

12<sup>th</sup> International Conference on Innovation in Urban and Regional Planning

Workshop

L'AQUILA, 5 SEPTEMBER 2023

## WORKSHOPS

05.09.2023

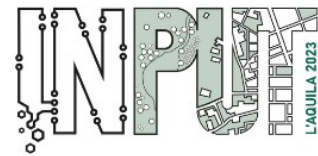
from 2 PM

- W\_01 - Monitoring Land Consumption using GIS and Remote Sensing
- W\_02 - Dal “mattone” alle città del futuro: un nuovo approccio alla sostenibilità in edilizia (Language: Italian)
- W\_03 - Satellite remote sensing for coastal monitoring
- W\_04 - BIM and HBIM: potentiality of the Building Information Modeling for new and existing construction

September 6-8 2023

L'Aquila (Italy)

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The 12th International Conference on  
Innovation in Urban and Regional Planning



# WORKSHOP W\_01

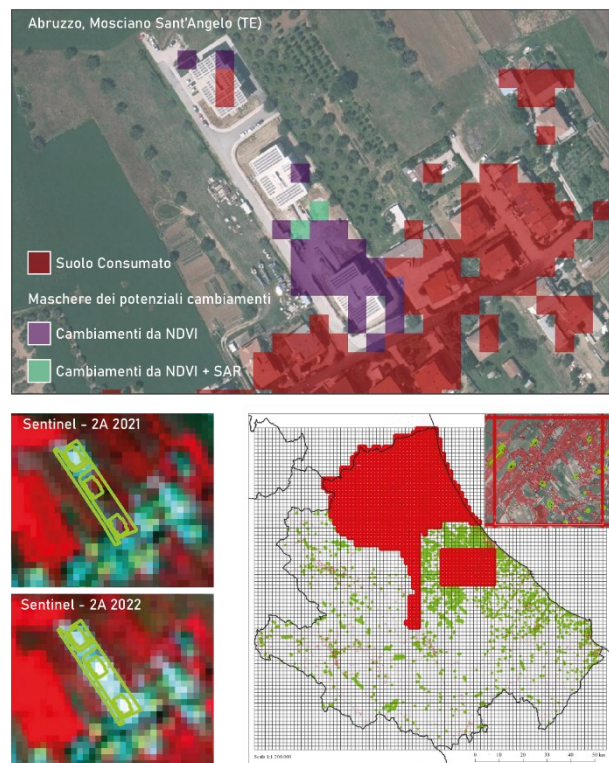
TUESDAY, SEPTEMBER 5, 2 PM-4 PM

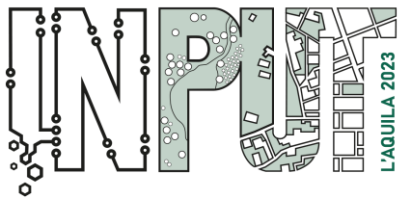
## W\_01 – Monitoring Land Consumption Using GIS and Remote Sensing

**ORGANIZERS:** *Paolo De Fioravante (ISPRA), Luca Congedo (ISPRA)*

**Workshop description:** Land consumption is the change of land cover from natural or semi-natural surfaces to artificial surfaces, and therefore is one of the main causes of soil degradation due to human activities. At the International and European level, there are several actions that aim at limiting land consumption and reach the net land take by 2050 (European Commission, 2021. Communication. EU Soil Strategy for 2030). Therefore, monitoring land cover and the changes thereof is required to assess the trend of land consumption and guide land planning to a sustainable use of soil. Remote sensing is a valuable resource for monitoring land cover change in an affordable and timely fashion, because of the availability of images acquired frequently and with high spatial resolution.

This workshop aims at illustrating the methodology of land consumption monitoring through photointerpretation and the use of GIS and remote sensing techniques. In particular, the classification system realized by the SNPA (National System for Environmental Protection) will be described, along with examples of photointerpretation and the main GIS tools required for the digitalization of land consumption. Moreover, a methodology will be illustrated which uses remote sensing for the automatic detection of possible changes related to land consumption exploiting Copernicus Sentinel-2 images. The output of the methodology is a mask of changes that can faster the photointerpretation of land consumption.





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#### Learner Outcomes:

- Learning the definition of land consumption and the methodology for monitoring it.
- Use GIS tools and remote sensing applied to land consumption monitoring.

#### Other indications:

The installation of QGIS is suggested but not required to follow the presentation.

