



Maine Coordinates

The Official Newsletter of the Maine GIS User Group

Volume VI, Number 1 • September 2000

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Enhancing your chances of survival

By Robert White

Trapped in his car and knowing only that he had crashed in an Allen County, Indiana ditch the morning of April 9, Jon Charleston called police on his cellular phone, begging for help. A frantic search across miles of county roads ensued. Unfortunately, by the time police and firefighters found Charleston almost two hours later, he had no pulse. The 49 year old executive was pronounced dead at a local hospital early that morning.¹

Tragedies like this one are common across America. Perhaps Mr. Charleston and countless others² would be alive today if Enhanced 9-1-1 service providers, Public Safety Answering Points (PSAP), auto makers, wireless carriers and others combined their efforts to implement locational technologies to complement and support wireless telephones. Since we all occasionally drive to unfamiliar locations, Mr. Charleston's situation clearly demonstrates that cell phones alone are inadequate to always summon help—especially when people are injured or disoriented by an accident.

(story continues on page 3, Survival)

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www.megug.org

New major initiatives at Office of GIS

By Dan Walters

July 1 brought a brand new state fiscal year, and the Maine Office of GIS has started work on several initiatives aimed at improving GIS products and services. The initiatives involve major enhancements to the state's GIS base map and the implementation of new technology to improve access for state agencies and the public.

Hydrography

Since July 1999, a subcommittee of state and federal GIS users has been meeting to discuss needed improvements to the hydrography layer. The discussions have been quite broad, but emergency management applications, including dam safety and inundation mapping, water quality modeling, and enhanced cartography, are good examples of the types of the applications which agencies are expecting to develop that require implementation of both spatial and attribute enhancements. Once the proposed work is completed, users can expect ponds, rivers, streams, and coastline to be edge-matched and combined into a single hydrography layer. The layer will have a number of important

(story continues on page 5, New Initiatives)



¹ The Journal Gazette, April 25, 1999 By Meghan Hoyer.

² In 1998, 41,471 Americans died from injuries sustained in automobile crashes.

UPCOMING EVENTS

Maine GIS User Group Fall Conference 2000 "Applied GIS in Northern Maine"

October 17, 2000

8:00 a.m. – 4:00 p.m.

Center for Community Health Education
Houlton, Maine
www.megug.org

15th Annual NEARC Users Group Conference

October 1-4, 2000

Killington Grand Hotel, Vermont
www.northeastarc.org

New England GITA Fall Seminar

November 1, 2000

Log Cabin Meeting House
Holyoke, Massachusetts
www.gita.org

Education

GIS at Maine's technical colleges

(The goal of this column is to provide an overview of programs and courses on GIS in Maine. This month's focus is Eastern Maine Technical College and Southern Maine Technical College.)

By Eileen Sylvan Johnson



During Fall 2000, **Eastern Maine Technical College** in Bangor is initiating a new CADD degree program that will

include a GIS component. The four-semester sequence includes two courses that focus specifically on GIS. CAD214, Survey and Global Positioning, teaches principles in both traditional survey methods and the collection of survey data using Global Positioning Systems. The second course, CAD215, Geographical Information Systems, will be offered during the fourth semester. This course is designed to introduce students to principles and practices of GIS using both ArcView and Autodesk software.

Students in the program are required to complete a Capstone project during their last year. The Capstone project may involve cooperative education, apprenticeship, extended job shadowing, internship, or other

type of work experience. Dick Staples, CADD Department Chair, is interested in developing a database of companies that will partner with the college in providing work experiences for students. For more information contact Dick Staples at EMTC at 941-4822, or send an email to dstaples@midmaine.com.

Southern Maine Technical College in

South Portland currently offers both credit and non-credit courses on GPS and GIS. Credit courses on GIS and GPS are offered as part of SMTC's Environmental Technology Program. SUR-014, Surveying and Mapping, provides an overview of surveying technology and includes a module on the use of GPS. GIS-100, Introduction to Geographic Information Systems, provides an overview of the principles of GIS and gives students a working knowledge of ArcView.

Although the courses were originally developed as part of the Environmental Technology Program, students in many different programs, including Applied Marine Biology, Plant and Soil Technology, Computer Technology, and Technical Design and Graphics, have taken the classes as electives. The courses are also available to non-matriculated students. SMTC offers a number of non-credit GIS courses, including "Introduction to ArcView," "Introduction to Avenue," and "GIS for Emergency Management Services."

