



国家地质公园  
NATIONAL GEOPARK  
OF CHINA

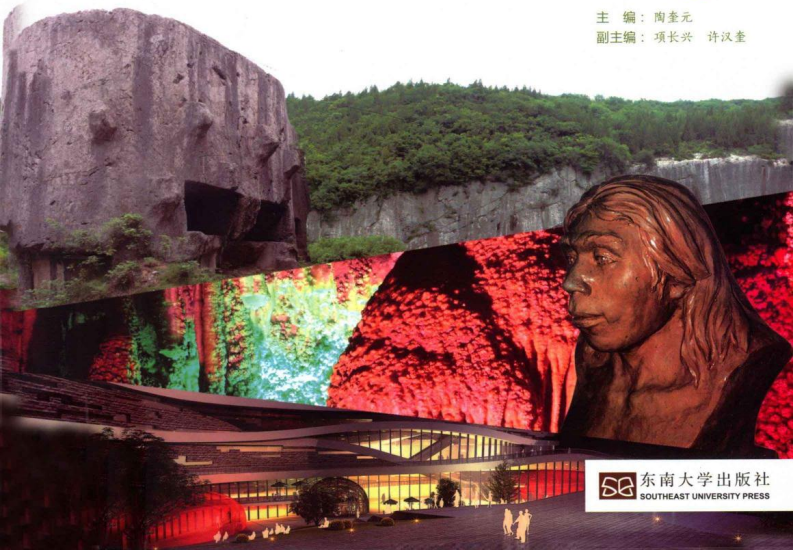
江苏江宁汤山方山国家地质公园

# 走进 汤山

## 旅游指南

主 编：陶奎元

副主编：项长兴 许汉奎



东南大学出版社  
SOUTHEAST UNIVERSITY PRESS

[ 江苏江宁汤山方山国家地质公园丛书 ]

# 走进 汤山

## 旅游指南



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东南大学出版社  
SOUTHEAST UNIVERSITY PRESS

## 图书在版编目 ( CIP ) 数据

走进汤山旅游指南/陶奎元主编. --南京: 东南大学出版社, 2013. 3

(江苏江宁汤山方山国家地质公园丛书)

ISBN 978-7-5641-4101-1

I. ①走… II. ①陶… III. ①地质-国家公园-旅游指南-南京市 IV. ①S759.93

中国版本图书馆CIP数据核字 (2013) 第027630号

编排设计: 王 辉 曹帅彪 何晓晴

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英文翻译: 马 彦 周 菊 戚建中

出版发行: 东南大学出版社

社 址: 南京四牌楼2号 邮编: 210096

出版人: 江建中

网 址: <http://www.seupress.com>

电子邮箱: [press@seupress.com](mailto:press@seupress.com)

经 销: 全国各地新华书店

印 刷: 南通印刷总厂有限公司

开 本: 889mm × 1194mm 1/24

印 张: 5.5

字 数: 325千字

版 次: 2013年3月第1版

印 次: 2013年3月第1次印刷

书 号: ISBN 978-7-5641-4101-1

定 价: 28.00元

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# 序 一

地质遗迹属于一种自然遗产，包括各种标准化石、典型的地层剖面、特征的地质构造以及具有保存价值的各种地质体。对于典型的地质遗迹应当倍加维护，因为它一旦被毁，将无法恢复。通过建设国家地质公园，能够将具有保存价值的地质遗迹有效地加以保护。

汤山方山国家地质公园位于南京市江宁区，它融自然景观与人文景点为一体，形成既具科学价值又具历史文化背景的旅游胜地。汤山方山国家地质公园由汤山和方山两个景区组成。汤山景区拥有典型的古生代—早中生代地层剖面，内含多种标准化石，系我国南方地层的立典之地。通过对典型地层剖面和化石的研究，可以勾画出南京地区的沧海桑田演变史。汤山葫芦洞内发现世界级的地质遗迹——南京猿人头盖骨化石，经研究属于直立人范畴。汤山还拥有驰名中外的汤山温泉和著名的明文化景点——阳山碑材。方山景区堪称天然的火山博物馆。站在中华门城堡上，向南遥望，平顶的方山清晰可见。方山是一座古火山锥，形成于距今1 000万年以前，它是由炽热的（温度超过1 000℃）岩浆喷至地表并快速冷凝为玄武岩堆积而成的盾形火山锥，可辨认出火山口的具体位置。方山景区还拥有著名的人文景点——定林寺和斜塔。

