

Monitoring Nor'wester and Tornado Using NOAA-AVHRR Data

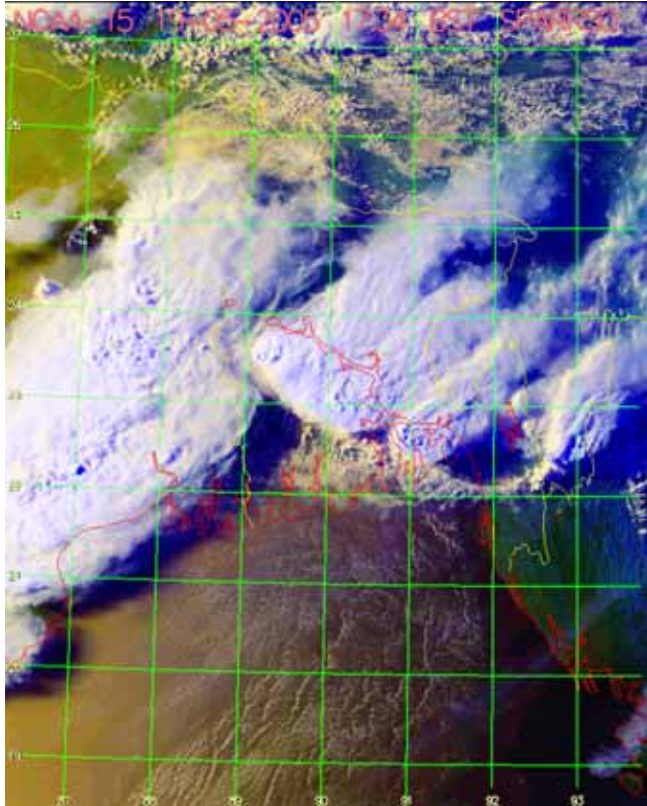


Fig.1. NOAA-AVHRR satellite data (19May 17:34 BST).

Nor'wester and tornado are common in Bangladesh during the pre-monsoon and monsoon period. Those can be easily monitored using NOAA-AVHRR satellite data. SPARRSO is receiving a number of those satellite pictures daily. The formation of severe storms can be easily detected by observing the cloud patterns. The evolution of the convective system and surrounding features is an indication of severe storms, which can easily be detected on the satellite image. The vertical growth of the convective

cells forming severe storm can be monitored using the top-temperature of clouds.

On the 20th March 2005 a devastating nor'wester killed many people and injured several others. It also damaged many houses and uprooted hundreds of trees. The NOAA satellite picture provided an indication of the probable occurrence of this severe storm. NOAA satellite acquired at that morning showed the formation of the convective system with some clouds in the northwestern part of Bangladesh. The severe destruction occurred at the bulging side of the clouds.

Another tornado hits northern Bangladesh on the 19th May (Fig. 1) and killed a number of people and devastated many areas in the North-Bengal. Natore was one of the severely affected areas.

Mapping Flood Shelters Using Remote Sensing and GIS

A Mini-Project on "Application of Remote Sensing and GIS Techniques for Flood Area Mapping and Mitigation Measures in Munshiganj District of Bangladesh" has recently been completed by Bangladesh Space Research and Remote Sensing Organization (SPARRSO) in collaboration with Asian Institute of Technology (AIT) and Japan Aerospace Exploration Agency (JAXA). The duration of the project was April 2004 to March 2005.

Under this program, different thematic maps were prepared and analyzed using the techniques of GIS. Landuse/land cover map

was generated from ADEOS, AVNIR and Landsat TM satellite data as well as aerial photographs. Flood risk zone was delineated from RADARSAT and JERS SAR

microwave data. Population distribution map was prepared from the data of Bangladesh Bureau of Statistics (BBS). Finally flood

