


POS515 CALVADOS <u>CAL</u> abrianarc mud <u>Volc</u> Anoes: <u>Deep</u> <u>Origin</u> and internal <u>Structure</u> June 18 – July 13, 2017 Dubrovnik - Catania	
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Weekly Report2 June 26 – July 2, 2017

Despite our initial hopes to run a complete 3D survey with the P-cable system across Venere mud volcano, a problem with quickly increasing current-leakage occurred on Sunday (June 25) afternoon, forcing us to abandon the P-cable survey. All gear was recovered and we switched to 2D survey mode. A single 150 m long streamer made from twelve sections was quickly put together. The 2D streamer consists of 96 channels in total yielding high quality seismic images. We acquired over the course of the entire week a set of 84 parallel 2D lines, which can be combined to form a pseudo 3D data volume. On board processing of the 2D data included streamer- and gun-navigation for calculating common-mid-point geometry, followed by stacking, and Stolt time-migration. The complete set of lines was then uploaded into the interpretation software to create time-slices through the data volume for a first data quality check (Figure 1).

Seismic surveying at Venere mud volcano ceased Sunday morning at 06:00, followed by a quick recovery of the airgun and our 2D streamer. We then recovered our twelve OBS within a record time of 5 ½ hours. However, due to high winds and seas, we are unable to collect additional seismic lines, connecting the Venere mud volcano with our next target, the Poseidon mud volcano chain. At 13:30 we started our transit to the new study site, where we intend to re-deploy the twelve OBS in the morning hours of Monday, July 3rd.

From our initial onboard data QC/QA of the streamer and OBS data, we are very pleased with the outcome of the survey, despite the disappointing P-Cable issues; however, all initially defined scientific objectives at this prominent mud volcano have been met. We have collected seismic data along a distance of ~640 nautical miles (or equivalently ~1180 km) and look forward for additional processing and interpretation of this huge but rewarding data set.

Throughout the week, weather has been mostly cooperative, though some unusual high winds often occur over night, creating a choppy swell for a short period of time during the morning hours. However, towards the afternoon, the winds usually calmed down and sea state was overall < 1m.

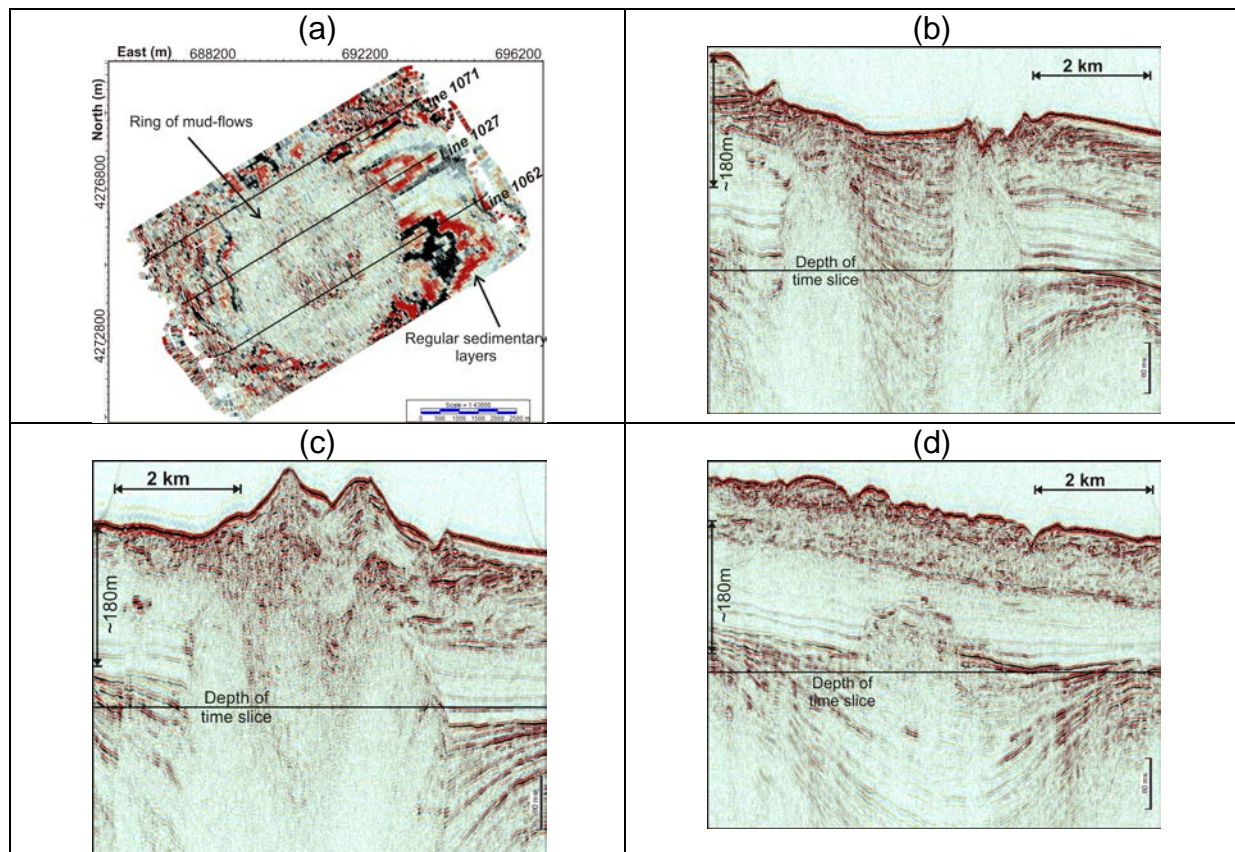


Figure 1: First glimpse of the pseudo-3D analyses generated from 84 parallel lines acquired across Venere mud volcano: (a) time slice at 2.32 seconds (two-way time) through the pseudo-3D data volume showing a ring of low-amplitude mud-flows sharply truncated from the surrounding high reflectivity sedimentary layers, and three examples of the parallel 2D reflection lines: (b) #1062 at the southern limit of the survey zone, (c) #1027 across the two peaks of Venere, and (d) line #1071 at the northern limit of the survey area showing three distinct stratified sedimentary units with the middle unit of reduced reflection amplitude intruded by mud flows.

Michael Riedel, July 2, 2017

on behalf of all involved in the project CALVADOS