The college is an ESRI Authorized Training Center and recently has become an ESRI Offsite Training Center. Starting in January, certain ESRI courses offered at the Danvers Training Center will now be offered at SMTC, including "What's New In ArcInfo 8," "Advanced ArcView," and "Migrating to ArcView Version 8." For more information on credit or non-credit courses, contact Eileen Sylvan Johnson at 767-9643, by e-mail at esj@smtc.net, or check out SMTC's web site at www.smtc.net. ■

Maine GIS User Group

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Survival

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Today more than five million Americans suffer from traumatic brain injuries, with 80,000 new cases occurring annually. Of these, more than 50 percent are caused by vehicle accidents, and approximately 8,000 of these people die. During the past 20 years, post-crash deaths have declined by an average of 10,000 deaths per year. However the number of people dying after the crash, but before arriving in a trauma center, has doubled to 20,000 deaths annually.

Clearly, medical advances allow trauma centers to save lives when victims are treated within the first “golden”³ hour, but our current automobile crash emergency notification system falls short of dispatching help quickly. Urban crash victims receive medical attention within 35 minutes on average, while their rural counterparts wait 52 minutes. So, if you are on a first ever trip to a rural part of Maine, and crash, the chances are good that you’ll be waiting the average 52 minutes for transport to a hospital. That gives doctors eight minutes to diagnose and begin your treatment. If you cannot use your cell phone to explain where you are, chances are, your medical attention will start well after the “golden hour” has expired.

We already have the technology to improve our survival chances. Automated Crash Notification (ACN) Devices can automatically call the appropriate PSAP (Public Safety Answer Point) and transmit the coordinates and other related data, even if passengers are unconscious. Additionally, a crash pulse is generated from the device and transmitted to the nearby trauma center. This will alert the medical staff of the crash, provide probability/severity of injury, and the number of patients that they will be receiving. This will alert emergency rooms to the needed number of support staff, surgical teams, units of blood

(story continues on page 4, ACN Devices)

³ Term coined by Dr. R. Adams Crowley at the Maryland Institute for Emergency Medical Services. Belief that most patients who die from trauma could be saved if they receive medical intervention within first hour.

Message from the Chairman

Please allow me to introduce myself. My name is Ray Johnson, and I am currently GIS Manager at Bangor Hydro-Electric Company in Bangor. It is my pleasure to serve the Maine GIS User Group as its current Chairman.

I joined Bangor Hydro-Electric Company in 1980. My experience includes eight years in the electrical engineering department, with responsibilities for the company’s SCADA (Supervisory Control and Data Acquisition) system, and six years as Assistant Division Manager, responsible for customer service, service planning, line, and metering departments.

I’m looking forward to meeting old friends and making new ones at our Fall Conference in Houlton. See you there! Bring your cameras—it should be a very colorful season. ■



Mark your calendars: MEGUG fall conference to address GIS in northern Maine

On Tuesday, October 17, the Maine GIS User Group will convene in Houlton to explore the topic of Applied GIS in Northern Maine. The conference will be held from 8:00 to 4:00 at the Center for Community Health Education.

In the coming weeks, please visit www.megug.org for further conference information and registration details. Presently, we anticipate the following tentative agenda.

TENTATIVE AGENDA

8:00 - 8:45	Registration
8:45 - 9:00	Welcome – Ray Johnson, MEGUG Chairman
9:00 - 10:00	AutoCAD and Database Integration <i>Presented by John E. Franklin, Photo Science, Inc.</i>
10:00 - 10:30	Break
10:30 - 12:00	GIS in Agriculture <i>Presented by Tim Hobbs, Central Aroostook Soil & Water Conserv. District</i>
12:00 - 1:15	Lunch
1:30 - 2:30	Public Works and Mapping <i>Presented by John Severence, Cartographic Associates, Inc.</i>
2:30 - 3:00	Break
3:00 - 4:00	GPS for Data Collection <i>Presented by Bill Martin, Ashtech Precision Products</i>
4:00	Closing Remarks

Poster contest results

The MEGUG Spring 2000 Conference, held in Augusta on May 11, was well attended and met with resounding success. One of the featured events was a poster contest, which drew a lot of attention. All contest entries were noteworthy, and showed forethought and considerable effort in preparation.

Conference attendees voted on winners in three categories, as follows:

Most Informative Poster

Title: Merrymeeting Bay Map
By: James W. Sewall Company
Friends of Merrymeeting Bay commissioned James W. Sewall Company to provide mapping analysis by replicating earlier vegetation classifications inside the bay and land area, including the land use and land cover.

Classifications were carried out by photo interpretation of 1956, 1981, and 1998 aerial photography. Mapping and analysis were accomplished using ArcView and ARC/INFO techniques.

