program promotes National Science Foundation (NSF)-sponsored emergent information technologies research by creating partnerships between academic researchers, government agencies, and the private sector. Government agencies affiliated with dg.o, are known as the "Digital Government Consortium." [See Final Thoughts, this edition for summaries of several innovative spatial data research projects supported by dg.o]

<http://www.firstgov.gov/> Welcome to FirstGov- the first-ever government website to provide the public with easy, one-stop access to all online U.S. Federal Government resources. FirstGov allows users to browse a wealth of information- everything from researching at the Library of Congress to tracking a NASA mission. [Editor: There truly is a wealth of resources at this site. I entered "GIS" and was returned nearly 210,000 matches]

http://www.census.gov/geo/www/gis_gateway.html Lisa Nyman at the Bureau of Census maintains "The GIS Gateway" page which has many useful GIS resources on the Internet. There also is an index of frequently asked questions (FAQ) about Geographic Information Systems (GIS) along with answers to these questions.

<http://books.nap.edu/catalog/9939.html> *Promoting Health: Intervention Strategies from Social and Behavioral Research* (Advance Copy-Uncorrected Proofs)- This report can be read online. "...risk behaviors account for approximately half of preventable deaths in the United States. In addition, health care expenditures on chronic and preventable diseases and injury account for nearly 70% of all medical spending

(Fries et.al. 1993). These data illustrate the tremendous toll, in both economic and human costs, of poor health behaviors and suggest strongly that initiatives to develop and implement effective interventions to reduce risk behaviors are an important component of efforts to improve the nation's health and to lower health care costs."

www.silentspring.org Cape Cod Breast Cancer and Environment Atlas. Silent Spring Institute is now making new Cape maps available in an electronic atlas. These maps provide a record of how the Cape has changed over the past fifty years and may include clues to environmental exposures that affect the health of its residents. Silent Spring Institute is using GIS in the Cape Cod Breast Cancer and Environment Study to look for preventable causes of breast cancer on Cape Cod. Over the next year the Institute will be using GIS to assess exposures in an epidemiologic study of 2100 Cape Cod women with and without breast cancer. By bringing together electronic data from many different sources, the Institute has created a rich resource for studying breast cancer and other health problems. [Contact: Steven Melly at email melly@silentspring.org]

<http://www.ngdc.noaa.gov/seg/topo/topo2.shtml> NOAA's Digital Terrain Data: Scientific Discussion on Digital Elevation Models (DEMs). "Now that we are entering the digital age, one may ask 'what are digital topographic data, and how should they be prepared and presented?'" An informative discussion and a variety of DEM views are available for viewing. There also is a data set called the National Elevation Dataset, that is seamless DEMs. It is available for the entire US at a cost of about \$54,000. The website to read more about this dataset is <http://edcnst12.cr.usgs.gov/ned>. These data are in 30m resolution and based on 1:24,000 DEMs.

<http://typhoon.sdsu.edu/cgis/index.html> Colloquium on GIScience and Vector-Borne Diseases (Sponsored by the UCGIS and USGS in cooperation with the Center for Pacific Rim Health Studies), January 3-5, 2000, San Diego, CA- List of useful references by Duane Marble,

The Ohio State University. Connect with link
“Participant Questionnaire Responses.”

Final Thought(s)

Spatial Data Research Activities of the Digital Government Consortium: Planting for the Future

As we enter the new millennium, and year 2001, there are many fronts on which spatial data initiatives and activities have emerged. I think many will come to fruition and, in time, help contribute to a relatively well defined, coherent, and cost-effective National Spatial Data Infrastructure (NSDI).

In the last edition I spoke about new and exciting spatial data developments in crisis response and management (see “The National Spatial Data Infrastructure: New Developments in Crisis Response and Management,” November 2000, No. 37). Now I want to report on another “frontier,” that being the spatial data research agenda supported by Digital Government grants. This is spatial data science in the making. The Digital Government Consortium meets regularly to review the progress of these grants. I want to familiarize you with several of these grants (although there are nearly 30). They are led by academic colleagues and in collaboration with other institutional partners. This is creative research. Importantly, the success of their efforts may well accelerate the advancement of NSDI and impact the deployment of our respective information technology resources.

In random order, the project “**Knowledge Management Over Time-Varying Geospatial Datasets,**” is led by Peggy Agouris (Principal Investigator), Department of Spatial Information Engineering, National Center for Geographic Information & Analysis (NCGIA), University of Maine and Co-Investigators Anthony Stefanidis and Kate Beard (University of Maine), Vassilis Tsotras (University of California-Riverside) and Mark Gahegan (Pennsylvania State University). Geospatial datasets are collected and processed by a variety of Federal Agencies. Such data and the information contained therein are of use to a practically limitless array of Federal and State Agencies, and private companies. Advancements in sensor technology, computer hardware and software have resulted in the availability of huge amounts of diverse types of geospatial datasets. The objective in this project is to facilitate the integration of those datasets across space and time, and to improve knowledge management over such time-varying geospatial datasets. In doing so, accessibility to the information will be improved, making it more useful to groups of users that are constantly increasing and diversifying.

