地质学报
ACTA GEOLOGICA SINICA

祝有海,,张永勤,,文怀军,,卢振权,,贾志耀,,李永红,,李清海,,刘昌岭,,王平康,,郭星旺.青海祁连山冻土区发现天然气水合物[J].地质学报,2009,83(11):1762-1771

青海祁连山冻土区发现天然气水合物

点此下载全文

祝有海 张永勤 文怀军 卢振权 贾志耀 李永红 李清海 刘昌岭 王平康 郭星旺

中国地质科学院矿产资源研究所，北京，100037;中国地质科学院勘探技术研究所，河北廊坊，065000;青海煤炭地质105勘探队，西宁，810007;青海煤炭地质105勘探队，西宁，810007;中国地质科学院矿产资源研究所，北京，100037;青海煤炭地质105勘探队，西宁，810007;中国地质调查局青岛海洋地质研究所，山东青岛，266071;中国地质科学院矿产资源研究所，北京，100037

基金项目：

DOI：

摘要：

祁连山冻土区位于青藏高原北缘，多年冻土面积约10×10 4 km 2 ，具有良好的天然气水合物形成条件和巨大的找矿潜力。2008~2009年间中国地质调查局在青海省天峻县木里煤田聚乎更矿区施工“祁连山冻土区天然气水合物科学钻探工程”，这一工程共完成4口钻井，总进尺2059.13m，分别在DK 1、DK 2和DK 3钻井中钻获天然气水合物实物样品，取得了找矿工作的重大突破。天然气水合物赋存于冻土层之下，埋深133~396m。水合物呈白色、乳白色晶体，点火能燃烧，红外热像仪测温后呈明显的低温异常，放进水里强烈冒气泡和水滴，并残留下特征的蜂窝状构造。激光拉曼光谱仪检测呈现特征的水合物光谱曲线，测井曲线也具有较明显的特征。祁连山天然气水合物具有冻土层薄、埋深浅、气体组分复杂、以煤层气成因为主等明显特征，是一种新类型水合物。这是首次发现的天然气水合物实物样品，也是全球首次在中低纬度高山冻土区发现天然气水合物实物样品，具有重要的科学意义和

关键词：天然气水合物 冻土 祁连山

Gas Hydrates in the Qilian Mountain Permafrost, Qinghai, Northwest China

Downlo

ZHU Youhai ZHANG Yongqin WEN Huaijun LU Zhenquan JIA Zhiyao LI Yonghong LI Qingl Pingkang GUO Xingwang

Fund Project:

Abstract:

Qilian Mountain permafrost, with an area of about 10×10 4 km 2 , is located in the plateau. It has of perfect conditions and great prospecting potential for gas hydrate. The Scient Hydrate in the Qilian Mountain permafrost, which locates at the Jugenghu Mining Area in the Muli Qinghai Province, has been implemented by China Geological Survey in 2008~2009. Four scientific d completed with a total footage of 2059.13m. Samples of gas hydrate were collected separately in t DK 3. Gas hydrate is hosted under permafrost zone at the 133~396m interval. The samples are whit burning. Distinct low temperature anomaly has been identified by infrared camera. The gas hydrate bubble in water. Gas bubble and water drop emit from the samples and then retain characteristic typical spectrum curve of gas hydrate is detected using Raman spectrometry. Furthermore, the logg high electrical resistivity and sonic velocity. Gas hydrate in Qilian Mountain is found within a a shallower buried depth and characterized by more complex gas component and coalbed methane orig hydrate.

Keywords:gas hydrate permafrost Qilian Mountain