

Smith Warner International managing director David Smith speaks during the second annual Geographic Information Systems Conference on Thursday afternoon at Divi Carina Bay Resort on St. Croix. Smith Warner International is a coastal and environmental engineering firm.

Daily News Photo by CRISTIAN SIMESCU

Geographical information experts trade notes at St. Croix meeting

By PATRICK JOY
Daily News Staff

ST. CROIX — From marine researchers laying transects in the ocean to emergency planners drawing evacuation routes away from floodplains, geographic information systems are changing the way Caribbean nations approach their changing landscapes.

Those researchers, planners and experts converged on St. Croix on Thursday to share notes, explore new technology and plan for the future.

GIS technologies and applications have been exploding in recent years as costs for equipment have dropped and expertise has risen. GIS involves taking digitalized maps and data sets and laying them over one another. A historical map of dengue cases, for example, could be paired with a map of floodplains to see if the two were often found together. Then, a third map for new drainage improvements could be drafted and combined with the other two to help prevent outbreaks.

The technology is also useful in planning development away from potential hazards and calculating the risk of developments already in those areas.

"In places like Mon Bijou, we've had terrible flooding," said Lt. Gov. Vargrave Richards, who introduced the conference. "If we had this mapping and planning technology, we might have avoid things like this."

Conference participants on St. Croix began two days of workshops Thursday aimed at expanding their skills and envisioning creative uses for GIS. From the modernization of flood maps to coastal erosion and marine navigation, the workshops covered a wide range of topics.

The GIS evolution also is being fueled by more accurate mapping equipment, two pieces of which are currently

being installed in the Virgin Islands. Known as CORS — continually operating reference stations — these small stations concentrate the power of global positioning satellites, correcting errors and allowing for accurate positioning within mere centimeters. The stations are being installed in conjunction with the University of the Virgin islands on their campuses and will aid surveyors and disaster planners and could even help detect tsunamis in the future. The stations are so accurate that they can detect even minute changes in the topography of the earth's crust.

"Everyone with a handheld GPS receiver will benefit from this," said Dave Doyle, a representative of the National Oceanic Atmospheric Association. "And our network is expanding. They've installed stations in Suriname and others just went online in Iraq."

The more stations that go online, the more accurate and reliable the positioning system becomes, he said.

The stations should be functioning in about three months on St. Thomas and St. Croix, said Doyle.

Plans are also in the works for more accurate positioning systems for boats, which would allow much more accurate research as well as navigation.

"Let's say we're out in the field, 200 miles offshore and we're laying a transect," said Eoghan Joyce, a UVI researcher. "We don't have the luxury of going all the way back to shore to run our data through and make sure we've got the position correct and then come back."

Joyce said the new technology would give them an exact position while out on the water.

The conference will continue today with workshops on coast and shoreline change analysis, damage assessment, and hurricane and evacuation planning.

— Contact Patrick Joy at 774-8772 ext. 458 or e-mail pjoy@dailynews.vi.

GIS conference highlights projects in VI, capabilities of mapping program

BILL KOSSLER

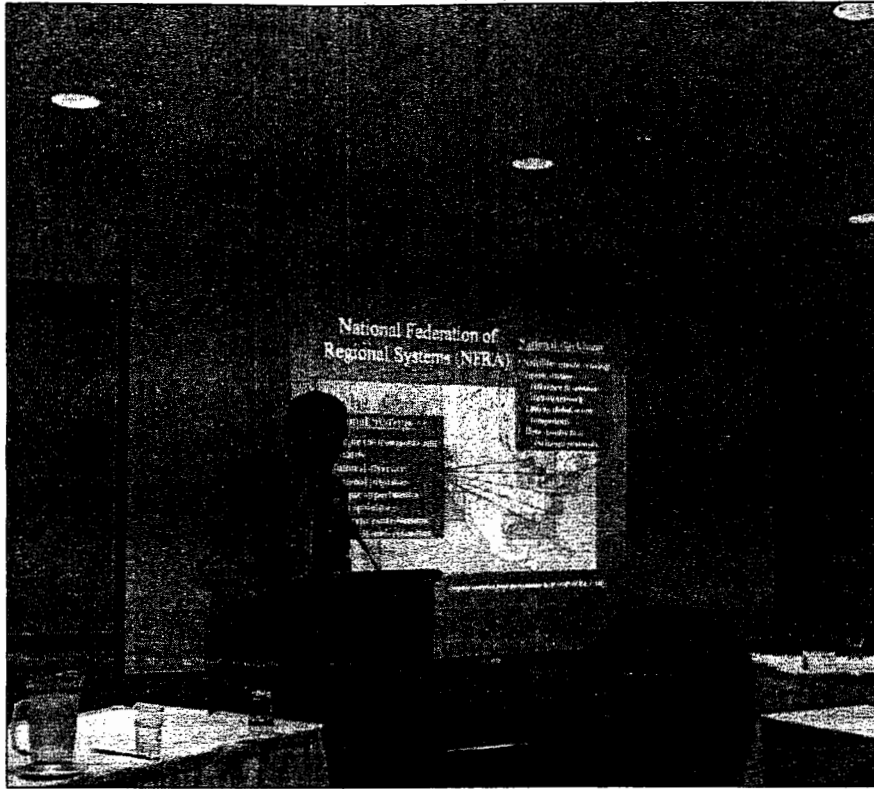
ST. CROIX — Thursday's session of Lt. Gov. Vargrave Richard's Geographic Information System conference highlighted several major ongoing technological projects in the territory and aired many major ways that GIS layered, three-dimensional computerized mapping program is important to major government activities affecting all residents.

