CHAPTER I

INTRODUCTION

1.1 Subject and Relevance

Nowadays, the study of geology and geomorphology are essential for country development. Geological and geomorphological data are the basic data for development of many aspects for example, the civilization, environment, mineral exploration, petroleum exploration, finding the economic site areas and boat jetty.

The study of geomorphology in Thailand, especially in the coastal areas has been undertaken only in some area and only in simple aspects. The previous studies have focused on the coastal evolution (eg. Chonglakmani et al., 1983; Somboon and Thiramongkol, 1992; Sinsakul et al., 1985; Sinsakul, 1997).

However, except the report of coastal erosion by Department of Mineral Resources (Sinsakul et al., 2002), the Department of Mineral Exploration Offshore have published Geological Map scale 1:50,000 in some coastal areas, but not been published yet in formal form. Most of researches about coastal change and coastal erosion have mainly used the evidence from geomorphology and marine processes that relate with coastal erosion (Harper, 1991; Solomon and Covill, 1995; Pollard and French, 1980; Suguio et al., 1985; Angulo and Lessa, 1997). Some of researches were done by remote sensing interpretation, especially the study from aerial photograph in several years (McDonald and Lewis, 1973; Morton et al., 1991, Toldo et al., 2002)

DMR team surveyed coastal erosion in Thailand coasts and reported rate of erosion in various scales. Approximate rate of erosion in Prachuap Khiri Khan area was also

calculated. However, the annual change in shoreface sedimentary cycle (i.e., deposition and erosion) has not been reported elsewhere in Thailand coast. Based on geomorphological setting of Prachuap Khiri Khan coast, which displays as half-circle bay with tidal channel in the middle part, this bay was appropriated to study detail coastal changes in terms of equilibrium of sediment deposition and migration annually. Pranburi truncated barrier, north of Prachuap Bay, and Wanakorn beach in the south were also selected in order to compare geomorphological setting that influence the coastal changes around this area.

1.2 Objectives and Aims

The prime objective of the research is to understand the systems of coastal change, providing the estimation in rate of coastal changes both of erosion and accretion. The potential future coastal erosion and coastal hazard zones should be located also. However, some questions are raised at the beginning of this research, for example:

1. What annual beach behavior looks like?
2. What are the difference between beach morphology and annual changes of accretion and deposition in individual area?
3. What is the more precise way to understand coastal changes from area to area?

It is significant need to understand the sediment transportation along the study area, and also oceanography and marine processes that provide geomorphology apperance in the present day shorelines.

In order to achieve the better understanding of the effect of coastal changes in this research, the specific aims are:

1. To understand the changes in coastal erosion and accretion annually.
2. To evaluate the changes in shoreface sediments in each season.
3. To compare geomorphological features controlling the changes of the coast of Prachuap Khiri Khan.

1.3 Scope

This thesis is concerned with the understanding and analysis the processes and factors controlling mode of coastal change in Changwat Prachuap Khiri Khan area. Scope of this research is limited to the analyses using geomorphological data in Changwat Prachuap Khiri Khan, especially in Pranburi river mouth, Pranburi truncated barrier and Prachuap Khiri Khan Bay. The result is to estimate coastal change rate, based on evidences from geomorphology. Remote sensing interpretation, for example aerial photographs in several years can indicate the coastal changes through years. Detailed laboratory analysis from core sediment can give the general idea of coastal evolution. Data collecting from fieldwork and series of photographs through seasons can indicate the exact change in beach morphology in present year.

1.4 Outcomes and Approaches

The first research outcome is the estimation of coastal change, both erosion and deposition. This research applied several established outcomes in

(1) From literature study: collecting database of previous study that related with this research, can supply for another useful research.

(2) From remote sensing interpretation: estimating coastal change along the study area, the changing from geomorphology.

(3) From field work study:

3.1 From field check: the changing from physical geomorphology, which can check in the present day.

3.2 Collecting shoreline sediment and sedimentological analysis: understand the physical quality, distribution of sediment that refers to geomorphology and trend of shoreline change.

3.3 Locating present shoreline from survey: the changing of shoreline in term of distance of accretion and erosion in coastal area.