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An application of Sentinel-2 data for monitoring extensive works progresses: The case of a detention basin in Tuscany

Silvia Tinon (1), Giovanni Menduni (2), Giovanni Ravazzani (2), Chiara Corbari (2), Michele Munafò (3), and Luca Congedo (3)

(1) Fondazione Politecnico di Milano, Piazza Leonardo da vinci 32 Milano, Italy, (2) Civil and Environmental Engineering department, Politecnico di Milano, Piazza Leonardo da vinci 32 Milano, Italy, (3) Istituto Superiore di Ricerca Ambientale, Via Vitaliano Brancati, 48, Roma, Italy

Monitoring major public works progresses is strongly a prominent topic. Citizens often ask about the state of “in progress” infrastructures such as highways or railways or any extensive work. On the other hand, governments, at different levels, need to offer cool information to share their effort and improve civic engagement, accountability and transparency. This is truer when dealing with works referring to the mitigation of hydrogeological risk: It is important for any type of user to know the exact state of progress or the entry into operation of this type of infrastructures also for an effective management of the emergency and of public security. Official reports on construction sites progresses often show huge delays that have however physiological causes due to long approval processes of the ongoing administrative single deeds. This delay can be of several months that sound unacceptable when dealing with government needs. We propose here an application aimed to wide scale public work monitoring using Copernicus Sentinel-2 data: The method requires a deep preliminary analysis of the project and of the work processes; Sentinel-2’s data are used to define the changes and the effective state of the pixels in the area using a suitable algorithm. Thanks to the high frequency of Sentinel-2 data acquisition, it is possible to perform a frequent monitoring integrating remote sensed data with available high-resolution images and official reports, offering an effective view of the progresses of the work. the aim of this paper is to conceive an open source platform that offers citizens and stakeholders a "global eye" on the entire construction site and near-real time update, providing a vision of the changes taking place and improving accountability and transparency.