

# PUBLIC HEALTH GIS NEWS AND INFORMATION

July 2000 (No. 35)

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

**Selected Contents:** Events Calendar (pp. 1-2); (p. 10); Special Reports (pp. 11-14); GIS (pp.19-22); Website(s) of Interest (pp. 22-23);



News from GIS Users (pp. 2-10); GIS Outreach Lectures (pp. 14-19); DHHS and Federal Update Final Thoughts (pp.23-24)

## I. Public Health GIS (and related) Events SPECIAL CDC/ATSDR GIS LECTURES

- (1) **July 19, 2000**, 2:00-3:15P.M., **"Reducing Uncertainties in Applying Spatial Analysis in Environmental Health Research,"** Nina Lam, National Science Foundation and R. J. Russell Professor of Geography, Louisiana State University;
- (2) **July 27, 2000**, NCHS 2000 DATA USERS CONFERENCE, GIS Session, 10:30A.M.-NOON, **Hyatt Regency**, Bethesda, MD. Presentations: **"Using Mortality Data for Geographic Distribution of Respiratory Disease, United States: 1982-1993"-- "Concentrations of Risk in Urban North America"-- "Individuals in Context: Local Characteristics and NCHS Sample Surveys"-- "Automated Mapping Research Tool for NCHS Mortality Data"** or **"Perspective on GIS and Geographic Scale in Disease Surveillance and Prevention"** [Note: See abstracts this edition];
- (3) **September 7, 2000**, 2:00-3:15P.M., **"Crime Mapping, Privacy, and Data Confidentiality,"** by Debra Stoe, Crime Mapping Research Center, U.S. Department of Justice. [The July 19 and September 7 programs will be held at the NCHS Auditorium, **RM1100**, Hyattsville, MD; Envision is available to offsite CDC/ATSDR locations; See abstracts this edition. Note: Cosponsors to the NCHS Cartography and GIS Guest Lecture Series include CDC's Behavioral and Social Science Working Group (BSSWG) and Statistical Advisory Group (SAG). All NCHS GIS and mapping presentations are open to the public; Program Contact: Chuck Croner at email [cmc2@cdc.gov](mailto:cmc2@cdc.gov)]

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

L IXth International Symposium in Medical Geography (ISMG), "An agenda for the Geography of health and Health Care in the New Century," July 3-5, 2000, Montreal, Canada [See: <http://www.attcanada.net/~geo2000/>]

K International Symposium on Schistosomiasis, "Schistosomiasis control towards the 21st century," July 4-6, 2001, Shanghai, China [See: <http://202.106.81.66/r/main.htm>]

L The International Conference on Emerging Infectious Diseases 2000 (ICEID 2000), July 16-19, 2000, Atlanta, GA [See: <http://www.asmta.org/mgsrc/iceid99main.htm>]

K International Conference on GIS in Education, July 17-19, 2000, Cal State University, San Bernadino [See: <http://dcr.csusb.edu/cel/conferences/gis/>]

L Geographical Domain and Geographical Information Systems, EuroConference on Ontology and Epistemology for Spatial Data Standards, September 22-27, 2000 La Londe-les-Maures, France [See: <http://www.esf.org/euresco/00/lc00153a.htm>]

K 2000 Snowbird Ecological Society of America and 85<sup>th</sup> Annual Meeting, August 6-10, 2000, Snowbird, UT [See: <http://esa.sdsc.edu/snowbird2000.htm>]

L 9th International Symposium on Spatial Data Handling

## PUBLIC HEALTH GIS NEWS AND INFORMATION

July 2000 (No. 35)

2

(SDH), Geographical Union's Study Group on Geographical Information Science, August 10-12, 2000, Beijing, P.R.China [See: [www.hku.hk/cupem/igugisc/sdh2000](http://www.hku.hk/cupem/igugisc/sdh2000)]

**K** First Conference on Occupational and Environmental Health (under the Framework of Integration of the Americas), August 13-16, 2000. Morelia, Michoacan, Mexico. [Contact: Carlos Eduardo Siqueira, Department of Work Environment, University of Massachusetts at Lowell [Carlos\\_Siqueira@uml.edu](mailto:Carlos_Siqueira@uml.edu) Lowell]

**L** 12th Annual Meeting of the International Society for Environmental Epidemiology (ISEE2000), "Environmental Epidemiology in Pan America and the World: Building Connections," August 19-23, 2000, University at Buffalo, Buffalo, NY [See: <http://63.236.75.185/welcome.asp>]

**K** Intergeo 2000: Geodesy for the New Millennium, September 1-3, 2000, Berlin, Germany [See: <http://www.intergeo.de/estart.htm>]

**L** XML World 2000, September 5-8, Boston, MA [See: <http://www.xmlworld.org/welcome.htm>]

**K** 6th Annual GEOAsia Pacific Conference and Exhibition, "Understanding and Managing Our Geospatial World," October, 1-4, 2000, Bangkok, Thailand [See: [http://www.geoplace.com/asia\\_conference/default.asp](http://www.geoplace.com/asia_conference/default.asp)]

**L** GIScience 2000, First International Conference on Geographic Information Science, October 28-31, 2000, Savannah, GA [<http://www.giscience.org/>]

**K** The Sixth International Congress of Behavioral Medicine, "Behavioral Medicine and Public Health in the New Millennium," November 15-18, 2000, Brisbane, Australia [See: <http://www.icbm2000.conf.au>]

**L** 15th National Conference on Chronic Disease Prevention and Control, "Living Healthier, Living Longer: The Will and the Way," November 29-December 1, 2000, Washington, DC [See: <http://www.cdc.gov/nccdphp>]

**K** 8<sup>th</sup> Biennial Symposium on Statistical Methods, "Issues Associated with Complicated Designs and Data Structures." Centers for Disease Control and Prevention (CDC) and the Agency for Toxic Substances and Disease Registry (ATSDR), January 23-24, 2001, Atlanta, GA [See: <http://www.cdc.gov/od/ads/sag/instrux.htm>]

## II. GIS News

*(Please communicate directly with colleagues on any of the following issues)*

### A. General News and Training Opportunities

1. From **Nancy LaVigne**, U.S. Department of Justice: **(a)** The Bureau of Justice Statistics (BJS) has just released a solicitation for grant applications under the National Incident Based Reporting System (NIBRS) Program on the BJS website at <http://www.ojp.usdoj.gov/bjs/abstract/nibrsip.htm>. Applications are due by July 31, 2000. [Contacts about the solicitation: Charles Kindermann at voice (202) 616-3489 or email [kinderma@ojp.usdoj.gov](mailto:kinderma@ojp.usdoj.gov), and Carol Kaplan at voice (202) 307-0759 or email [kaplanc@ojp.usdoj.gov](mailto:kaplanc@ojp.usdoj.gov)]; **(b)** NIJ has recently announced a new School Safety Research and Evaluation Solicitation: While law enforcement often plays a central role in school safety, there has been little research to determine the optimal role of law enforcement in collaborating with schools and communities to ensure a safe school environment. NIJ, in collaboration with the Office of Community Oriented Policing Services, is requesting applications on research and evaluation of the role of law enforcement in school safety and security to partially address this lack. Three to six proposals will be funded and will total \$1 million. An earlier solicitation, "National Assessment of School Resource Officer Programs," is underway and applicants should avoid duplicating efforts. More information on this earlier solicitation may be obtained through the Department of Justice Response Center (800) 421-6770. For more information on law enforcement's role in schools, please consult the "School Safety Research and Evaluation" solicitation (SL000428). [The full solicitation may be downloaded from <http://www.ojp.usdoj.gov/home.htm>. The application deadline is July 26, 2000]

## PUBLIC HEALTH GIS NEWS AND INFORMATION

July 2000 (No. 35)

3

2. David **Buckeridge**, University of Toronto: At the national level, Health Canada has formed an 'Office of National Health Surveillance', which has a few initiatives in the area of GIS. One involves working with a province (Alberta) to develop a pilot web-based GIS for regional and provincial public health surveillance. The system, known by the acronym 'SPHINX' (Spatial Public Health INformation eXchange) is coming to the end of the pilot phase this year, and is undergoing evaluation prior to deciding on next steps. During the pilot phase, the system was limited to the province of Alberta, and data on notifiable communicable diseases, some environmental data (e.g. water quality, livestock distribution), and I believe some chronic diseases (e.g. breast cancer, diabetes). The Office of National Health Surveillance also has a broader GIS initiative which is attempting to develop a central repository of health-related geographic boundary files, and looking into issues around geographic data and metadata standards to support national surveillance. [Contact: David, Department of Public Health Sciences, at email david.buckeridge@utoronto.ca]

3. From **Pierre Lucas**, World Health Organization: From June 12-15, 2000, the "Second Regional Workshop on Human African Trypanosomiasis (HAT) Surveillance network in Africa" was organized in Yaounde-Cameroon, by WHO in collaboration with the Swiss Tropical Institute (Basel). Twenty persons from nine African countries participated to this meeting: Angola, Cameroon, Congo, Côte d'Ivoire, Central African Republic, Democratic Republic of Congo, Equatorial Guinea, Sudan, and Uganda. This meeting was an opportunity for all the participant to make a point on the HAT mapping progress. Since 1996, 2,980 sleeping sickness endemic villages have been georeferenced by the control team involved at the field level in Central Africa and 24 endemic foci have been partially mapped. The information and indicators of the GIS used by each national program were also discussed. [Contact: Pierre, WHO Cameroon, at email lucaswho@camnet.cm]

4. From **Chris Skelly**, Ministry of Health, New Zealand: 18 months ago, we began two parallel projects nationally. The first was to develop an online Public

Health Early Warning (PHEW!) System, based on ESRI's IMS product, to deliver summarized information for a range of administrative scales (local government, health district, public health service districts and the north and south islands as a whole). Currently, everyone in our health system has access to notifiable disease numbers, rates, cumulative summation stats (indicator of differences between two time periods, now and same period in the past) and local anomaly stats (indicator of whether their administrative district is different than other districts during the same period). The data is updated weekly, and when we log into the system we now expect that the data is never more than two weeks out of date (very proud of this, but it has more to do with the fact that we had a very good underlying surveillance system). An additional module we are still developing is the ability to query all the drinking water zones in the country as to the grade (quality) of the water, soon we will add microbiological information and in two years we will be producing rates of enteric illness by water distribution zone. [Note: (1) I haven't written up this work yet. If anyone is doing similar work overseas and would like to make a joint submission to a journal I'd be really keen and (2) while the system is up and running and pumping out the numbers, I'd rather not have everybody in the world logging in, but if you have a professional interest, please email me and I will set you up with access.]

