BAD2BED - BADland morphodynamics assessment and hillslope-channel BED coupling in the context of global change

Termin: 2024-06-06 - 2025-06-05

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Numer projektu: 2022C7K7RR ~ BAD2BED ~ CUP MASTER B53D23007030006 – CUP B53D2300

The reasearch will be focused on activities of working packages WP1 and WP3 of the PRIN2022 project BADland morphodynamics assessment and hillslope-channel BED coupling in the context of global change".

WP1 is focused on the multitemporal landscape analysis. Specifically, the researcher will contribute to tasks 1.2, 1.3 and 1.4, aimed at achieving multitemporal geomorphological maps of hillslopes and rivers, and multitemporal land use maps in the project pilot area (Southern Tuscany). Results will be compared to the achievements of the other research units involved in the project, that work in other Italian badland study areas

Activities of WP3 includes reach scale field monitoring of a channel draining a badland hillslope. Morphological planform changes will be analysed and quantified by comparing multitemporal orthophotos; bed elevation changes and subsequent sediment storage changes in the channel reaches will be accomplished using the difference of multitemporal DTMs (DoD technique) derived from SfM methodology. This task will allow us to explore whether the drainage network will act as a source and/or a sink for sediments.

Morevoer, suspended sediment yield will be measured in an instrumented small sub-catchment (5 to 10 km^2). More specifically, a multiparametric probe that measures turbidity, discharge and total dissolved salts will be installed in the Upper Orcia Valley pilot area. This task is aimed at assessing the efficiency in sediment transfer from the hillslopes to the main streams in catchments hosting badlands. Remote sensed and geomorphometric analyses will be carried out in GIS environment.

The main goal of the research will be to delineate the present hillslope and channel morphodynamics in a representative Italian subhumid catchments with badlands, and how it has been affected by past and present human impact.

Publikacje

Abstrakty, recenzje, notatki

- Cebulski Jarosław, *Vergari Francesca*, *Sannino Annalisa*, *Torre Davide*, *Stark Manuel*, *Del Monte Maurizio*: Flood events in a Mediterranean badlands area - recording in suspended sediment concentration in an instrumented catchment. [w]: Regional Conference of Geomorpology - Geomorphology for Society: Challenges and opportunities. Timișoara: 2025 - 1 s.
- *Vergari Francesca*, *Cebulski Jaroslaw*, *Scolamacchia Teresa*, *Misra Pavani*, *Marsico Antonella*, *Scorpio Vittoria*, *Colacicco Rosa*, *Pittau Sharon*, *Sannino Annalisa*, *Del Monte Maurizio*, *Capolongo Domenico*, *Coratza Paola*, *Soldati Mauro*: Human impact on erosion dynamics of Italian badlands over the last 70 years: insights from the BAD2BED Project. [w]: Regional Conference of Geomorpology - Geomorphology for Society: Challenges and opportunities. Timișoara: 2025 - 1 s.
- *Vergari Francesca*, Cebulski Jarosław, *Scolamacchia Teresa*, *Misra Pavani*, *Marsico Antonella*, *Scorpio Vittoria*,

Colacicco Rosa, *Pittau Sharon*, *Sannino Annalisa*, *Del Monte Maurizio*, *Capolongo Domenico*, *Coratza Paola*, *Soldati Mauro*: Human impact on erosion dynamics of Italian badlands over the last 70 years: insights from the BAD2BED Project. [w]: Regional Conference of Geomorpology - Geomorphology for Society: Challenges and opportunities. Timisoara, Romania: 2025 - 1 s.

- *Vergari Francesca*, *Marsico Antonella*, *Scorpio Vittoria*, *Capolongo Domenico*, *Coratza Paola*, *Del Monte Maurizio*, *Soldati Mauro*, Cebulski Jarosław: BAD2BED Italian National Project PRIN2022 - BADland morphodynamics assessment and hillslope-channel BED coupling in the context of global change. [w]: 4th Denuchange Workshop. Rzym: 2024 - s. 45.