# 中国震例

# EARTHQUAKE CASES IN CHINA

## (1981—1985)

地震出版社

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# 内 容 提 要

　　《中国震例》是研究地震和探索地震预报的重要科学资料，它系统地总结了 20 年来中国大陆地区发生的 60 次 5 级以上地震，汇编了 58 个震例报告，分三册出版。本册收录了 1981—1985 年的 19 个震例。每个震例报告均包括前言、地震基本参数、地震地质背景、烈度分布、地震序列、震源机制解和主破裂面、地震台网及前兆异常、前兆异常特征分析，以及有关讨论和文献目录等基本内容。本书是以地震前兆为主的系统的、规范化的震例研究成果，文字简明，图表清晰，便于查询、对比和分析研究。

　　本书可供地震预报、地球物理、地球化学、地质、工程地震等领域的科技人员、大专院校师生及关心地震灾害的同志使用、研究和参考。

# Synopsis

"Earthquake Cases in China" contains important scientific data and information for seismological studies and earthquake prediction researches. The Book has systematically summarized 60 earthquakes of $M$ over 5 which occurred in the Chinese mainland in the past 20 years, with 58 reports of earthquake cases compiled in three volumes to be published separately. This volume compiled 19 earthquake cases occurred from 1981 to 1985 . Each case report includes introduction, basic parameters of an earthquake, seismogeological background, seismic intensity distribution, earthquake sequence, focal mechanism solutions and main fault plane, seismic network and precursory anomalies, characteristic analyses of precursory anomalies, discussions and bibliography. The Book includes the research accomplishments obtained from the systematic and standardized studies of earthquake cases with the data on earthquake precursors as main components. Simple and concise illustration and distinct figures and tables are used for readers to consult, compare with and analyse conveniently.

The Book is useful, helpful and referential for scientific and technical workers and teachers and students from higher learning schools in earthquake prediction, geophysics, geochemistry, geology, engineering seismology, and personnel who are interested in seismic hazard reduction.

# 序

1966年3月河北省邢台地区发生了6.8级和7.2级两次破坏性地震后，在地震现场陆续布设了大批地震前兆观测台站，开始了以前兆观测为基础的地震预报实践。从此，我国开展了有计划的以地震预报为前沿的科学研究，使地震科学进入了一个崭新的发展阶段。

继邢台地震之后，在华北和西南地区又相继发生了渤海、通海、炉霍、大关、海城、龙陵、唐山、松潘等十余次7级以上地震和众多的中强地震，给人民生命财产造成了严重损失，同时也促使地震工作扩展到全国，在大陆地区相继建立了460多个地震观测台站。地震科技工作者通过20年的努力，积累了丰富的观测资料，取得了地震预报的实践经验。在此期间，曾成功地预报了海城等强震，而对唐山等更多的地震又未能作出预报，这也是当今地震预报的实际水平。

地震预报是一个高难度的科学问题，又是一门年轻的科学，世界各国都处于探索研究阶段。我国是一个多地震的国家，历史记载资料表明，在我国960万平方公里的国土上，大部分地区发生过破坏性地震。我国开展地震预报工作20年的历史实践证明，要解决地震预报问题必须长期地、广泛地积累观测资料，坚持多路探索，进行综合研究。对地震的各种前兆现象反复地进行分析研究是必不可少的工作。多年来，地震预报工作者为此付出了大量的劳动。《中国震例》系统地总结了20年来在我国大陆地区发生的60次中强以上地震前后的各种观测资料，汇编成58个震例报告，全面地分析了各次地震的前兆现象，对每一个异常都作了认真的核实。同时，对距震中一定范围内的地震地质条件、历史地震活动、观测台网分布等情况也作了全面的介绍，并给出了每个地震的序列特征。另外，还客观地反映了震前的预报情况。

全面、系统、规范化地整理我国开展地震预报研究以来中强以上地震的前兆异常等重要资料，这是第一次，在广度和深度上都较以往的地震震例总结有了发展。《中国震例》一书的出版，将为推动地震预报研究，提高地震预报科学水平起到积极的作用。

