

美丽中国

中国大陆表层自然景观影像集

Beautiful China

Images of Natural Landscapes in China

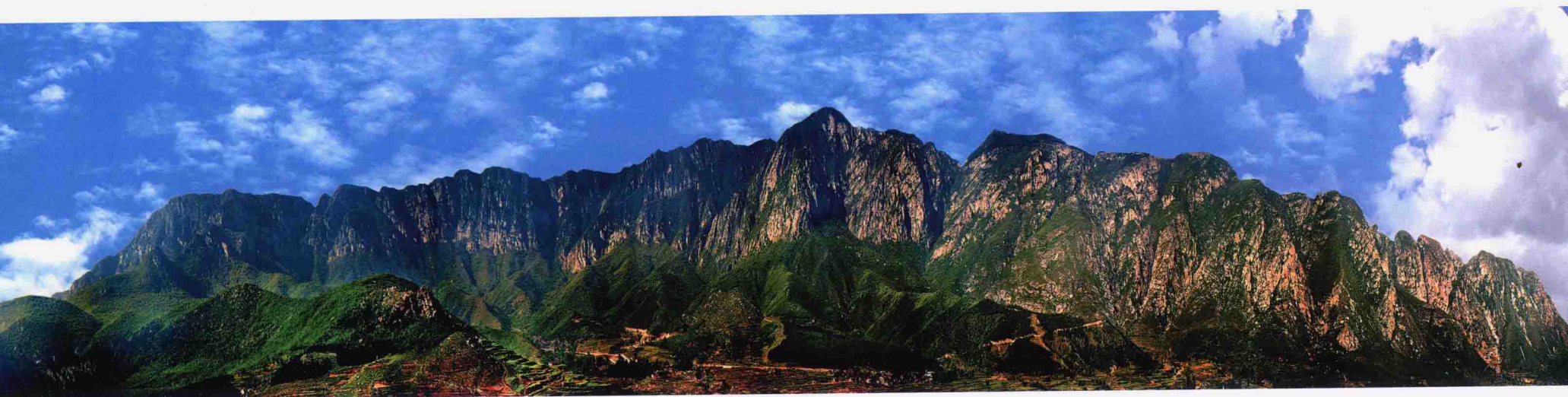
河南大学环境与规划国家实验教学示范中心 著

Editor / Environment & Planning National Experimental
Teaching Demonstration Center of Henan University

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中国陆地表层系统结构形态复杂、空间变化多样、景色绚丽多彩,成为地理科学研究的独特复杂对象和社会大众关注的美丽自然景象。

地理学是关于地球表层系统的科学。岩石圈、水圈、大气圈、生物圈、土圈和人类智慧圈在地球表面上相互作用形成的地球表层系统,构成了人类的生存环境。系统中地质地貌、气候水文、土壤生物等要素在不同区域交互作用,奠定了各区域的自然景观格局,持续剧烈的人类活动又进一步塑造了景观的复杂性与多样性。我国幅员辽阔,东西南北跨度巨大,从低纬到中纬、从沿海到内陆分布着多种多样不同的自然景观。

“景观”(landscape)一词最早出现在希伯来文本的《圣经》(*the Book Psalms*)中,用于对圣城耶路撒冷总体美景(包括所罗门寺庙、城堡、宫殿在内)的描述。19世纪初,德国地理学家 Von. Humboldt 将景观作为一个科学名词引入到地理学中,并将其解释为“一个区域的总体特征”(Naveh and Lieberman,1984)。景观一词被引入地学研究后,不单具有视觉美学方面的含义,同时具有地表可见景象的综合与某个限定性区域的双重含义(肖笃宁,1998)。

在现代信息科学技术快速发展的今天,利用遥感影像技术、摄影技术展现我国陆地表层丰富多样的自然景观,并从科学角度进行阐释,对普及地学专业知识具有非常重要的意义。因此,为了丰富地理学类专业本科生的课外读物,探索专业实践、实习的新形式,河南大学环境与规划国家实验教学示范中心决定编纂出版《美丽中国——中国陆地表层自然景观影像集》一书,拟从地理学视角,影像资料与文字材料相结合,集科学性、艺术性和普及性于一体,充分展示中华大地美丽多样的自然景观。

