CHINESE JOURNAL OF GEOPHYSICS

文章快速检索

首页 | 期刊介绍 | 编委会 | 投稿指南 | 期刊订阅 | 广告合作 | 留 言 板 | 联系我们

English

GO

地球物理学报 » 2014, Vol. 57 » Issue (2):644-650 doi:10.6038/cjg20140227

应用地球物理

最新目录 | 下期目录 | 过刊浏览 | 高级检索

◀◀ 前一篇

后一篇 >1

引用本文(Citation):

许小凯, 王赟, 孟召平.六种不同煤阶煤的品质因子特征. 地球物理学报, 2014,57(2): 644-650,doi: 10.6038/cjg20140227

XU Xiao-Kai, WANG Yun, MENG Zhao-Ping. Quality factor characteristics of six metamorphic kinds of coals. Chinese Journal Geophysics, 2014, 57 (644-650, doi: 10.6038/cjg20140227

六种不同煤阶煤的品质因子特征

许小凯1, 王赟2,3, 孟召平1*

- 1. 中国矿业大学(北京)地球科学与测绘工程学院, 北京 100083;
- 2. 中国科学院地球化学研究所, 贵阳 550002;
- 3. 中国地质大学(北京), 北京 100083

Quality factor characteristics of six metamorphic kinds of coals

XU Xiao-Kai¹, WANG Yun^{2,3}, MENG Zhao-Ping¹*

- 1. College of Geoscience and Surveying Engineering, China University of Mining & Technology (Beijing), Beijing 100083, China;
- 2. Institute of Geochemistry, Chinese Academy of Sciences, Guiyang 550002, China;
- 3. China University of Geosciences (Beijing), Beijing 100083, China

摘要

参考文献

相关文章

Download: PDF (1109 KB) HTML (1 KB) Export: BibTeX or EndNote (RIS) Supporting Info

摘要

通过6种不同煤阶煤的弹性测试,分析了煤岩变质程度(以镜质组最大反射率表示)与煤岩品质因子之间的关系:在此基础上,进一步分析了煤岩速度与品质因子之间的关系及纵波与横波品质因子的各向异性特征.研究发现:煤岩镜质组最大反射率与纵波、横波品质因子均存在良好的线性相关性;垂直层理方向的波速与品质因子存在良好的线性关系,好于走向与倾向方向;垂直层理方向的纵波与横波品质因子线性相关,相关系数可达93.5%;煤岩的三方向品质因子存在各向异性,且强于速度的各向异性.通过横波品质因子与纵波品质因子间相互换算的理论公式计算结果与实验室实测结果的对比,证明了该理论公式的可靠性,误差小于10%,为多分量转换波的吸收衰减补偿提供了理论依据.

关键词 煤岩, 镜质组反射率, 品质因子, 各向异性, 衰减补偿

Abstract:

Lab ultrasonic measurements to metamorphic kinds of coal reveal the relationship between maximum vitrinite reflectance and ultrasonic quality factor. And then the relations between ultrasonic velocities and quality factors, including the anisotropic characteristics of quality factors are analyzed. The results show that there are a good linear correlation between the maximum vitrinite reflectance and P-and S-wave quality factor, quality factors and velocities in vertical direction, the P-wave quality factor and S-wave's in vertical direction. Moreover, there are stronger anisotropies in seismic quality factors than velocities. Comparison of the measured S-wave $\mathcal Q$ values with estimated values based on a theoretical formula indicates an only 7.2% relative error in this method. It proves that this theoretical formula can be applied to attenuation compensation of the converted shear wave in processing of multi-component seismic data.

Keywords Coal, Vitrinite reflectance, Quality factor, Anisotropy, Attenuation compensation

Received 2013-06-20:

Fund:

国家自然科学基金项目(41172145,41372163)、国家重大专项"大型油气田与煤层气开发"(2011ZX05035-001-006HZ、002-003HZ,008-006-22,049-01-02,019-003)和中国科学院矿床地球化学国家重点实验室"十二五"项目群(SKLODG-ZY125-01)联合资助.

Service

- 把本文推荐给朋友 ■ 加入我的书架
- 加入引用管理器
- Email Alert
- RSS

作者相美文

许小凯

王赟

孟召平