实现地震的科学预报，可能要经过几代人的努力。地震预报有许多科学工作的环节，而重要的是获取可靠的观测资料和从这些资料中提取地震信息。这是地震预报的基础，希望广大地震科技工作者要进一步认真作好这些基础性工作，地震系统的各个单位也要对此给予积极鼓励。这不仅对提高地震预报水平有重大的现实意义，而且将会对当代和后人的科学研究，实现地震的科学预报产生深远的影响。

方俊元

1988年1月于北京

# Preface

After the two destructive earthquakes of $M6.8$ and 7.2 occurred in the Xingtai area, Hebei Province, in March 1966, the earthquake prediction practices with precursory observations as basis were started as a great number of stations for earthquake precursory observations established in succession in the earthquake— stricken regions. Since then, the scientific researches with earthquake prediction as a frontier have been conducted in a planned way in China, thus enabling the earthquake science entering an entirely new developing stage.

Following the Xingtai earthquake, in North and Southwest China, there have been frequent occurrences of the Bohai, Tonghai, Luhuo, Daguan,Haicheng, Longling, Tangshan and Songpan earthquakes with $M$ over 7 and numerous moderate earthquakes, resulting in tremendous losses of live and property. Meanwhile, the seismological work have also been extensively promoted in China, with 460 seismic stations or more set up over the Chinese mainland. The Chinese seismological workers have accumulated abundant observation data and gained valuable experiences of earthquake prediction practice over the past twenty years during which the Haicheng and other strong earthquakes were successfully predicted, while predictions of the Tangshan and more earthquakes failed to be made. That is the current practical level for earthquake prediction.

Earthquake prediction is a highly difficult scientific puzzle, as well as a young scientific discipline, which is under the probing stage in various countries of the world. China is a seismically active country, with historical records indicating that damaging earthquakes have occurred in the most parts of the Chinese territory of 9.60 million square kilometres. The practice of earthquake prediction over the past 20 years in China have demonstrated that it is necessary to accumulate long—period and extensive observation data, adhere to multiple—approach probe and carry out comprehensive studies so as to solve the problem of earthquake prediction. It is also indispensable to perform repeated analyses and researches of various earthquake precursors. The Chinese seismologists have made great efforts in this regard over many years. The book

"Earthquake Cases in China" has systematically summed up all kinds of observation data, before and after about 60 moderate or large earthquakes which occurred in the Chinese mainland in the past 20 years. Contained in the book are the 58 reports on earthquake cases, each of which made overall analyses on precursory phenomena of each earthquake, and examined each anomaly seriously. Also, the seismogeological conditions, the historical seismicity, the network distributions within certain epicentral ranges are described, and the features of every earthquake sequence are given. In addition, prediction status prior to earthquake is indicated objectively.

The book "Earthquake Cases in China" is the first one to sort out systematically the important data of earthquake precursors for moderate and large earthquakes since earthquake prediction research conducted in China, with some developments achieved in both depth and width compared with the previous summing up of earthquake cases. The publication of this book will be sure to play a positive role in promoting earthquake prediction research and improving the scientific level of earthquake prediction.

The realization of scientific predictions of earthquakes may need efforts of several generations. There are many scientific links for earthquake prediction, but the fundamental importance is to obtain reliable observation data from which earthquake information for prediction is abstracted. It is hoped that all seismological workers should try to do a good job in such basic work, and various organizations under the State Seismological Bureau should encourage any contribution in this aspect. Such work will be not only of great practical significance in heightening the earthquake prediction level, but also of far—reaching influences in conducting seismological researches and accomplishing scientific predictions of earthquakes for the contemporary and later generations.

