



How to make mud interesting: engaging a range of audiences with marine sediment laboratory based research.

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The British Ocean Sediment Core Research Facility (BOSCORF) provides long-term curation and archiving of sediment cores collected by the UK's geoscience community. The collection consists of 8,900 m of core composed of 2,400 individual marine sediment cores and is stored at a dedicated facility at the National Oceanography Centre (NOC). BOSCORF has taken an increasingly active role in geoscience outreach at a multitude of scales. The repository forms an essential component of formal visitor tours to the NOC. Annually hosting educational sessions for high-school students, engages with regionally active geological interest groups and recently, participating in large scale public science events. BOSCORF has utilised the recent NERC funded project: the Arctic Landslide Tsunami Project, and developed an activity that can be adapted to the needs of specific audiences. The activity focusses on the Storegga Slides, and the history of tsunamis and volcanic eruptions to have affected the UK.

To appeal to a wide range of audiences, this outreach activity places emphasis on constructivist learning, relating complex scientific concepts such as sedimentation rates, tephrochronology and turbidites to recent examples of volcanic eruptions and tsunamis. Using a sediment core as a visual guide, participants are guided through a history of geohazards, and given a range of statistics and facts relating to the visible event in the sediment core (e.g. Holocene tephra). This information is then compared with a similar event occurring today (e.g. 48 x the size of the Eyjafjallajökull eruption). The focus is on risk to UK populations which leads a targeted discussion on hazard mitigation, policy and future research, and the role that BOSCORF has in achieving these goals. In addition, a range of unique and varied peripheral activities have been included to interest stakeholders from varied backgrounds. These have included 3D printed foraminifera, peat cores containing tsunami deposits and a "tsunami" generator in a paddling pool.

The use of a currently research-active scientific resource does present some challenges for BOSCORF, but through collaboration with the NOC Communications department, these issues have been managed, and this resource should be available for several years.

The "storytelling" approach, using a deep marine sediment core as a timeline to frame a complex problem, captures the imagination of those who engage with the activity. A focus on training staff to encourage the participant to reflect on their new knowledge (tsunamis in the UK) and develop this interest through guided questioning (where could this happen, why could this happen, how can you tell this happened), is essential to avoiding the feeling of being "lectured at" by a scientist. This approach helps to make participants feel involved, and to understand why facilities such as BOSCORF exist, why they are tax-payer funded and the relevance of the science. It is also essential to ensure an understanding of the limitations of the science is effectively communicated, and that they will encounter research similar to this in the press, and to think critically about how it is reported.