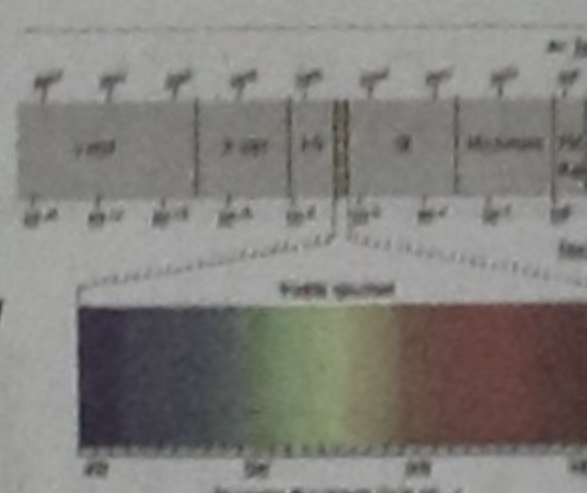




## Microwave

Microwaves are electromagnetic waves with wavelengths ranging from 1 mm to 1 m, or frequencies between 0.3 GHz and 300 GHz. The existence of electromagnetic waves, of which microwaves are part of the electromagnetic spectrum, was predicted by James Clerk Maxwell in 1864 from his equations. In 1888, Heinrich Hertz was the first to demonstrate the existence of electromagnetic waves by building an apparatus that produced and detected microwaves in the UHF region. In 1894 J. C. Bose publicly demonstrated radio control of a bell using millimeter wavelengths, and conducted research into the propagation of microwaves.



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## TECHVIEWS

### Microwave Remote Sensing

# Prediction and monitoring of disasters in Bangladesh



Satellite Image of Bangladesh (taken in October 2001, by Google Earth) showing the low elevation and the main rivers, left, and standard beam mode RADARSAT-1 images (25m resolution) acquired on October, 21, 2001 and May 7, 2008 following Cyclone Nargis.

MAHDIN MAHBOOB

MICROWAVE remote sensing technologies have been successfully used in different disaster management and risk assessment schemes in different countries of the world for quite some time now. Bangladesh, because of its unique geographical location, is prone to natural disasters such as flash floods, cyclones and storm surges, tornadoes, drought, hailstorm and lightning, erosion, landslide and earthquake. These disasters cost a huge loss in lives and property. Proper monitoring and accurate forecast can save many lives and huge amount of money. It is high time that microwave remote sensing technologies, which provide a much better alternative to existing technologies in use, are used more extensively than they are being done now.

The microwaves are part of the electromagnetic spectrum and their wavelengths range from 1 mm to 1m. The range of frequencies this covers is between 3000 to 30,000 MHz (3-30 GHz). The microwaves exhibit unique capabilities in remote sensing and they have a number of stand-alone applications. The fact that microwave observational facility works equally well in all weathers as well as in both day and night time helps in using microwave sensors for different land based, atmospheric and oceanography applications including disaster management. Remote sensing technologies, being used by different countries including the neighbouring country of India, provide a much better alternative compared to existing technologies in use.

Microwaves are specially suited for Remote Sensing because of several reasons: they can penetrate clouds, they are independent of the sun as a source and can hence be used in day as well as night and lastly, they can penetrate deeper into vegetation compared to optical waves. Furthermore, microwaves are capable of penetrating into the ground itself.

The potential of using satellite based microwave observations of soil moisture to improve flood predictability is a concept that is being explored in different parts of the world today. Remote sensing observations could add skill to predictions of flood peak timing and magnitude. The inundated land surface conditions displayed are a detectable precursor to subsequent downstream flooding. The use of remotely sensed passive microwave observations improves the forecasting skill for regional scale flooding. In Bangladesh, where flooding is a regular problem because of its unique geograph-

Types of Disaster	Areas Affected
Flood	Floodplains of the Brahmaputra-Jamuna, the Ganges-Padma and the Meghna river system
Cyclone and Storm Surge	Coastal areas and offshore islands
Tornado	Scattered areas of the country
Drought	Almost all areas, especially the Northwest region of the country
Flash Flood	Haor Basins of the North-east region and South-eastern hilly areas
Hail Storm and Lightning	Any part of the country
Erosion	Banks of the Brahmaputra - Jamuna, the Ganges-Padma and the Meghna river Systems
Landslide	Chittagong and Chittagong Hill Tracts
Earthquake	Northern and central parts of the Country

Source: SoE Study Team

ical location, microwave remote sensing maybe a good tool to accurately forecast flooding patterns and hence would help the government to take steps accordingly.

