

## Tech Focus

# Unwinding flood forecasting technology

MANISHA GANGOPADHYAY

To predict oncoming floods, the Bangladesh Water Development Board's (BWDB) Flood Forecasting and Warning Centre (FFWC) uses a state-of-the-art modeling software called Mike-11. The one-dimensional fully hydrodynamic model, MIKE 11 HD incorporates all major rivers and floodplains in Bangladesh. This is linked to a

lumped conceptual rainfall-runoff model (MIKE 11 RR), which generates inflows from catchments within the country. There are a total of 216 catchment areas. The total length of modelled rivers is 7270 km. The primary information used in the Mike-11 flood prediction models is rainfall data and river water level. FFWC collect this data from 45 water stations and 54 rainfall stations, of which 14 are telemetric stations, located in high

flood-prone areas. These stations collect rainfall data in real-time, in other words, every day, sometimes 2-3 times per day and in case of an emergency, every hour.

Collecting river water level data is a bit tricky because 92% of the 1.7 thousand square mile catchment area is outside the country. The FFWC uses information from 14 locations in India and China to make an estimate of the water level at the border for our model.

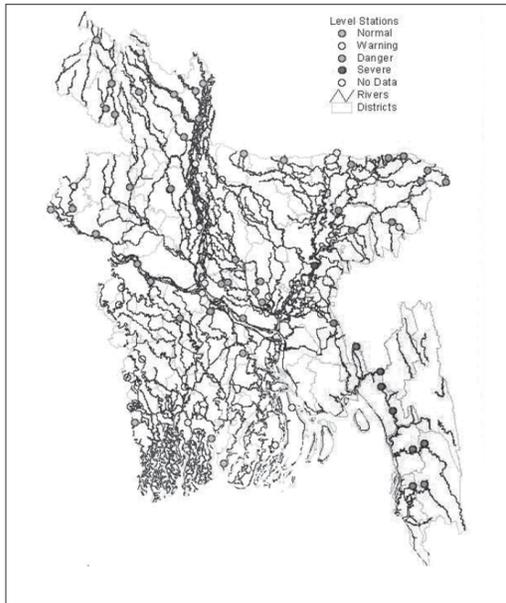
However, they are not currently in a position to extend their model beyond the border for lack of a standardised measurement system. The lead-time could be lengthened by 5-7 days if upstream information from India on the Brahmaputra river from the Allehabad and Putna points could be incorporated into the model. This year, executive engineer of FFWC, Salim Bhuiyan, was invited to be on the Joint Commission of Farakka, which should bode well for



Orion 7000, the wireless data collector used by FFWC



Salim Bhuiya looks at the Telemetry Receiver Switchboard at the FFWC



A screen-shot of Mike-11 showing all the Level Stations of Bangladesh



Mike-11's powerful ariel view

sharing of information on river data.

Other data inputs used in the flood modelling system are temperature, soil moisture, soil water level, ground water level, among others. After all data is inputted manually, the model is run and flood maps are generated from the results via a Geographical Information Systems (GIS) link to the model (MIKE 11 GIS), based on a standardised ranking system of flooding disaster. The model results are competent for forecasting up to 72 hours in advance with 95% accuracy, after which the accuracy level drops to 80%.

Model results are then uploaded to the FFWC website and sent to The Disaster Management Bureau, various related government bodies, news agencies, and international

relief organisations.

To increase the lead time of predictions FFWC need to improve their rainfall quantity forecast information, technically known as Quantitative Precipitation Forecast (QPF). To get this information, our national weather forecasters would require a Doppler system or satellite pictures, which it does not have. QPF is used in the conceptual rainfall-runoff model (NAM Model) to generate runoff information.

Since the floods of 1998, the FFWC has developed a Digital Elevation Model (DEM) to calculate the depth and extent of inundation based on topographic information, water level forecasts and GIS-based analysis. One weakness of the system, which should soon be mitigated, is that the topographic

maps used in the model is based on a survey carried out in 1956 by the Survey of Bangladesh (SOB). Since then, drainage systems have been updated and infrastructure across the country has been added, removed and changed. The FFWC get around this by carrying out its own surveys and using their own knowledge of the areas (in Dhaka they have personally surveyed the Balu River area). However, they do not have the capacity to execute full or accurate coverage without an extensive study. Currently, the SOB is developing a topographic map of Dhaka to be released in 2005, which may be provided in electronic format to government bodies.

