

APPLICATION OF REMOTE SENSING AND GIS FOR TOURIST MAP PRODUCTION OF PHUKET

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ABSTRACT : Tourist map is one of the most necessary and useful tools for travelers in providing information such as natural resources, tourist spots, services and entertainment Places. Remote sensing and GIS technologies can be utilized for tourist map production of Phuket province. False color composite image of Landsat TM band 5, 4 and 2 (RGB), taken on February 3, 2000 was first geometrically corrected and linear stretch enhancement was then performed. GIS information, including road network, tourist spots, important places, and DEM were overlaid onto natural colored Landsat TM image. Three dimensional image (3D) was subsequently created using SPANS software. The result is a colorful 3D tourist map of Phuket at a scale of 1:100,000 in which enlargement sections of some interesting spots at 1:50,000 scale provide most necessary information for tourists. This map can be used as a guide on tourist spots, natural resources, transportation routes, accommodations, and shopping places.

INTRODUCTION

Phuket Island - frequently called the Pearl of the Andaman, with its 530 sq km. of transcended beauty is the largest island in Thailand, and is large enough to be province on its own. A mountain chain bisects the island north to south. On the western side lies the dazzling white beaches of Bang Tao, Patong, Kamala, Karon, Kata, and Nai Harn with all manners of resort accommodations. The island is bisected north to south by highway 402. Driving around the island can be done on a circular route running from Thalang through Phuket Town around Rawai and along the west coast with intersecting roads across the mountains periodically.

Tourist map is one of the most necessary and useful tools for travelers in providing information such as natural resources, tourist spots, services and entertainment places. One aesthetic application of remote sensing and GIS technologies is for tourist map production, in this case, of Phuket.

OBJECTIVE

To apply remote sensing and GIS Technologies for tourist map production of Phuket province.

METHODOLOGY

Landsat TM bands 5, 4, and 2 (RGB), path 130 row 54 taken on February 3, 2000 was first geometrically corrected using PCI v. 6.3 image processing software. A linear stretch enhancement was then performed. The need for enhancement technique is to bring out some features of interest. There are varieties of image enhancement techniques which the results are ultimately evaluated by the users. With linear enhancement techniques, individual spectral band of image is refined using a linear look-up table. The upper and lower cut-off points are determined when generating the histogram of the image. The data between the two cut-off points is then stretched to the full range.

The GIS database for Phuket consisted of road network, tourist spots, important places, and contour lines. These data were taken from the scanned 1:50,000 topographic map and were digitized using SPANS v. 7.1 Steps included scanning of topographic map for different Themes; geometrically rectification, vectorisation of thematic layers; and editing each layer to clean up some discontinuities and undesired features. Digital elevation model (DEM) was also created. Then all GIS data were overlaid onto natural colored Landsat TM image. Field survey was done to corroborate tourist spots using GPS. The result is a colorful tourist map of Phuket at a scale of 1:100,000 in which enlargement sections of some interesting spots at 1:50,000 scale provide most necessary information for tourists. Three-dimensional image (3D) was subsequently created using PCI v. 6.3. Steps and procedures are summarized in Figure 1.

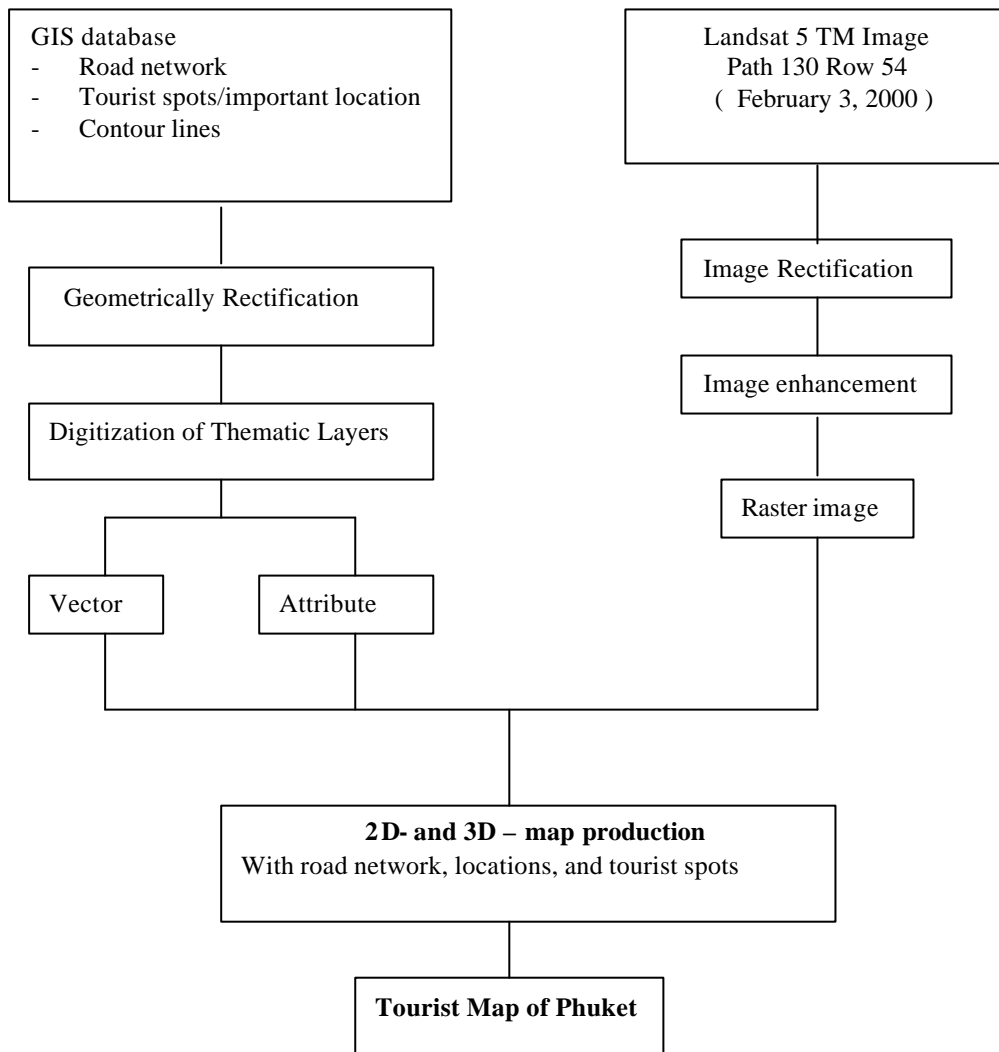


Figure 1 : Flow Chart for Generating Tourist Map of Phuket

RESULTS AND CONCLUSION

Results from the tourist map production of Phuket were analyzed from two different aspects. First, the application of remote sensing and GIS technologies was evaluated. This involves evaluating the overlay of GIS database and remotely sensed image, In addition , GPS technique was carried out to corroborate tourist spots. Second, the tourist map was created providing clearer, more precise, and useful information.

Figure 2,3 shows a colorful tourist map of Phuket, Its application spans a wide range from sophisticated analysis and modeling of spatial data to simple inventory and management. This paper has utilized remote sensing and GIS technologies to visualization of alternate scenarios. It facilitates a new look of tourist maps to be more interesting and providing a more useful information, exceeding a regular traditional map. However, a tourist map should be updated continually for possibly maximum benefits. This Phuket tourist map can also be used as a model for tourist map production of other towns.

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Figure 2