**Observed Precipitation Patterns of Flash Floods in Hindu Kush Himalaya and Swiss Alps**

Myint.M.M. 1\*

1Chief Scientist, Mapping and Natural Resources Informatics, Switzerland

[\*maungmoe.myint@mnri.ch](mailto:*maungmoe.myint@mnri.ch)

***ABSTRACT***

Flash floods occurred in the Hindu Kush Himalaya and in the Swiss Alps. It demaged the infrstructures, human habitats and landscapes. This research observed that the flash floods often followed by the high precipitation of several days before the day of the flash flood actually occurred in the mountain regions. The objective of this research is an attempt to detect the satellite based daily precipitation signals in the cryosphere zone and human habitat zone of the mountainous regions. The Integrated Multi-satellitE Retrievals for Glabal Precipitation Measurement (IMERG), is a unified satellite precipitation product produced by National Aeronautics and Space Administration (NASA) to estimate surface precipitation over most of the globe. The daily observed precipitation data is downloaded and calculate the daily mean and daily maximum precipitation of each watershed or subwatershed or district over the Hindu Kush Himalaya and Switzerland. Number of days that received above the threshold daily mean and maximum precipitations were categorized in the attribute tables of each watershed or subwatershed or district, as the preliminary flash flood risk maps. Furthermore, the time series observed daily precipitation signals or graphs were plotted for selected watershed or subwatershed or district which have received high mean precipitation and maximum precipitation. The time series signals and preliminary risk maps jointly indicated that the flash floods do not occur suddenly. It requires certain days to set the stage for happening flood event in the near furure. Therefore, it could provide enough time to inform the forewarning to the people and infrastructure operators such as hydroelectric dams to endure the flash floods with the minimal damage, to save lives and infrastructures. Python programming language and ArcGIS Pro software are applied in this research. This research attempts to contribute saving lives and infrastructures from the flash floods using remotely sensed estimated daily precipitation data from the IMERG satellites.

**Keywords:** floods, precipitations, observations