SEAWATCH PROGRAM IN VIETNAM

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Abstract

Vietnam is a long and narrow country spread from latitude N 8° 30´ to 23° 22´ with a total land area of 330,000 km^2 forming the eastern seaboard of the Indochinese Peninsula. Vietnam has a typical tropical monsoon climate. Natural disaster is one of the most dangerous events, especially flood and typhoon in association with storm surge. In average, every year 6 typhoons hit Vietnam, causing regular and substantial suffering, loss of life and economic damage.

To contribute to prevent and rational exploitation of marine resources and to reduction of natural disaster, especially water one, since 1995 a Seawatch Program has been established with the support of Norwegian Government. A buoy system of 4 with real time data transmission and computer center have been installed. In 1999 the system will be improved and enlarged with sea level monitoring stations including storm surge model.

I. INTRODUCTION

The shelf is more than three times larger than the main land. Nearly 70% of the population concentrates in the coastal zone. Marine constructions such as seaports, oil exploitation and exploration are getting more and more development. The fishery activities become busier.

More than 2/3 of the GDP comes from the sea. The protection of marine resources and environment should be paid attention.

Natural disaster is one of the most dangerous events, especially flood and typhoon in association with storm surge. Typhoons raise sea level many meters and send storm surge up estuaries to inundate valuable croplands, endanger sea dykes and destroy buildings with their high - velocity winds. The typhoons can also create large waves which attack houses along the coast and bring torrential rains that cause flash floods which come upon settlement unawares. The heavy rains also regularly submerge low-lying area, and when added to rivers already swollen because of the monsoon rains. Create floods which endanger river dykes and threaten devastation to millions of households.

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Vietnam receives an average 6 typhoons a year, resulting in the loss of hundreds of lives, the devastation of many thousand of households and an average annual damage which imposes substantial drain and the economy. For instance, the flood in 1971 damaged more than 78.000.000 households, the in typhoon associated with strong storm surge killed 1035 persons in Central area of Vietnam.

II. THE BUOY SYSTEM

To make good typhoon forecasts when the typhoons are over the South China sea or coming nearer to the shore we need data from difference resources, especially from the met-oceanographic stations along the coastal, on the islands, and platform. But in the off shore area we have not enough stations. So there is a lack of data in there areas. In order to compensate the Pack of data, we need to establish some stations in the area. But it is impossible because the area is very deep and far from the shore. So only buoys are suitable for the data acquisition.

In 1995 a swatch program has been established with the financial and technical support from Norwegian Government. A system of 4 buoys have been deployed in the water of North and Central areas of Vietnam where typhoons and floods are often prone.

The long term objective will be to improve the security of inhabitants of typhoon and flood prone areas, and to reduce economic and social impact of disaster. The immediate objective will be to help enable.

III. THE USE OF SEAWATCH DATA.

The data transmitted from the buoys and gauges have been processing and storaging for service.
The data are available for :

- using for weather warning and forecast especially for typhoon forecast.
- Marine transportation and construction
- Fishery activities
- Protection and exploration of marine source and environment
- Controlling and turning numerical models
- Integrated management of coastal zone.

The Seawatch Program pays much more attention to typhoon warning and forecasting. The warning and forecasts are distributed to many institutions such as Central Commute for flood and surge control, Party and Governmental offices, Ministries, hydropower stations, regional forecasting centers, TV, Radio, newspapers and other users. The forecasts are issued according to the location and strength of typhoon. When typhoon is nearer to the shone (300 - 500 km from the shore), the forecast are issued three times a day and repeated on TV, Radio every hour. When typhoon is in emergency (less than 300 km from the shore) the forecasts are issued every one hour. Based on the forecasts authorities have available measures to respond to typhoon and surge.

IV. THE SEAWATCH PROBLEM

The seawatch system is very with the experiences in the recent years, the seawatch system is very good in sever + tropical weather conditions. However there appears to be some problems :

- Marine teredos in the area affected by river month, the marine teredos covers the sensors very quickly, in one or two months.
- The buoys are operating at the sea for long period (4 - 5 months), the electronic boards are often impacted by salty steam.
- The protection from unauthorized persons. The buoys are deployed in deep and open sea, so the protection is very difficult.

V. CONCLUSION

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