汤山方山国家地质公园是一个多功能的园区：一是高等院校本科生的教学实习基地；二是青少年的科普教育基地；三是融科学与人文为一体的地学旅游景区。汤山方山国家地质公园丛书的出版必将激发人们对学习地球科学知识的浓厚兴趣，并将增强人们保护自然环境的自觉性和积极性。

中国科学院院士  
原南京大学副校长

王德滋

2012年10月

## Foreword One

Geological heritage belongs to a kind of natural heritages, including a variety of standard fossils, typical stratigraphic sections, geological structures with the characteristics and various geological bodies worthy of preservation. Typical geological features should be doubly maintained, because once destroyed can they not be recovered. Through the construction of national geological parks, we will save the valuable geological heritages.

Located in Jiangning District of Nanjing, Tangshan-Fangshan National Geopark mixes natural landscape with cultural attractions. It is a tourist destination having both scientific value and historical cultural background. Tangshan-Fangshan National Geopark consists of two scenic districts—Tangshan and Fangshan. Tangshan Scenic District has a typical Paleozoic-Early Mesozoic stratigraphic section, containing a variety of standard fossils. It is the classical strata of southern China. The study of typical stratigraphic sections and fossils lays out the long history of the evolution of the Nanjing area. Nanjing ape-man skull fossils—world-class geological relics discovered in Hulu Cave in Tangshan—belong to *Homo erectus* by research. Tangshan also has Tangshan Hot Springs and famous Ming cultural attractions—Yangshan Tablet Material. Fangshan Scenic District is called the natural volcanic museum. Standing on the Zhonghuamen Castle and overlooking toward the south, you can see the flat-topped Fangshan. Fangshan, an ancient volcanic cone formed more than 10,000,000 years ago, was a shield volcanic cone made up of piled basalt formed when hot (temperatures in excess of 1,000°C) magma sprayed to the earth surface and then cooled rapidly. The specific location of the crater is identifiable. Fangshan Scenic District also has famous cultural attractions—Dinglin Temple and Dinglin Inclined Pagoda.

Tangshan-Fangshan National Geopark is a multi-purpose park: the undergraduate teaching internship base; youth science education base; Earth Science tourist attractions. The publication of the series of Tangshan-Fangshan National Geopark books is bound to stimulate interests in learning the scientific knowledge of the Earth, and enhance the consciousness and enthusiasm of the people to protect the natural environment.

Academician of Chinese Academy of Sciences  
Former Vice President of Nanjing University

Wang Dezi

2012.10

## 序 二

地质公园是以山水景观为游览对象的一种新型公园，中国是世界上最先提出（1985年）、最早建成地质公园（2000年）的国家。地质公园具有保护地质遗产、传播地球科学知识、通过开展旅游促进地方经济社会可持续发展的重要功能。江苏是中国地质工作的发源地之一，地质条件多样，地质研究程度高，有建立各种类型地质公园的条件。现已建成江苏苏州太湖西山国家地质公园、江苏六合国家地质公园和江苏江宁方山汤山国家地质公园等三处，将来还会有更多的地质公园建立。游人走进地质公园不但可以欣赏山水美景，还可顺便获得山水由来的地球科学知识，以增添游兴。但是，山水形成的道理较为深奥，因此编写一部图文并茂、文字深入浅出的地质公园导游指南丛书，就显得非常迫切和必要了，江苏国家地质公园旅游指南就是为此而编撰的。

该丛书主要编写者陶奎元教授是资深地质学家，而且对地质公园建设有深入研究。他编写的这套丛书是我目前看到的最佳地质公园导游指南书。该书不但用图片、图解方式帮助游人直观地获得该公园山水景物形成演变的科学道理，还收入了许多“沧海桑田变迁”、地球物质组成等地质基础知识，以及该公园的地质研究史、文化史；为了帮助游人安排吃、住、行、游、购、娱活动，特别收入了详细的旅游咨询信息。该书不但能帮助到自助旅游的客人，还是中小學生，甚至大专院校师生学习地球科学知识的好读物。由于该书附有中英对照文字，还是向国外游客推介中国地质公园的好材料。

我怀着敬佩的心情向读者推荐这部难得的好书，希望读者喜欢它、使用它，并在使用过程中提出修改意见和建议，以便在再版时加以改进。我希望全国其他地质公园吸收该旅游指南的优点，结合实际编写出本地地质公园的旅游指南，以期更多的人游览地质公园，提高对地球科学的兴趣，用科学发展观作指导去游遍祖国的名山大川。

