Equivalent Hazard Magnitude Scale

Yi Victor Wang1\*, Antonia Sebastian2

1Center of Excellence in Earth Systems, Modeling and Observations, Chapman University, Orange, CA, USA. e-mail: ywang2@chapman.edu (Corresponding author)

2Department of Earth, Marine and Environmental Sciences, University of North Carolina at Chapel Hill, Chapel Hill, NC, USA. email: asebastian@unc.edu

# Supplementary Material

## Video S1

This video shows the distribution of data points regarding three impact variables (i.e., fatality, total affected population, and total economic damage in 2019 US dollars) and impact metric.

## Data S1

This file records the computed means and standard deviations of original and logarithmically transformed impact variables used in the study.

## Data S2

This file records the computed statistics of parameters of six simple linear regression models for filling in missing values of impact variables.

## Data S3

This file records the computed statistics of parameters of three multiple linear regression models with two independent variables for filling in missing values of impact variables.

## Data S4

This file records the computed statistics of parameters of 12 simple linear regression models for deriving equivalent hazard magnitudes.

## Data S5

This file records the statistics of computed equivalent magnitudes of natural hazard events on the Gardoni Scale with respect to 12 considered hazard types.

## Data S6

This file contains records of global natural hazard events from 1900 to 2020 regarding the 12 considered hazard types, including the computed impact metric values, expected impact metric values, and equivalent hazard magnitudes on the Gardoni Scale.