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Daniele Bocchiola, born upon January 18 1972 is assistant professor in Hydrology at Politecnico di Milano since 2005. He gained his degree (Master of Science) in Environmental Engineering in July 1998 and his PhD in Hydrology in June 2003 at Politecnico di Milano, partially fulfilled at MIT. His field of interest in research covers a range of issues, with particular focus upon impact of ongoing and prospective climate change on water resources, natural hazard, agriculture, and cryosphere in the European Alps, the Andes, the Hindu-Kush Karakorum Himalaya, the Caribbeans.
He's author of over 100 publications, including ca. 40 papers upon peer reviewed journals. He cooperates with EVK2CNR committee for high mountain research within several projects under the framework of the SHARE initiative, and has carried a number of field expeditions therein.
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Impact of climate change upon the cryosphere and water resources in the upper Indus river basin

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The mountain regions of the Hindu Kush, Karakoram and Himalaya (HKKH) are the “third pole” of our planet, and the glaciers in this area play the role of “water towers”, delivering significant amounts of melt water, especially in the dry season, essential for food and water security, and hydropower production. The recent dynamics of glaciers in the Karakoram area is also called the “Karakoram anomaly”, characterized by substantially unchanged ice cover during the last decade, against noticeable area loss worldwide, possibly leading to slightly decreasing stream fluxes.
Yet, recent major floods occurring in Pakistan and the Karakoram area, may represent an effect of modified climate in the area, carrying heavier precipitation in the Monsoon season. I present here results Obtained under the umbrella of SHARE-Paprika and SEED projects of the EvK2CNR Committee of Italy, aiming at evaluating the impact of recent and prospective climate change upon the criosphere and hydrology of the upper Indus river. I focus here on a specific watershed nested within the upper Indus basin, and fed by seasonal melt from two major glaciers (Baltoro and Biafo), at the toe of K2 peak. I illustrate data gathered in four field campaigns during 2011-2012, aimed at investigating ice ablation dynamics, seasonal accumulation, and hydrologic fluxes from the Baltoro-Biafo glaciers area and Shigar River. Based upon these data hydrologic modelling of the area is approached and projected future (until 2100) criospheric and hydrological cycle is investigated using meteorological projections from GCMs delivered under the IPCC umbrella. Scenario simulations are thus obtained, including modified snow cover, ice ablation regime and implications for future water resources and flood regime in the area. The uncertainty of the results is addressed, and future research questions are discussed.

Keywords
climate change; water resources; Indus river; Karakoram glaciers