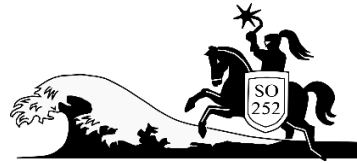


SO252: Ritter Island

1. Weekly Report



This is the first weekly report of SO252 cruise "Ritter Island". The aim of this expedition is to investigate what happened during a flank collapse of Ritter Island in the Bismarck Sea, which took place on 13 March in 1888. This is the only flank collapse of a volcanic ocean island, which is historically documented. Because German colonialists stayed in the study area during the event, there are numerous observations of the tsunami caused by the flank collapse. The objective of the expedition is to map today's distribution of the landslide deposit, in order to enable a numerical analysis how fast it must have moved to explain the observed tsunami. In addition, with the help of sediment cores and video observations, we will investigate to what extent the volcanic flank has disintegrated and to what extent volcanic processes have overprinted the deposit since 1888. With this information, it will be possible to better quantify the tsunami hazard posed by volcanic islands such as the Canaries or Hawai'i.

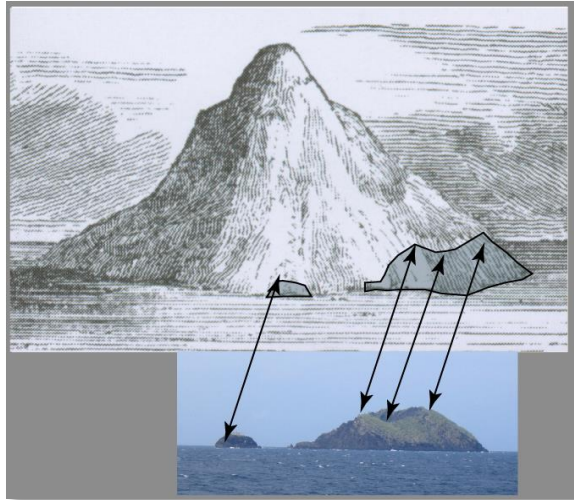


Figure 1: Ritter Island before the Flank Collapse (after Jacobs, 1844) and in 2004 (Photograph: S. Day, 2004). Only a small fraction of the originally 700 m-high volcanic edifice is still visible..

Independently from this and together with Dutch colleagues, we will explore the influence of internal waves on the mixing of water bodies in the Mariana Trench as a type example of a deep-water trench. This process is a prerequisite for life in deep-sea trenches to exist, since otherwise all oxygen would be consumed.

We left Yokohama on 5.11.2016 at 08.30 and have since steamed to the south to our first work area. We expect to arrive at the Challenger Deep in the Mariana Trench on Thursday, 10.11. This is a bit later than expected, because a typhoon came into our way and we had to circumvent it.

On behalf of the cruise participants,
Christian Berndt (Chief scientist)