河南大学地理学科起始于1923年冯景兰院士在开封创建的地学专业。1953年后,长沙、武汉、郑州、新乡等地的地理学科相继并入。经过数十载的融合、发展和创新,已经建立起了完整的人才培养体系,并成为有显著地域特色的中国地理学人才培养基地。由于地理学科性质的特殊性,河南大学长期重视实践教学环节,强调人才动手能力,在专业教学实验室和野外基地建设方面有了完备的实践教学体系。特别是确立了以“黄河文明为文化特色、以黄河流域为地域特色、以地表圈层要素综合为科学特色、以地理信息集成为技术特色”的学科专业建设模式,在黄河中下游地区建立了黄土高原基地、嵩山世界地质公园基地、黄淮海平原的封丘基地、海岸带上的连云港基地、日照基地和滨州黄河三角洲基地。2000年,河南大学地理学科被中国科学技术协会批准为“国家科普教育基地”;2008年,加入中国地球科学数据共享联盟并成为“国家科技基础条件平台”;2013年,被国家教育部确定为“十二五”国家级实验教学示范中心。

地质摄影家、河南大学兼职教授赵洪山先生十几年来踏遍祖国万里青山,拍摄了数以万计的地质景观照片。其作品从摄影艺术角度将祖国山河的壮美、大地的雄浑、大自然的旖旎奇观,多角度、立体式地呈现在公众面前。

《美丽中国——中国陆地表层自然景观影像集》一书以中国自然区划(任美锷,1989)为框架,从赵洪山教授在全国28处世界地质公园和部分有特色的国家地质公园拍摄的作品中,精选出百余幅专业摄影照片,加上河南大学许立民高级实验师的补充作品,共有143幅地面摄影影像和卫星遥感影像,涉及不同自然区的多种自然景观形态,对每幅影像图从专业角度进行解说和描述。本书集成遥感影像技术和摄影技术,图文并茂,把专业知识的学习寓于美学欣赏之中,既有科学性,又不乏艺术性,是一种解读地球系统科学的新形式;既有助于专业人才培养,又有利于专业知识普及,是对新型科普读物的一次尝试。

限于各种条件,书中难免有谬误缺憾之处,敬望读者批评指正。

编纂小组

2014年秋于开封

Preface

Chinese landscapes, with its complex structures and morphologies, spatial variations and colorful sceneries, have become an object of study by the geographical science and an object of social interest because of its beauty.

Geography is the science of the earth's surface system. This system, formed by the interactions of the lithosphere, hydrosphere, atmosphere, biosphere, pedosphere and anthroposphere, is the human living environment. It is a system with many elements, including geology, landforms, climate, hydrology, soil, and organisms. The interactions between these elements in different regions have laid down the natural landscape patterns in each region. And continuous and intense human activity has further transformed the landscape's complexity and diversity. Thus, from low to mid-latitude and from the coast to inland, Chinese vast territory has a huge variety of landscapes.

Landscape first appeared in *the Hebrew Bible* (in *the Book of Psalms*), used to describe the overall beauty of Jerusalem (including Solomon's temples, castles and palaces). In the early 19th century, the German geographer Von. Humboldt introduced the term to geography and interpreted it as "the general characteristics of a region" (Naveh and Lieberman, 1984). But after its introduction to the geosciences, landscape came to mean not only visual aesthetics, but also the entirety of the visible surface scene in a circumscribed region (Xiao, 1998).

Today, with the rapid development of modern information technology, the use of remote sensing and photography to show the diverse natural landscapes on Chinese land surface, and to explain these images from a scientific perspective, is extremely useful for the popularization of professional knowledge of geoscience. Therefore, in order to enrich the extracurricular reading material of undergraduates majoring in geography, and to explore new forms of professional practice, the Environment and Planning National Experimental Teaching Demonstration Center of Henan University decided to write and publish this book: *Images of Natural Landscapes in China*. Combining image and text, and integrating scientific, artistic and popular perspectives, this book displays in full the beauty and variety of natural landscapes in China from the perspective of geography.

