

DETERMINE CHANGE OF TIEN GIANG AND HAU GIANG RIVERS FROM 1977 TO 2001 IN AREA THE VINH LONG PROVINCE IN VIET NAM

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ABSTRACT

It is importance to determine change of Rivers for againsting natural calamities and protecting environment. This report will be presented the results to determine change of Tien Giang and Hau Giang Rivers in area the Vinh Long province in Vietnam by processing information of acrophotograph taken in 1978, 1992, Radar, Landsat Image taken in 2001 and geological information.

1. INTRODUCTION

Vinh Long is a plains province of Cuu Long river, there are two big rivers running from Tien Giang and Hau Giang rivers.

For many years, because of the natural and man-made impacts, landslides and erosion of two river bank of Tien Giang and Hau Giang rivers has been influenced very seriously on the local people's life and socio-economic developments of Vinh Long province in general.

For investigating and defining phenomenon and landslides speed, current changes of rivers in general, there are many methods, in there, applying remote sensing technology is one of the main methods.

This application help us to investigate on a large area, use images at many periods and use high technology for analysing, give a reliable result quickly .

The content of this paper will represent some results of applying of the remote sensing technology for defining surface changes and current conversion of Tien Giang and Hau Giang river of Vinh Long province from 1976 to 2001. the results of investigating mantioned above corresponds to the fact.

2. IMPLEMENTAL METHODS

2.1 Using of document

- Topography map of Vinh Long province at 1:10000 scale
- Arial image at 1:17.000 scale taken in 1977 and 1:14.000 scale taken in 1992.
- SPOT satellite image taken in 1977
- Rodar image taken in 2000
- Landset image taken in 2001

2.2 Using of technology

ENVI software and another supporting modules.

2.3 The research will be concentrated in the following contents

- Proceeding of the remote sensing image (include of proceeding of geometry and proceeding of spectrum.
- Clearing up the remote sensing image
- Analysing and calculating databases

3. RESULT OF INVESTIGATING

3.1 For Tien river

- About My Thuan bridge, because of river terrain here is shaped like a tight bottle – neck, flow direction drifts on the river bank is cause to bring about demolishing river bank, river –bed is be changing in the North of river shore. The biggest distance is in the middle of river road in 1992 and 2001 compare with 1977 is 21m, 48m. The average speed encroached specially is 3.2m (from 1977 to 1992) and 2.3m (from 1992 to 2001). In 24 last years, the right of the river bank was always eroded from 1977 to 2001. The river bank has been eroded very seriously in recently years. On the opposite side has been encroached about 45m, 30m from 1977 to 1992 and 1992 to 2001.

- River distance runs accros Vinh Long commune due to hydraulic factor of flow and topography form of river, so flow direction drifts on the river shore bring about demolishing river bank. The biggest distance is in the middle of river road from 1992 to 2001 compare with 1977 is 20m, 30m. The average speed encroached specially is 2m (from 1977 to 1992); 2.2m (from 1992 to 2001). In 24 years, the river bank was always eroded here from 1977 to 2001. River shore has been eroded very seriously in recently years, the opposite side has been encroached about 45m from 1977 to 2001.

Reinforcement between 2 river road of Hoa Phuoc and Thanh Duc communes, Long Ho district run along My An commune Mang Thit district.

River road passes through Binh Hoa Phuoc commune Long Ho district is 183m at the biggest region and river road looks out of Thanh Duc commune, Long Ho district and My An commune, Mang Thit district is average and smaller than landslides, erosions is 160m at the biggest position. River road of An Phuoc commune, Mang Thit district is still according to regulations reinforcement side and landslide side and the biggest distance is 100m, 70m.

3.2 For Hau river

River road of Hau river is stable relatively with amplitude of oscillations doesn't exceed 5m. The river – bed of Hau river has been changed on the left.

- The biggest distance is in the middle of river road from 1992 to 2001 at Tra On area compare with 1977 is 19m, 26m. The average speed encroached specially is 1,7m (from 1977 to 1992); 2,1m (from 1992 to 2001). In 24 years, on the right of river bank was eroded continuously from 1977 to 2001. The shore has been eroded very seriously in recently years, the opposite side has been reinforced about 277m from 1977 to 2001.

- In position of Can Tho canal – on the North-East of Can Tho ferry, the biggest distance is in the middle of river road from 1992 to 2001 compare with 1977 is 6m, 32m. The average speed encroached specially is 2,1m (from 1977 to 1992); 0,7m (from 1992 to 2001). In 24 years, from 1977 to 2001 on the right side of the river was continuously eroding.

The shore has recently been eroded very seriously, the opposite side has been encroached about 277m from 1977 to 2001.

