Geomorphology of Ban Pak Nam Area, Changwat Prachuap Khiri Khan

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Abstract

The Pranburi Forest Park, situated in Amphoe Pranburi, Changwat Prachuab Khiri Khan., is the study area. This is located in the southern part of Thailand (Fig. 1). The purpose of this project is to study the geomorphology of Ban Pak Nam Pran area and to study relationship between coastal and fluvial processes in Pranburi Forest Park. This study concentrates on geomorphological investigation and sedimentological data from 48 samples.

Keywords: geomorphology sediment; mangrove; Pak Nam Pran; Pranburi

1. Introduction

Over the past years, several ideas have emerged suggesting that the source rocks and reservoir rocks in the Gulf of Thailand were formed by mangrove depositional environment or by fluvio - deltaic environment. The geomorphology and sedimentation parameters in the mangrove area are influenced by the rate of sedimentation from highland and the marine wave and tide processes. These processes are caused several probably by different geomorphologic parameters. This study aims at the geomorphology and sedimentology of sediments in the recent mangrove area. This study aims at establishing the source of sediment deposits in the estuary mangrove system.

The aerial photo interpretation was based on the change in colors, drainage patterns, elevation, and vegetations. The identification of surface features is used to locate the interesting area for detailed field investigation. The characteristics of landform in the aerial photographs interpretation included beach, old beach, high land, and mangrove. The field study was done for ground checking the aerial photo interpretation has done in the laboratory and for collection of field (Fig.2). Figure 1. The Prophuri Forest Dark study

Figure 1: The Pranburi Forest Park study area, in southern part of Thailand.

2. Experimental Results and Discussion



Figure 2: Primary air-photo interpretation of study area showing different landforms and locations of samples collected.

In the laboratory, grain size analysis and data correlation were carried out and statistical parameters obtained using the moment method for explaining sediment characteristics and depositional environment. The laboratory data can be used in revising the aerial photo interpretation, and for dividing the topographical features of study area into six units (Fig 3).



Figure 3: Revised air-photo interpretation and the location of 48 samples in study area.

Unit A consists of moderately wellsorted coarse grained sand with angular to sub angular shape and brown in color. Unite B comprises moderately well sorted coarse to medium grained sand with angular to sub angular shape and grayish brown in color. Unit C is dominated by poorly sorted coarse to medium grained sand with sub angular shape and pale brown in color. Unit D is characterized by moderatly sorted medium to fine grained sand, sub angular to sub rounded, and deep brown in color. Unit E shows subrounded, moderately to poorly sorted fine grained subrounded sand and clay, grayish to black in color. Unit F is highland gneiss. Feldspar is the most abundant mineral with biotite, mica and quartz in the gneissic rocks, which are usually medium to coarse, grained and foliated. (Fig.4)



Figure 4: Characteristics of samples in each unit.

3. Conclusion

Based on the aerial photograph interpretation, the study area can be divided into six units: recent beach (A), old beach (B), salt marsh (C), back mangrove (D), swampy mangrove (E), and high land (F).(Fig.5) .The sediments in the study area are mostly influenced by river (C,D,E) and beach in unit A and B.(Fig 6).



Figure 5: Geomorphological map showing landform units in study area.



Figure 6: The skewness and standard deviation relationship of beach sand and river sand.

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