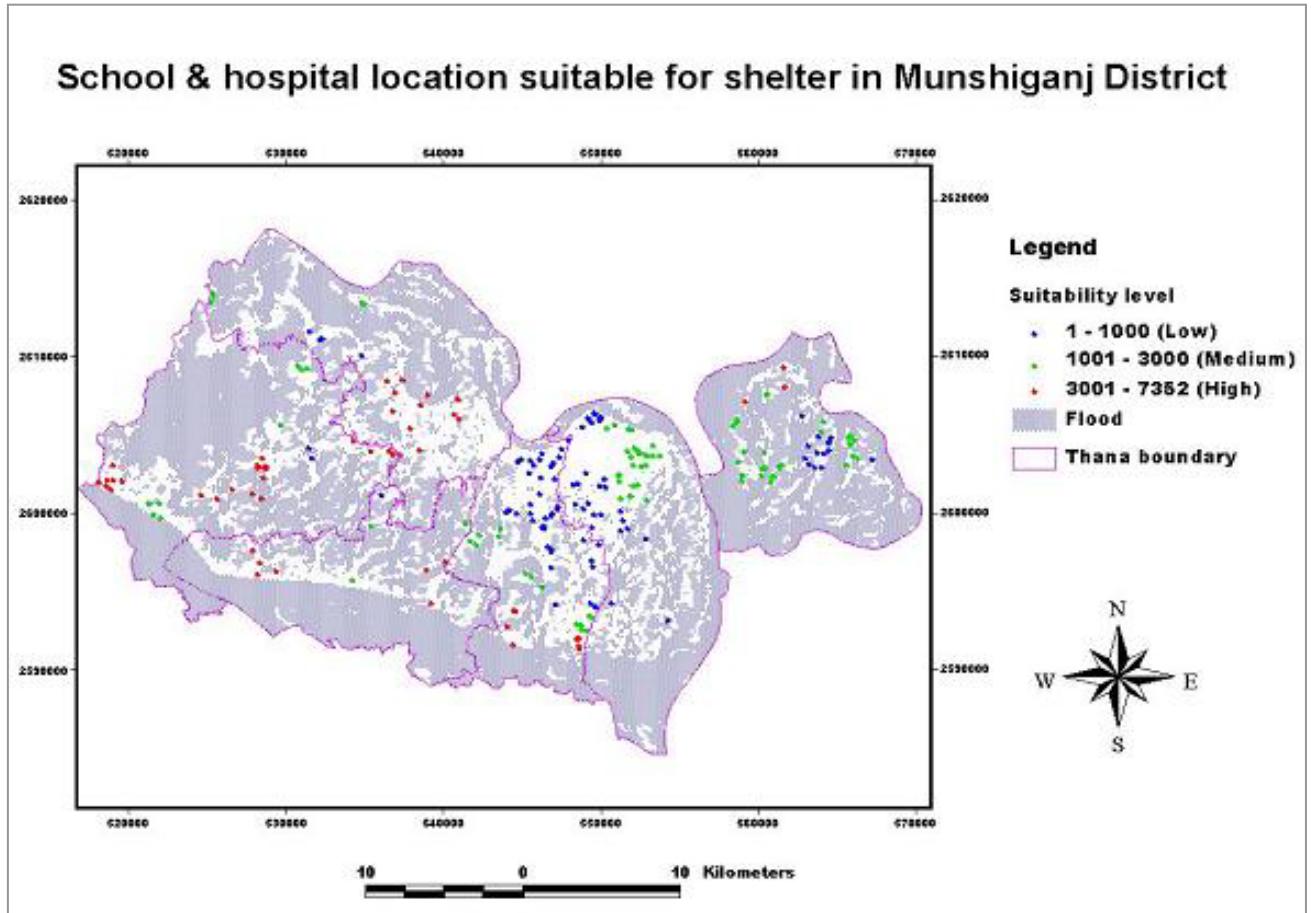


Fig 2. Map showing suitable site & shelter for the flood-affected people.

shelter map was generated through GIS analysis using thematic layers of flood risk zone, elevation database, route network, location of educational institutions and hospitals (Fig. 2).

The result of the project was presented in a workshop at the Asian Institute of Technology (AIT) in February 2005. The participants of the project partners of the Asia Pacific region attended the workshop.

Study on the Assessment of Environmental Degradation in the Northwestern Bangladesh

Regional environmental change is an increasingly growing concern as it is linked with the recent global climate change. During the recent decades environmental degradation has already been noticed in the northwestern part of Bangladesh. The study area is located in the Barind Tract of that region. The aim of the study is to identify and quantify the process of land

degradation. There are several indicators of land degradation, for example, loss of vegetation cover, wind and water erosion, increasing salinity, water logging etc. The indicators; loss of vegetation cover and change in surface water bodies were investigated using space-borne data. Climatic records and data from field investigation have also been incorporated in the analysis. The result of the study showed that both the minimal and extreme land degradation category remained stable, whereas the land degradation in medium category increasing sharply.

Post Doctoral Study on Tropical Deforestation and Global Warming

Dr. Jinnatul Islam, PSO has conducted a Post Doctoral Research on Tropical Deforestation and Global Warming at Eastern Michigan University, USA under the supervision of Prof. Yichun Xie. The study was conducted under the Full Bright Fellowship Programme of US State Departments. In the study he has found out the total Deforestation in the Dinajpur Sal Forest and Chakoria Sundarbans. He has estimated the amount of CO₂ released into the atmosphere due to deforestation in the two forests. He has also estimated the amount of CO₂ uptake from the atmosphere if the forest areas would remain intact. It is found that the tropical deforestation in Bangladesh links to Global Warming.

Obtains Doctorate Degree



Dr. Mahmudur Rahman

Mr. Mahmudur Rahman has recently been awarded Doctor of Natural Science (Dr. rer. nat.) degree from Dresden University of Technology (TUD), Germany. The title of his dissertation is "Estimation of Carbon Pool and Carbon Release Due to Tropical Deforestation using High Resolution Satellite Data". The study was supervised by Professor Elmar Csaplovics, Institute of Photogrammetry and Remote Sensing of TUD. The co-supervisors of his dissertation are Professor Barbara Koch, Department of Remote Sensing and Landscape Information Systems, Albert-Ludwigs University, Freiburg and Professor Michael Köhl, Department of Wood Science, University of Hamburg. The thesis work will contribute on the current environmental and global climate change study using remote sensing and GIS.

