Are Global Seismic Hazard Predictions Effective? An Evaluation of GSHAP

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Accurate hazard assessment is crucial for effective risk management; without knowing where disasters could occur, it is impossible to prepare for them. Since its completion in 1999, the Global Seismic Hazard Assessment Program (GSHAP, for short) has been used world-wide to quantify seismic hazard. However, since its release, there has been no evaluation of its effectiveness, despite its wide usage. This is particularly surprising given how readily the necessary data is made available. This paper seeks to perform such an evaluation that will indicate GSHAPs strengths and weaknesses, and quantify how reliable it has been. The evaluation covered a five year period beginning with the Indonesian Earthquake on December 26, 2004 until the present day, and focused on where earthquakes of a magnitude greater than 7.0 occurred. Using the criteria set forth in the paper, we determined that GSHAP was only able to accurately predict 56% of the major earthquakes that occurred in the past five years. Comparing the results of GSHAP to other methods of seismic hazard prediction clearly shows that many major earthquakes cannot be predicted only using GSHAP.