Reconstruction and Characterization of the January–February 2026 Flood Event in the Gharb Plain

(Oral)

Khalid BARKOUKI[1]

[1]BHS Engineering, Rabat , Morocco
** Corresponding author: kba@bhse.ma*

ABSTRACT

The Gharb Plain, located in the downstream part of the Sebou River Basin, is one of Morocco's most important agricultural regions and is highly vulnerable to flooding due to its low-lying topography, the predominance of poorly permeable clayey soils, the presence of former merjas acting as natural flood retention areas, and the limited drainage capacity of the Lower Sebou. During January and February 2026, the region experienced an exceptional hydrometeorological event that caused extensive flooding despite the regulating effect of the major upstream reservoirs. In response to this event, a coordination unit was established at the Wilaya of the Rabat-Salé-Kénitra Region under the supervision of the Wali, bringing together the main institutional stakeholders to ensure event monitoring, data centralization, and decision support. The present study was conducted within this framework to reconstruct and characterize the hydrological and hydraulic behaviour of the flood event, identify the main flood propagation mechanisms, assess the observed impacts, and provide a scientific and technical basis for improving flood risk management and resilience in the Gharb Plain. The adopted methodology relied on an integrated approach combining the analysis of available rainfall and hydrometric data, reservoir operation records, field investigations, and multi-temporal satellite imagery processed using Geographic Information Systems. This approach enabled the reconstruction of the flood chronology, the assessment of the spatio-temporal evolution of inundated areas, the identification of the main overflow locations and preferential flow paths, and the evaluation of impacts on agricultural lands, hydraulic infrastructure, and transport networks. The results highlight the combined influence of exceptional rainfall, significant upstream inflows, limited downstream conveyance capacity, and the geomorphological characteristics of the plain on flood extent and persistence, while demonstrating the value of integrating hydrometeorological observations, field surveys, and remote sensing for flood assessment and decision-making.

Keywords: Gharb Plain; Sebou River Basin; Flooding.