An Qiyuan
Director
State Seismological Bureau
January 1988, Beijing

# 编 写 说 明

在我国，地震前兆的观测和预报实践已走过了 20 年的历程，取得了显著进展。地震预报是以观测为基础的科学。短临预报是地震预报的主要目标，实现它的重要环节是获取可靠的地震前兆，综合分析多方面的资料，进而进行地震发生时间、地点和震级三要素的预报。因此，全面地积累每次地震的地震地质、震害、地震参数、地震序列，尤其是地震前兆及预测预报的经验教训等资料，具有特别重要的科学价值。一次地震的上述系统资料，我们称之为震例报告，它们是地震预报和研究的基础。

1966—1985 年我国大陆共发生 $M_S \geqslant 7.0$ 级地震 12 次，每年全国平均发生 5 级以上地震 18 次左右（不包括短期强余震）。对其中的一些地震已发表了不少论文和专著，但由于没有统一的规范和要求，有关资料不便进行系统的综合分析对比。为了系统地研究地震前兆和推进地震预报工作，兹编辑出版《中国震例》一书。

本书以地震震例报告集的形式编辑，按地震发生日期顺序排列。各报告有以下基本章节：

## 一、 前言

给出本次地震的发震日期、震害、预测预报、宏观考察和研究历史等情况。

## 二、 地震基本参数

给出主震基本参数。当不同单位给出不同参数时，则分别列出，编写人认为最合理的参数放在第一条。

## 三、 地震地质背景

简短介绍区域大地构造位置、深部构造条件、区域形变场概貌、震中附近历史地震情况及主要构造与断裂的活动性，以及与发震构造有关的资料。

## 四、 烈度分布

给出烈度分布图、宏观震中的地理位置和经纬度。简要说明等震线范围及重要地表破坏现象，并概述烈度分布特征。

## 五、 地震序列

尽可能给出全序列资料(包括直接前震和有关参数)、余震震中分布图、地震序列类型、应变释放曲线或能量衰减曲线图、序列 $b$ 值、频度衰减系数及较大余震目录等。

## 六、 震源机制解和地震主破裂面

分别给出震源机制解图和表。如有不同的解，则分别列出，编写人认为最合理的解列在表中第一条。综合分析地震主破裂面与发震构造的关系。

## 七、 地震台网及前兆异常

规定 $M_S \geqslant 7.0$ 级地震距震中 500km，$6.0 < M_S < 7.0$ 级距震中 300km，$5.0 < M_S < 6.0$ 级距震中 200km，作为台网前兆资料统计范围。分别给出此范围内定点观测的地震台站（点）分布图、前兆异常平面分布图（仅标示除测震学外的定点观测的异常项目）、前兆异常登记表和前兆异常图件。文字概述台网和前兆异常的总情况；以图表为主，必要时加以

简要说明。对所有台站(点)的所有观测项目或异常项目进行累加统计时，其统计学单位称为台项，上述规定距离以外的重要异常亦列入登记表。

为保证资料的可靠性，要求所用数据的观测质量必须符合观测规范，能够区别正常动态与异常变化。根据地震前兆清理和此次工作的结果把观测资料质量划分为三类，规定只选用一、二类观测资料，不符合上述要求的第三类资料，不予使用，也不进入统计。异常判定应经过全部资料和全过程的分析，经排除干扰和年变等因素后，根据一定的判据，认定为与地震关系密切的变化才列入异常登记表。

规定异常分为 A、B、C、D 四类：A 类——（长）中期趋势背景异常，出现在震前半年以前；B 类——短期趋势异常，震前延续 1—6 个月；C 类——临震异常，震前 1 个月内；D 类——非常规观测的值得研究的其他异常现象，留下资料和记录。对 A、B、C 三类异常，按照其可信程度，又区别为 I、II、III 三个等级：I——可靠；II——较可靠；III——参考，留作记录。关于 I、II、III 等级的确定，主要尊重编写人的意见，编辑过程中仅作了个别调整，供读者参考。宏观异常在登记表中总的作为一项异常，没有进一步划分等级。异常登记表中各栏目，即是编写人对异常研究的结果，亦是为了给读者提供使用、研究和参考的方便。对异常进行以上的认真审核和分类处理，即可达到去粗取精、去伪存真的目的，又可避免丢失可能有科学价值的异常记录，以利于进一步研究和资料积累。尽管如此，书中辑入的异常未必都恰当，读者可根据提供的资料和文献进一步做出判断。