The second project was to get desktop GIS (we choose ArcView) into all the regional public health services. We are almost there and by the end of this July every office will have a modest capacity. The project has three aims (1) provide the ArcView tools, (2) nationally common data sets and (3) training and targeted projects development (i.e. not just tool training, but assistance in getting projects useful to each unit off the ground). Data sets include for each region and for the entire country for national groups: digital 1:50K topo series for New Zealand, which is now royalty free (i.e. cheap), major administrative boundaries, water distribution zones, address points (which we have built directly into our notifiable disease database so that we have point of entry address validation), and most recently we have added a one year trial licence for all our road and address networks. The one major data source that we need to get

**PUBLIC HEALTH GIS NEWS AND INFORMATION**

July 2000 (No. 35)

4

on top of is our national census, which is still expensive, but becoming more affordable. [Contact: Chris, Senior Advisor (Environmental Health), at email [Chris\\_Skelly@moh.govt.nz](mailto:Chris_Skelly@moh.govt.nz)]

5. From **David Parrish**, USEPA: Environmental Justice: Partnerships for Communication (See: <http://grants.nih.gov/grants/guide/rfa-files/RFA-ES-00-007.html>), National Institute of Environmental Health Sciences. Purpose. The purpose of this program is to strengthen the National Institute of Environmental Health Sciences (NIEHS) support of research aimed at achieving environmental justice for socioeconomically disadvantaged and medically underserved populations in the United States. One goal of the NIEHS is to stimulate investigative efforts that attempt to address questions related to the influence of economic and social factors on the health status of individuals exposed to environmental toxicants. This component of the research program in environmental justice is designed to stimulate community outreach, training, research and education efforts that will become the catalyst for reducing exposure to environmental pollutants in underserved populations. The main objective of this RFA is to establish methods for linking members of a community, who are directly affected by adverse environmental conditions, with researchers and health care providers and to enable this partnership to develop appropriate research strategies to address environmental health problems of concern.

This effort will ensure that: The community is aware of basic environmental health concepts, issues, and resources; The community has a role in identifying and defining problems and risks related to environmental exposures; The community is included in the dialogue shaping research approaches to the problem, and; The community actively participates with researchers and health care providers in developing responses and setting priorities for intervention strategies. One aim of this program is to facilitate the process of developing the trust needed for establishment of effective partnerships among individuals who are adversely impacted by an environmental hazard in a socioeconomically disadvantaged community, researchers in environmental

health, and health care providers. Once this aim is achieved, the collaborative team should then be able to initiate a research program that incorporates all parties and seeks to reduce exposure to or health impact from an environmental contaminant.

HEALTHY PEOPLE 2010. The Public Health Service (PHS) is committed to achieving the health promotion and disease prevention objectives of "Healthy People 2010," a PHS-led national activity for setting priority areas. This Request for Applications (RFA), "Environmental Justice: Partnerships for Communication," is related to one or more of the priority areas. Potential applicants may obtain a copy of "Healthy People 2010" (See: <http://www.health.gov/healthypeople/>). Research Objectives. Background: Americans want to live long and healthy lives, and the majority of them achieve that goal. In general, however, people who are economically disadvantaged and/or who live or work in areas and occupations where conditions impart greater exposure to hazardous substances are less likely to do so. At every stage of life, these persons suffer disproportionate levels of morbidity and mortality. Evidence suggests that certain groups, especially minorities and low-income communities, bear an uneven share of hazardous environmental exposures. Socioeconomically disadvantaged people suffer the lowest life expectancy and the highest adverse health consequences of inadequate access to high quality health care. Additionally, they most often experience the highest degree of exposure to environmental agents and frequently have the least information available about the health consequences of exposure to these agents. Environmental justice refers to the need to remedy the unequal burden borne by socioeconomically disadvantaged persons in terms of residential exposure to greater than acceptable levels of environmental pollution, occupational exposure to hazardous substances, and fewer civic benefits such as sewage and water treatment.

Geographic location plays an important role in environmental exposure of socioeconomically disadvantaged persons. Inner-city poor often live in homes with high lead levels. They may also be exposed to higher levels of air pollution. Toxic waste sites are

more frequent in rural, low socioeconomic counties in the United States. Nuclear facilities and chemical plants are often located in rural areas. Exposure to pesticides is another example where rural, socioeconomically disadvantaged populations area at a greater than average risk. Disadvantaged neighborhoods may rely on well water which may be polluted with toxic chemicals. In addition, medical care is often inadequate or unavailable to a significant proportion of the socioeconomically disadvantaged and minority people in America today. Lead poisoning and the cognitive and developmental damage associated with exposure to lead occur disproportionately among minorities. High blood pressure and prostate cancer are very common among African Americans. Low birth weight babies and other problems during pregnancy are common among groups of women who do not have access to good prenatal care. Some of these conditions or other diseases may have an environmental component in their etiology. The lack of resources for early identification of the effects of toxic agents may lead to an increased disease burden in people who are economically least able to cope with it. [Source: Dave at email Parrish.David@epamail.epa.gov]

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

6. From **Diane Drew**, OAA DHEP: Another interesting satellite broadcast is approaching. "Environmental Health: A Nursing Opportunity" will be aired on Thursday, August 10, 2000 from 12 Noon to 2:30 PM ET. Nurses are increasingly being asked to address health concerns associated with exposure to hazards present in the environment. This live, interactive satellite broadcast will address environmental health issues, including obtaining an exposure history, strategies for intervention and prevention, as well as related tools and resources to integrate into areas of nursing practice. Sponsors are the Agency for Toxic Substances and Disease Registry (ATSDR) and CDC's Public Health Practice Program Office and Public Health Training Network. [Registration: By Internet at <http://www.cdc.gov/phtn/envhealth/nursing.htm> or voice at (800) 815-8152; Contact: Diane at email [dhd6@cdc.gov](mailto:dhd6@cdc.gov)]

**Centers for Disease Control and Prevention**

7. **The Human Resources Management Office**, Organizational Development Branch, announces the following training opportunities, offered through the CDC Corporate University: (1) Advanced Programming in S-Plus, July 27-28, 2000. Description: This course concentrates on the programming issues that typically confront a reasonably advanced S-Plus user in doing data analysis. It will present extensive examples that illustrate important concepts and will cover special topics such as dynamic loading of compiled code. Objectives: Participants will learn about: General aspects of S programming; Syntax and semantic issues; Structure of the language; Programming paradigms; Recursion, its uses and abuses, and; Numerical computations and more on providing vectorization.

(2) Statistical Models in S-Plus, August 29-31, 2000. Description: This course covers the modeling methods available with the latest version of S-PLUS. It presents a brief introduction and background of several modeling methods, which include linear, ANOVA, generalized linear, generalized additive, tree based, nonlinear, mixed effects, and survival models. Using real world data, it will focus on fitting a model and interpreting the results. Objectives: Participants will learn about: Overview of Statistical Models in S-Plus; Object types and classes; Object orientation, and; Specifying models with formulas.

8. From **Richard Klein**, NCHS: Healthy People 2010 contains 467 objectives that identify specific measures to monitor health in the first decade of the 21st Century. Each objective includes a statement of intent, a baseline value for the measure to be tracked, and a target to be achieved by the year 2010. Objectives may include more than one measure. Each measure is shown separately in the database. Data for the population-based objectives may be presented separately for select populations, such as racial, gender, educational attainment, or income groups. The objectives are organized into 28 focus areas, each representing an important public health area.

In the area of GIS (23-3): "Increase the proportion of all major National, State, and local health data systems that use geocoding to promote nationwide

## PUBLIC HEALTH GIS NEWS AND INFORMATION

July 2000 (No. 35)

6

use of geographic information systems (GIS) at all levels. Target: 90 percent. Baseline: 45 percent of major National, State, and local health data systems geocoded records to street address or latitude and longitude in 1999. Target setting method: 100 percent improvement. Data source: CDC, NCHS. Context: Public health rests on information. The information technology revolution, including online systems, the Internet, and other electronic information systems, continues to expand both the volume and the accessibility of information. Increased use of geocoding in health data systems will provide the basis for more cost-effective disease surveillance and intervention. At the same time, challenges arise in synthesizing and disseminating the huge amount of available information, as well as ensuring that the data are scientifically accurate and have appropriate safeguards for confidentiality. The capacity to achieve national goals is related to the ability to target strategies to geographic areas.<sup>11</sup> Extension of geocoding capacities throughout health data systems will facilitate this ability.

A geographic information system is a powerful tool combining geography, data, and computer mapping. With GIS, digital maps and databases are stored with linked georeferenced identifiers to facilitate rapid computer manipulation, analysis, and spatial display of information. Geocoding (street address matching or assignment of latitude and longitude) will be the basis for data linkage and analysis in the 21st century. The versatility of GIS supports the exploration of spatial relationships, patterns, and trends that otherwise would go unnoticed.<sup>12</sup> In 1999, 10 of 22 major health data systems, defined as data systems responsible for tracking 5 or more Healthy People 2010 objectives, geocoded data. However, public access to data below the county level is prohibited or severely restricted because of confidentiality and privacy issues. A major challenge in the coming decade will be to increase public access to GIS information without compromising confidentiality.<sup>13</sup> [The Conference Edition can be accessed at <http://web.health.gov/healthypeople/document/tableofcontents.htm>; See Volume III, Part C, for a discussion of these major health data systems]

9. From **Dabo Brantley**, NCCDPHP CDC: Digital

Chart of the World is the best resource for shapefiles outside (and inside) the US that I have found. Its available by country with various political, hydrological, landcover, etc. layers for each country. Please see The Pennsylvania State University maproom website at <http://www.maproom.psu.edu/dcw/>. [Contact: Dabo at email [mdb4@cdc.gov](mailto:mdb4@cdc.gov)]

10. **CDC Statistical Advisory Group- Training:** A one day course in hierarchical models will be offered on August 9, 2000. It will be presented in Hyattsville because NCHS expressed a large, early demand (30 folks) and because the Symposium short course will be in Atlanta in January. This same course will be taught 5 days later at the JSM (course #00-16C). Course details can be found in the JSM registration booklet. The course will be envisioned to other CDC sites. [Contact: Harvey Lipman at email [hlipman@cdc.gov](mailto:hlipman@cdc.gov)]

11. From **Ed Hunter**, ODPL NCHS: A summary of recent activity in the Congress on issues of interest to NCHS has been completed and is available on OPBL's Intranet site. The table of contents is below. To view the report, you can click on <http://inside.nchs.cdc.gov/opbl/Legislation/newpage24.htm> and select "June 2000 Report on Legislative Activities". The report addresses the following topics: Budget and Appropriations; Health Insurance; Managed Care Reform; Health Care Quality; Youth Violence; Other Health Promotion Issues; Privacy and Confidentiality; Census 2000, and; Other Data Issues. [Contact: Kathy Moss, author of the report, at (301) 458-4387]

### National Institutes of Health

12. From **Ron Abeles**, Office of Behavioral and Social Sciences Research: Minority Students: As you are aware, the NIH has long been concerned about the underrepresentation of minority scientists participating in biomedical and behavioral research. Through its Research Supplements for Underrepresented Minorities Program, investigators with NIH grants may receive research support for underrepresented minorities on their grants. In order to facilitate the use of this program among behavioral and social scientists, the OBSSR has

developed a web page that will link underrepresented minority students with potential research mentors. [See Section II.C., this edition]

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

13. From **Ron Abeles**, Office of Behavioral and Social Sciences Research: Minority Students, Post-Docs, and Junior Faculty-Find Research Training Opportunities Online. Join the research team of leading behavioral and social scientists and jump start your research career. The Office of Behavioral and Social Sciences Research, National Institutes of Health, wants to help you build a research career in the behavioral and social sciences. We developed an interactive web site to help you find a mentor. How does it work? First, visit the OBSSR's *Minority Research Training Opportunities Web Page* to learn more about the program. Search for a mentor in your area of interest, and send your electronic application to the researcher with whom you would like to work. Then wait for the researcher to contact you to discuss the next steps. [For more details, see <http://www4.od.nih.gov/research/> or contact: Ron, Office of the Director, at voice (301) 496-7859 or email [abeles@nih.gov](mailto:abeles@nih.gov)]

14. The **Office of the Associate Director for Minority Health, CDC**, is pleased to invite you to attend the FY 2000 Project: IMHOTEP research project presentations. The presentations will be held August 10-11, 2000 Building 16, Clifton Road, Atlanta. Project: IMHOTEP students who have participated in Occupational Safety and Health research at NIOSH laboratories will present via envision from Cincinnati, OH; Pittsburgh, PA; and Morgantown, WV on August 10. Atlanta-based interns will present the results of their research, and a reception sponsored by Morehouse College will be held immediately following the of presentations, on August 11.