New Secretary of SPARRSO

Mr. Md. Abdul Quddus joined as Secretary of SPARRSO on 26th January 2005. Before joining here he was the Deputy Secretary of the Ministry of Health and Family Welfare, Government of the People's Republic of Bangladesh.



Mr. Md. Abdul Quddus

Leave Preparatory to Retirement

Dr. Abdul Mannan Sardar, Principal Scientific Officer of this organization has gone to leave preparatory to retirement with effect from 2 January 2005. Dr. Mannan

joined SPARRSO in 1983 as a Senior Scientific Officer and played vital role as a remote sensing technology specialist in various sectors. Md. Abdul Latif, Administrative Officer is also under leave preparatory to retirement with effect from 23 March 2005. He joined in 1977 as a Office Superintendent in the then Bangladesh LANDSAT Programme. He played a very important role in the formation of SPARRSO in 1980. We are really missing all of them.



Dr. Abdul Mannan Sardar ^{Salam, M. A.} Mr. Abdul Latif

Lectures

Dr. M. A. Shahid - "Remote Sensing in Fisheries and Water Resources" – Presented to the students of Computer and Communication Engineering Discipline, International Islamic University, Chittagong on the 9th March 2005, SPARRSO, Dhaka.

Mr. M. A. Salam - "Introduction of Remote Sensing in Crop Monitoring" - Presented to the students from Barisal Polytechnic Institute, Barisal and Mohila Polytechnic Institute, Dhaka on the 4th December 2004.

Mr. Md. Atiar Rahman - "Remote Sensing in Cartography" - Presented to the students of Computer Science and Engineering Discipline, Khulna University on the 13th January 2005.

Participation in Training/ Seminar/ Conference, etc.

Dr. M.A. Shahid and Mr. Abdus Salam participated the Workshop on "Application of Remote Sensing and GIS Techniques for Flood Area Mapping and Mitigation Measures in Munshiganj District of Bangladesh" from 7 – 23 February 2005. They were also participated in another Workshop on "Spatial Data Sharing using Free and Open Source Software" from 24 - 25 February 2005, Bangkok, Thailand.

Research Publications, Reports, Popular Articles, etc.

Islam, J. – “Tropical Deforestation and Global Warming” – Post-doctoral thesis submitted to the University of Eastern Michigan, January 2005.

Shahid, M. A. and Salam, M. A. – "Final Report of Mini-Project on “Application of Remote Sensing and GIS Techniques for Flood Area Mapping and Mitigation Measures in Munshiganj District of Bangladesh” – Report submitted to AIT/JAXA, February 2005.

Rahman, M. M. - “Estimation of Carbon Pool and Carbon Release due to Tropical Deforestation using High-resolution Satellite Data” - Doctoral thesis submitted to the Dresden University of Technology, January 2005.

Rahman, M. M., Csaplovics, E. and Koch, B. – “An Efficient Regression Strategy for Extracting Forest Biomass Information from Satellite Sensor Data”. *International Journal of Remote Sensing*. 26(7): 1511–1519, 2005.

Price List of Photographic Products:

I. Hard copies from satellite imagery.

| Size in cm | Rate in Taka | | |
|------------|------------------------|------------------|-----------------------|
| | - ve to + ve Colour | Black & White | +ve to + ve Colour |
| 9 x 11 | 25.00 | 20.00 | - |
| 13 x 18 | 165.00 | 65.00 | - |
| 20 x 25 | 375.00 | 200.00 | 450.00 |
| 25 x 25 | - | 225.00 | - |
| 25 x 30 | 450.00 | 250.00 | 525.00 |
| 41 x 51 | 875.00 | 750.00 | 1350.00 |
| 51 x 61 | 1150.00 | 900.00 | 1500.00 |
| 76 x 102 | - | 1600.00 | - |

II. Transparencies (diapositive)

| Size in cm | Rate in Taka | |
|-------------|---------------|--------|
| | Black & White | Colour |
| 35 mm slide | 50.00 | 65.00 |
| 20 x 25 | 320.00 | 800.00 |
| 25 x 30 | 450.00 | - |
| 51 x 61 | 875.00 | - |
| 51 x 85 | 1500.00 | - |

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III. Ammonia prints from transparent map sheet

| Size in cm | Rate in Taka | |
|------------|--------------|--------------|
| | Non-Project | Project Work |
| 102 x 76 | 65.00 | 45.00 |
| 102 x 102 | 90.00 | 60.00 |
| 102 x 127 | 110.00 | 70.00 |
| 102 x 152 | 135.00 | 85.00 |
| 102 x 178 | 155.00 | 100.00 |
| 102 x 203 | 180.00 | 110.00 |
| 102 x 229 | 200.00 | 125.00 |

IV. Weather satellite pictures (B & W)

| | |
|--------------------|------------------------|
| Facsimile recorder | 50.00 Taka |
| Laser prints | Available upon request |

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The SPARRSO Newsletter is published quarterly. We welcome comments, questions and suggestions from our honourable readers.