Natural Hazards and Earth System Sciences Discussions

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# Reply on RC2

Fahim Sufi et al.

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Author comment on "A Scenario-based Case Study: AI to analyse casualties from landslides in Chittagong Metropolitan Area, Bangladesh" by Fahim Sufi et al., Nat. Hazards Earth Syst. Sci. Discuss., https://doi.org/10.5194/nhess-2022-90-AC6, 2022

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**Query 2:** What considerations were made to select the collection of feature attributes used to analyze casualties?

Machine Learning (ML) based feature analysis (e.g., linear Regression or logistic Regression) depends on the availability of many feature attributes for understanding their correlations to the outcome variable. In this study, Casualty was deemed as an outcome variable, since strategic decision makers are always keen on saving precious lives resulting from landslides. Within our dataset, we only had few available features to analyze (e.g., Latitude, Longitude, Elevation, Area of Mass, Rainfall etc.). After applying our innovative method, our solution found a positive correlation of casualty with "Area of Mass" (as shown in Fig. 5, Row 1 of Table 2, Row 2 of Table 2, Row 3 of Table 2, Row 4 of Table 2, Row 5 of Table 2, Row 6 of Table 2, Row 7 of Table 2), Rainfall (as shown in Row 3 of Table 2, Row 4 of Table 2), and Elevation (as shown in Row 5 of Table 2, Row 6 of Table 2). Even though we utilized all the available features present within our dataset to obtain relationships with the observed variable (i.e., casualty), we considered appropriate data cleansing prior to the automated ML process. As a result of the cleansing process, Elevation and Area of Mass turned out to be the decimal type of data and Rainfall turned out to be integer data types.

Pre-processing the available dataset with appropriate data cleansing and transformation is the key to obtaining better AI-driven insight on the casualty.