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IEEE Journal of Selected Topics in Applied Earth Observations and Remote Sensing

Special Issue on
"Advanced Flood Monitoring and Prediction for Disaster Risk Reduction and Resilient Infrastructure"

New strategies and solutions based on a high-frequency, high-resolution monitoring and assessment of natural disasters are essential to preserve the environment and to build disaster-resilient infrastructures. For instance, a comprehensive assessment of past and current natural disasters (e.g. floods) and disaster-induced damages supports innovative infrastructure planning that is required to build disaster-resilient communities. 2020 has been another year with numerous devastating water-related disasters hitting many regions across the globe. For example, in September 2020, southeastern France and northern Italy were affected by deadly flash floods caused by a record rainfall, while severe flooding and landslides hit greater Jakarta in January 2020. In this context, advanced remote sensing coupled with numerical prediction modelling appears to be the way forward for: (i) addressing water-related disasters in order to reduce damages and save lives, and (ii) proposing innovative solutions in order to preserve the environment and to support the building of disaster-resilient infrastructure. The objective of this SI is to introduce novel research studies focusing on advanced algorithms based on big data and cloud-computing technologies coupled with remote sensing technologies for water-related disaster risk reduction and building a resilient infrastructure. Emphasis will be on flood disasters mapping and near-real time (NRT) flood monitoring and forecasting applications, as well as long-term risk analyses using advanced satellite Earth Observation (EO) data. EO data coupled with innovative scientific solutions allow to address in a precise manner the level of disaster damages on different land cover classes including coastal flood mapping, urban flood-area and damage detection, analysis of weather impacts on agricultural lands, or delineation of reference/historical flood areas. Moreover, for rapid disaster recovery activities and resilient infrastructure investment, NRT flood monitoring using EO data is an imperative process in the early stage of flood response. Rapid flood detection techniques based on multi-sensor EO imagery are one of the main subjects that will be addressed in this SI.

Topics relevant for this publication include (but are not limited to):

- Urban flood-area and impacted population
- Analysis of weather impacts on agricultural lands
- Delineation of reference/historical flood areas
- Multi-sensor EO-based flood mapping and/or flood mapping using EO data and modeling
- Flood hazard definition
- Integration of social media data in rapid flood mapping
- NRT flood monitoring system
- Flood-risk prediction using machine learning (ML) and artificial intelligence (AI)
- Emergency response and action plan for water-related disasters
- Combined EO and 3D data processing for disaster-resilient infrastructure of Building Information Modeling (BIM)

Schedule

December 1, 2020: Submission system opening
May 30, 2021: Submission system closing

Format

All submissions will be peer reviewed according to the IEEE Geoscience and Remote Sensing Society guidelines. Submitted articles should not have been published or be under review elsewhere. Submit your manuscript on http://mc.manuscriptcentral.com/jstars, using the Manuscript Central interface and select the "**Advanced Flood Monitoring and Prediction for Disaster Risk Reduction and Resilient Infrastructure**" special issue manuscript type. Prospective authors should consult the site https://ieeexplore.ieee.org/stamp/stamp.jsp?tp=&arnumber=9082768 for guidelines and information on paper submission. All submissions must be formatted using the IEEE standard format (double column, single spaced). Please visit http://www.ieee.org/publications_standards/publications/authors/author_templates.html to download a template for transactions. Please note that as of Jan. 1, 2020, IEEE J-STARS has become a fully open-access journal charging a flat publication fee $1,250 per paper.

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