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Title: From Data Visualization to Geoscience Visual Storytelling

Ning Wang and Robert J Stern
the University of Texas at Dallas

Geoscientists collect tremendous amounts of data every day and much of this is used to create good visualizations and simulations. However, for most learners without enough geoscientific expertise on certain topics, such as K12 students or beginning university students, it is hard to understand many of these visualizations and apply this knowledge to understand natural phenomena. The problem is due to the limitation of learners' base knowledge and the complexity of the visualization and simulations. To increase the communicational and educational effectiveness of geoscience visualization and simulations, we need to add more cues and scaffolding materials. To maximize effectiveness, we need to merge these visualizations into geoscientific stories, visually explaining how these models and simulations are linked to real geologic events, such as earthquakes, volcano eruptions or tsunamis. We present several simple steps that a geoscientist can take to improve their models' communicational effectiveness. Moreover, we give examples of videos we made, named 'Geonews', which merge and revise the data visualizations or simulations into stories about regional and global geology behind natural hazards. Finally, we give recommendations about how to modify geoscientific visualizations to more effectively use them to teach students and the public.

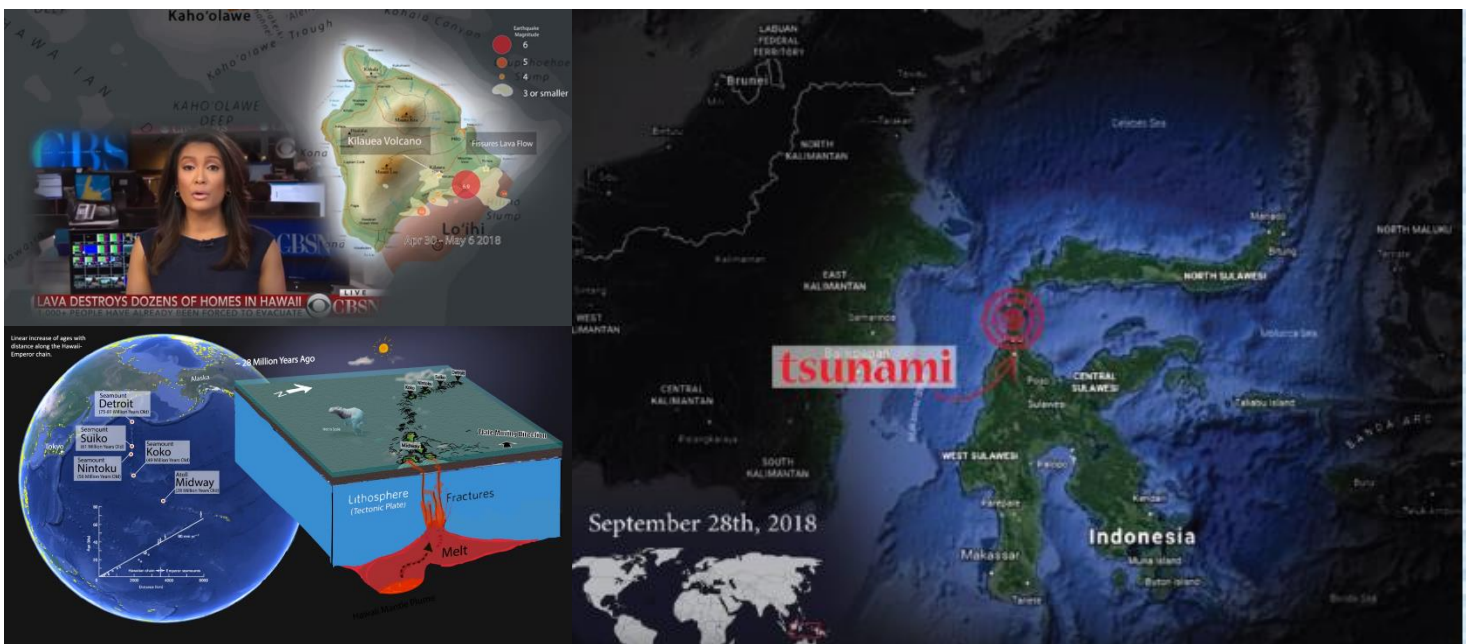


Figure 1. Examples of scaffolding geoscience simulation and visualization to visual storytelling