全书对异常登记表中使用的观测手段(异常项目)名称和图件中的常用图例作了统一。

**八、前兆异常特征分析**

简要给出对主要异常特征的综合分析与讨论，给出要点，提出有依据的看法和待研究的问题。

**九、讨论和结束语**

从科学探索上讨论有技术和工作特色的经验、学术观点、教训和问题。

**十、参考文献和资料**

给出报告中直接引用的出版或未出版的资料、图件和工作结果来源，以便读者进行核对或追索研究。

对于已发表有专著的强震，根据地震前兆清理和专著发表后的研究成果，亦按以上要求编写了震例报告，进行了必要的资料补充，发表过的异常图件一般从略，文字从简。只有唐山地震因异常资料较多，仅给出了主要异常。

本书辑入的震例报告是前人和编写人对该次震例资料整理和研究成果的集中表达，是以地震前兆为主的系统的、规范化的震例科研成果。震例报告编写规范和编辑组工作的指导思想是：经过科学整理和研究，给出各次地震的基本资料，既可供读者使用、参考，又可供进一步追索研究；既具有资料性，又要反映目前研究程度；文字力求简明，避免冗长的叙述和讨论，因此尽量使用了图表，便于对比。由于资料和研究程度的差异，各报告在坚持质量和科学性的前提下，根据实际情况编写和编辑，因此篇幅和章节编排不尽一致。

需要指出的是，震例报告是震后经过若干年的资料收集、发掘、整理和总结研究

之后编写的，从震后总结到实现震前的科学预报，还要经过一段艰难的路程。本书辑录的前兆异常，并非严格意义的地震前兆，而是经过审核的与地震孕育、发生过程有关的现象，无疑包含着丰富的前兆信息。因而震例报告是地震前兆研究和预报探索的宝贵财富，它既是进一步研究的基础资料，又可供在今后震情判定中借鉴。

国家地震局于1986—1987年安排了"我国大陆5级以上震例的再研究"这一重点研究项目。据此，我们研究和制定了统一的《地震震例报告编写规范》，进行了5级以上震例报告的编写。本书辑入的58个震例报告，是这一研究项目的成果，包括从1966年3月河北省邢台6.8和7.2级地震开始到1985年11月河北省任县5.3级地震为止，发生在中国大陆的、资料较多的60个5级以上地震，分册出版，本书是其中之一。报告对前人的工作，特别是地震前兆研究的成果，虽尽力作了反映，但由于人员变动和资料收集困难，以及水平限制等原因，难免仍会有疏漏，对个别异常和资料的处理亦可能会有不妥之处。

震例报告的编写和本书的编辑、出版，得到了国家地震局、分析预报中心、各省、直辖市、自治区地震局(办)和地震出版社有关领导、部门和同志们的大力支持和帮助。安启元局长对这项工作非常重视。从计划和规范的确定，到组织实施和验收，始终得到了梅世蓉和陈章立同志的热忱支持和指导。郭增建、张国民、孙其政、朱令人、韩渭滨等同志，在多方面提出了建议和帮助。在此一并致谢。

震例的再研究和报告的编写工作由国家地震局科技监测司具体组织，有18个单位参加，国家地震局分析预报中心为负责单位，参加单位的项目负责人是：分析预报中心张肇诚，辽宁省地震局全鉴道，河北省地震局罗兰格，天津市地震局李广鑫，山东省地震局魏光兴，山西省地震局李炳照，内蒙古自治区地震局孙加林，江苏省地震局贺楚儒，安徽省地震局王炜，广东省地震局魏柏林，广西壮族自治区地震办公室李明文，福建省地震局骆永妙，四川省地震局程式，云南省地震局陈立德，甘肃省地震局李海华，新疆维吾尔自治区地震局王海涛，宁夏回族自治区地震局张文孝，青海省地震局郭亚平。报告的编写人员共有46人。

