

HYDROCARBON GASES IN SEDIMENTS FROM SHOT HOLES ALONG THE TRANSALP TRAVERSE

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The goal of the study is to derive information on the occurrence of hydrocarbons along the TRANSALP section in the Alps by analysing near-surface samples. Therefore, sediments from nearly all seismic shot holes along the TRANSALP traverse have been sampled and degassed in the BGR laboratory using an acid/vacuum extraction procedure. The concentrations of the light hydrocarbons (hc) and the carbon and (hydrogen) isotope ratios of methane through propane for samples from the shot holes have been determined.

The hc-concentrations range from 6 to 5289, 1 to 2333 and 1 to 3586 ppbw (parts per billion by weight of wet sample material) for methane through propane. The carbon isotope ratios range from -65 to -27, -38 to -26 and -34 to -19 ‰ (relative to the PDB reference) for methane, ethane and propane. The geochemical data indicate that hydrocarbons from organic source rocks are present but also point to a contribution of 'artificial' hydrocarbons formed while drilling the shot holes (contamination).

The non-contaminated data of the hydrocarbon gases indicate the predominantly thermal origin related to organic source rocks, only in few samples bacterial methane is found. The organic

source material consists mostly of a marine type, however, in few samples a contribution of a terrestrial source is indicated.

The thermal hydrocarbons migrated from the depth of the source rocks into the near-surface sediments. The thermal maturity of the source rocks, deduced from the carbon isotope ratios is between 0.5 to about 2% vitrinite reflectance (Rr). Source rocks of the gas samples from shot holes 3 and 4 are low in maturity – around 0.5% Rr, whereas those from other sections of the transvers section are higher in maturity.

Details will be given in the poster on the geochemical data of the hydrocarbons extracted from the sediments.

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