Unfortunately, the absence of a nationwide communication link to micro-level government bodies,

namely the Upazilas, poses an obstacle to widespread dissemination of flood forecasts, particularly village interiors, where flood damage and devastation hits the hardest. What you have is the technological advancements in FFWC meeting an antiquated communication network. "If this had been an industrialised country, flood warning could be widely broadcasted through the internet. In Bangladesh we do not have that advantage," laments Salim Bhuiya.

More information on flood forecasting is available at the FFWC website, www.ffwc.net. There is a Mike-11 simulation on the site. One can also avail water level forecasts of individual monitoring stations located in different parts of the country.

## Tech News

# Spreading Net security know-how

RIDWAN A KABIR

DAFFODIL Computers Limited (DCL), a local IT company tagged along with IT Secure Software (Pvt.) Limited, an Indian company to organise a seminar on network security and spam solution on August 2 at Sundarban Hotel in Dhaka.

RISK (Raising Internet Security Knowledge), as the seminar was called, mainly focused on spreading awareness on spam-related problems, network and internet security and discussing prospective solutions to the problems.

The program started off with a welcome address from the general manager of DCL sales department, Mohammed Asif, who mentioned different achievements of DCL, citing the company's currently engaged in an IT project for Bangladesh Railway under the government's supervision. He also referred to various privatised projects that are under development for the banking sectors of Bangladesh.

Peter Theobald, CEO of IT Secure

Software Pvt. Ltd., who delivered the main presentation at the RISK seminar, giving a detailed and informative account of the different aspects of spam and network security. Theobald made suggestions on how spam can be controlled under the strict supervision of the preloaded hardware, which comes



Peter Theobald of IT Secure Software Pvt. Ltd speaks at the seminar

with a software interface, from Sonicwall, the leading US-based company of which IT Secure Ltd. works as the distributor. The CEO of the Indian company also referred to the different wireless security hazards and the viruses that use Malicious Coding to produce

spywares from which any legal liability exposure is completely unsafe.

While offering the speech, Theobald stated how network security in everyday life is overlooked and needs to be completely understood before private party efforts against

computer viruses prevail. With today's complex operating systems it is hard to rectify viral attacks. Precautions along with updated measured steps should be applied beforehand. Theobald mentioned Microsoft's recently release of seven security patches to its clients,

emphasizing that clients need to look beyond the different anti-virus software. "Regular update of these patches are vital for a full protection from the ever-evolving viruses," added Theobald. These updates are automatically operated by interactive software from Sonicwall that may well put a lid to any virus venture to affect their computers on a major scale. "With broadband internet connection, the interactive software from Sonicwall will update itself everyday.

When asked if IT Secure is looking for a benefit from such an informative presentation, Theobald stated that it was too early to say how much prospect Bangladesh holds. He assured that the country is making due progress in IT fields and believes it will soon join the international IT community. The Indian company acts as the sole IT solution distributor for India, Bangladesh and Nepal. Theobald also suggested that while Bangladesh may hold future prospects as a major software developer, the country currently lacks the image of a sophisticated IT service provider by India. "To secure such an image

Bangladesh will need to proceed on a salesmanship towards Indian IT companies and thus may achieve sub-tenders from India," according to Theobald.

Minister for Posts and Telecommunications Aminul Haque, who attended the seminar as the chief guest, offered a short but assuring speech afterwards, mentioning the ongoing projects Bangladesh government has already secured on various IT sector developments. Haque cited that such seminars to procure IT elements in the country's infrastructure are greatly appreciated by the government and promised to work on such growth attempts from the private sectors of Bangladesh.

The seminar came to an end with a speech from the managing director of DCL, Sabur Khan, who enthusiastically held up a view that Bangladesh will soon attain a secured position as an internationally proclaimed IT administrator. Khan emphasized the importance of correct governmental approval on different sector projects in promoting growth of the IT infrastructure of Bangladesh.

## Sniffex Tech



Bulgarian engineer Yury Markov presents a device for detecting and locating a variety of explosives, including plastic-based explosives from a distance, during a news conference in Sofia on August 2. The invention called SNIFFEX will have applications in counter-terrorism, law enforcement, airport safety, and humanitarian efforts such as landmine removal.