Microwave remote sensing also helps to monitor and forecast other natural disasters common to Bangladesh including cyclones, earthquakes, landslide, erosion and droughts. The process uses active and passive sensors placed in satellites, aeroplanes or helicopters to achieve this task.

Bangladesh is located in the low-lying Ganges-Brahmaputra River Delta or Ganges Delta. This unique geographical location makes the country subject to many forms of natural disasters on a frequent basis, and the nine major types are listed below:

The table below shows the major types of natural disasters in Bangladesh and the areas they usually affect and the impact they cause. This was found in a research published in the Bangladesh State of the Environment Report 2001.

The following images of Yangon, Myanmar, taken using the RADARSAT before and after Cyclone Nargis (which also partially affected the southernmost coast of Bangladesh) show microwave satellite images of the city (12):

The following image shows the trackchart of that cyclone recorded using the AMSR-E. The Advanced Microwave Scanning Radiometer - EOS (AMSR-E) is a one of the six sensors (passive microwave radiometer) aboard the Aqua Satellite which was launched by NASA in 2002.

It is quite evident that it is high time Bangladesh uses microwave remote sensing technologies more to accurately monitor and forecast natural disasters (including cyclones, earthquakes, floods, etc.) and take steps accordingly.

The use of Microwave Remote Sensing will provide a faster, more reliable and timely methodology for prediction and monitoring of natural disasters which will help in saving men and materials and lives of the common people of Bangladesh. It is suggested that the steps are taken immediately to initiate work in use of Microwave Remote Sensing for this purpose.

Information Source: Paper titled 'Microwave Remote Sensing for Prediction and Monitoring of Disasters in Bangladesh' [Mahdin Mahboob, Prof O P N Calla] due to be published in the InCMARS-2008 (Indian Conference on Microwave Antenna Propagation and Remote Sensing) due to be held in the International Centre for Radio Science, Jodhpur, Rajasthan, India.

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## TECHROUNDTABLE

### Career in call centre

STARTECH DESK

HERO Mindmine (HM), a subsidiary of Hero Corporate Service Limited of India, organised a roundtable in Banani on career in call centres in Bangladesh recently.

Abullah H Kafi, vice president of ASOCIO, Sumon Ahmed Sabbir, managing director of BDCOM Online, Hasan Bipul, senior sub editor of daily Jai Jai Din, Bikash Kaul, zonal manager of Hero Mindmine Institute and Shakil Jawad Rahim, chief executive officer of Bangladesh Out Sourcing Centre attended the roundtable to weigh career prospects of call centres in the country.

Hero Mindmine had earlier launched a training institute in Dhaka for those who want to enhance employability and communication skills in business process outsourcing (BPO) and call centres.

At the roundtable, Abdullah H Kafi said the first and foremost requirement for a call centre representative is proficiency in English.

"At present, we have small number of call centres with English medium students working there as part-timers. If we want to establish it as a profession we have to persuade Bengali medium students to enhance their proficiency in English."

Kafi requested HM Institute not to attract youths with exciting advertisements. HM should set an example by their training and making job opportunities so that youths get interested to come to this profession.

In the past some foreign institutions set up IT training centers. They did nothing but gave certificates to the trainees instead of getting them into jobs, Kafi added.

Exciting advertisements and lure of jobs mislead youths, he said.

Sumon Ahmed Sabbir stressed better

internet service for the development of call centre business in Bangladesh as Internet is the most important thing call centres need.

He said he had taken an initiative to start call centers few years ago. As they did not have fiber optic cables at that time, they tried to start it with Vsat but to no avail.

Sabbir thinks the problems have not been solved yet. "We are linked with one fiber optic submarine cable and the connection gets snapped twice a month on an average."