中国地质科学院研究员  
中国旅游地质学创始人  
国家地质公园研究建设专家

陈安泽

2012.10.20于北京

## Foreword Two

The geopark is a new kind of park in which the landscapes are the main tourism resources. China is the first country to propose (1985) and earliest constructed the geoparks in the world. The geoparks have many functions: the protection of geological heritages, the dissemination of knowledge of Earth Sciences and the important task to promote the sustainable development of local economy and society through developing tourism. Jiangsu Province is one of the cradles of the Chinese geological work with diverse geological conditions, a high degree of geological research, and the qualification of establishing various types of geological parks. Three national geoparks have been constructed in Jiangsu which are Xishan National Geopark in Taihu Lake of Suzhou, Luhe National Geopark and Tangshan-Fangshan Geopark. In the future, more geoparks will be constructed. Entering a geological park, visitors can not only enjoy the splendid views, but also gain the knowledge of Earth Sciences on the origin of landscapes which enrich the content of tourism. However, the knowledge on the origin

of landscapes is too esoteric to understand which makes it very necessary and urgent to publish a series of illustrated geological park guidebooks written in simple words. Hence, the Travel Guide of Jiangsu Geoparks comes into being.

Prof. Tao Kuiyuan, the chief writer of this series, is a senior geologist and has in-depth study of the geopark construction.

This series of books is the best I've ever read, which not only uses pictures and graphic modes to help the visitors intuitively get the scientific basis of landscapes' formation and evolution, but also includes "earth-shaking changes", the basic knowledge of Geosciences such as earth materials composition, as well as the park's geological history, cultural history. What's more, in order to help visitors arrange food, lodging, visiting, shopping and entertainment activities, this series also includes detailed tourist advisory information. This book can not only help the independent travelers but also be good reading material for

primary and secondary school students, and even the teachers and students of colleges and universities to learn the knowledge of Earth Sciences. Duo to its bilingual texts, it can also be good material for foreign tourists to promote the Chinese geoparks.

I recommend this rare good book to readers with admiration and I hope readers like it, use it, and make suggestions for revision which can be improved in the second edition.

I hope other geological parks across the country can absorb the advantages of this travel guide and write their own tourism guide according to the reality. More and more tourists are expected to visit Geoparks, raise interest in the Earth Sciences, and travel throughout the motherland with the guidance of the Scientific Outlook of development.

Researcher of China's Geological Science  
Founder of China's Tourism Geology  
Construction Expert of National Geological Park

Chen Anze

October 20th, 2012  
Beijing

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## 前言

江苏汤山方山国家地质公园是拥有世界级、国家级的地质遗迹，景观丰富多样，历史文化积淀深厚，是处在省会城市中的一个地质公园。

建设地质公园的宗旨：其一是保护地质遗迹、保护生态环境，实施保护基础上开发、开发中保护的原则；其二是主动开展科学普及教育、环境友好教育，使公园成为社会大众喜爱科普的大教室；其三，发展旅游并带动地方社会经济发展。汤山方山国家地质公园丛书的出版在于推动科学建设地质公园，引导游客走进地质公园，实现寓学于游、寓教于游。

《走进汤山》旅游指南将带领你攀登、欣赏美丽的奇观，探索神秘的火山，追寻、品鉴悠久的历史。

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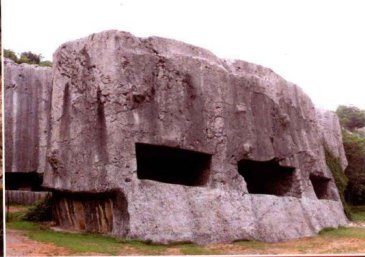
## Preface

Jiangsu Tangshan-Fangshan National Geopark in the provincial capital is a geopark which embraces a series of state-rank, even world-rank geologic remains, rich and variable landscapes, and deep accretion of culture over long history.

The goal to construct the geopark is as follows: 1. protect geologic heritage and ecologic environment, following the principle 'develop based on protection of the geopark, and protect in development of the park'; 2. actively carry out popular science education and environment friendly education to build the park into an open classroom for general public; 3. develop tourism to promote the local economy. Recent collection on Tangshan-Fangshan National Geopark to be published is expected to play a role in construction of the Geopark in a scientific way, to lead more tourists to get into the Geopark, and to realize 'learning from travel and educating within travel'.

The leaflet 'Enter the Fangshan' will accompany you to climb up and view the beautiful scenes, to search volcano for mystery, and to trace and savor the culture over long history.