本书的编辑工作由《中国震例》编辑组完成。主编——张肇诚，副主编——罗兰格、李海华、陈立德、李宣瑚。编辑——郑大林、徐京华、王孝铣、贾青。罗咏生、陈荣华、刘激扬参加了部分编辑工作。书中图件由俞霞芳、舒宝芝、孙桂芝、彭娅玲、郭京平、周郧生、宋玉等同志清绘。编辑组虽然作了很大努力，但由于水平和时间所限，书中可能还有不周或不足之处，望予谅解并提出宝贵意见。

<div style="text-align:right">

编　者

1987年12月，北京

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# Compilers' Remarks

In China, observational work of earthquake precursors and earthquake prediction practices have gone through 20 years or more, with substantial developments achieved. Earthquake prediction is a science with observation as its base. The principal goal of earthquake prediction is to make imminent prediction, and the key links for realization of imminent prediction are to obtain reliable earthquake precursors and carry out comprehensive analyses of various data, so as to predict three elements such as time, magnitude and place of an earthquake. Therefore, it is of particularly important scientific value to accumulate overall data on seismogeology, seismic hazards, earthquake parameters, earthquake sequence and especially earthquake precursors and prediction status of an earthquake. The above—mentioned systematic data of an earthquake are called a report of an earthquake case, which is a basis for earthquake predictions and researches.

There are altogether 12 earthquakes of $M_s$ over 7.0 occurring in Mainland China from 1966 to 1985, and about 18 ones with $M$ over 5 ( excluding strong aftershocks not long after mainshocks ) occurred on average each year in this period. Numerous papers and works on some of those earthquakes have been already published, but due to absence of unified standards and requirements, systematic and comprehensive analyses and comparisons can't be made on some relevant data. The book "Earthquake Cases in China" is thus compiled in order to undertake overall studies of earthquake precursors and to promote earthquake prediction research.

The book is compiled in the form of reports of earthquake cases and in order of dates of occurrences of the earthquakes. Each report contains the following basic chapters:

**1. Introduction**

The occurrence time of the earthquake, the seismic hazards, the prediction status, the macroscopic investigations and the history of earthquake studies,

etc. are given.

## 2. Basic parameters of the earthquake

The basic parameters of the main shock are given. When the parameters determined by different institutions are different, they are listed separately, but the first ones are those which the authors deem most reasonable.

## 3. Seismogeological background

The regional geotectonic location, the deep structure, the regional deformation field, the historical seismic activity around the epicenter, the activities of main structures and faults, as well as some other data associated with the earthquake—generating structure are described briefly.

## 4. Distribution of seismic intensity

The map of the distribution of seismic intensity, the location and longitude and latitude of the macroscopic epicenter are given. The ranges of isoseismal lines and significant phenomena of surface destruction are briefed, and the features of intensity distribution outlined.

## 5. Earthquake sequence

The data of the whole sequence (including direct foreshocks and relevant parameters), the distribution of aftershock epicenters, the type of the sequence, the strain release curve or the energy attenuation curve, $b$—value of the sequence, the frequency decay coefficient and the cataloque of major aftershocks are all provided.

## 6. Focal mechanism solution and main fault plane

Figures and tables of the focal mechanism solutions are given respectively. Different solutions are given separately, with those ranked first as the authors considered most appropriate. The comprehensive analyses are made on the relation between the earthquake fault plane and the earthquake—producing structure.

