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Shoreline prediction based on support vector regression and bayesian optimization

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Abstract: It is of great significance for the development and scientific management of coastal zone to simulate and predict the dynamic change of coastline. Based on the landsat-8 satellite sequence image and tide station data in the research area ,this paper uses the support vector regression model ,combined with Bayesian optimization to obtain the best hyperparameter ,and then predicts the coastline data of the future years ,and verifies the predicted coastline data by ROC curve matching ,mean offset and root mean square error. The results show that the support vector regression model based on Bayesian optimization can predict the future coastline of Weitouwan area well , with the Complete ,Correct and Quality of 87. 06% ,86. 10% and 80.05% ,and the mean offset and root mean square errors of 0.64 and 0.96 ,respectively.

Key words: coastline prediction; satellite time series image; support vector regression; Bayesian optimization; ROC curve matching

海洋卫星组网业务化观测格局全面形成

目前 ,我国发射的海洋卫星和以海洋为主要用户的卫星已达到 12 颗 ,包括海洋一号系列卫星、海洋二号系列卫星、高分三号系列卫星以及中法海洋卫星。

目前 ,我国在轨的海洋卫星包括海洋一号 C 卫星和 D 卫星 ,海洋二号 B、C、D 卫星 ,高分三号 01、02、03 卫星以及中法海洋卫星。各卫星每天 24 小时工作 ,每天绕地球飞行 14 圈左右 ,每轨扫描幅宽为 10~3 000 千米 ,卫星上配置的载荷大部分处于全天时、全天候、全球覆盖的观测模式。此外 ,2018 年开始运行的中法海洋卫星是国际合作卫星 ,主是是获取全球海面波浪谱、海面风场、南北极海冰信息。

目前 ,我国海洋卫星监测体系已经发展为多星组网、多手段协同观测模式。高分三号 03 星投入运行后 ,我国海洋一号系列、海洋二号系列以及高分三号系列卫星组网全部完成 ,我国海洋卫星组网业务化观测格局已经全面形成。

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