# 汤山方山 国家地质公园 简介

汤山方山国家地质公园位于南京主城之东江宁区境内，面积29.15km<sup>2</sup>，由汤山与方山两个园区组成。通达便捷，属于处在城市中的地质公园。公园拥有丰富的地质遗迹景观和深厚的人文历史。公园主题是：

- 南京人祖宗、人类祖先——南京猿人（洞）；
- 古今闻名温汤圣水——汤山温泉；
- 1 000万年前神奇火山——方山；
- 守望600年皇家碑材——阳山碑材；
- 保存5亿多年来大地变迁、生物演化遗迹——地质走廊。

公园处于宁镇山脉之西段，留下几代地质学家的足迹与贡献，被誉为中国地质工作者的摇篮。

公园具有观光揽胜、休闲度假、科普旅游、地质实践、史迹追踪、娱乐美食等多种功能。

## Introduction to Tangshan-Fangshan National Geopark

Tangshan-Fangshan National Geopark is situated in Jiangning District, east of Nanjing downtown with an area of 29.15km<sup>2</sup>, which consists of Tangshan Scenic District and Fangshan Scenic District. As a city park, two scenic districts are well accessible. The geopark possesses rich geologic remains, landscapes and deep cultural heritage. The main topics of the park are as follows:

- 'The forefathers of Nanjing locals and ancestry of humans' —— Nanjing Ape-man;
- 'The holy water of Wentang Spring, famous for the ancient and present-Tangshan Hot Spring;
- 'The mystical volcano erupted 1,000 years ago —— Fangshan;
- 'The imperial tablet material retained for 600 years—— Yangshan Tablet Material;
- 'The earth change and organism evolution relics preserved for 500 million years—— Geologic Corridor.

The geopark is located at the western end of Ningzhen Ridge, which boasts of the reputation of 'the Cradle for China Geology'. There are footprints and contributions of prominent geologists of several generations.

The park has multi functions as sightseeing, recreation and vacationing, science tourism, geological practice, history tracing, entertainment and cuisine.

## 汤山园区简介

汤山园区是汤山方山国家地质公园园区之一。面积21.05平方千米，包括汤山、阳山、孔山、湖山。

园区具有世界级意义、距今64万~56万年的南京猿人（洞）；600年前造就的天下第一碑——阳山碑材；千年流淌的汤山温泉；5亿多年地质历史的地质剖面走廊。

汤山园区已建有南京猿人洞景区、阳山碑材景区以及水上乐园、温泉度假区以及博物馆区等。

汤山集洞之奇、泉之韵、碑之最于一体，具有观光探奇、科普体验、地质教学、休闲度假、沐浴养生、娱乐美食的旅游目的地。

## Introduction to Tangshan Scenic District

Tangshan Park, one of the Geopark's scenic districts with an area of 21.05km<sup>2</sup>, includes Tangshan, Yangshan, Kongshan and Hushan.

The park has the world-rank Nanjing Ape-man Cave with a history of 560,000-640,000 years. The park has the "No.1 Tablet in the world" built 600 years ago, Yangshan Tablet Material. The park has Tangshan Hot-spring flowing for thousands of years. The park also has 500 million-year Geologic Corridor.

Tangshan Park has built the scenic spots of Nanjing Ape-man Cave, Yangshan Tablet Material, Water Park, Hot-spring Resort and Museum area.

Tangshan sets the strange cave, the rhythmic spring and the No.1 tablet in a body. So it has multi functions as sightseeing, science tourism, geological practice, vacationing, health bathing, entertainment and good food.

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# 纵览汤山

Scanning of Tangshan

01



## 地理位置

汤山方山国家地质公园汤山园区，位于江宁区北部，隶属汤山镇街道，距中山门30千米。汤山处于快速发展的城市之内。汤山是南京通往镇江、常州、无锡、苏州、上海的门户。沪宁高速、沪宁高铁、沪宁城际、宁杭高速等至汤山园区都有出入口。并建有南京三环至汤山园区东缘，南京城区至汤山轻轨、快速通道正在建设中。现今已有6条公交线路进出汤山。

## Geographical Position

Tangshan Park is situated in the north of Jiangning District, belonging to the Tangshan town street. It is 30km away from Zhongshanmen, Nanjing. Tangshan is located in the rapidly developing city. It is the Nanjing's door to Zhenjiang, Changzhou, Wuxi, Suzhou and Shanghai. The Shanghai-Nanjing highway, the Shanghai-Nanjing high-speed rail, the Nanjing-Hangzhou inter-city train, the Nanjing-Hangzhou highway and so on, all have entrances to Tangshan Park. Nanjing Tri-circle is to the east of the park, and the light rail from Nanjing city to Tangshan is under the construction. Until now, there have been 6 bus lines to Tangshan.