#### Language:

English

## WORKSHOP W\_02

TUESDAY, SEPTEMBER 5, 2:30 PM-5:30 PM

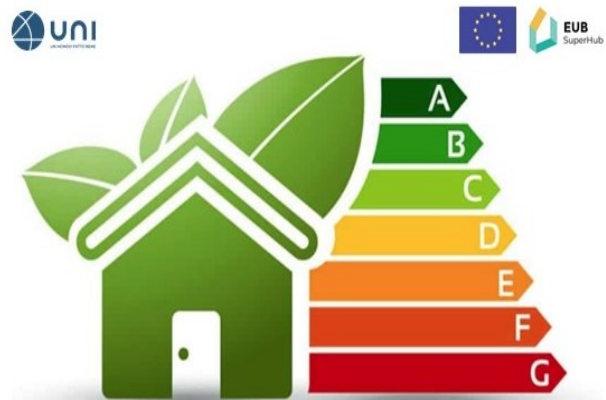
### W\_02 – Dal "mattone" alle città del futuro: un nuovo approccio alla sostenibilità in edilizia

**ORGANIZERS:** *Giacomo Riccio, Cristina Di Maria, Marco De Gregorio, Adriano Ferrara (UNI – Ente Italiano di Normazione)*

**Workshop description:** Il workshop è organizzato da UNI - Ente Italiano di Normazione - nell'ambito del progetto Horizon 2020 EUB Superhub ed è volto ad approfondire il concetto di valutazione della sostenibilità degli edifici intesa nelle sue componenti ambientale, sociale ed economica.

Si partirà da come si è evoluta la normazione tecnica, dal "mattoni" alle città sostenibili. Durante l'evento si analizzeranno le attuali modalità per valutare le prestazioni energetiche dell'edificio (e gli Attestati di Prestazione Energetica - APE), da cui è necessario

partire per definire un nuovo approccio olistico per una valutazione di sostenibilità. Il tutto anche alla luce della revisione della Direttiva EPBD. Spazio sarà dato anche a nuovi possibili strumenti a supporto dei futuri professionisti. L'evento si chiuderà con un workshop per raccogliere i desiderata sui futuri Attestati di Prestazione energetica.



**Lingua:**

Italiano

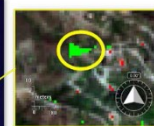
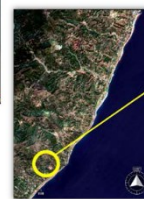
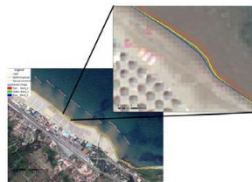
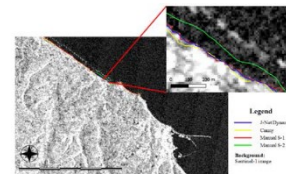
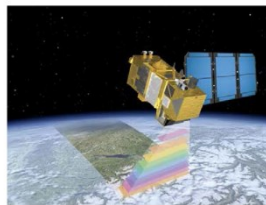
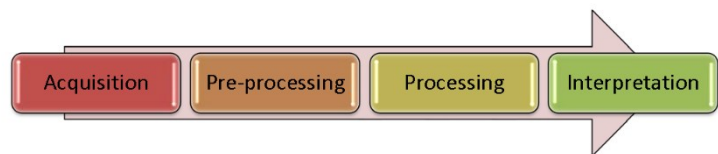
## WORKSHOP W\_03

TUESDAY, SEPTEMBER 5, 2PM-6PM

### W\_03 - Satellite remote sensing for coastal monitoring

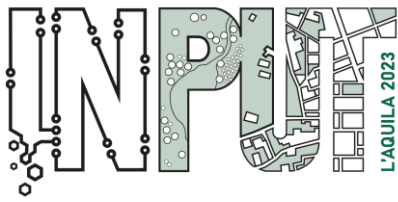
**ORGANIZERS:** *Donatella Dominici, Maria Alicandro, Sara Zollini (Department of Civil, Construction - Architectural and Environmental Engineering, University of L'Aquila), donatella.dominici@univaq.it; maria.alicandro@univaq.it; sara.zollini@univaq.it*

**Workshop description:** Coastal environments are dynamic ecosystems, constantly subject to erosion/accretion processes. Erosional trends have unfortunately been intensifying for decades due to anthropic factors and an accelerated sea level rise might exacerbate the problem. It is crucial to preserve these areas for safeguarding not only coastal ecosystems and cultural heritage, but also the population living there. In this context, monitoring coastal areas is essential and geomatics techniques, especially satellite remote sensing imagery, might prove very advantageous.