Thank you, Peggy Daigle. -Ed.

Most Aesthetically Pleasing Poster

Title: Frenchboro Long Island
By: Island Institute
In August 1999, a parcel of approximately 900 acres of undeveloped land, comprising over half the total acreage of Frenchboro Long Island, was listed for sale. The selectmen of Frenchboro approached the Island Institute, the Maine Coast Heritage Trust, and the Maine Seacoast Mission for assistance in drafting a strategy for protecting the property while accommodating some future growth. The "Frenchboro Long Island" poster was created in support of the conservation plan, and includes a map of the island (displaying island parcels and physical features), a photograph of Lunt Harbor, and descriptive numbers and text. The poster was created in ArcView 3.2/NT and printed using ArcPress.

Thank you, Andy Boyce. -Ed.

Most Unusual Poster

Title: Fort Irwin Vegetation Mapping
By: UMaine—Dept. of Spatial Info.

The objectives of the Fort Irwin Vegetation Mapping Project were: (1) to construct a multivariate model of the Desert Tortoise (*Gopherus agassizii*) habitat, and (2) to generate a vegetation map and related vegetation characteristics to environmental features. The posters presented showed the ARC/INFO coverages produced from this project, along with information describing the sources and methods used to create them and a description of the vegetation communities mapped. The coverages included vegetation canopy, vegetation type and surface elevation coverages. The posters also contained a SPOT orthophoto showing (UMaine's) vegetation transects and GPS control points, in addition to showing a shaded relief of the test area.

Thank you, Valerie Carney. -Ed. ■

ACN devices

(continued from page 3)

etc. The crash pulse information could also alert the dispatcher that Jaws-of-Life, advanced medical support, or a life flight may be required before the first public safety official arrives at the scene.

Launched in January 1998, the ComCare Alliance has brought automotive, public safety, medical services, transportation, and civic groups leaders together to promote the development and implementation of ACN. Today, 300,000 autos are equipped with these devices, and by 2001 that number will surpass 1.5 million. By 2004, more than 11 million American automobiles are projected to be ACN-equipped.

The State of Maine has been working to implement a statewide Enhanced 9-1-1 system (E9-1-1), the first part of which is scheduled to go online later this year. E9-1-1 will allow dispatchers to see the origin of the E9-1-1 call, even if the caller hangs up or is unable to

speaking. This will reduce or eliminate the need for time consuming call traces. Although this is a great first step, it does not support ACN devices.

ACN devices work by using the Global Positioning System (GPS) to determine call or incident location. When a call is placed to 9-1-1, the phone company switch would be programmed to take the longitude/latitude of the caller, perform a point in polygon lookup with the spatial data, and then route the call to the appropriate PSAP. Once the call is connected, the caller could talk to a dispatcher, or the ACN device would transmit the required information.

The Geographic Information Systems data that the Maine Office of GIS has developed for addressing can be used as a base for E9-1-1. In order to implement and support ACN life-saving technology, Maine must commit to:

1. Maintaining the statewide spatial road database on a regular basis,
2. Determining what technology is needed to distribute the data to all PSAPs, and
3. Acquiring a mapping package that will be capable of receiving x,y coordinates and then displaying these coordinates along with the road data.

This would give the dispatcher the information needed to send help quickly and efficiently. The medical profession also needs to be involved and properly trained to utilize the data received from the crash pulse. A good first step would be for the State of Maine to join the ComCare Alliance, form a local chapter, and help facilitate the implementation process.

I believe ACN devices will save lives; and want to be the first person in Maine to have one installed in my car—after E9-1-1 can support its use here! ■

(The statistics used in this article were found at the following web sites: www.comcare.org, www.lzontheweb.com, www.biausa.org, and www.dot.gov.)

Robert White works at Plant Equipment Inc. in South China. His prior experience includes serving as E9-1-1 project manager for the Maine Office of GIS, as well as various counties throughout the northeast.

New initiatives

(continued from page 1)

attributes including the MIDAS number and feature name. A flow-based reduced single line representation also will be developed to permit modeling and watershed analysis.

A pilot project covering the Sheepscott watershed was initiated to scope out the necessary work. During the course of this work, discussions continued with the US Geological Survey Water Resources Division about their work to construct a GIS-based National Hydrography Database (NHD) using 1:24,000 scale data. The results of the pilot project and discussions have led to a cooperative agreement with the USGS to expand the pilot area and enhance the data to NHD specifications. If successful and funding is available, USGS and OGIS hope to amend the cooperative agreement to include the rest of the state.