## 气候、水文

气候：汤山地处亚热带季风气候区，温暖湿润，四季分明，年平均气温 $15^{\circ}\text{C}$ ，无霜期237天。1月是全年最冷月，平均气温 $2.3^{\circ}\text{C}$ 。夏季受副热带高压影响，7月是全年最热月，平均气温 $27.9^{\circ}\text{C}$ 。年最低气温 $-13.3^{\circ}\text{C}$ （1977年1月31日），年最高气温 $40.7^{\circ}\text{C}$ （1959年8月22日）。

年平均降水量1 060毫米，主要集中在6~8月，约占全年降水量的50%以上。年蒸发量1 400~1 500毫米。

水文：园区内有七乡河、九乡河、汤水河三条季节性河流。七乡河、九乡河向北流入长江，汤水河向南流入秦淮河。汤泉湖容量275万立方米。

## Climate and Hydrology

Climate: Tangshan belongs to the northern subtropical monsoon climate zone. It is characterized by mild temperature, distinctive seasons. The annual average temperature is  $15^{\circ}\text{C}$ . The frost-free period has 237 days. January is the coldest month in a year with the average temperature of  $2.3^{\circ}\text{C}$ . Influenced by the subtropical high pressure, July becomes the hottest month with the average temperature of  $27.9^{\circ}\text{C}$ . The annual lowest temperature was  $-13.3^{\circ}\text{C}$  (1.31.1977), and the annual highest temperature was  $40.7^{\circ}\text{C}$  (8.22.1959).

The annual average precipitation is 1,060mm, mainly from June to August, which accounts for 50% of the total annual precipitation. The annual evaporation is 1,400 ~1,500mm.

Hydrology: Tangshan has three seasonal rivers—Qixiang River, Jiuxiang River, Tangshui River. Qixiang River and Jiuxiang River flow north into the Yangtze River while Tangshui River flows south into Qinhuai River. Tangquan Lake has a capacity of 2,750,000m<sup>3</sup>.

## 地形地貌

汤山地区属低山丘陵区，汤山山体走向近东西，中部高、两头低。主峰汤山（团子尖）标高292.8米，西部汤山头标高241米，东部雷公山标高142米。山峰间鞍部较低，整个山体形似元宝。孔山标高342米。阳山标高239.7米。湖山标高172米。

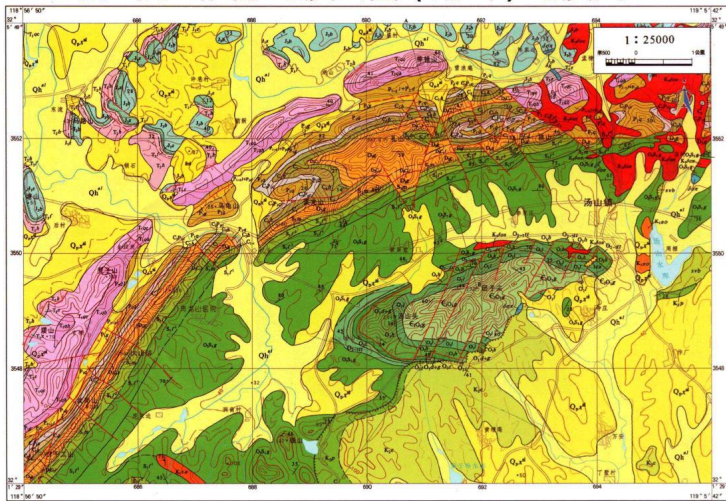
## Terrain and Landform

Tangshan belongs to the low mountains and hills. The Tangshan Mountain sets a west-east trend, which is high in the center and low in both ends. The main peak, Tangshan (Tuanzijian)'s elevation is 292.8m. Tangshan Head's elevation is 241m in the west. Leigongshan Mountain's elevation is 142m in the east. The whole saddle of the mountain is low, so the mountain looks like Chinese Yuanbao (shoe-shaped gold ingot). Kongshan's elevation is 342m. Yangshan's elevation is 239.7m. Hushan's elevation is 172m.





# 汤山方山国家地质公园（汤山）地质图



地质剖面图

