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Study of greenhouse gas emissions at Khankalskoye geothermal station site

The deep heat of the Earth is an almost inexhaustible, environmentally friendly and economically attractive resource. Geothermal energy in Russia as an industry is in its infancy, and currently there are no tried and tested, replicable technical solutions for the construction of geothermal plants. Geothermal deposits of the Chechen Republic, the largest of which are Khankalskoye, Novogroznenskoye, Chervlenoye and Kargalinskoye have long attracted close attention in terms of practical use. One of the most studied and promising geothermal deposits considered from the point of view of commissioning is Khankalskoye. In 2011-2015, the project of a unique geothermal station (UGS) for the extraction of deep Earth heat was implemented by GSTOU at the Khankalskoye geothermal deposit. It is the first experience in Russia of creating a UGS using a circulating heat collection system with an independent separation of thermal and consumer circuits through heat exchangers. The paper describes the structure of Khankalskoye experimental-industrial geothermal station. Information is provided on the previously developed GIS module "Geothermy" for monitoring operated geothermal deposits in order to protect the environment from possible negative impacts, including greenhouse gases. In order to analyze the amount and composition of greenhouse gases, a study of soil respiration was conducted on the territory of the Khankalskoye UGS using the G4301 mobile gas analyzer. Maps of the points of the actual values of the measurement of CH4 and CO2 and maps of the isolines of the flows of these gases were constructed using the thin-walled spline algorithm and interpolation.

Biography:

Magomed Shavalovich Mintsaev, graduated from the Moscow Automobile and Road Construction Institute (State Technical University) (MADI) with a degree in "Engineer for automation of technological processes and production (in construction)" in 2001 and the same year he defended his thesis for the degree of Candidate of Technical Sciences at MADI. In April 2010, he defended his dissertation for the degree of Doctor of Technical Sciences at MADI.