Project: IMHOTEP is an eleven-week summer internship program for minority students designed to strengthen knowledge and skills in epidemiology, biostatistics and occupational safety and health. The program also serves to increase interest in, and

awareness of, public health careers. Over the years, Project: IMHOTEP has had a significant impact on the number of minority students accepted for graduate study in these fields. In addition, the program has provided an excellent opportunity for students to gain one-on-one experience and establish lasting relationships with career CDC professionals, without whose dedication and commitment the summer program would not be possible. [Contact: Dottie Knight-Crawford at voice (404) 639-7210]

15. The **17<sup>th</sup> Annual Historically Black Colleges and Universities (HBCU) Summer Faculty GIS Workshop** took place in Washington D.C., June 14-16, at Howard University's Blackburn Center and School of Continuing Education, Silver Spring, MD. Organizers **Cynthia Warrick**, Howard University, and **Lee De Cola**, USGS, are responsible for the continuation of this **outstanding** program and tradition in GIS and HBCU learning. This year's workshop was termed the HBCU GIS and Environmental Science Conference: "GIS-Diversity in Opportunities and Partnerships." Through this instructional program, faculty from HBCU's and Minority Institutions (MI) gain expertise in GIS and learn to incorporate this technology into their academic instruction and research.

Colleges and universities represented at the 2000 conference included Alabama A&M University (AL), Bethune Cookman College (FL), Charles Drew University of Medicine & Science (CA), Delaware State University (DE), Elizabeth City State University (NJ), Florida A&M University (FL), Ft. Valley State University (GA), Howard University (D.C.), Jackson State University (MS), LeMoyne Owen College (TN), Meharry Medical College (TN), Morehouse College of Medicine (GA), Norfolk State University (VA), Oakwood College (AL), Savannah State College (GA), South Carolina State University (SC), Tennessee State University (TN), Tuskegee University (AL), Virginia State University (VA), and the University of the District of Columbia (D.C.). Several presentations were given by HBCU faculty who learned GIS in previous workshops and are now successful in introducing GIS technology at their respective institutions.

## PUBLIC HEALTH GIS NEWS AND INFORMATION

July 2000 (No. 35)

8

There were many other sponsors and exhibitors, from the federal government to industry to other non-university participants. These included the Bureau of Land Management, USGS, the U.S. Army Engineer Research and Development Center (Topographic Engineering Center), Office of Surface Mines, FEMA, National Imaging and Mapping Agency, National Park Service, US Fish & Wildlife Service, the FGDC, NCHS CDC, NIEHS, Crime Mapping Research Center (NIJ), Census Bureau, ESRI, Washington, D.C. Department of Health, the Howard University Urban Environment Institute, and others. Arthur W. Ray, Deputy Director, Maryland Department of the Environment, was keynote speaker. [There are opportunities for others to help support this wonderful tradition and all inquiries should be directed to Gloria Thurman, Howard University Urban Environment Institute, at voice (301) 585-2295 or email [gthurman@con-ed.howard.edu](mailto:gthurman@con-ed.howard.edu)]

### D. Other Related Agency or Business GIS News

16. The **American Public Health Association** announces a live satellite broadcast on "Health Disparities: Contributions from Social and Physical Environments," sponsored by NIH's National Institute of Environmental Health Sciences. The session will be broadcast from APHA's 128th Annual Meeting in Boston on November 14, 2:30 pm - 4:30 pm EST.

Overview. There are many different environments at many points in our lives that have the potential to influence health. A broad understanding of environment that incorporates social and physical aspects and how they contribute to health inequalities is necessary to decrease these inequalities. The social environment includes individual and community-level characteristics, e.g., socioeconomic status (SES), education, coping resources and support systems, residential factors, cultural variables, institutional and political forces such as racism and classism, familial factors and media influences. The physical environment includes physical agents (e.g., radiation), chemical agents (e.g., pesticides) and biological agents (e.g., pathogens) to which individuals are exposed in a multitude of settings, including home, school and workplace. Health status may be viewed as the accumulation of risk from multiple

interacting social and physical environmental exposures occurring over time.

Significant evidence has demonstrated that a gradient exists between SES and health status, with individuals of high SES having better overall health than those of low SES. The most striking health discrepancies result in shorter life expectancy, as well as higher rates of most cancers, some birth defects, infant mortality, asthma, diabetes, behavioral and affective disorders, and cardiovascular disease. Low SES may result in poor physical or mental health by operating through various psychosocial mechanisms such as discrimination, social exclusion, prolonged and/or heightened stress, loss of sense of control and low self-esteem, as well as through differential access to proper nutrition and to health and social services. In turn, these psychosocial mechanisms may lead to physiological changes such as raised cortisol, altered blood-pressure response and decreased immunity that place individuals at risk for adverse health outcomes. Exposure to physical environmental agents can have different effects in different persons of differing age, SES, ethnic background, gender and genetic composition. Some subsets of the population are inherently more susceptible to cellular and genetic damage for a number of reasons, including genetic susceptibility, nutritional status, or in the case of children, the vulnerability of developing systems to environmental insult.

Objectives. Participants will: Present an overview of the underlying mechanisms by which the interaction of social and physical environments leads to health disparities; Address how social and physical environmental agents contribute to disparities in health among the U.S. population, and; Identify current approaches to reduce these disparities. [To find out more about this live satellite teleconference see <http://www.apha.org/meetings/satellite.htm>]

17. From **Rick Thomas**, NationsHealth Corporation: Now health data users across the country have easy and inexpensive access to county-level behavioral risk factor information. NationsHealth Corporation announced today that this data has been added to their QuikStats on-line service. Developed in conjunction with PHRG, Inc., the new county-level data include: Lifestyle information such



## PUBLIC HEALTH GIS NEWS AND INFORMATION

July 2000 (No. 35)

9

as smoking, drinking, dieting; Risky behavior such as non-seatbelt use; Health status such as obesity, high blood pressure, high cholesterol and; Other risk factors such as no health plan, no recent checkup. An important new feature of the QuikStats service is the ability to generate "mini-reports" with 8 to 10 statistics focusing on a particular theme, such as demographics, vital statistics or behavioral risk. Soon to come will be map generation capabilities with the ability to produce a state or U.S. map related to almost any aspect of healthcare. [See <http://www.nationshealthdata.com> or contact Rick at email [rthomas@nationshealthdata.com](mailto:rthomas@nationshealthdata.com)]

18. From **URISA: Metadata Survey**- Beginning June 15th URISA and the Federal Geographic Data Committee invite you to take part in the joint survey: "Managing our Knowledge about Metadata". The focus of the survey will be the importance of standardized "metadata" (the information and documentation needed to acquire geographic data and determine its relevance) and the sharing of knowledge about how to make metadata most useful to all. Pamela Butler, the Project Committee Chair for URISA provides the summary, "The overall purpose of this project will be to assess the applicability of Internet and telecommunications technologies to support knowledge management tools. It is the idea that these tools and technologies will draw on and support National Spatial Data Infrastructure (NSDI) constituents." The survey is available on our website at [www.urisa.org/metadata.htm](http://www.urisa.org/metadata.htm). URISA asks that all its members and interested individuals alike take part in this important questionnaire, and voice their opinions and thoughts on a subject of great relevance to all IT and GIS professionals. [See Urban and Regional Systems Association at above URL]

19. **Maptitude ® 4.1 Upgrade for Community 2020 Users**: Maptitude ® Geographic Information System for Windows is the intelligent mapping solution for business, government, and education. Maptitude is a powerful combination of software and geographic data that provides everything you need to realize the benefits of desktop mapping and spatial analysis with a single, easy-to-use package. Community 2020 is based upon

Maptitude 3.0. While Maptitude 3.0 was a landmark product when it was introduced, it is now more than four years old. Maptitude 3.0 does not contain hundreds of enhancements that have been incorporated in later versions and it will not run under Windows 2000. By upgrading to Maptitude 4.1, Community 2020 users will be able to take advantage of these new and enhanced mapping and GIS features.

What's New for Community 2020 Users. **Quick Start Interface**: Creating a map with Maptitude has never been easier. Answer a few simple questions in the Create-a-Map Wizard and Maptitude will create a map automatically, anywhere in the world. **Charts and Prism Maps**: Create effective data presentations using 3-D prism maps and a selection of standard chart types. **GPS Interface**: Track your location or create your own geographic databases with the built-in GPS interface. **Access Data From Excel**: Use data from Excel, dBASE, FoxPro, Text and Binary files, and all ODBC sources (including Access, DB2, INFORMIX, INGRES, NetWare SQL, Oracle, Paradox, SQLBase, SQL Server, and Sybase). **Multimedia Links**: Link pictures, video, slide shows, audio, documents, spreadsheets, and web sites to map features. **Map Locator**: Display the extent (height and width) of the current map window, and provides a simple way to change the extent of the current map. Using the Map Locator, you can simply drag a rectangle to change the extent of the map, or you can click on the Map Locator to re-center the map at a new location. **Contour Toolbox**: Generate a contour map using point attributes. Contours can be generated as a line layer or as an area layer with a beautiful color theme, and can be saved as a standard geographic file. The Contour toolbox lets you query the contour map to display point elevations (values), create a profile between two points, and generate a visibility map that shows elevations that can be viewed from a user-defined location.