## World's smallest sub

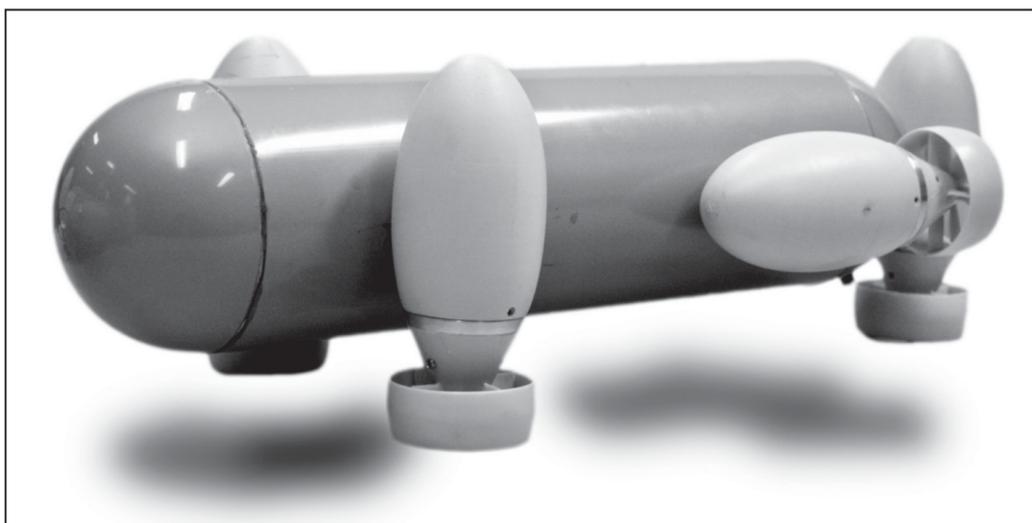


PHOTO:AFP

This undated Australian National University (ANU) handout photo, shows the world's smallest self-controlling submarine, called the Serafina. Built by researchers at Canberra's ANU, the Serafina is a 40 centimetre (16 inch) long submarine which has five propellers and a plastic hull crammed with rechargeable batteries and circuitry, should open up a new era of oceanic discovery, from shipwreck recovery to mineral exploration and search and rescue missions, not to mention potential military use.

## Tech News

# HP introduces new anti-tampering seals

STAR TECH DESK

HP has introduced new anti-tampering stickers in Bangladesh as part of its continuous endeavor to combat counterfeit products in its local market. These security stickers, which come in pairs, are posted on top and at the bottom of all laserjet print cartridges, while a third label on the front of every laser jet print cartridge will assess means of HP product originality. This was announced at a press event held on July 27 at a city restaurant.

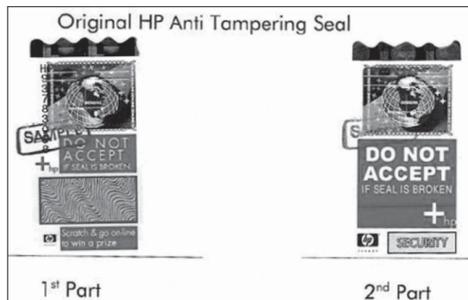
The new stickers are more elegant in design and contain complex security features that are very difficult to reproduce, and thus offers a whole new perspective for product security measures in use in the country. The new features that are offered to enhance security include a

continuous image trust seal, which, if tampered, is non-repairable. Worth mentioning are the use of heat sensitive inks to

checking system that will enable the customers to verify the authenticity of the supplies they buy from HP. Printed vertically on

customer scratches off the password, along with the correct HP number, he or she may log on to web location www.checkgenuine.com and check on the originality of the set of numbers. If the numbers do not match, the customer will know of the non-authenticity of the product.

HP also gave away prizes won by customers who participated in the online HP promotional campaign, which took place from July 15 till July 23. For the month of May, Kazi Mahbulul Quader won a HP scanjet 2400 and eight other winners received wristwatches. Ashraf Alam of BASIC Bank won a Dhaka-Bangkok-Dhaka air ticket for the month of June. Customers who will participate in the online program will stand a chance to win a Dhaka-Bangkok-Dhaka air ticket every month till September.



produce colorful line works, Additional to these fine measures, there is an online

the security sticker there is a HP authentication number and a password, which lies hidden in the gray area of the sticker. Once the