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Author: Dr. Samy ELMAHDY
United Arab Emirates, samy903@yahoo.com

DEVELOPMENT A REAL-TIME SYSTEM FOR FLASH FLOOD PREDICTION IN THE NORTHERN EMIRATES, UAE

Abstract

In the northern Emirates, flash floods (FF), as a response to climate change, are the largest natural hazardous causing massive destructive and losses in human lives and infrastructures. The continuous data collection from real-time monitoring system allows a better understanding of flash floods behave and dynamic. In turn, this system enables decision makers and environmental engineers to built an effective master plan and strategy to reduce or prevent the negative environmental impacts of flash floods. Here, we propose a real-time system for flash floods prediction in the northern emirates. The system consists of water level rain gauges, infrared camera, power supply, single-board computer and data processing server. The wireless infra-red cameras will be fixed in the rain gauges. In turn, these gauges will be fixed in the up streams and banks of the main wadi courses in the Oman mountains such as Wadi Dibba near Masafi, Wadi Al Bih near Jais, Wadi Shaam, Al Bithnah, Harrah, Al Aqdah and Huwaylat. These rain gauges will be connected directly to data processing unite, power supply (battery or solar panel) and local police stations near and around Oman mountains via internet. As a first step, the proposed system will be tested by measuring water level in rainfall gauges every 2 minutes during rainy seasons (November and December). We will calibrate water level in the gauges with time and FF occurrence. The testing locations will be conducted at wadi courses of Jabal Jais, Ras Al Khaima, UAE. The proposed system is simple and effective in FF prediction in reliable time.