Enhanced software features include improvements to map navigation tools, geocoding, feature selection tools, data translators, and support for image file formats. New and updated data sets: State and county databases now feature demographic estimates for 1997, and projections for 2002 and 2007. The nationwide streets CD contains Caliper Streets '98. Streets '98 was

## PUBLIC HEALTH GIS NEWS AND INFORMATION

July 2000 (No. 35)

10

created from the latest version of the TIGER/Line files from the US Bureau of the Census and contains incremental improvements to street geography and address information. The World Data CD includes a world elevation database (5-minute digital elevation model), worldwide lakes and glaciers, and a world coastline database. [See: Community 2020 Web site at <http://www.hud.gov/adm/c2020/intro.html> and Maptitude Web site at <http://www.caliper.com>]

**20. Research Epidemiology Geographic Software (REGS):** The ResearchAnalyst combines the advanced mapping functionality of ArcView® GIS with the statistical power of S-PLUS®. The ResearchAnalyst allows you to enhance your GIS data analysis with S-PLUS graphics and statistics. The S-PLUS for ArcView GIS extension integrates the powerful statistics and publication quality graphics of S-PLUS with GIS techniques available in ArcView GIS. Included in the ResearchAnalyst is the EpiAnalyst extension for ArcView GIS. The EpiAnalyst is a productivity tool and resource kit for epidemiologic research. The extension contains spatial cluster analysis software from the National Cancer Institute (NCI) and Agency for Toxic Substances and Disease Registry (ATSDR). The EpiAnalyst also interfaces with the latest version of EpiInfo 2000 from the Centers of Disease Control and Prevention (CDC) and other software. [See: <http://www.phrl.org/REGS/>]

### 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]*

**F** From **Michael Trisolini**, Boston University School of Public Health: I am a social science researcher looking for U.S. crime statistics by ZIP code (ideally digital files that can be downloaded or purchased). My intent is to merge those data with other data related to public health issues by ZIP code. Do you know of any sources? [Contact: Mike at email [mtris@bu.edu](mailto:mtris@bu.edu)]

From **Mike Ferber**, Harrison County Planning, West

Virginia: Our county is in the beginning stages of the creation of GIS which will be shared between multiple county and municipal agencies. I am writing to see if you might have information or contacts which could help us in our decision making process in order that we might avoid pitfalls due to blindness. If you have any information that might be helpful please let me know. [Contact: Mike at voice (304) 624-8690 or email [Mferber@HarrisonCountyWV.com](mailto:Mferber@HarrisonCountyWV.com)]

From **Brian Hubbard**, University of Michigan: I am a University of Michigan Population/Environment Fellow working with the NCEH/CDC in Peru on an environmental health project until December as an evaluation person in support of the project. In December, I will move to Mexico to begin doing GIS work with the INSP (Instituto Nacional de Salud Publica) to monitor demographic changes, and land use in the border areas of Mexico. For this reason, I am trying to identify some workshops or training groups, where I might increase my capacity to do GIS work. I have a working understanding of GIS. I have a rather large ESRI training manual that has taught me the basics of ArcView, but I feel I need an intensive course to increase my understanding of its uses, and to have a forum where my questions can be answered by someone with a great deal of experience. Could you recommend any workshops? I am being supported by the University of Michigan, therefore, feel free to mention workshops in the States that would be of help! [Contact: Brian at email [bnh5@cdc.gov](mailto:bnh5@cdc.gov) or [babanding@hotmail.com](mailto:babanding@hotmail.com)]

From **Liana Reilly**, USEPA: I am writing to request Public Health GIS User Group input on a project that I am working on with EPA New England. I have an eight week fellowship with the office and am working on a project on children's health in relation to superfund sites. We are planning on doing some mapping for the project and Loren Hall in the DC EPA office, suggested that the user group might have some input on the project. I would appreciate any input and assistance you can give us with this project. I would love to set up a time to talk with anyone about it! [Contact: Liana at voice (617) 918-1318 or email [Reilly.Liana@epamail.epa.gov](mailto:Reilly.Liana@epamail.epa.gov)]

#### IV. Special Reports

Steps involved in Randomizing the Coordinates of Address-Matched Locations: by **Mary Meador** and **Amy J. Ruggles**, Department of Geography  
University of Iowa

[**Editor:** We posed the question to Gerry Rushton, University of Iowa, concerning reader interest in seeing a step-by-step practical example of how to perform the Excel spreadsheet computation for geographic masking of data. Professor Rushton sent two files that mask, the first one using the EXCEL function. The second is a broader exercise which also does masking using the same method but uses functions in ArcView to do it rather than EXCEL. The ArcView method was used in Dr. Rushton's class this past semester and EXCEL in 1999. The student Teaching Assistants (TAs) made the decision on the way they wanted to teach it. The names of the TAs are shown as authors, per Dr. Rushton's request, since they prepared the exercises below which have been reproduced in their entirety; Appreciation is extended to Dr. Rushton and all Geography Department staff for sharing with us these classroom exercises. To apply these techniques you will need to create an address file of approximately 25 or more locations]

1. In Excel, open your new dBase file by using *File-Open*; navigate to the directory C:\44131-hw2\, select *dBase Files* from the drop-down menu *Files of type*, select <yourname2.> and click *Open*. Your address-matched database with ID, Longitude, Latitude, Address and Health data should appear.
2. To calculate the random displacements for the calculated coordinates, choose *Tools-Data Analysis...* from the toolbar and a new window appears. In that window, select *Random Number Generation*, upon which yet another window appears.
3. Select *Uniform* from the choices available under *Distribution*. *The Number of Variables* is 2 (one for Latitude, one for Longitude) and the *Number of Random Numbers* required is the number of correctly matched addresses. For this homework, the *Parameters* will be between -1 and +1, which are the range within which we want to generate random numbers. If this were a real analysis, these parameters would likely be different.
4. Click on *Output Range* and type the location at which

you want the random numbers to be stored. For the in-lab demo, \$I\$2 is safe. This means that the first value will be saved in the second row of column D. Instead of typing in the actual locations, you can indicate the location by clicking on the appropriate cell (first click on the icon on the right side of the *Output Range* box and then the cell in the spreadsheet, and then once again on that right-side icon). Click OK to calculate the random numbers.

5. These random numbers need to be added to the latitudes and longitudes. To do this, you should go to a new column and create a formula. For example, if the Longitude values are found in column B beginning in row 2 and the random variables are in column I, also beginning in row 2, the formula you should type in cell \$L\$2 is =B2+I2. This formula sums the two values and shows the output. The corresponding formula for the masked Latitude values should be typed in cell \$M\$2 and is =C2+J2. (Note: You may not see the entire transformed values because of the formatting, but they're there).

6. Copy these equations so they apply to all Lat-Long pairs. To do this, click on the cell with the formula (\$L\$2) and then move the cursor to the lower right-hand corner of the cell – the cursor shape should change to a solid + sign. Click and pull the cursor down until you reach the lowest row for which you have data and unclick. This will copy and automatically calculate the formula for all cells highlighted. Do the same for the Longitude Values. Label these columns LONGM and LATM to indicate they are the masked values for the address-matched coordinates.

7. Move the cursor to the top of the ID field and select the column by clicking on A. The whole column should be highlighted. Hold down the *Ctrl* key and select the *PBRESULT* field by clicking on G. Both columns should now be highlighted. Choose *Edit-Copy* to copy the two columns.

8. Open a new sheet by choosing *File-New* and copy the selected columns into it by choosing *Edit-Paste*.

9. Move to the original worksheet and repeat step 7 for the columns containing the randomized Longitudes and Latitudes.

10. Shift to the new worksheet and select columns C and D. Choose *Edit-Paste-Special* and select *Values*. The

## PUBLIC HEALTH GIS NEWS AND INFORMATION

July 2000 (No. 35)

12

randomized variables are copied to the new location.

11. Save this file as a DBF file using the *File-Save As...* command. (Be sure to have the cell selected be \$A\$1). This is now *<yourname3>.dbf*. This file consists only of the child's ID and lead information and the masked locational coordinates. The original address information has been stripped to preserve privacy.

12. Save the changed to the original dBase file *<yourname2>.dbf* as the list of addresses, original coordinates, random numbers and masked coordinates will all be required for your writeup.

### Geocoding by Address using ArcView

by **Christopher Pouliot** and **Helena Smolich**

**Objective:** In this demonstration and/or homework you will be using the address matching capabilities of ArcView to geocode selected locations of children with elevated lead blood levels in Waterloo, Iowa. To make the locations of the children appear as an independent map layer in ArcView, you will create a point geographic file from a data file on lead levels in the Waterloo area that contains street addresses and lead levels. To protect the children's' privacy, you will then create a map of this analysis only after computing a geographic mask for the address-matched locations.

### **Step-by step instructions**

NOTE: The data files containing the lead information and the roads layer are located in Z:\44131\Lab2.

1. In ArcView, open a new View and add the theme roads.shp
2. The street network for the Waterloo area (a.k.a. Blackhawk County) is displayed in the map window. This street network has been extracted from the Census TIGER/Line files.
3. We will need to modify the projection go to *View / Properties* and change *the Map Units to Decimal Degrees* and the *Distance Units to Feet*.
4. Next we will geocode the Roads theme. Go to *Theme / Properties*. Highlight the Geocode Icon. Address Style should be set to 'US Streets with Zone'. We must now find a match for each of the street options that have a check by them. They should be matched as follows...

LeftFrom	Road_Feat9
LeftTo	Road_Fea11

RightFrom	Road_Fea10
RightTo	Road_Fea12
StreetName	Road_Feat4
LeftZone	Road_Feat5
RightZone	Road_Feat6

Note: Make sure all other street options have <none> chosen.

5. Next, a database must be opened from which our addressed data can be found. Go to the Project Window and highlight the 'Tables' Icon. Click the 'Add' button. Choose the file Z:\44131\Lab2\lead\_1.dbf

6. The health database you are working with contains a unique ID number (PGMID+CHIL) for each child as well as an Address, City, Zip Code field as well as the actual lead level of the child. It is important to be familiar with all of the fields in the database before the geocoding process begins. All records in the database must have a unique numerical ID number for each record in order to be address-matched.

7. Select *View / Geocode Addresses...* on the toolbar to display the *Geocode Addresses* dialog box.. Under 'Address Table' choose Lead\_1.dbf. The fields containing address information are usually found automatically by ArcView. In this case, Address Field should be 'Address' and Zone Field should be 'Zip'. Choose an offset distance of 20 feet. This will place the address location as a dot 20 feet from the centerline of the road. Also, choose a path where your new file is to be placed. I suggest Z:\44131\your-folder. Click 'Batch Match'. ArcView will automatically find matches for as many addresses as possible. For this lab exercise it should find matches for 3 and no match for 15.

8. To modify the preferences for which ArcView chooses address locations click on 'Geocoding Preferences'. Change the 'Spelling Sensitivity' to '65' and the 'Minimum match score' to '50' and click 'ok'. Choose 'Batch Re-Match'.

9. One is still unchosen, click on 'Interactive Re-Match'. Choose 'Edit Standardize'. Modify Field Values and click 'Ok'. All non-matches should be documented in your write-up as well as how these matches were found. This will be needed in your homework write-ups.

10. When finished matching addresses choose 'Done'. A new shape file will be created that shows the location of

## PUBLIC HEALTH GIS NEWS AND INFORMATION

July 2000 (No. 35)

13

all matched points on the map. **Save your project NOW.**

(week 2)

11. We now want to find the X-Y coordinates of these points in order to randomize them to protect the privacy of the subjects of the data. To do this: Open the attribute table of Geocd.dbf file. Go to *Table | Start Editing*.

