

国际合作INDEPTH项目横穿青藏高原的深部探测与综合研究

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中文摘要: 国际合作青藏高原与喜马拉雅深部剖面探测(INDEPTH)计划自1992年开展以来,圆满完成I、II、III、3个阶段研究任务,揭示了喜马拉雅山和青藏高原腹地的地壳结构和构造,在国际核心期刊公开发表10多篇有重要影响的学术论文,受到国际地球科学界的高度评价.第四阶段计划是研究高原北部边缘,即东昆仑造山带和柴达木盆地的结构构造及其形成演化,并与南部喜马拉雅造山带加以对比.经过多次野外地质踏勘,选定剖面的工作路线,2007年各方正式签订协议,并共同开展了野外调查,圆满完成了横穿东昆仑造山带和柴达木盆地的m垂直深反射地震、300 km广角地震反射以及59个宽频带天然地震台站的野外观测施工任务.中方项目组还在东昆仑南部厘定出渐新世晚期-中新世早期大型逆冲推覆构造系统,发现高原渐新世晚期-中新世早期整体隆升的重要证据.2008年将继续天然地震观测,还将开展大地电磁测深、重力、地质构造剖面观测和反射地震数据处理;2009~2010年将利用各类深测资料,综合研究青藏高原北部的地壳结构、岩石圈构造和深部过程.

中文关键词: [深部探测](#) [青藏高原](#) [INDEPTH](#) [综合研究](#) [大陆动力学](#)

Comprehensive Deep Profiling of Tibetan Plateau in the INDEPTH Project

Abstract: International Deep Profiling of the Himalayas and Tibetan Plateau (INDEPTH) began in 1992 and finished I, II and III phases in 1992~1994, 1995~1996 and 1997~2000 respectively. As a result, crust structures and deep structures of the Himalayas and central Tibetan Plateau were detected, and lots of important papers were published in frontier international journals, which attracted wide attention in the international society of earth sciences. During the fourth phase of INDEPTH, i.e., INDEPTH-IV, field investigation was conducted, and the focuses, methods and instruments for deep profiling were gradually determined in 2003~2006. Scientists of INDEPTH-IV from Stanford and Cornell Universities of USA, GFZ of Germany, Cambridge University of UK and Chinese Academy of Geological Sciences jointly completed the field work of 100 km deep seismic reflection and 300 km wide-angle reflection and the deployment of 59 broad-band seismographs from May 17 to July 15, 2007, thus collecting high quality data of seismic reflections across East Kunlun Mountains and Qaidam basin. The Chinese group of INDEPTH-IV discovered large-scale south Kunlun thrusting and geological evidence for the Tibetan Plateau in Late Oligocene? Early Miocene period. Project INDEPTH-IV will collect seismographic and broad-band seismic data in northern Tibetan Plateau, deep MT profiling across the Kunlun Mountains, and conduct geological survey along seismic profiles and data processing of seismic reflections in 2008. Data processing and comprehensive interpretation of deep profiling are to be further arranged in 2009~2010 for revealing crustal structures and deep processes and developing geodynamics.