Four complementary challenging research issues which are keys to realizing the integration and improved access to the information content of heterogeneous time-varying geospatial datasets are addressed: (1) Development of a geospatial knowledge management framework to provide the syntax, context, and semantics for researching, understanding, and leveraging technical and human behaviors related to spatial understanding and work. (2) Development of novel meta-information concepts to convey summaries of heterogeneous datasets (focusing especially on raster and vector spatial datasets). This is a step towards next generation geospatial metadata, where we take advantage of modern computer capabilities to convey the actual content of datasets. (3) Development of efficient techniques for discovering sequential patterns in spatio-temporal data sets. Sequential patterns are important as they take into account not only the spatial characteristics of a sequential event but also the time order by which the event components happened. (4) Integration of the above issues to support spatio-temporal reasoning for the extraction of complex information through scene modeling and analysis processes. Partnering agencies for this research include National Imagery and Mapping Agency (NIMA), USDA National Agricultural Statistics Service (NASS), US Army Topographic Engineering Center (TEC), Federal Geographic Data Committee (FGDC), BAE Systems, and Open GIS Consortium, Inc. [Contact: Peggy at voice (207) 581-2180 or email peggy@spatial.maine.edu]

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The project **“Collecting and Using Geospatial Data in the Field: An Extensible Framework And Testbed,”** is led by Sarah Nusser (Principal Investigator), Department of Statistics & Statistical Laboratory, Iowa State University and Co-Investigators Michael F. Goodchild and Keith C. Clarke (University of California, Santa Barbara) and Leslie L. Miller and George F. Covert (Iowa State University). A wide array of federal, state, and local agencies collect and analyze data to carry out their missions, evaluate programs and services, or provide information on characteristics of the population and the economy. A significant portion of these activities require mobile data collection in the field, although the nature of the field data collection environment is extremely variable, ranging from federal surveys with strict protocols for using information resources to crisis management applications with ad hoc data collection and information resource needs. This research focuses on developing a new paradigm for mobile computer-assisted data collection that broadens the types of data used as critical information resources and as objects of data collection. In particular, it will transcend traditional text and numeric data usage to fully and flexibly integrating distributed geospatial information resources in mobile data collection activities. Partnering agencies for this research include the Bureau of the Census, National Agricultural Statistics Service (NASS), Natural Resources Conservation Service (NRCS), U.S. Forest Service and BAE Systems. [Contact: Sarah at voice (515) 294-9773 or email nusser@iastate.edu]

The project **“Collaborative Research: Quality Graphics for Federal Statistical Summaries,”** is led by Alan M. MacEachren (Principal Investigator) and Co-Investigator Cynthia Brewer (Department of Geography, Pennsylvania State University). The objective of this proposed research is to develop and assess quality graphics for federal statistical summaries. The development and assessment process will consider perceptual and cognitive factors in reading, interacting with, and interpreting statistical graphs, maps, and metadata representations. The purposes of the quality graphics include exploration by agency users evaluating data quality and looking for emergent trends, decision making by public policy makers, and communication of statistical summaries to the public. This is a "Collaborative Research" project with three integrated research teams. The two other Principal Investigators include Dan Carr at George Mason University (also overall project director) and David Scott at Rice University. Partnering agencies include Bureau of Labor Statistics (BLS), Census Bureau (Population Division), National Cancer Institute (NCI), Environmental Protection Agency (EPA) and Energy Information Agency (EIA). [Contact: Alan at voice (814) 865-7491]

The project **“I2T: An Information Integration Testbed for Digital Government,”** is headed by Chaitan Baru, University of California San Diego (UCSD) and Co-Investigators Yannis Papakonstantinou (UCSD), Robert Hollebeek (University of Pennsylvania), Richard Rockwell (University of Michigan) and Amarnath Gupta (UCSD). Their goal is to extend the XML-based information mediation architecture developed at SDSC to provide support for mediating statistical and geospatial information sources. This involves providing geospatial and statistical extensions to XML query languages; identifying and defining appropriate metadata in order to deal with heterogeneity in accuracy, resolution, feature space, and schema, and incorporating such metadata as an integral part of query processing; and, developing query processing techniques in an environment where data values are probabilistic or associated with ranges, rather than being exact quantities. They plan to work closely with the U.S. Census Bureau and BLS. Work on this project will incorporate experiences of the FERRETT and DataWeb projects at Census/CDC. Partnering agencies include U.S. Bureau of the Census, Bureau of Labor Statistics, National Archives and Records Administration, U.S. Geological Survey and the San Diego Association of Governments. [Contact: Chaitan at email baru@sdsc.edu]

Editor: There are a variety of other research projects which await further reading at <http://www.diggov.org/about/GrantRecipients/index.cfm>. Topics range from “Citizen Access to Government Statistical Data” to “Issues

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in the Development of Spatial Spreadsheets and Browsers” to “Representation and Distribution of Geospatial Knowledge.” I think you will agree this is an exciting research agenda for the future uses of spatial data.

Charles M. Croner, Ph.D., Editor, ***PUBLIC HEALTH GIS NEWS AND INFORMATION***, Office of Research and Methodology, National Center for Health Statistics, e-mail cmc2@cdc.gov. While this report is in the public domain, the content should not be altered or changed.

NCHS GIS Web Page at http://www.cdc.gov/nchs/about/otheract/gis/gis_home.htm