

DEM generation with other sensor images using digital photogrammetry techniques

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Abstract: Generally, DEM (Digital Elevation Model) is generated by stereo-images acquired same conditions, sensor type, viewing angle, capturing elevation and etc. It is difficult to generate DEM with stereo images acquired different satellite. This study intends that it is DEM generation using pair-images with other sensor systems.

Keywords: DEM, Digital photogrammetry, .

1. Introduction

DEM is very important at terrain information analysis. And many research which make the DEM is performed. Spatially, there is traditional technique of digital photogrammetry that DEM has been generated using pair images acquired same sensor. Generally, DEM has been generated with air-photos which are acquired by photographing plan. Recently, many countries are making efforts to develop their own satellite which has been based on various researches using satellite images. In many research on DEM generation, satellite image data have been used widely

In this study, to generate DEM from different images, it was used two image data, Kompsat EOC and Spot-5 PAN. this study emphasizes application of DEM by applying 3D geographic information generated using different sensor data.

2. Method and data

In this study, to generate DEM from different images, it was used two image data, Kompsat EOC and Spot-5 PAN. High resolution camera EOC to be loaded with KOMPSAT has got 6.6m resolution, has been progressing about application as photo-map generation. Also, panchromatic sensor PAN to be loaded with Spot-5 has got 2.5m resolution.

Figure 1 and 2 are shown stretched images of Kompsat EOC and Spot-5 PAN images.



Fig. 1. KOMPSAT EOC data.

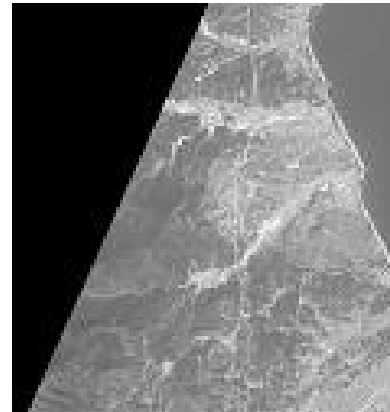


Fig. 2. Spot-5 PAN data.

To generate DEM with Kompsat EOC and Spot-5 PAN data, following conditions must be satisfied.

1. Light-axis of camera must be same plane.
2. Ratio of baseline and height must be about 0.25
3. Pair images must be same photo-scale.