The Design and Implementation of Quantitative Remote Sensing Supporting System

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Quantitative remote sensing is the forefront of the discipline of remote sensing, and it has attracted increasing attention in recent years. Quantitative remote sensing deals with such digital procession on remotely sensed imagery as radiance calibration, atmospheric correction, radiance transfer models, and inversion method. Hence, computer software to support this kind of process is in great need.

Based on the analysis of the quantitative remote sensing research progress and the status of remote sensing data processing systems, the paper designed and implemented a set of quantitative remote sensing supporting prototype system. The quantitative remote sensing models are changing and various and the remote sensing data formats are complex and diverse. The paper used component oriented programming thoughts to solve these problems, making this system extendable in data source and models. What’s more, a quantitative remote sensing application model base was set up, which enhanced the efficiency of models management. Finally, the thesis took the drought-monitoring model as an example, used improved TVDI algorithm, and implemented the drought-monitoring function based on the basis of the prototype system. The application indicated that the prototype system was easy to extend, and it had the functions of extending remote sensing data processing and adding new models. It can support the research of quantitative remote sensing.