

# Design of High Spatial-resolution Remote Sensing Data

## Processing System and Its Implementation

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**Abstract:** High spatial-resolution remote sensing data were received much more in recent years, such as Ikonos data, Spot-5 pan data, Quickbird data. They have been used in urban remote sensing, urban planning, precision agriculture, etc. However, there not have an applicable software system for processing high spatial-resolution remote sensing data. The paper introduced a design frame for high spatial-resolution data processing system. Some key methods for processing high spatial-resolution data had been studied. Implementation of methods and system were carried out using Visual C++.

The software system included input & output subsystem, preliminary transformation subsystem, Change detection subsystem, Image segmentation subsystem, Reporting subsystem, etc. Key methods for processing high spatial-resolution data were image segmentation algorithm. The segmentation algorithm does not only rely on the pixel value, but also on the spatial continuity of the resulting objects. It includes pixel-based segmentation algorithms and object-oriented segmentation algorithm. Image segmentation algorithm will help grouping the changed region. The implementation of each subsystem was given using Ikonos data and Spot-5 pan data as study data. The algorithm of urban green-land change detection using Ikonos imagery or Spot-5 pan imagery had been developed as an example.