12. Adding the new field: Go to *Edit | Add Field*. Give the name to the new field (X\_coord) and change the number of decimal places to 6. Go to *Field | Calculate*. Double-click on the [Shape], then type in **.getx**

13. Repeat 12. for the Y coordinate.

### 14. Randomizing Coordinates:

a. Export database to a new file. To do this, open the Geocd.dbf file and go to *File | Export*. Choose the dbf option. Save this new database into your folder with a new name.

b. Open this new database in ArcView. To do this, have the project window active and highlight the table icon and click 'Add'. Navigate to the .dbf file and open it.

c. Edit this Database. Go to *Table | Start Editing*

d. We will now add three new fields *Random*, *New X*, and *New Y*. Go to *Edit | Add Field*. Name this field *Random* and give it 6 decimal places. Everything else should remain the same. Click *OK*. Repeat these steps and create *New X* and *New Y*. Give them each 6 decimal places.

e.. Next we must generate random numbers within the *Random* field. Scroll to the *Random* field and click on the field heading so that it is highlighted. Go to *Field | Calculate*. Type in everything within these brackets but not including the brackets [Number.MakeRandom(-100,100)] and then click *OK*. This will generate a random number between -100 and 100 for each record. We must then divide this number by 100,000. To do this open the calculate window again and create the expression *Random/100000*

f. Adding two columns – We must calculate a value for the *New X* and *New Y* fields. To do this highlight the *New X* field heading and go to *Field | Calculate*. Create the expression *X-Coordinate + Random* and click *OK*. This adds the values in the *X-Coordinate* field and the values in the *Random* field and puts the sum in the *New X* field. This is your new masked X coordinate. Next, do

the same with the *New Y* field except calculate the expression *Y-Coordinate + Random*.

g. You now have new masked X and Y coordinates. Next, we'll delete the original X and Y coordinate fields. Highlight the *X-Coordinate* field heading and go to *Edit | Delete Field*. Choose *Yes*. Then do the same for the *Y-Coordinate* field.

h. Go to *Table | Stop Editing*, and then click *Yes* when asked "Save Edits?"

15. Adding the new database as a Shape file to your View. We will now create a shape file that has the new coordinates of our data. Make the View active and go to *View | Add Event Theme*. This will bring up a box that has you select the file as well as the X and Y coordinate fields. Choose the database that contains your new X and New Y fields and then specify the X and Y coordinate fields in the following pull down menus. Then click *OK*. This will create a new shape file with which you will do your analysis from. Now turn off your Geocd.shp theme by unchecking the box next to the theme name in the view. **For any and all maps created DO NOT include actual locations of study participants. This is Confidential Material.**

Assignment: The goal of this homework is to create a map showing the locations of children with elevated lead levels in Waterloo. Follow the same procedure outlined in this handout using the network layer (*roads.shp*) and use the filename ***blood.dbf*** located in **Z:\44131\Lab2** instead of *lead\_1.dbf* in the first step. The *blood.dbf* has 29 records. All of the addresses will not match during the first geocoding attempt. Examine the unmatched records, make the appropriate corrections; complete a new address-matching process, mask the resulting corrections and then make a map of the children's lead exposures.

In a brief write-up, report: The problems that you encountered and how you corrected the errors in the database file. Document and report the number of records matched on the first attempt, as well as the changes /corrections made during further iterations of address matching, and the final number of address matched. If you cannot match a specific record, indicate why the record is unmatchable.

Document the masks applied to the addressed matched

data and include the original address coordinates, the random numbers and the masked lat-long coordinates in your write-up.

Finally, create a thematic map of showing the levels of lead in the children's' blood lead as measured by *PBRESULT* (this is the level of blood lead for each child). Use three categories to display the differences (Hint: use Graduated Symbol as Legend Type). Submit a hard copy map with the appropriate cartographic elements to convey the map elements.

[Editor's postnote: If you find this type of instructional material helpful please let me know for future submissions; in addition you are welcome to submit your address file, and geographic masking test results, for others to use in this exercise]

#### V. GIS and Related Presentations and Literature

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

NCHS Cartography and GIS Guest Lecture Series-Hyattsville, MD: [July 19, 2000](#): "**Reducing Uncertainties in Applying Spatial Analysis in Environmental Health Research**," by Nina Lam, National Science Foundation and R. J. Russell Professor of Geography, Louisiana State University, 2:00-3:15PM, at the [NCHS Auditorium](#), Hyattsville, MD. **Abstract:** It has been widely recognized that the nature of environmental health research requires interdisciplinary expertise and rigorous spatial and non-spatial analyses of various data defined in different forms. As such, spatial analysis is playing an increasingly important role in environmental health research. However, a key problem in environmental health research involving spatial analysis is the uncertainties in the findings. For example, an important spatial question that has been asked over and over again is: do hazardous waste sites post a long-term adverse effect on the health of nearby population? So far, the research conducted on this problem has not been able to provide conclusive answers. Conflicting results were generated from using different definitions of data, spatial scale, time scale, and methods of analysis. The uncertainties involved in the existing methods for environmental health risk assessment remain to be a major obstacle in finding the possible links between

environment and health.

In this paper, I argue that the uncertainties involved in environmental health research are an inherent property that could arise from various stages in the research process, including the type of data used, analysis methods applied, interpretations of the findings, as well as reactions to the findings. Therefore, it is necessary to develop strategies to reduce uncertainties rather than ignoring them. I propose the development of a spatial analytical framework so that one can explore the spatial relationships between environmental variables and health outcomes under various conditions (e.g. spatial and time scale of data). The results derived from specifications under the various conditions could serve as sensitivity analysis or benchmarks, so that the magnitude of uncertainties can be evaluated. This paper will first provide an overview of the nature of health risk assessment and its underlying problems. The need for a spatial analytic framework and what are in the framework will then be outlined. A case study on the health impacts of a national Priority List (NPL) Superfund hazardous waste site in Louisiana will be used to illustrate the uncertainty problem and the importance of a comprehensive spatial analytical framework. [Contact: Nina at voice (225) 388-6197 or email [nlam@nsf.gov](mailto:nlam@nsf.gov)]

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**September 7, 2000: "Crime Mapping, Privacy, and Data Confidentiality,"** by Debra Stoe, Crime Mapping Research Center, U.S. Department of Justice. The presentation will revolve around the following issues: *Where is the balance between the public's right to know and the victim's right to privacy?* When a law enforcement agency posts a map of crime incidents on the Internet, it runs the risk of including too much or not enough data. For example, if a rape victim is identifiable, then his or her privacy has been violated. Yet if a rape is not posted and subsequently an individual falls victim to a rape, has the agency violated the public's "right to know"? That is, in not publishing the risk of rape in an area, is the agency failing to let would-be victims know they are at risk so they can take appropriate precautions?

*Should professional standards or guidelines be developed for crime mapping as it pertains to*

*privacy and freedom of information issues?* If so, what should these standards look like and who should promote them? With the growing use of information technology in law enforcement, agencies are becoming increasingly concerned with their roles and responsibilities in creating and distributing crime maps and geocoded data. Individual agencies and analysts have experimented with "fuzzing" geocoded data and representing crime incidents and related data in various levels of aggregation, but no widely accepted standards or methods exist. Further, the Federal government has had limited success in issuing similar guidelines to local law enforcement in the past, raising the question of how local law enforcement might promote its own standards.

*When information passes from one agency to another, who is liable or accountable for the inappropriate use of crime maps or the sharing of inaccurate geocoded data? What kind of statements should be made (i.e., disclaimers).* A valid concern exists that disseminating crime maps to the public will revitalize informal redlining methods employed by some insurance and banking companies. Whereas a neighborhood identified as a high crime area could be targeted for various types of positive local interventions, it could also be flagged as undesirable, resulting in residential flight and ultimately causing more damage to an already problematic area. Further, the creation of crime maps or sharing of geocoded data that are inaccurate may result in false perceptions regarding the nature of a crime or public safety problem. Examples already exist of agencies publishing incorrect addresses of released sex offenders under Megan's Law, resulting in serious legal implications for such errors.

*What is the appropriate model for partnerships between law enforcement agencies and researchers with regard to data sharing?* Researchers are accustomed to signing agreements to ensure the confidentiality of individuals when analyzing survey data, but such agreements are not prevalent in the area of geocoded data. The field has yet to agree on what restrictions should be placed on researchers' use of data that will safeguard confidentiality while enabling researchers to experiment with rigorous analysis methods--methods that ultimately serve the entire

criminal justice field.

*What security measures are available for data sharing over Internet or intranet environments, and how can they be shared with local agencies?* Setting up password protections, firewalls, and creating search and query options that block the display of particularly sensitive fields can be accomplished. However, police departments and officers have a healthy skepticism about the prospects of ensuring that intelligence information and other restricted data do not end up in the wrong hands. This calls for both public education on the reliability of such security measures as well as dissemination of specific methods for ensuring security. [Contact: Debra at email [stoed@ojp.usdoj.gov](mailto:stoed@ojp.usdoj.gov)]

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#### NCHS DATA USERS CONFERENCE 2000

**GIS SESSION**, July 27<sup>th</sup>, 10:30A.M.-NOON

1. **"Using Mortality Data for Geographic Distribution of Respiratory Disease, United States: 1982-1993,"** by Jay Kim, Office of Research and Methodology, NCHS. Abstract: Age-adjusted death rates and rate ratios of U.S. residents from 17 respiratory diseases were mapped by 805 health service areas using national mortality data from 1982 to 1993. For the traditional occupational lung diseases (coal workers' pneumoconiosis, asbestosis, silicosis, unspecified pneumoconioses, and byssinosis), nearly all the cases can be attributed to hazardous occupational exposures. The other respiratory diseases are not thought to be associated with occupational exposures. However, a small percentage of each of those cases may be related to such exposures. It is hoped that these maps will stimulate further studies in occupational etiologies of a variety of respiratory diseases. [Contact: Jay at email [jhk0@cdc.gov](mailto:jhk0@cdc.gov)]
2. **"Concentrations of Risk in Urban America,"** by Cynthia Ronzio (ASPH Fellow, NCHS, and health policy researcher) and Samuel Harper (ASPH Fellow, NCHS, and epidemiologist). Abstract: We discuss one component of the income inequality and health outcome relationship: the concentrations of risks to health, given the understanding that risks are not created nor experienced evenly. First, income inequality does not refer only to poverty, although high income inequality scores reflect

basic poverty levels. Income inequality measures how much the wealthiest in a population have *in relation to* the poorest people, and everyone in between. However, in order to conduct meaningful policy analysis, it is necessary to ‘unpack’ income inequality and find how it manifests itself on the urban landscape and on people’s opportunities for optimum health.

