

地球物理学报 » 2013, Vol. 56 » Issue (8) :2636-2644 doi:10.6038/cjg20130813

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引用本文(Citation):

苏金蓉, 郑钰, 杨建思, 陈天长, 吴朋. 2013年4月20日四川芦山M7.0级地震与余震精确定位及发震构造初探. 地球物理学报, 2013,56(8): 2636-2644,doi: 10.6038/cjg20130813

SU Jin-Rong, ZHENG Yu, YANG Jian-Si, CHEN Tian-Chang, WU Peng. Accurate locating of the Lushan, Sichuan M7.0 earthquake on 20 April 2013 and its aftershocks and analysis of the seismogenic structure. Chinese Journal Geophysics, 2013, 56(8): 2636-2644, doi: 10.6038/cjg20130813

2013年4月20日四川芦山M7.0级地震与余震精确定位及发震构造初探

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Accurate locating of the Lushan, Sichuan M7.0 earthquake on 20 April 2013 and its aftershocks and analysis of the seismogenic structure

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摘要

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摘要

使用汇集在四川台网中心的固定台站、震后架设的流动台站、周边水库台站等震中距150 km以内的震相数据,选用分层速度模型,对芦山7.0级地震及震后9天内的余震利用双差定位法进行了重新定位.给出了芦山7.0级地震的发震时刻为2013-04-20 08:02:46.8,震中位置30.278° N,102.989° E,震源深度16.67 km,给出了3324次余震的双差定位结果,并对发震构造进行了分析.结果表明:芦山地震主破裂长度约40 km,下倾宽度约20 km,破裂视面积约800 km²,主破裂沿南西走向,倾角约40°.余震震源优势深度为10~22 km.余震沿南西走向,主要集中于大邑—名山断裂上盘.

关键词 芦山地震, 双差定位, 震源位置, 发震构造

Abstract:

The M7.0 Lushan earthquake and its aftershocks in 9 days were relocated by the double difference algorithm and layered velocity model, using the seismic phases within 150km recorded at stations including the fixed stations of the Sichuan earthquake network center, temporary stations and reservoir stations. The events analyzed include the main shock and its 3324 aftershocks. The results show that the original time of the main shock is 8:02:46.8 on 20 April 2013, hypocenter location 30.278° N, 102.989° E and the focal depth 16.67 km. The main rupture is about 40 km long, 20 km wide and of apparent area 800 km². It strikes in southwest and dips about 40°. Most aftershocks occurred at depths 10~22 km, concentrating on the hanging wall of the Dayi-Minshan faults, forming a southwest-trending belt on the surface. Based on these and other data, this paper makes a preliminary analysis of the seismogenic structure of the Lushan event.

Keywords [Lushan earthquake](#), [Double difference algorithm](#), [Source location](#), [Seismogenic structure](#)

Received 2013-05-16;

Fund:

国家自然科学基金项目(41090292,41090291)和中国地震局地震行业专项(编号201308008)联合资助.

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