Hasan Bipul from the Jai Jai Din said it would be a great challenge for HM to establish call centers as a recognised profession.

Shakil Jawad from Bangladesh Out Sourcing said they have already started up some call centres with 60 percent of the employees from Bengali medium.

He said he was happy with the performance of the Bengali medium employees who need more training. And HM is giving them training to become more efficient and professional.

Bikash Kaul of Hero Mindmine Institute said they started operation in Bangladesh to develop skill of people for call centres. HM did not come here for any short-term business. Call centres have enormous potential in Bangladesh, Bikash said.

Bikash said HM trained over 20,000 call centre agents in India. The courses of HM are recognised by top international BPO (business process outsourcing) Institution. HM has a contract with globally recognised BCI (BPO Certification Institution) Texas, USA. And HM is the sole director of the courses of BCI in Asia.

Hero Mindmine launched a call centre training institute in Dhaka on November 20. Windmill Education Service Ltd is a sister concern of Bangladesh Windmill Group. It is the master franchisee of Hero Mindmine in Bangladesh.



## TECHNEWS

### 'Anti-Surge Protection' motherboard from Asus

STARTECH DESK

ASUS has launched P5KPL-AM/PS motherboards based on G31 chipset supporting Intel Quad-Core CPU and featuring the revolutionary 'Anti-Surge Protection' technology for reliable power supply. It supports Intel Core 2 multi-core and upcoming 45nm processors.

The Asus P5KPL-AM/PS motherboard features Asus Power Stabilizer Technology which offers significant protection from power surges and unstable power supplies, says a press release.

The Power Stabilizer circuit constantly monitors all the power input voltages and effectively isolates (and protects) all components including CPU in an event of unstable power.

In addition, the motherboard also features integrated 5000HR VRM (Voltage



Regulator Module) conductive polymer solid capacitors technology for enhanced power efficiency and increased power stability at low temperatures for longer and durable computing experience.

The product has a price-tag of Taka 4,500/

## PHOTO TECH



### PANCAKES ANYONE?

Japanese giant Yaskawa Electric's industrial robot Motoman turns over an "okonomiyaki", a Japanese pancake on a hot plate for a demonstration of cooking at a robot exhibition in Osaka on November 26. Some 60 robotic companies and laboratories showcased their latest robot technology at the three-day exhibition in Osaka.

PHOTO: AFP

## TECHNEWS

### Microsoft's emergency patch for IE

AFP, San Francisco

MICROSOFT on Wednesday released an emergency patch to fix a perilous software flaw allowing hackers to hijack Internet Explorer browsers and take over computers.

The US software giant said security update MS08-078 addresses a vulnerability cyber-criminals can exploit to their advantage.

Microsoft encourages all IE customers to test and deploy this update as soon as possible, said Microsoft security response communications head Christopher Budd.

The threat led Microsoft to mobilize security engineering teams worldwide to deliver a software cure "in the unprecedented time of eight days."

According to researchers at software security firm Trend Micro, attacks based on the vulnerability in the world's most popular Web browser were spreading "like wildfire" with millions of computers already compromised.

Microsoft typically releases patches for its software on the second Tuesday of each month and rushing this fix to computer users out-of-cycle is testimony to the severe danger of the threat, according to

Trend Micro.

"People should run, not walk, to get it installed," said Trend Micro advanced threat researcher Paul Ferguson. "This vulnerability is being actively exploited by cyber-criminals and getting worse every day."

The IE software patch will be automatically applied to hundreds of millions of personal computers due to standard update settings in the machines, according to Microsoft Security Response Alliance director Mike Reavey.

Wednesday morning, business networks using IE began getting the critical fix through routine patching processes. Reavey said Microsoft went into "emergency response" mode on December 9 after it first learned of the attacks on IE browsers.

A day later, Microsoft published a security advisory that "listed workarounds that blocked all known attacks."

"Over the course of the next eight days, this advisory was updated five times, adding newer workarounds and mitigations," Reavey said. "We also continually monitored the threat environment, noting when the attacks began to change in nature and scope."