Road Centerlines

The Emergency Services Communication Bureau (ESCB) and OGIS are rapidly concluding their work with towns to create consistent and comprehensive physical addresses for emergency services. This huge project is scheduled to end in 2001. GIS data resulting from this project will be maintained to further extend the usefulness of this project and possibly to support map-assisted dispatch at the public safety answering points.

Users can expect the GIS data to contain a complete road network including both public and private roads that are part of a town's emergency response road network. Each road segment will have the correct road name and address range. These bits of GIS information give agency programs powerful "geocoding" and spatial analysis capability.

More than 200 towns have now been through the addressing project and OGIS is finalizing these data for release to the public. Technicians will perform a final check of the spatial and attribute data to uncover any problems that may not have been resolved during the addressing project. Feature level attribute fields also are being added that will tell users the source of the feature, method of digitization, and when it was last updated. This

information will facilitate use of the data and streamline data management activities. Finally, ESCB, OGIS and the Department of Transportation are studying the feasibility of adding DOT TINIS node numbers and selected attributes to the E911 road centerline data. These agencies are also examining a method to maintain these data jointly and provide all interested parties direct access to the most current road centerline databases.

Spatial Data Engine and Internet Mapping

GIS data, like road centerlines, hydrography and town boundaries, change over time, and the State of Maine is making the commitment to keep these layers up-to-date to serve state programs and the public. However, these databases are very large and some change very rapidly and require a high level of technical capacity to manage and serve. This technology barrier precludes effective usage of these data in many cases. The 5-year Strategic Plan for GIS aims to overcome these barriers and make "GIS more accessible and easier to use." Regardless of the technical challenges, big and small agencies need access to the most current data available to make sound and timely decisions.

The Office of GIS and our GIS Executive Council partners intend to meet this challenge by implementing new spatial database management and application software. OGIS

has recently purchased and loaded ESRI's Spatial Data Engine and internet mapping software (ArcIMS), and both are being tested this year with several pilot projects. SDE is being used to support a client/provider application for the Department of Mental Health, Mental Retardation and Substance Abuse, and finalized E911 road centerline data is being added to SDE to support maintenance and generation of map books. The new hydrography database discussed above also will be tested in the SDE environment. In addition, the Departments of Marine Resources and Environment Protection will test ArcIMS applications later this year.

The "common infrastructure" to support this work will unfold over the next two years. SDE will help us manage and provide access to multipurpose data from a central location. This will allow agencies to access the most current data without having the burden of managing these complex databases. This not only improves access to data, but also reduces our overall data management costs. ArcIMS will extend GIS capability to agency staff who do not have desktop GIS software, and will allow us to interconnect more easily those who do. ArcIMS and SDE will also permit us to improve public access to agency-generated geographic data. ■

For more information, visit the OGIS web site at <http://apollo.ogis.state.me.us>.

COOL WEB SITES!

MEGUG members have been surfing the net, and recommend the following sites to fellow GIS users. To contribute to this column, email rjohnson@bhe.com.

■ **Maine Office of GIS is managing a project with the intent of linking all of Maine's schools and libraries to the internet for access to GIS mapping. Check out this hotlink.**

<http://apollo.ogis.state.me.us/mapping/mapintro.htm>

■ **Texas A&M University System offers a real-time peek at Houston's traffic flow. Very cool.**

<http://traffic.tamu.edu/traffic.html>

■ **Smallworld Systems has a rather engaging web site, too. Try out:**

<http://www.swldy.com>

MEGUG MEMBERSHIP APPLICATION

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Which best describes you?

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| <input type="checkbox"/> K-12 (Grade)___ | <input type="checkbox"/> Military |
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What GIS software do you use? _____

Membership Level

If you have already paid for an individual membership but prefer a corporate membership just send the difference with a note.

- Individual (\$25)
- Corporate/Institutional (\$80/four floating memberships/two newsletters)
- College Student (\$15) Name of college: _____
- School (K-12) (\$25): Includes two copies of newsletters to the school, free attendance for teachers and students at the three quarterly meetings with two weeks advance notice (see specific meeting notice for details)

MAKE CHECKS PAYABLE TO:

Maine GIS User Group

RETURN FORM AND CHECK TO:

Judy Colby-George
c/o Geo-Systems
PO Box 934
Yarmouth, ME 04096

TELL A FRIEND

This membership application, and previous *Maine Coordinates* newsletters, can be found on the MEGUG web site, at www.unity.edu/sarihou/MEGUG.html.

Maine Coordinates

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