## 7. Seismic network and precursory anomalies

The statistical analyses are made on the precursory data obtained from the networks within the ranges of 500 kilometres distant to the epicenter of the $M_S$ $>7.0$ earthquakes, 300 kilometres to the earthquakes of $6.0 \leqslant M_S < 7.0$, and 200 kilometres to the earthquakes of $5.0 \leqslant M_S < 6.0$. Provided also are the distribution of fixed seismic stations (points) within such ranges, the plane distribution of precursory anomalies (only indicating precursory items of fixed observations

except seismic anomalies), and the list and figures of precursory anomalies. The overall situation of the networks and premonitory anomalies are outlined, principally in the form of figures and tables, with concise illustrations if necessary. The unit in making statistics of observation items or anomaly items of all the stations ( points ) is called station—item. Some significant precursory anomalies outside of the defined ranges are also listed.

In order to ensure the reliability of the data. the observation quality of the data should meet with the observation standards, and it can be distinguished between normal variations and anomalous changes. Based on the sorting—out work of earthquake precursors and the results of the present work, the quality of the observation data are classified into three types, and it is decided that only the first two types of the data can be used, and the third type of the data which don't meet with the above mentioned requirements will not be selected for statistical analyses. The anomalies are defined on the basis of analyses of all data and whole process with disturbances and annual variations etc. removed, and those which are judged to be closely associated with earthquakes are listed in the table.

The defined anomalies are divided into four classes A, B, C and D: class A indicates the long and intermediate period trend anomalies which occurred six months or so before the earthquake; class B denotes the short period trend anomalies which lasted for one to six months before the earthquake; class C means the imminent anomalies one month before the impending earthquake; and class D includes the data and records of other anomalies obtained from irregular observations which deserve further studies. For the A, B and C classes of anomalies, according to the creditability degrees 1, 2 and 3 are further divided, with 1——reliable; 2——fairly reliable; and 3——for reference. For determinations of the 1, 2 and 3 degrees, the opinions of relevent authors are mainly adopted, while only individual adjustments are made in the editorial work for readers's reference. The macroscopic anomalies as listed are regarded as an item of anomalies, and no detail degrees are divided for them. Various items of anomalies registered in the table are the research results obtained by various authors, convenient for readers to utilize, study and refer to. The serious checkings and classified processing of the anomalies not only can realize the purpose of discarding the dross and selecting the essential and eliminating the

false and retaining the true, but also can avoid the possible missing of the scientifically valuable recorded anomalies, being conducive to further scientific research and data accumulation. However, the anomalies included in the book don't seem to be all appropriate, readers can make further judgements based on the data and references provided.

The names of the observation items (anomaly items) and legend of figures are unified in the book.

## 8. Analyses of features of precursory anomalies

The comprehensive analyses and discussions of main anomaly features are briefed, some key points are given and some opinions with evidences and problems neccessary for further studies proposed.

## 9. Discussions and concluding remarks

The technical and characteristic experiences, academic viewpoints, lessons and problems are explored scientifically.

## 10. References and information

The origins of published and unpublished data, figures and working results which are directly quoted in reports are given, so that readers can check and trace all of them.

Some strong earthquakes which have been studied in published works are also compiled as earthquake case reports, with neccessary data supplemented, published anomaly figures generally avoided and illustrations simplified, based on the research results obtained from sorting—out of earthquake precursors and special works published. Although there are numerous data of anomalies for the Tangshan earthquake, only the principal anomalies are shown.

Each of the earthquake case reports contained in this book mainly embodies the achievements gained by authors and others in sorting out and studying an earthquake case, with systematic and standardized scientific accomplishements provided on an earthquake case of earthquake precursors. The specifications for compiling earthquake case reports and the guiding principle of the compiling group are: through scientific processing and studying, the basic data for each earthquake are given, so that readers can use and consult with them, and conduct further research; all reports should both feature abundant information and indicate the current research level; the literal illustrations are as simple as possible, with figures and tables mainly given for comparisons

and lengthy descriptions and discussions avoided. Owing to differences of data and research extent, each report is compiled and written based on the actual conditions, while attaching importance to the quality and science. Therefore the spaces and chapters for all reports are not exactly similar to each other.