GIS is a very powerful software package that allows users to layer maps of all manner of geographic information in any way users can think to do. The information that one group gathers and uses can be added, layered with the information others have collected, making the value and power of the program increase exponentially over time. Ultimately, GIS is about mapping and several lectures were about ongoing major improvements in gathering highly accurate mapping information.

The National Oceanographic and Atmospheric Administration, in partnership with the St. Thomas and St. Croix campuses of the University of the Virgin Islands, are finishing up two high tech beacons, called Continuously Operating Reference Stations (CORS), which enables Geographic Positioning Systems (GPS), to accurately measure not just map location, but height. And the US Coast Guard has plans for a similar sort of beacon in Puerto Rico that will make GPS work dramatically better on vessels out at sea.

UVI professor Roy Watlington spoke about several projects and organizations that aim at gathering all manner of marine information: Currents, winds, water temperatures, fish school movement patterns, water clarity, air clarity, shoreline erosion, early tsunami detection and much more, from buoys, satellites, ships and other sources. Watlington champions several groups that would coordinate gathering and sharing of this information among the nations of the Caribbean and to the scientific community at large.

This information would be gathered and displayed through GIS, and available online, for scientists, fisherman, scuba divers, boaters or the curious. If you want to know more about these projects, you can go online to www.uvi.edu and click on "CaRA", to www.ocean.us and to www.tidesandcurrents.noaa.gov.



Visual presentations were an integral part of Lt. Gov. Vargrave Richard's Geographic Information System conference held Thursday.

Bill Kosler

Officials from the Bahamas and from St. Lucia shared their experiences with using GIS to help manage their coastal zones too. For more information about the Bahamian programs you can go to <http://storm.carib.com>.

Richards himself spoke briefly about the importance of fostering sharing and of overcoming the culture that feels territorial about its information among some VI government agencies, and how the kinds of information being talked about would have helped in concrete, real life situations such as with Mon Bijou and Williams Delight flood control. The spirit of the whole conference, as with GIS itself, was one deeply mindful of the benefits of sharing information.

Bringing some of these concepts home to their uses by the VI, Kelly Harrigan, director of Richards' Management Information Services, spoke about information technology being used within the lieutenant governor's office. At Richard's behest, Harrigan networked the banking, passport, tax, corporation and trademark, title and deed offices which the Lieutenant Governor's office

oversees. Richards has also made putting government information online his personal project and legacy. Harrigan shared the lessons she has learned implementing these projects within a Caribbean setting.

The Virgin Islands code is online now, and several other big bodies of public information are in what is called "beta" mode, meaning they are running, but still being tested and finished. Property tax records, corporation and trademark data, mortgage, lien and deed information are all working in beta mode now. Harrigan says the deed, lien and mortgage information will be available to the public online very soon.

Early speakers briefed listeners on another project of great importance to our citizens — the nearly complete territorial Flood Map Modernization Program will have a large direct financial impact on thousands of residents.

The Map Modernization Program is a prime example of the uses of GIS. It takes information from more accurate, relatively recent mapping of the island, layers on information from

new models of wave action and rain, river based flooding, and overlays the map of all land parcels. Data from several sources are brought together, mapped out and displayed however the user of GIS wants. That same information can then be used by others for different purposes, whether for better evacuation plans, predicting the damage that will occur in a particular storm, or something else.

The flood map is used to declare which areas of land are subject to what degree of funding. Its information directly affects the cost of building, because cistern openings and building entrances have to be above the water height of a once-a-century flood, and the flood map says what that level is for any given area.

The map also determines who is and who is not required to purchase flood insurance. Officials at the conference revealed there are 2,202 flood insurance policies in force in the territory, and area property owners pay \$1.6 million in premiums every year — no small matter.

The new map, whose initial draft is already complete, takes some of the land out of the flood zone,

and puts some into it, changing who has to pay and who does not.

Lorin Lewis and Alex Doward of the Department of Planning and Natural Resources said, for instance, that St. Croix has 31,719 plots of land, of which 6,998 are in the flood zone and 24,729 outside it.

The old map had 9,761 parcels listed in the flood zone and 21,958 out, so many parcels of land no longer need flood insurance. Some 3,389 parcels, in fact, will no longer require that expense. At the same time 618 St. Croix parcels that did not need flood insurance before, will need to get it once the new flood map becomes official.

The new flood map can now be seen at the DPNR offices, and it should be online by the end of the year. Everyone whose flood zone status is changing will receive notice in the mail, and if you believe the finding is inaccurate, you should look at the map and lodge an appeal before the map is finalized.

Another important project that feeds into the territory's use of GIS is the ongoing tax revaluation of Virgin Islands real property, begun in 2004.

Sally Powers of Bearing Point Inc., the company contracted to carry out the property tax reassessment, described the many types of information their work would create; exact locations and costs of houses, types of building materials, types of roofing, number of stories, and such. Their work would be made much easier once accurate land survey information is already in place. The information they gather adds valuable whole new layers for others to use. This tax data too will ultimately be online for public access.

All of the information types discussed already can, once standardized within GIS, be used for many other purposes, like hurricane and emergency preparation and response.

Accurate flood maps combined with accurate house locations and accurate storm data can help plan evacuations, so you pinpoint exactly those areas that are at most risk. Throw in the housing material and property value information from the revaluation survey and you can better predict which houses will be most damaged and accurately estimate the expense.

If any single theme beyond the ins and outs of GIS ran through the program, it was the benevolent circle of increased sharing of larger amounts of more accurate information, across departmental, governmental and national boundaries: from St. Croix to the big wide world and back.