

RECOGNITION OF AMBIGUOUS SHAPE STRUCTURES IN SATELLITE OCEAN OBSERVATION IMAGES

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ABSTRACT

The development of effective, highly accurate schemes for recognizing moving ambiguous shapes such as ocean current eddies and water masses in satellite images is an important basic technology for extracting fishing resource and environmental information. In particular, the automatic recognition of eddy-like structures is one of the key technologies for future space-based oceanic observation. This paper presents solutions to some problems: Basic schemes for automatically recognizing ambiguous and irregular shapes from Earth orbits and extracting fundamental parameters from them are discussed, and effective fundamental schemes for enabling processing to be carried out by small-scale architectures are derived.

These methods can greatly reduce the amount of data required to describe such structures, and are therefore expected to be very useful for the autonomous processing of oceanic observation data by satellites on-orbit. Some applications of the schemes to the recognition of moving shapes in noisy images remotely sensed from Earth orbits are also presented with evaluative experimental results.