The subject of geography at Henan University was derived from geoscience created by Academician Feng Jinglan in Kaifeng in 1923. Since 1953, it has merged the same discipline at Changsha, Wuhan, Zhengzhou, Xinxiang and many other places. Following decades of fusion, development and innovation at Henan University, a complete personnel training system for geography has been established, which has become a training base for geographical talent with significant regional characteristics in China. Due to the special nature of geography, particular attention has been paid over the long-term to practice-based teaching through the use of professional teaching laboratories and field practice bases at Henan University. Specifically, the university has built its own subject-

area model, which uses the Yellow River civilization as its primary cultural feature, the Yellow River basin as its regional context, the comprehensive study of surface spheres as its scientific focus, and geographic information integration as its technological emphasis. In support of this model, it has established field practice bases in the middle and low reaches of the Yellow River, specifically the Loess Plateau Base, the Songshan World Geopark Base, the Fengqiu Base in the Huang-Huai-Hai Plain, the Lianyungang and Rizhao bases in the coastal zone and the Binzhou Base in the Yellow River Delta. In 2000, the subject of geography at Henan University was approved as a National Popular Science Education Base by the Chinese Association for Science and Technology. In 2008, it joined the Chinese Data-Sharing Network of Earth System Science and became a National Science and Technology Infrastructure Platform. In 2013, it was identified as a National Experimental Teaching Demonstrating Center by the Ministry of Education of China .

In the past decade, Mr Zhao Hongshan, photo-geologist and part-time professor at Henan University, has traveled throughout our motherland and taken tens of thousands of photographs of geological landscapes. His photographic works have been shown to the public for our magnificent natural scenery in three-dimensions and from multiple angles.

For this book of *Images of Natural Landscapes in China*, which is based on China's natural divisions (Ren, 1989), more than 100 professional photographs distributed among 28 global geoparks throughout China and part of featured national geoparks were selected from Zhao's works. Additional photographs taken by Photographer Xu Limin of Henan University supplemented this image set. And finally, the book is completed with 143 ground photographs and additional satellite remote sensing images. Distributed in different natural areas and displaying different natural landscapes, each image has a professional description and explanation. By providing illustrations which integrate the technologies of remote sensing and photography, this book makes professional knowledge and learning available to enhance appreciation of natural scenery. It incorporates both the scientific and the artistic, thus providing a new format for interpreting earth systems science, conducive both to professional training and the popularization of expertise. In short, it is an attempt to compile a new type of science book.

Since it is limited by various conditions, inevitably, there are fallacies in the book, thus please provide us your comments and criticisms. Thank you.

