

Some Discussions on Noise Filtering Technique of Microwave Remote Sensing Data for Oil Spill Detection at Sea

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SUMMARY

Oil pollution at sea in recent years has caused many negative impacts on environment in Vietnam coastal zone. The pollution influenced economic development as well as ecology of the coastal provinces in many ways. Therefore needs of monitoring and early detection of oil spill at sea have become a matter of concern to scientists and environment managers in Vietnam. Microway remote sensing technology belongs to one of the most effective way for this purpose. The speckle noise which is resulted from the microway backscattering is one of obstacles to be overcome in data processing. Removal of this noise is one of the first processing steps to be done. There are several filters commonly used in practice such as Lee, Gamma, moving or median average. The noise filtering for oil spill detection purpose differs very much from other cases as in land cover mapping or geological application. Normally there is a request to retain important structure of the surface, but in oil spill detection the request is just to keep only boundary of the oil spill while the inner region of the oil spill is out of interest. Complicated filters consume usually heavy computation time in comparison with the simple ones. In this paper the authors have carried out research to find out the most optimal filters for oil spill detection. ALOS PALSAR and ENVISAT ASAR data observed over the Vietnam Sea have been used. Oil spill detected in images processed by different filters have been compared to find the best one. Experiments were conducted in the ERDAS IMAGINE 9.3 software.

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