We present four cities and overall health outcomes and socio-demographic variables for those cities (Seattle, Detroit, Louisville, KY and Jackson, MS). There is tremendous variation between cities, which has distinct policy relevance, but also variation within cities. The role that income inequality plays in this variation is unclear, yet there are several hypotheses about the mechanisms between income inequality and poor health. Here we consider concentration of poverty (measured by percent of households in poverty at the census tract level) and residential segregation (measured by the percent of families who are African-American at the census tract level) as both components of income inequality and independent predictors of health outcomes. Louisville KY and Jackson MS, for example, have similar demographics, in terms of percent in poverty (18.6% vs. 18% respectively) and Jackson has a higher percent of African-Americans in the total population (30% vs. 56%). Yet Jackson has substantially lower age-adjusted all cause mortality rates. We use ArcView maps to analyze the potential relationships between income inequality, residential segregation, concentrated poverty, and mortality. [Cynthia at email ckr8@cdc.gov]

3. **“Individuals in Context: Local Characteristics and NCHS Sample Surveys,”** by Wilbur C. Hadden and Amy Auchincloss, Division of Health Examination Statistics, NCHS. Abstract: The argument here is that in trying to understand the sources of human health and the causes of disease it is important to understand that individuals live in a physical and social context. Various aspects of these contexts have important effects upon individual’s health. Some examples using GIS are presented to illustrate and support the argument. There are, however, some challenges in applying the logic of GIS to national sample surveys. Nevertheless, despite the problems there are still approaches which place our respondents in their social and physical environments and

make contextual analysis possible. Results from a study of the consequences of urban and rural poverty are used to illustrate the point. [Contact: Bill at email wch2@cdc.gov]

4. **“Automated Mapping of NCHS Mortality Data for Research,”** by Chun-Yen Huang<sup>1</sup>, Derrick Thompson<sup>1</sup>, Jimmie Givens<sup>2</sup>, Jay Kim<sup>2</sup> and Charles Croner<sup>2</sup> (1-Department of Geography, University of Maryland, 2- Statistical Technology Staff, Office of Research and Methodology (ORM), NCHS. [Note: Presentation dependent on finalization of mapping tool [Contact: Jimmie at email jdj3@cdc.gov] OR **“Perspective on GIS and Geographic Scale in Disease Surveillance and Prevention,”** by Charles Croner, ORM [Contact: Chuck at email cmc2@cdc.gov]

#### *Emerging Infectious Diseases*

The May-June 2000 issue of CDC’s journal, *Emerging Infectious Diseases* (EID), is now available at site <http://www.cdc.gov/ncidod/eid/upcoming.htm>. Selected articles include: Remote Sensing and Human Health: New Sensors and Opportunities, and; Using Remotely Sensed Data To Identify Areas at Risk For HPS, and; Remote Sensing and GIS: Charting SNV Virus in Deer Mice [Source for article submissions: send an email to the EID Help mailbox at eidhelp@cdc.gov]

**Remote Sensing and Human Health: New Sensors and New Opportunities**, by Louisa R. Beck,\*† Bradley M. Lobitz,† and Byron L. Wood† [\*California State University, Monterey Bay, California, USA; †NASA Ames Research Center, Moffett Field, California]. Abstract: Since the launch of Landsat-1 28 years ago, remotely sensed data have been used to map features on the earth’s surface. An increasing number of health studies have used remotely sensed data for monitoring, surveillance, or risk mapping, particularly of vector-borne diseases. Nearly all studies used data from Landsat, the French Système Pour l’Observation de la Terre, and the National Oceanic and Atmospheric Administration’s Advanced Very High Resolution Radiometer. New sensor systems are in orbit, or soon to be launched, whose data may prove useful for characterizing and monitoring the spatial and temporal patterns of infectious diseases. Increased computing power and spatial



modeling capabilities of geographic information systems could extend the use of remote sensing beyond the research community into operational disease surveillance and control. This article illustrates how remotely sensed data have been used in health applications and assesses earth-observing satellites that could detect and map environmental variables related to the distribution of vector-borne and other diseases.

**Using Remotely Sensed Data To Identify Areas at Risk for Hantavirus Pulmonary Syndrome**, by Gregory E. Glass,\* James E. Cheek,† Jonathan A. Patz,\* Timothy M. Shields,\* Timothy J. Doyle,‡ Douglas A. Thoroughman,† Darcy K. Hunt,† Russell E. Ensore,§ Kenneth L. Gage,§ Charles Irland,† C. J. Peters,¶ and Ralph Bryan§ [\*The Johns Hopkins School of Hygiene and Public Health, Baltimore, Maryland, USA; †Indian Health Service, Albuquerque, New Mexico, USA; ‡Centers for Disease Control and Prevention, Albuquerque, New Mexico, USA; §Centers for Disease Control and Prevention, Ft. Collins, Colorado, USA; and ¶Centers for Disease Control and Prevention, Atlanta, Georgia]. **Abstract:** The 1993 U.S. hantavirus pulmonary syndrome (HPS) outbreak was attributed to environmental conditions and increased rodent populations caused by unusual weather in 1991-92. In a case-control study to test this hypothesis, we estimated precipitation at 28 HPS and 170 control sites during the springs of 1992 and 1993 and compared it with precipitation during the previous 6 years by using rainfall patterns at 196 weather stations. We also used elevation data and Landsat Thematic Mapper satellite imagery collected the year before the outbreak to estimate HPS risk by logistic regression analysis. Rainfall at case sites was not higher during 1992-93 than in previous years. However, elevation, as well as satellite data, showed association between environmental conditions and HPS risk the following year. Repeated analysis using satellite imagery from 1995 showed substantial decrease in medium- to high-risk areas. Only one case of HPS was identified in 1996.

**Remote Sensing and Geographic Information Systems: Charting Sin Nombre Virus Infections in Deer Mice**, by John D. Boone,\* Kenneth C. McGwire,† Elmer W. Otteson,\* Robert S. DeBaca,†

Edward A. Kuhn,\* Pascal Villard,\* Peter F. Brussard,\* and Stephen C. St. Jeor\* [\*University of Nevada, Reno, Nevada, USA; and †Desert Research Institute, Biological Sciences Center, Reno, Nevada, USA]. **Abstract:** We tested environmental data from remote sensing and geographic information system maps as indicators of Sin Nombre virus (SNV) infections in deer mouse (*Peromyscus maniculatus*) populations in the Walker River Basin, Nevada and California. We determined by serologic testing the presence of SNV infections in deer mice from 144 field sites. We used remote sensing and geographic information systems data to characterize the vegetation type and density, elevation, slope, and hydrologic features of each site. The data retroactively predicted infection status of deer mice with up to 80% accuracy. If models of SNV temporal dynamics can be integrated with baseline spatial models, human risk for infection may be assessed with reasonable accuracy.

#### *Morbidity and Mortality Weekly Report*

Selected articles from CDC's *Morbidity and Mortality Weekly Report* (MMWR): Vol. **49**, No. **25**- Measles-United States, 1999; Compliance With Physical Activity Recommendations by Walking for Exercise-Michigan, 1996 and 1998; Outbreak of Gastroenteritis Associated With an Interactive Water Fountain at a Beachside Park-Florida, 1999; Progress Toward Poliomyelitis Eradication-South-East Asia Region, 1998-1999; Notice to Readers: Publication of Surgeon General's Report on Oral Health; Vol. **49**, No. **RR-7**: *Prevention and Control of Meningococcal Disease and Meningococcal Disease and College Students Recommendations of the Advisory Committee on Immunization Practices*; Vol. **49**, No. **24**: National HIV Testing Day-June 27, 2000; National HIV Testing Day at CDC-Funded HIV Counseling, Testing, and Referral Sites-United States, 1994--1998; Gonorrhea-United States, 1998; Notice to Readers: Injuries From Fireworks in the United States; Vol. **49**, No. **SS-5**-*Youth Risk Behavior Surveillance-United States, 1999*; Vol. **49**, No. **23**- Suspected Brucellosis Case Prompts Investigation of Possible Bioterrorism-Related Activity-New Hampshire and Massachusetts, 1999; Adoption of Protective Behaviors Among Persons With Recent HIV Infection and

## PUBLIC HEALTH GIS NEWS AND INFORMATION

July 2000 (No. 35)

18

Diagnosis-Alabama, New Jersey, and Tennessee, 1997-1998; Occupational Fatalities Associated With 2,4-Dichlorophenol (2,4-DCP) Exposure, 1980-1998; Vol. **49**, No. **22**- Use of Medical Care, Police Assistance, and Restraining Orders by Women Reporting Intimate Partner Violence-Massachusetts, 1996-1997; Illnesses Associated With Use of Automatic Insecticide Dispenser Units-Selected States and United States, 1986-1999; Probable Locally Acquired Mosquito-Transmitted Plasmodium vivax Infection-Suffolk County, New York, 1999; Vol. **49**, No. **21** (June 2)- Prevalence of Selected Cardiovascular Disease Risk Factors Among American Indians and Alaska Natives-United States, 1997; HIV/AIDS Among Men Who Have Sex With Men and Inject Drugs-United States, 1985-1998; Heat-Related Illnesses, Deaths, and Risk Factors-Cincinnati and Dayton, Ohio, 1999, and United States, 1979-1997; Vol. **49**, No. **20** (May 26)- World No-Tobacco Day, May 31, 2000; Costs of Smoking Among Active Duty U.S. Air Force Personnel-United States, 1997; Progress Toward Poliomyelitis Eradication-African Region, 1999-March 2000; Notice to Readers: Satellite Broadcast on Preparing for the Next Influenza Pandemic; Vol. **49** (May 5)- Health-Related Quality of Life Among Adults With Arthritis-Behavioral Risk Factor Surveillance System, 11 States, 1996-1998; Morbidity and Mortality Associated With Hurricane Floyd-North Carolina, September-October 1999; Surveillance for Possible Estuary-Associated Syndrome-Six States, 1998-1999; Notice to Readers: Alcohol and Other Drug-Related Birth Defects Awareness Week-May 14--20, 2000; Notice to Readers: Symposium on Statistical Methods; Surveillance Summaries, Vol. **49**, No. **SS-4**; Surveillance for Waterborne-Disease Outbreaks-United States, 1997-1998; Vol. **49**, No. **RR-5**- *Poliomyelitis Prevention in the United States: Updated Recommendations of the Advisory Committee on Immunization Practices (ACIP)*; Vol. **49**, No. **19**- Cause-Specific Adult Mortality: Evidence From Community-Based Surveillance-Selected Sites, Tanzania, 1992-1998; Prevalence of Leisure-Time and Occupational Physical Activity Among Employed Adults-United States, 1990; Notice to Readers: Revision of Acute Hepatitis Panel; Notice to Readers: New Web-Based Training on

Hepatitis C for Health Professionals; Vol. **49**, No. **18**- Entry Into Prenatal Care-United States, 1989-1997; Notice to Readers: Call for Abstracts: International Conference on Emerging Infectious Diseases 2000; Notice to Readers: International Course in Applied Epidemiology.

### Other Related Presentations and Literature

From **John Hunter**, Michigan State University (Geography of Blood Pressure: Women and Modernization): A joint medical research team from Michigan State University and the Medical School of the University of Zimbabwe invited me to prepare the field design for a study of women's blood pressure in rural western Mashonaland, Zimbabwe. Colleagues in this scientific exploration were Barbara and Harvey Sparks of MSU, and Jacob Mufunda, Cephas Musabayane, and Kassam Mahomed of Zimbabwe. Our findings on pregnancy-induced hypertension, published in the *Central African Journal of Medicine* (1996, 42(4): 93-97), have now been followed by geographical analysis of blood pressure compared with levels of economic development (*Social Science and Medicine*, 2000, 50: 773-795).