Editor, in Kaifeng

Autumn, 2014

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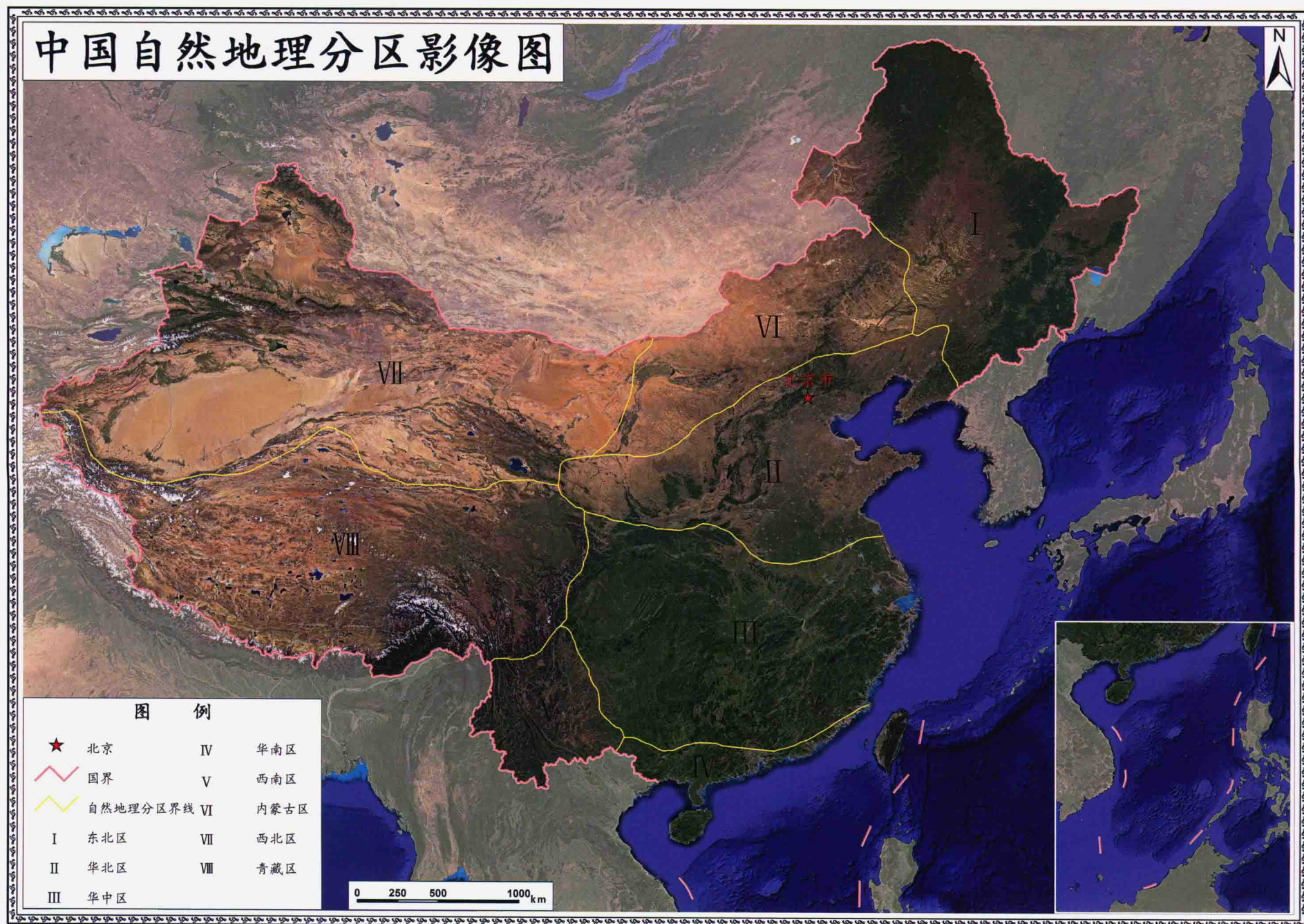