■ Absence before  
 Presence after  
■ Presence before  
 Absence after

This workshop has the aim to raise awareness of this environmental problem and to propose geomatics methodologies and techniques to monitor coastal areas. The use of free-of-charge satellite images, namely the Sentinel, will be illustrated and the most common pre-processing steps, together with the algorithms, will be fully described. Then, processing examples will be taken into account. The purpose will be highlighting the main features to be extracted for a complete coastal monitoring, starting from shoreline extraction methodologies until change detection on coastal environment, which analyses any changes occurred in the area of interest over a certain period of time. The first part of the workshop will be dedicated to a theoretical part relating to optical and radar satellite images and to the DIP (Digital Image Processing). Then, in the second part, practical examples will be performed by using specific software and algorithms for feature extraction.



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#### Learner Outcomes:

- Earth Observation tools
- Optical and radar satellite remote sensing
- Pre-processing and processing of satellite imagery

#### Language:

English



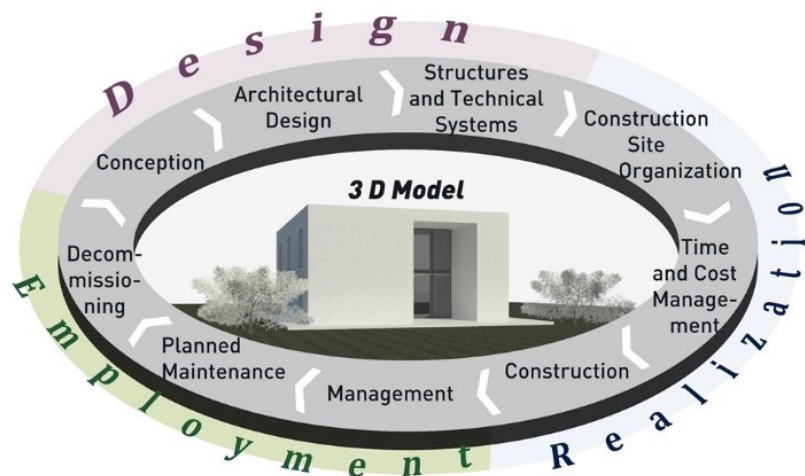
## WORKSHOP W\_04

TUESDAY, SEPTEMBER 5, 2 PM-6 PM

### W\_04 - BIM and HBIM: potentiality of the Building Information Modeling for new and existing construction

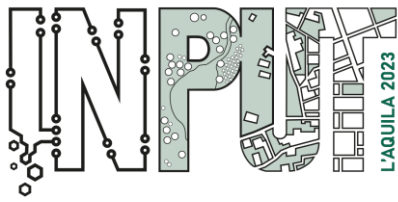
**ORGANIZERS:** *Pamela Maiezza, Adriana Marra, Alessandra Tata (Department of Civil, Construction-Architectural and Environmental Engineering - University of L'Aquila)*

**Workshop description:** In recent years, Building Information Modeling (BIM) has become a protagonist in the AEC (Architecture Engineering Construction) sector, thanks to the potential it offers in managing information related to the entire life cycle of the building - from conception to construction, maintenance, management, disposal. The secret is to offer a



single model for the building project, a tool that can be shared (i.e., "interoperable") between the various professional figures involved in the building process (architects, structural engineers, plant engineers, etc.). Thus, a single three-dimensional interface is obtained for the development of the project in its various forms and phases (development of graphic designs, structural analyses, energy evaluations, calculations and economic estimates, etc.), which does not end its usefulness with the "inauguration" of the building but also offers support subsequently in its maintenance and management. Such benefits make BIM, nowadays, an essential reality, also sanctioned at the regulatory level.

The workshop aims to illustrate the main features of the BIM process, explaining the workflow and benefits of its use. It will also highlight the potential and critical issues of applying BIM, which originated for the design of new buildings, to historic heritage (Heritage/Historic BIM - HBIM), which, by its nature, is ill-suited to the standardization and typification inherent in BIM.



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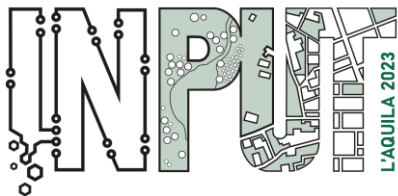
Finally, through a small exercise, BIM modeling will be tested, i.e. an object-oriented semantic modeling enriched by heterogeneous information, which allows the integration of all aspects of the building process into a single platform.

**Other indications:** Learners are asked to bring PC with Autodesk Revit software installed.

**Language:**

English





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The Conference is sponsored by *Regione Abruzzo, Provincia dell'Aquila and Comune dell'Aquila; ANCE and ANCE Giovani (Associazione Nazionale Costruttori Edili), Ordine degli Ingegneri della provincia dell'Aquila and Ordine degli Architetti della provincia dell'Aquila; ISPRA (Istituto Superiore per la Protezione e la Ricerca Ambientale) and UNI (Ente Italiano di Normazione)*

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