We found that, when the data were stratified by level of economic development, and controlled for age and pregnancy status, the results showed statistically significant gradations of blood pressure. Lowest pressures were found on communal lands; highest pressures were in the mining settlements; with intermediate levels among commercial farm workers. Ironically, better housing and hygiene, and increased income, were associated with elevated blood pressure. All of the investigated communities were situated in rural areas. Correspondence of blood pressure with urinary sodium and potassium levels was strong. This suggests that dietary factors play a major role.

Cohort analysis revealed that advancing modernization over the years is accompanied by a generational rise of sodium intake, and a decline of potassium. As a result, sodium-potassium ratios are increasing and associated with blood pressure elevation. Primate city dominance of Harare, with distance decay on communal lands, also has a recognizable influence on the geography of blood pressure. This field investigation is perhaps the first to

## PUBLIC HEALTH GIS NEWS AND INFORMATION

July 2000 (No. 35)

19

examine intra-rural variation of blood pressure in Africa. We conclude that more attention should be focused on economic change and modernization in rural areas of developing countries. The implications of rural modernization for blood pressure and health should not be overlooked. [Contact: John at email hunterjj@pilot.su.edu]

### **VI. Related Census, DHHS and Other Federal Developments**

News Alert Archive of Census 2000 (excerpts from June 29, 2000): The U.S. House of Representatives gave final approval on Monday to a bill that funds Census 2000 operations for the fiscal year beginning October 1. The House passed the \$37.4 billion Commerce, Justice, and State, The Judiciary and Related Agencies appropriations bill (H.R. 4690) by a vote of 214-195 after rejecting an amendment during debate last week that would have reduced funding for non-decennial programs by \$40 million. The non-decennial activities include the American Community Survey (ACS), which the Census Bureau is developing as a possible alternative to the traditional census long form.

The House-passed version of H.R. 4690 allocates \$392.9 million for Census 2000 operations, which include closing down local census offices and data processing centers, analyzing results of the Accuracy and Coverage Evaluation (A.C.E.) survey, and releasing population numbers for congressional apportionment and political line-drawing. The allocation, essentially the amount requested by the Clinton Administration, also includes \$3.5 million for the eight-member Census Monitoring Board.

According to the Census Bureau, the proposed \$40 million funding decrease would "curtail" development of the ACS, "shut down the Economic Censuses and Census of Governments," and "cripple the mapping and address listing program that supports all Bureau surveys." The reduction also would force the elimination of 500 positions, the Bureau said, "greatly disrupting the entire Census Bureau including the decennial census" and jeopardizing its ability to transmit redistricting data to the states by the March 31, 2001 legal deadline.

Congressional oversight of Census 2000 operations continues: The House Subcommittee on the

Census continued its oversight of Census 2000 operations at a June 22 hearing in Washington, D.C. Census Bureau Director Kenneth Prewitt told panel members that census takers had completed more than 99 percent of the nonresponse follow-up workload, putting the Bureau on track to finish the second major phase of Census 2000 well ahead of the scheduled July 7th completion date. He cited the Bureau's success in overcoming "obstacles and potential problems," including hiring and retaining enough temporary workers, meeting payroll obligations on time, completing early counting operations on schedule, exceeding the projected mail response rate, accurately scanning and processing over 120 million questionnaires, and providing assistance to the public at walk-in centers, by telephone, and through foreign language forms.

Dr. Prewitt concluded his remarks by calling Census 2000 "the most open and transparent census in history; every detail has been and is being scrutinized. We welcome that scrutiny because we believe it will dispel any notion that there is or could be any political manipulation of the final results." He pointed to the Bureau's release of its report on the feasibility of issuing statistically corrected census data, as an example of the "spirit of openness." After receiving that report, the Commerce Department published a proposed rule in the June 20 Federal Register that would delegate final authority to the Census Bureau director over the decision on whether to release the adjusted census data next spring.

Subcommittee Chairman Dan Miller commended census enumerators "for their hard work and civic duty in helping to count America," but he expressed concern about the early completion of visits to unresponsive households. Referring to the director's earlier references to Census 2000 as "the good census," the chairman said, "[I]t may prove to be the Rushed Census." He cited "numerous" calls to his office from census employees "express[ing] a felling of tremendous pressure to finish ahead of schedule." "Unless the undercount has been eliminated, why are people pulling out of the field before July 7?" he asked. Dr. Prewitt countered the chairman's criticism of the fast pace of follow-up operations by saying it would cost more money, but not improve the accuracy of the count, to keep knocking on the doors of households that still refused to cooperate after six

## PUBLIC HEALTH GIS NEWS AND INFORMATION

July 2000 (No. 35)

20

attempts to collect information from the residents. Rep. Maloney said evaluations of the 1990 census showed that 70 percent of the people missed lived in households that were counted (known as "within household misses").

Sampling controversy renewed over proposed Commerce Department rule: At the June 22 hearing, Chairman Miller also strongly criticized the proposed rule delegating authority over the adjustment decision to the Bureau Director. He called the idea a "ridiculous proposal" that "doesn't make the decision to release manipulated numbers any more palatable or less political." The congressman said the proposed rule was made public right before Commerce Secretary William Daley announced he would leave his post to head up Vice President Albert Gore's presidential campaign. Noting that the Bureau director is a political appointee, Rep. Miller questioned Dr. Prewitt about political contributions the director might have made to Democratic candidates. Dr. Prewitt said he had not made contributions to any political candidates since his appointment as census director. The chairman suggested that the Bureau seek an independent, external review of the adjusted census numbers before deciding whether to release them. Referring to the proposed committee of senior Census Bureau staff that would advise the director on the adjustment decision, the chairman said, "This is not public scrutiny-it's a whitewash."

Rep. Maloney said she strongly supports the proposed delegation rule and noted that the director is the only political appointee among the Bureau's 6,000 permanent employees. "I believe the Secretary has wisely decided to try and take the politics out of this decision by leaving it up to the professionals at the Census Bureau," she said. Rep. Maloney pointed out that former Commerce Secretary Robert Mosbacher decided not to statistically adjust the 1990 census counts, despite a recommendation to do so from then-Census Bureau Director Barbara Bryant, before resigning from his position to join President George Bush's reelection campaign.

[Source: TerriAnn Lowenthal at (202) 484-2270 or email at [terriann2k@aol.com](mailto:terriann2k@aol.com); copies of previous News Alert can be viewed at [www.census2000.org](http://www.census2000.org)]

### **National Institutes of Health-Description of**

### **Behavioral and Social Sciences Research**

In its report on the fiscal year (FY) 2000 budget for the Department of Health and Human Services, the Senate Committee on Appropriations stated: "There is a growing public awareness of the behavioral and underpinnings of disease. Heart disease, lung cancer, liver disease, AIDS, suicide, developmental disabilities, and many neurological and cognitive disorders can be attributed directly or indirectly to unhealthy behavior. Yet NIH has never fully incorporated behavioral research as part of its core public health mission. The Committee urges the NIH to provide a detailed description of NIH's ongoing work in the behavioral sciences, including a breakdown by Institute, and funds within each Institute of research and training activities included in NIH's behavioral and social science portfolio." (Senate Report No. 106-166, page 174). The NIH Office of Behavioral and Social Sciences Research has prepared the following report [excerpts shown below] in response to the above request.

Excerpts: What do the terms "behavioral" and "social" mean? For purposes of this definition, the term "behavioral" refers to overt actions; to underlying psychological processes such as cognition, emotion, temperament, and motivation; and to biobehavioral interactions. The term "social" encompasses sociocultural, socioeconomic, and sociodemographic status; to biosocial interactions; and to the various levels of social context from small groups to complex cultural systems societal influences.

What are the Core Areas of Behavioral and Social Sciences Research? The core areas of behavioral and social sciences research are those that have a major and explicit focus on the understanding of behavioral or social processes, or on the use of these processes to predict or influence health outcomes or health risk factors. These core areas of research are divided into basic (or fundamental) research and clinical research.

What is the Role of Basic or Fundamental Research in the Behavioral and Social Sciences? Basic research in the behavioral and social sciences is designed to further our understanding of behavioral and social functioning. As is the case for basic research in the biomedical sciences, basic behavioral and social sciences research does not address disease outcomes per se, but is designed to provide essential knowledge necessary for

## PUBLIC HEALTH GIS NEWS AND INFORMATION

July 2000 (No. 35)

21

better prediction, prevention, and control of illnesses. Basic behavioral and social research is divided into three categories: (A) research on behavioral and social processes; (B) biopsychosocial research; and (C) research on the development of behavioral or social procedures for measurement, analysis, and classification.

A. Research on behavioral and social processes involves the study of human or animal functioning at the level of the individual, small group, institution, organization, or community. At the individual level, this research may involve the study of behavioral factors such as cognition, memory, language, perception, personality, emotion, motivation, and others. At higher levels of aggregation, it includes the study of social variables such as the structure and dynamics of small groups (e.g. couples, families, work groups, etc.); institutions and organizations (e.g. schools, religious organizations, etc.); communities (defined by geography or common interest); and larger demographic, political, economic, and cultural systems. Research on behavioral and social processes also includes the study of the interactions within and between these two levels of aggregation, such as the influence of sociocultural factors on cognitive processes or emotional responses. Finally, this research also includes the study of environmental factors such as climate, noise, environmental hazards, and residential environments and their effects on behavioral and social functioning.

Examples of research topics and their implications that are or could be funded by NIH Institutes and Centers include: • Sensation and perception (Implications: neurological disorders and disorders associated with vision, hearing, taste and smell) • Emotion and motivation (Implications: depression, anxiety, schizophrenia, conduct disorders, normal psychological development, eating disorders, obesity, addictions, sleep disturbances, behavioral and cognitive treatments) • Vulnerability and resilience (Implications: psychopathology, violence, effects of child abuse and neglect) • Attention, learning and memory (Implications: attention deficit disorders, learning disabilities, Alzheimer's disease and other dementias, cognitive rehabilitation, education) • Language development (Implications: communication disorders, learning disabilities) • Social influences and social cognition

(Implications: all-cause mortality, psychopathology, behavioral and cognitive treatments) • Family processes and social networks (Implications: domestic violence, divorce, child abuse, psychopathology, all-cause mortality, child development, aging) • Sociocultural and environmental processes (Implications: better understanding of social, cultural, and environmental antecedents to mental and physical illnesses).

B. Biopsychosocial research (also known as biobehavioral or biosocial research) involves the study of the interactions of biological factors with behavioral or social variables and how they affect each other (i.e., the study of bidirectional multilevel relationships). Examples of research topics and their implications that are or could be funded by the institutes include: • Behavior genetics (Implications: addictions, psychopathology, heart disease, gene expression, cancer risk, diabetes, oral health) • Behavioral and cognitive neurosciences (Implications: effects of brain injury, neurodegenerative diseases, learning disabilities, dementia, addictions, sleep disorders, schizophrenia, neurological development, and plasticity) • Psychoneuroimmunology (Implications: stress effects on health, AIDS, dental problems, infections) • Psychopharmacology (Implications: addictions, psychopathology, brain disorders, drug treatments) • Behavioral cardiology (Implications: cardiovascular diseases, stroke, hypertension).