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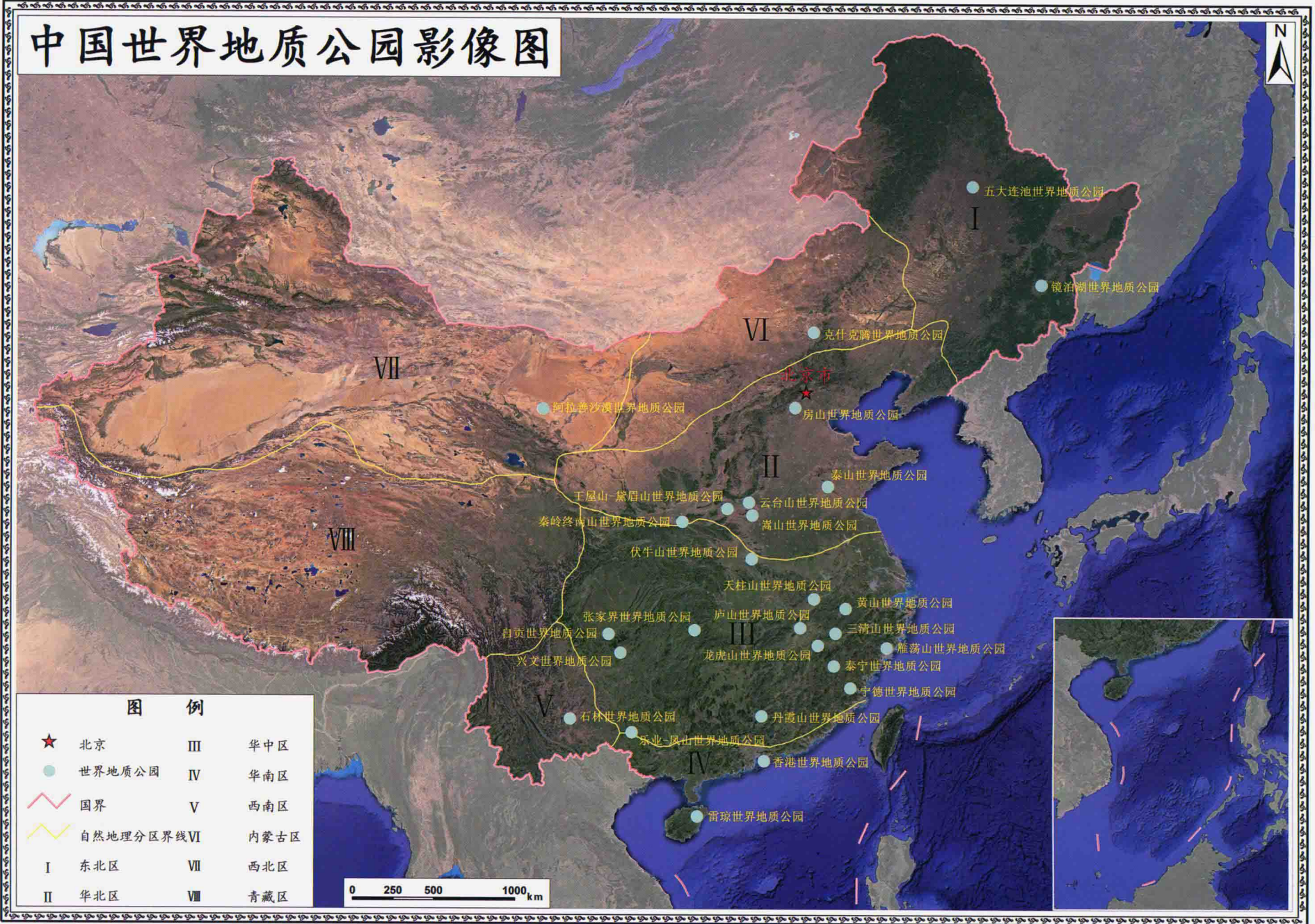


