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Abstract:

Title:

Recent Innovations in Teaching Earth Science to combat AI at the University of Iceland

Teaching Earth Sciences are fundamental for creating robust societies, in particular in places with major geological hazards like Iceland with earthquakes and volcanic eruptions. Having strong Earth Science education creates geologists and geophysicists that can understand the planet and respond to challenges like Grindavík as well as older events like the Laki eruption in 1783 that killed ~20% of Iceland's population. AI has impacted both how we teach Earth Sciences and how we evaluate learning in the Earth Sciences. Gone are the days of literature review or written reports, this is too easily obtained by the student with ChatGPT or other models. Instead weekly readings of peer reviewed papers with micro-quizzes, gives in person moments to see what the student learned through carefully crafted questions. Field teaching also creates opportunities for novel learning. Geological sciences relies on field observation and understanding deep time, the past is the key to the present, and by doing “one of a kind” field exercises, the students collect new data. These new data then form the basis of any analysis. The workflow with these data can still be obtained using AI, but the raw data and analysis thereof provides the students with an opportunity to understand data collection and analysis. Finally, oral exams have been reimplemented during undergraduate courses in the past 2 years in the Faculty of Earth Sciences. This “going back to the basics” method, although it can create much more work for the teaching staff, and scheduling challenges, provides the teaching staff with the opportunity to understand what the students have learned and insights into how to modify teaching in future semesters giving good value added feedbacks. These examples will be discussed with suggestions for implemention in other fields during this great transition into a world of teaching with AI around us.