

Volcanoes, Earthquakes and Tsunamis

By Professor David Rothery

Professor Rothery entertained the Cirencester Science and Technology Society to a well illustrated lecture on the interaction between the media and academia in terms of explaining the impact of major dramatic natural events such as volcanic eruptions, earthquakes and the resultant tsunamis.

From the perspective of a volcanologist he was able to explain to global news services including Al Jazeera, ITV, CNN and BBC News the causes and implications of volcanic eruptions such as the recent Sinabung volcano in Sumatra and the earlier massive disruption to European air traffic resulting from the ash particles dispersed in a south easterly direction from the 2010 eruption of the Eyjafjallajokull volcano in Iceland. The eruption of Sinabung earlier this month was the latest in a series of eruptions in a region containing more than 130 volcanoes. Given that Sinabung started erupting in 2010 after some 400 years of dormancy the population evacuation programme was relatively well organised for this latest outburst but even so at least 14 people died.

Dr Rothery explained that in the case of Iceland their volcanoes are caused by the island's location on the divergent tectonic plates of the mid-Atlantic Ridge as opposed to the convergent plates around the Pacific rim. When the Eyjafjallajokull volcano erupted in April 2010 it forced the closure of major international airports like London Heathrow. This was necessary for safety reasons given the danger to jet engines when ash particle concentrations exceed a certain limit. In April 2010 this limit was set at 2mg per cubic metre but in May the barrier was raised to no more than 4 mg of ash per cubic metre.

The talk also covered the background to the Japanese Tohoku magnitude 9 earthquake and associated tsunami that killed some 14,000 in 2011 and was caused by the subduction of the tectonic plates under relatively shallow waters in the Pacific Ocean to the East of Japan. This linear quake produced massive waves spreading both eastwards and westwards of the original subduction zone.

In answer to questions from the audience about the questionable professionalism of journalists when interviewing him on scientific subjects Dr Rothery said that, in general, he was impressed with their skill in crafting interviews with little preparation.