中国自然地理分区

Chinese Natural Geographic Divisions

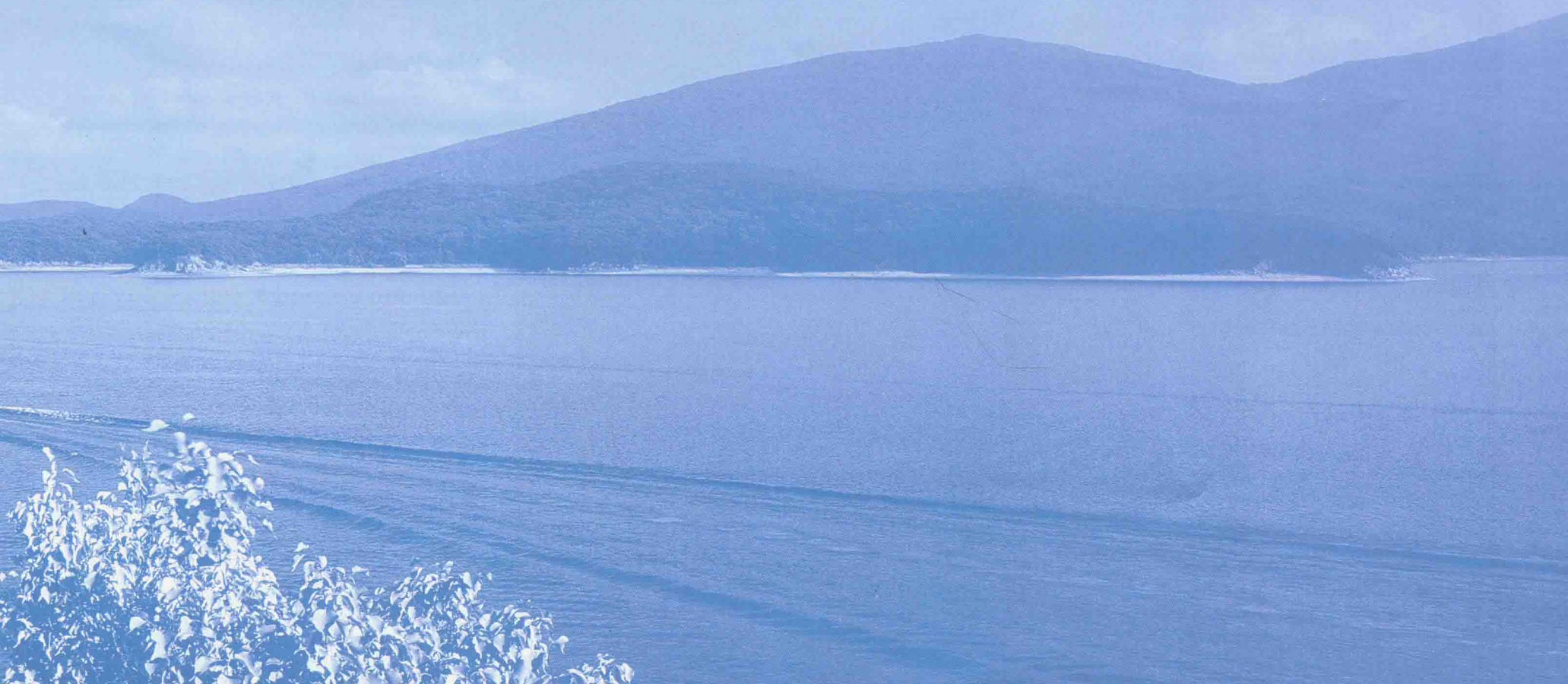
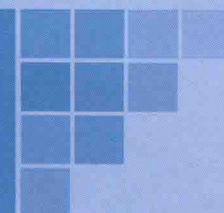
I 东北区 II 华北区 III 华中区 IV 华南区 V 西南区 VI 内蒙古区 VII 西北区
VIII 青藏区 (根据任美镠、包浩生 1988 年《自然地理区划方案》)

I. The Northeast Region II. The North China Region III. The Central China Region
