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

Special Issue on "Integration of Remote Sensing and Social Media Data: Techniques and Applications"

Remote sensing has become one of the most popular techniques for Earth Observation (EO) thanks to technological advances, that now facilitate important characteristics such as large area coverage, frequent revisit time, increased spatial and spectral resolution, etc. However, there are still gaps between the important requirements of some EO applications and the capabilities of current remote sensing instruments. This is because the current spatial, spectral and (particularly) temporal resolution of remote sensing instruments for EO still exhibit limitations for real/near-real monitoring. Furthermore, the presence of adverse weather conditions, including heavy-rainfall and clouds, pose even more critical problems. In the last few years, a significant development has been observed in the dynamic and emerging field of social media data, including web-served maps such as Google maps, open street maps (OSM), point of interest (POI) data, social networks such as Twitter and Weibo. All these emerging (but highly consolidated) technologies have the potential to complement remote sensing data in different application domains. For instance, relating publicly available social media information with remote sensing data can lead to a more efficient response in the case of natural disasters such as floods, earthquakes, etc. After a disaster, response teams commonly resort to satellite imagery, but these images may not be always available in a timely manner. Another example is urban monitoring, in which remote sensing data can provide an initial source for modelling urban climate and phenomena like urban heat islands. However, the footprints that people introduce when using smartphones or interacting with social networks also reflects their urban behaviour, leading to the concept of "citizen sensors." A spatial and temporal analysis of the data resulting from such interactions can provide important information for the understanding of EO applications, thus being able to complement remote sensing data in a very powerful way.

Resulting from the aforementioned ideas, there has been a growing interest in using social media data to complement the information available from remotely sensed satellite images. This allows users engage with online information services and also with each other in an unprecedented way, which creates special opportunities for the assessment of urban areas in real/near-real time. For instance, social data with spatio-temporal patterns of human activities (e.g. instant messages exchanged through social networks) can be used to precisely analyze changes in micro-scale, and provide an additional source of information that compensates for potential limitations in spatial, spectral and temporal resolutions of available EO instruments. This is of particular importance when monitoring natural disasters, and also when conducting urban area monitoring and assessment exploiting the aforementioned concept of "citizen sensors." The main purpose of this special issue is to provide a snapshot of the most recent advances and breakthroughs in the aforementioned research areas, with particular focus on the combination of remote sensing and social data.

Papers are solicited pertaining to the following topics:

- New algorithms and applications for the integration and joint analysis of remote sensing and social data in urban areas.
- Joint exploitation of remote sensing and social media data for monitoring natural disasters, e.g., floods, earthquakes, etc.
- New techniques and applications for fusion of remote sensing and social data.
- New models for the integration of remote sensing and social data.
- Classification strategies based on the integration of remote sensing and social data.
- Change detection using a combination of remote sensing and social data.
- Emergency response using remote sensing and social data.
- Mapping and modelling of urban sprawl, urban climate and urban heat islands using remote sensing and social data.
- Efficient information processing and retrieval for urban area assessment using remote sensing and social data.
- Assessment of natural disasters in real/near-real time using remote sensing and social data.
- Digital repositories and databases integrating remote sensing and social data for different applications.
- Parallel processing for computationally efficient analysis of remote sensing and social data.

Schedule

November 31, 2018	Full paper submission deadline
November 2019	Publication date

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 "Remote Sensing and Social Media" special issue manuscript type. Prospective authors should consult the site http://ieeexplore.ieee.org/stamp/stamp.jsp?tp=&arnumber=7676436 for guidelines and information on paper submission. All submissions must be formatted using the IEEE standard format (double column, single spaced). Please note that IEEE JSTARS applies a mandatory page over length charge of $200 per page (beginning with page 7 and beyond).

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