



## **The Distributuion BSR and Multiple BSR Across The Danube Delta on the Offshore Romania and Bulgaria**

Orhan ATGIN (1), Gunay Cifci (1), Derman Dondurur (1), Jorg Bialas (2), Ingo Klaucke (2), and the SeisLab Team

(1) Dokuz Eylul University, Institute of Marine Science and Technology Te, Geophysical Laboratory (Seislab), Izmir, Turkey (orhan\_atgin@windowslive.com), (2) Geomar, Helmholtz Centre for Ocean Research Kiel

Danube river which flows into the Black Sea is one of the world's biggest amount sediment transporter to the marine environment. Throughout long geological periods, Danube has formed many channel structures and the channel developments are still being continued. Danube River has caused a lot of potential gas hydrate formations which spread over quite larger areas.

Under the frame of SUGAR Project, high resolution multichannel seismic data were collected using the facilities of Seismic Laboratory (SeisLab) in the Institute of Marine Sciences and Technology of Dokuz Eylül University on board R/V Maria S. Merian in 2013. More than 2300 km Multichannel seismic reflection data acquired across the palaeo Danube delta to investigate BSR and potential gas hydrate areas on the continental shelf where Danube river reaches to the Black Sea, BSR areas and potential gas hydrates.

Also, in relation with high sediment input, the effects of deltas on BSR's are aimed to research and several of inactive and partly buried channel systems could be mapped. There are large number of buried channel levee systems which seem to underlain by a continuous BSR indicating availability of free gas. There are also a significant reflector of inverted polarity was identified within a depth of about 100 m below seafloor. A very prominent BSR with reversed polarity is determined 200 ms TWT below seafloor on the eastern levee of the channel and simulate and crosscut the sediment layer. Three distinct BSRs as multiple BSR signature are observed on the high resolution multichannel seismic with a slightly varying dips. Multiple BSR's up to 5 BSRs are exist around river channels and paleochannels which have formed during different geological periods. In some paleochannel areas, high amount of sediment transportation causes dissolution of gas hydrate structures. At such areas seismic signals are being absorbed and structures which indicate dissolved gas are determined. In addition parasound data show dense amount of gas flares with acoustic blanking in about 30 m depth below seafloor at the BSR outcrop.