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VII. The Northwest Region VIII. The Qinghai-Tibet Region (based on Ren Mei'e & Bao
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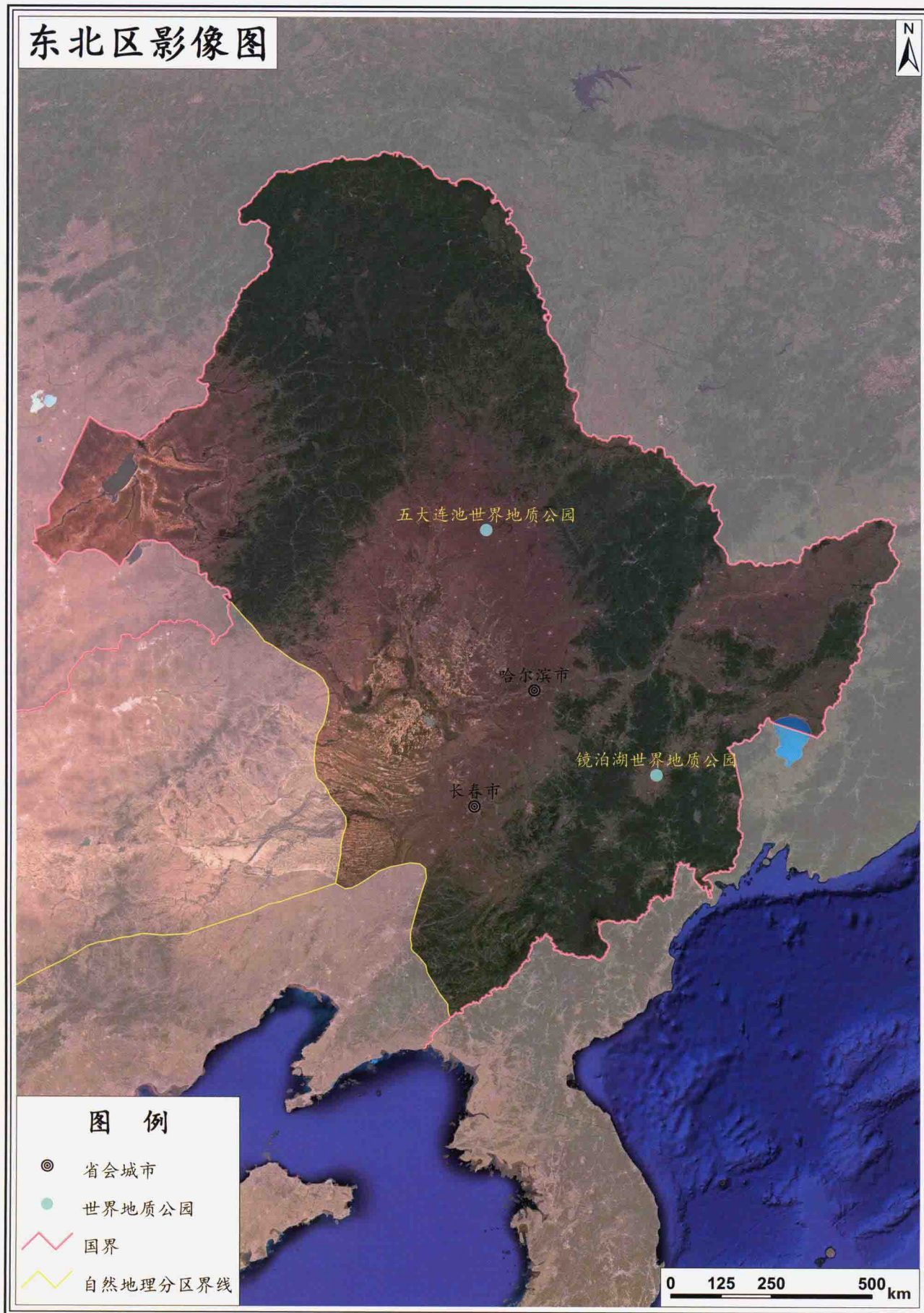