It should be noted that these earthquake case reports are compiled through several years of collection, exploration precessing, and summing up of the data after the earthquakes, but a distant and arduous way should be covered from the post-earthquake summarization to the realization of scientific earthquake prediction. The precursory anomalies included in the book don't seem to be earthquake precursors in a strict sense, but are the relevant phenomena associated with the process of seismogenic preparation and occurrence, undoubtedly with rich precursory information involved. Therefore the earthquake case reports are the valuable wealth of studies of earthquake precursors and prediction, not only providing basic data for further investigations, but also contributing references for future assessments of earthquake tendency.

The State Seismological Bureau arranged the important research project intitled "Reconsiderations of Cases of Earthquakes of $M$ over 5 in Mainland China" during the period of 1986—1987. On such basis, the unified "Specifications for Compiling Earthquake Case Reports" were considered and formulated, and then case reports of earthquakes of $M$ over 5 started to be compiled. There are 58 earthquake case reports contained in this book, resulting from the studies of this project. This book is one of volumes of these reports to be published separately involving informative 60 earthquakes with $M$ over 5 in Mainland China beginning from March 1966 when the $M$6.8 and 7.2 Xingtai earthquakes occurred in Hebei province to November 1985 when the $M$5.3 Renxian earthquake took place in Hebei province. The previous research results, especially the achievements made in studying in earthquake precursors, are described to great extent in the reports, but still some omissions might be hardly avoided and improper processings of some individual anomalies and data incurred, due to changeable personnel, inaccessible information and data, and ability constraints of authors.

Relevant leaders, leading bodies and many individuals from the State Seismological Bureau, the Center for Analysis and Prediction, SSB, Seismological Bureaus (Offices) of Some Provinces, Municipality and Autono-

mous Regions Concerned and the Seismological Press, have rendered great supports and assistances in compiling the earthquake case reports and editing and publishing this book. Mr. An Qiyuan, the SSB director has attached primary importance to the progress of this research project. Prof. Mei Shirong and Prof. Chen Zhangli have dedicated their enthusiastic aids and guidance during the whole period from the project proposal and specification establishment to the project implementation and acceptance. Professors Guo Zengjian, Zhang Guomin, Zhu Lingren, Han Weibin and many others have put forword many useful suggestions and given many supports in various aspects. The authors are very much grateful to all of them for their help which has made this book available.

The Department of Programming and Monitoring of State Seismological Bureau concretely coordinated and organized the reconsiderations of earthquake cases and the compiling work of reports. There are 18 institutions concerned taking part in this project, with the Center for Analysis and Prediction, SSB, as the project manager. The responsible project personnel from these institutions are listed as follows: Zhang Zhaocheng from the Center for Analysis and Prediction, SSB; Quan Yingdao from Seismological Bureau of Liaoning Province; Luo Lange from Seismological Bureau of Hebei Province; Li Guangxin from Seismological Bureau of Tianjin Municipality; Wei Guangxing from Seismological Bureau of Shandong Province; Li Bingzhao from Seismological Bureau of Shanxi Province; Sun Jialing from Seismological Bureau of Inner Mongolian Autonomous Region; He Churu from Seismological Bureau of Jiangsu Province; Wang Wei from Seismological Bureau of Anhui Province; Wei Boling from Seismological Bureau of Guangdong Province; Li Mingwen from Seismological Office of Guangxi Zhuang Autonomous Region; Luo Yongmiao from Seismological Bureau of Fujian Province; Cheng Shi from Seismological Bureau of Sichuan Province; Chen Lide from Seismological Bureau of Yunnan Province; Li Haihua from Seismological Bureau of Gansu Province; Wang Haitao from Seismological Bureau of Xinjiang Uighur Autonomous Region; Zhang Wenxiao from Seismological Bureau of Ningxia Hui Autonomous Region and Guo Yaping from Seismological Bureau of Qinghai Province. There are altogether 46 scientists who joined in efforts to compile these reports.