C. Research on the development of procedures for measurement, analysis, and classification involves the development and refinement of procedures for measuring and analyzing behavior, psychological functioning, or the social environment. This research is designed to develop research tools that could be used in other areas of behavioral and social sciences or in biomedical research. Examples of research topics in the area include: • Statistical modeling techniques • Memory assessment Behavioral observation procedures • Psychometric analysis self-report instruments Qualitative and ethnographic methods • Neuropsychological assessment • Psychophysiological methods • Pain Assessment • Instruments for determining dietary intake • Assessment of *medical adherence* [Source: For a full copy of the report see: <http://www1.od.nih.ov/obssr/Senate%20Report%202000.pdf> or contact Ron Abeles, Special Assistant to the Director, Office of Behavioral and Social

## PUBLIC HEALTH GIS NEWS AND INFORMATION

July 2000 (No. 35)

22

Sciences Research, at voice (301) 496-7859 or email [abeles@nih.ov](mailto:abeles@nih.ov)]

### **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>]*

#### **Report of the FGDC Design Study Team**

From **Kimberly Burns-Braidlow**, FGDC: We have been preparing the Design Study Team (DST) report to identify ways of improving the coordination of geographic data activities within the Federal government. We believe that the report provides a firm basis to build on the excellent progress that the FGDC Member Agencies and NSDI Stakeholders have made, and identifies actions to accelerate Federal activities towards the implementation of the NSDI. While the work of the FGDC and the Stakeholders is beginning to produce a number of tangible results and the NSDI is developing across the country there is much that remains to be done. The DST found a concern among the Federal agencies, that as an entity, the Federal government is behind where it should be in implementing the NSDI. The recommendations of the Report are focused on identifying ways of improving the efforts of the FGDC in coordination of Federal geographic information activities.

While the Design Study Team has prepared the Report and recommended a number of actions, the implementation of many of these Recommendations will be the responsibility of Agencies and their Committee Members. The next steps that we are planning are to prepare a draft implementation strategy and to discuss this with the Coordination Group in the June Coordination Group meeting. After that, we plan to move the implementation strategy forward to the Steering

Committee for action. [The final Report of the FGDC Design Study Team is now available on the FGDC web site at [http://www.fgdc.gov/fgdc/design\\_study.html](http://www.fgdc.gov/fgdc/design_study.html)]

### **FGDC ISO Metadata Standard Register Review**

From Rick Pearsall, FGDC Metadata Coordinator: The FGDC is pleased to announce that the International Organisation for Standardisation (ISO) Technical Committee 211 (TC211) has just released for review the latest version of the ISO Metadata Standard (19115.3). Numerous organizations plan to use the ISO Metadata Standard once it has been approved by the ISO Standards Committee. The FGDC is committed to harmonize the CSDGM with the ISO Metadata Standard and has numerous activities ongoing to assure that the harmonization is successful. To protect the significant already existing metadata investment, it is important to assure that the proposed ISO Metadata Standard allows the maximum compatibility with existing FGDC compliant metadata records.

To establish a FGDC position on the ISO Metadata Standard, the FGDC is conducting a registered review of the ISO Metadata Standard Committee Draft (Version 3). If you are interested in helping to establish the FGDC position by reviewing and commenting on the ISO Metadata Standard and/or by helping to adjudicate the comments, the FGDC is interested in hearing from you. The registered review will close on August 1, 2000. To read more about and/or register for the Register Review, go to ISO Metadata Standard Register Review at web page [http://www.fgdc.gov/metadata/iso\\_regrvw\\_v3r.html](http://www.fgdc.gov/metadata/iso_regrvw_v3r.html) [Contact: Rick at email [rpearsall@usgs.gov](mailto:rpearsall@usgs.gov)]

### **Web Site(s) of Interest for this Edition**

<http://www.geog.ucsb.edu/~kclarke/PeerReview.html>. GIS/EM4 Peer Review Central: (1) Chapters of the book "Geographic Information Systems and Environmental Modeling" by Keith C. Clarke, Brad E. Parks and Michael P. Crane (Eds); (2) Papers for the Special Issue of *Transactions in GIS*, and; (3) Papers for the Special Issue of the *Journal of Environmental Management*.

<http://www.publichealth.gov.au/atlas.htm>. "A Social Health Atlas of Australia," 2nd Edition, December, 1999,

## PUBLIC HEALTH GIS NEWS AND INFORMATION

July 2000 (No. 35)

23

by John Glover, Kevin Harris and Sarah Tennant: The information in this atlas adds to a convincing body of evidence built up over a number of years in Australia on the striking disparities in health that exist between groups in the population. People of low socioeconomic status (those who are relatively socially or economically deprived) experience worse health than those of higher socioeconomic status for almost every major cause of mortality and morbidity. The challenge for policy makers, health practitioners and governments is to find ways to address these health inequities. Volume 1: Australia; Volume 2: New South Wales; Volume 3: Victoria; Volume 4: Queensland; Volume 5: South Australia; Volume 6: Western Australia; Volume 7: Tasmania; Volume 8: Northern Territory; Volume 9: Australian Capital Territory. The publication of this second edition of A Social Health Atlas of Australia brings together a wide range of information about the health status of Australians by region, and the health service use by the Australian population.

<http://geo.arc.nasa.gov/sge/health/projects/cholera/cholera.html> "Remote Sensing of Cholera Outbreaks," by Principal investigators Rita Colwell<sup>1</sup> and Anwar Huq<sup>1</sup> and Co-investigators: B. Lobitz<sup>2</sup>, L. Beck<sup>2</sup>, B. Wood<sup>2</sup> (1 University of Maryland Biotechnology Institute; 2 CHAART, NASA Ames Research Center): Cholera epidemics caused by *Vibrio cholerae* O1 occur regularly in Bangladesh and India and sporadically in many parts of the world. In 1993, a total of 296,206 new cases of cholera were reported in South America after about a century, involving more than 15 countries. The outbreaks of cholera that have occurred during the past decade originated in coastal areas. From our previous work, *V. cholerae* attaches to plankton in the aquatic environment, providing the vehicle for dispersal. The organism attaches preferentially to zooplankton, particularly copepods, but it also attaches in lower numbers and without reproduction onto some species of phytoplankton. Phytoplankton

provide the main food source for zooplankton so the two forms of plankton are tightly linked in space and time. Under adverse conditions of temperature and nutrients *V. cholerae* enters a dormant, non-culturable state which makes it difficult to detect. Although *V. cholerae* cannot be detected in any state by remote sensing techniques, remote sensing has been used successfully to quantify phytoplankton concentrations in the open oceans. The tight linking of zooplankton and *V. cholerae* indicates remote sensing will be useful in tracking *V. cholerae* associated with plankton plumes emanating from major rivers where cholera is known to be endemic, i.e., the plume of the Ganges. This proposal seeks to establish a model driven by satellite remote sensing that will be useful in tracking the spatial and temporal development of such plumes as they impinge on coastal areas, related to outbreaks of cholera. The model will, therefore, be used to provide an early warning system for cholera in coastal areas and enable more effective deployment of resources to counteract, if not prevent, massive epidemics of cholera.

<http://www.pop.psu.edu/aag/mgsg.html> Medical Geography Specialty Group of the Association of American Geographers(AAG). The mission of the MGSG is to provide a forum for disseminating research on geographical epidemiology, spatial aspects of health care delivery, health care policy and the political economy of health care, and ethnomedicine and to promote medical geography within the discipline of geography and to related disciplines, agencies in government and the private sector, and the general public. MGSG newsletters for the last decade are available at this site. [Stephen Matthews, The Pennsylvania State University, has served as editor and can be reached at email [matthews@pop.psu.edu](mailto:matthews@pop.psu.edu) with any questions]

### Final Thought(s): A New GIS Website

Many of you know that developing a web site is no small task especially when in-house budgets and resources are so limited. Your kind response to the recent launching of the NCHS GIS Website is appreciated. We have grown during the last six years to more than 1,300 subscribers both within and outside of government. In fact our now expanded Public Health GIS Users Group has no geographic constraints, with representatives both nationally and abroad. The

## PUBLIC HEALTH GIS NEWS AND INFORMATION

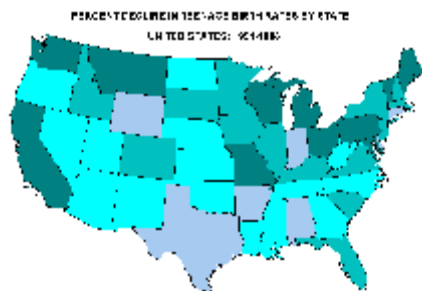
July 2000 (No. 35)

24

initial vision of a GIS and public health users group, dedicated to "*scientific excellence and advancement in disease control and prevention using GIS*," now is becoming a reality.

We hope to continue to grow our new NCHS GIS website and be responsive to your needs. I want to share with you responses received from our recent website initiative: "*Very nice site! Thanks for pulling all this information together...I can replace about 10 bookmarks with one!*" Lance Waller (Emory University); "*Congratulations! You have turned this into a major public health tool!*" Andy White (National Academy of Sciences); "*Very nice and quite useful!*" Duane Marble, Professor (The Ohio State University); "*Congratulations on the web site!!*" Margie Roswell (UMBC Center for Health Program Management and Development); "*Congratulations. This will be a lot easier to post your newsletters. Guess you don't need that mailing list anymore although its good to have.*" Jon Sperling (U.S. Census Bureau); "*Great site!!! (and thanks for the link to our site). I just added this to my list of links, which is part of the enhanced Web site, which I hope to introduce in September.*" Dan Grauman (National Cancer Institute); "*Congratulations*" Nathaniel Schenker (NCHS CDC); "*Very nice web site. I love the maps. Nice work!*" J. Lee Annest (NCIPC CDC); "*Congratulations*" Meena Khare (NCHS CDC); "*Congratulations! Your new Web site is really wonderful. I predict that your site will be very popular (have multiple visitors), and will generate increasing interest in geographic information systems (GIS) by other parts of CDC. With every good wish.*" Tom Richards (NCCDPHP CDC); "*Your GIS website is terrific. I'll be a frequent visitor.*" Gerard Rushton, Professor (University of Iowa); "*Graeme Hugo arranged for you to add me to your mailing list and I have appreciated receiving your newsletter and associated information-in particular details of your new website, which is very impressive.*" John Glover, Director (Public Health Information Development Unit, The University of Adelaide, South Australia). Thank you for your support...Chuck Croner

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[http://www.cdc.gov/nchs/about/otheract/gis/gis\\_home.htm](http://www.cdc.gov/nchs/about/otheract/gis/gis_home.htm)

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](mailto:cmc2@cdc.gov). While this report is in the public domain, the content should not be altered or changed.

Please join us at NCHS for our **July 19** and **September 7, 2000 GIS Presentations**  
and visit our new GIS Web location