中国世界地质公园分布图
Distribution of Global Geoparks in China

The Northeast Region / 东北区



东北区影像图



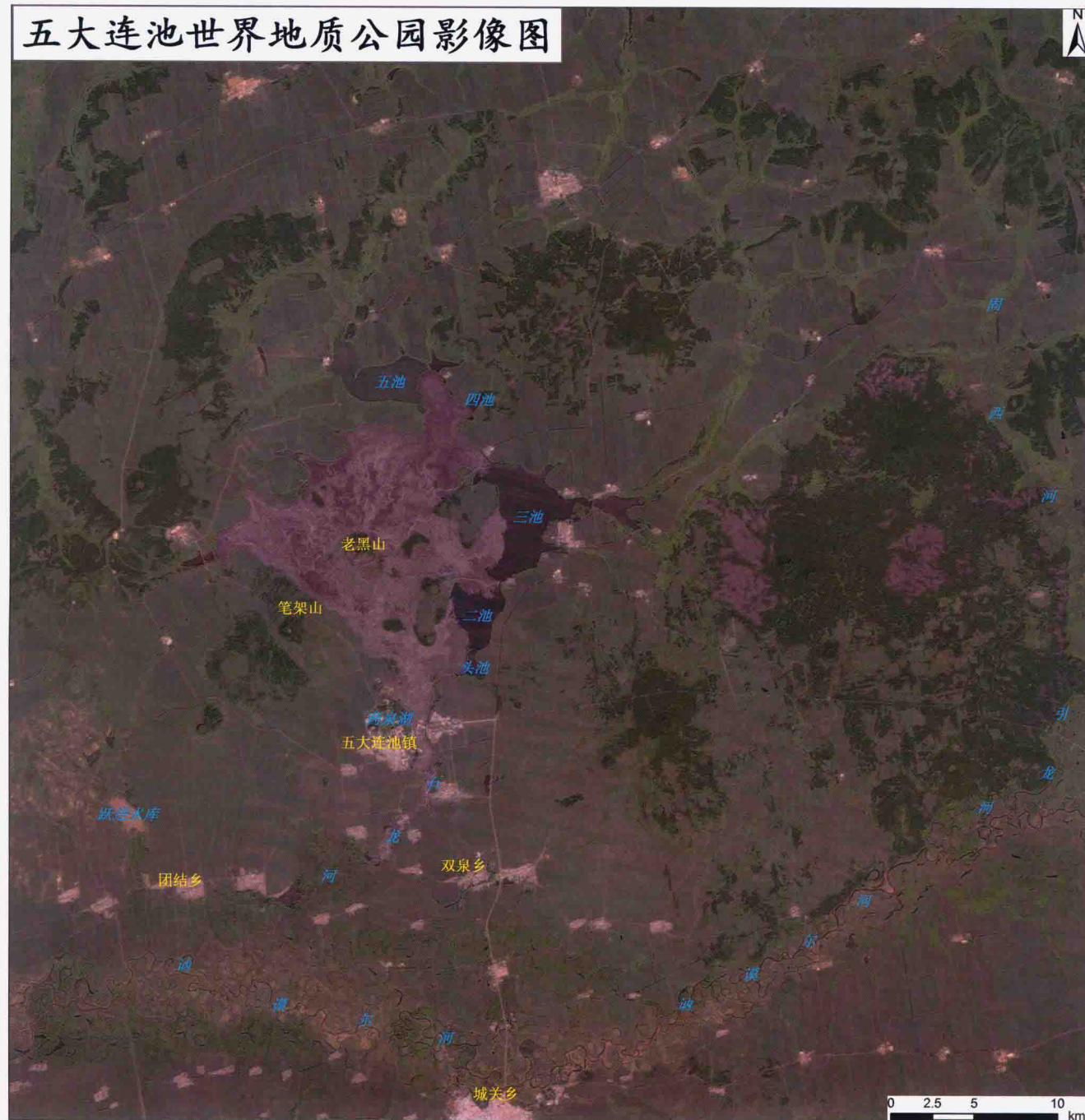
东北区

The Northeast Region

东北区包括大兴安岭北部、小兴安岭、长白山地和东北平原中北部松嫩平原和三江平原等地，面积约86.52万 km^2 。该区属温带季风型大陆性气候，年降水300~1000mm。地表河流发育、水网密集。以冷湿的森林、多年冻土、沼泽、草甸草原景观为其特征。曾发生多期火山喷发，第四纪受强烈的冰缘作用影响，地貌复杂多样，火山、冻土地貌较为典型。区内有五大连池、镜泊湖等世界地质公园。

The Northeast Region includes the northern part of the Greater Khingan Mountains, the Lesser Khingan and Changbaishan Mountains, the Songnen Plain, and the Three River Plain for a total area of approximately 865200 km^2 . It has a temperate continental monsoon climate with an annual precipitation of 300~1000 mm. With a dense drainage network and well-developed surface rivers, the landscape is characterized by cold, moist forest land, permafrost, swamps and meadow steppe. Volcanic eruptions were frequent here in the Quaternary period, and the region is strongly shaped by periglacial activity. Consequently, the topography is complex and varied, with noteworthy permafrost and volcanic landforms. The region includes the Wudalianchi and Jingpo Lake global geoparks.

五大连池世界地质公园影像图



五大连池世界地质公园

Wudalianchi Global Geopark

五大连池世界地质公园以火山群为主要景观，共有14个独立的火山锥和一系列盾状火山，为第四纪火山喷发形成。最近期的喷发发生在公元1719~1721年间，此次喷发溢流的熔岩在四个地方阻塞了石龙江，形成五个火山堰塞湖，即成为五大连池。五大连池火山地质现象遗存丰富，被称为“天然火山博物馆”。

The main landscape feature of the Wudalianchi Global Geopark is a cluster of volcanoes containing 14 separate cones and shield volcanoes formed by eruptions in the Quaternary. The most recent eruption occurred in 1719~1721 AD when a lava flow blocked the Shilong River in four places and formed five volcanic lakes, hence the name Wudalianchi, which translates as “five linked lakes”. Because of its abundant volcanic phenomenon, Wudalianchi is known as a “natural volcanic museum”.

