[EE] Evening Poster | M (Multidisciplinary and Interdisciplinary) | M-TT Technology & Techniques

[M-TT36]Environmental Remote Sensing

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Mon. May 21, 2018 5:15 PM - 6:30 PM Poster Hall (International Exhibition Hall7, Makuhari Messe)

Our human beings are encountering various environmental issues on the Earth, and it is urgent to find out the solutions. Remote sensing is currently the only feasible means to observe the Earth environment at regional/continental /global scales over long periods, and consequently detects the environmental changes occurred all over the world. This session invites presentations on theory, science, technology, and applications of remote sensing to study the Earth environment from regional to global scales. Both oral and poster presentations are sincerely welcome.

[MTT36-P03]Long-term Satellite Monitoring of Water Quality Parameters in Lake Kasumigaura, Japan

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Keywords:inland lake, satellite remote sensing, water quality

Routine monitoring of water quality parameters is necessary for sustainable management of freshwater ecosystems. However, the spatial and temporal heterogeneity of water areas often results in inadequate monitoring and analysis of water quality using conventional *in-situ* sampling methods. Satellite remote sensing is a feasible technique for monitoring inland lakes in terms of being able to cover large spatial areas at very frequent intervals. In this study, ENVISAT/MERIS satellite images were applied to estimate the water quality parameters (e.g., Chlorophyll-*a*, Secchi disk depth) in Lake Kasumigaura, Japan between 2003 and 2012. The MERIS Level 1B radiance data were first processed through an atmospheric correction algorithm developed specifically for turbid inland waters. Then the water quality parameters were retrieved from the atmospherically corrected reflectance using a series of our algorithms developed in previous studies. Finally, the satellite-derived parameters were compared with the field database of Lake Kasumigaura. The results showed that the MERIS data in tandem with the atmospheric correction and water quality retrieval algorithms yielded acceptable accuracies with a normalized mean absolute error (NMAE) lower than 34%, and a coefficient of determination (R^2) higher than 0.73. Moreover, the MERIS-derived parameters also showed seasonal and yearly variations similar to those of the field measured data. These findings demonstrate the potential of our proposed algorithms to routinely monitor water quality in Lake Kasumigaura using satellite observations in an operational manner.