

## Special Issue on **In Situ and Remote Sensors toward Integrated Earth Sensing**

# CALL FOR PAPERS

The Earth environment changes constantly over a wide range of temporal and spatial scales as a result of natural processes and direct human activities. Within this scenario, spaceborne and airborne remote sensing Earth observation platforms with improved, multiple sensors (including optical, thermal infrared, active radar, and passive microwave sensors) have evolved in the last decades. These cover different portions of the electromagnetic spectrum and convey information on geophysical and biophysical parameters, globally and repetitively, and across large areas when compared to field-based assessments. On the other side, reliable, regular, and extensive in situ (physical, chemical, and biological) observations are an essential source of information. Ground data collection indeed provides complementary information. They are relevant for calibration, validation, and integration of remotely sensed data. A new frontier in Earth sensing is constituted by the development of integrated approaches for the full exploitation of multisource data, with different temporal, spectral, and spatial resolutions, towards improved characterization, enhanced interpretation, and quantitative understanding of physical, chemical, and biological processes taking place on our planet. To integrate in situ and remote sensing data and assimilate them into models, yielding in validated data and information products, data fusion techniques can be used. The integration processes are performed at different levels (i.e., signal/pixel, feature, or object level). Furthermore, distributed sensor networks and sensor web applications can help in bridging the gap and support the coordination work among different sensing systems.

This special issue is aimed at highlighting recent advancements, developments, and applications in Earth sensing including remote sensing observations and in situ measurements. A special emphasis is put on integration strategies and fusion-oriented data modelling and processing. We solicit papers describing challenging conceptual and practical problems, thus embracing novel methodological frameworks to analyze and assimilate in situ and remote sensing data into models. Also manuscripts describing new sensors and sensing systems, algorithm developments, advanced data fusion techniques, embedded systems, and communication infrastructures for Earth monitoring are welcome. Multidisciplinary studies, in which data with different characteristics are combined for generating validated information and information products for operational uses, are encouraged. We invite researchers to contribute original research articles as well as review articles.

Potential topics include but are not limited to the following:

- ▶ Ground-based (in situ) monitoring systems and technologies (including electrical, optical, electrooptical, and electrochemical)
- ▶ Observations/sensors covering the electromagnetic spectrum used for Earth sensing (including passive and active sensors, navigation, lidar, multispectral, hyperspectral, microwave, and thermal domains)
- ▶ Multiple sensors integration and data fusion (remote, in situ, and proximal sensing data)
- ▶ Canonical and emerging technologies (satellites, airborne, drones, etc.)
- ▶ Calibration, validation, and integration of sensed data: systems, models, and algorithms
- ▶ Communication infrastructures (distributed sensor networks, wireless networks, etc.) and distributed web sensors
- ▶ Application in natural disasters (originated by earthquakes, landslides, volcanic eruptions, fires, floods, etc.)
- ▶ Environmental applications: costal monitoring, pollutant monitoring (oil spill, algae bloom, etc.), smart agriculture, and so forth

Authors can submit their manuscripts through the Manuscript Tracking System at <https://mts.hindawi.com/submit/journals/js/isrs/>.

Papers are published upon acceptance, regardless of the Special Issue publication date.

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