At the mouth of Can Tho canal – in the North-East of Can Tho ferry, the biggest distance is in the middle of the river road from 1992 to 2001 compare with 1977 is 6m, 32m. The average speed encroached specially is 2,1m (from 1977 to 1992); 0,7m (from 1992 to 2001). In 24 years, in the right side of the river bank was always eroding from 1977 to 2001. The river shore has lately been eroded very seriously, the opposite side has been encroached about 111m from 1977 to 2001.

- At the mouth of Can Tho canal – in the North-East of Can Tho ferry, has been eroded very seriously in this area. The average speed eroded specially is 3m per year. the opposite side of the river has been encroached about 100m from 1977 to 2001.

Small islands are on the Hau river which were changed by last years.

- There is a small islands that has appeared from 1997 to now, with 1,300m long and 200m wide at Nhat village (in the North of Luc Sy Thanh small island, Vung Liem commune)

- At the initial point of Phu Thanh commune, Vung Liem district has exceeded to encroach about 508m.

- There is a small island at Duoi village (in the North – East of Luc Sy Thanh small island) from 1997 to now, which has been eroded at the initial points, with 870 long and 181m wide.

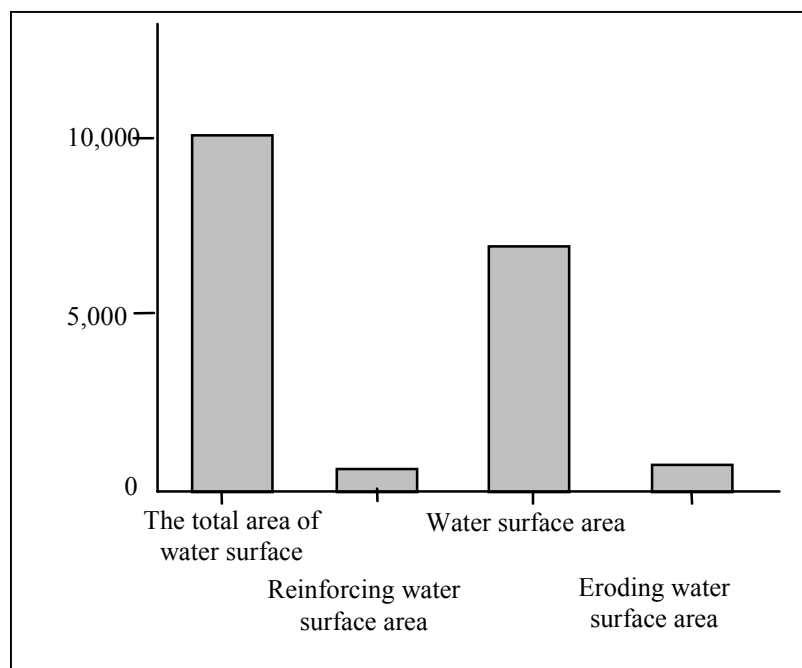


Fig 1. Water surface changes of The river – bed of Tien Giang river

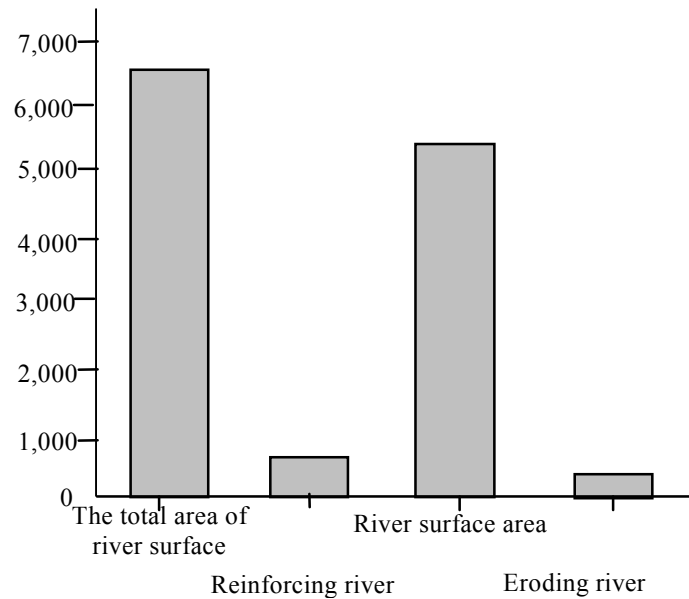


Fig 2. The changes of Hau Giang river

4. CONCLUSION

By investigating and analysing phenomenon, the main cause leading to landslides, erosion and flow changes of Tien river and Hau river are following:

- According to the general moving rules of the Earth.

- + Direction and current hydraulic of the river.
- + Characteristics of geo-river-bottom and river-bed form.
- + Geological terrain of the river bank.

+ The investigating area mentioned above will be continuously eroding and eroding over a large – scale in upcoming time, one of the main influential causes is increasing activities of ships and investigating sand to combine with geological terrain isn't solid.

5. REFERENCES

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