

石油英语系列教材

石油地球物理勘探 实用英语

解曙巍 主编

PRACTICAL ENGLISH
FOR
PETROLEUM GEOPHYSICAL EXPLORATION



中国石油大学出版社

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《石油地球物理勘探实用英语》

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《石油地球物理勘探实用英语》

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内 容 提 要

该书是石油地球物理勘探专业方面的实用英语教材,内容涵盖石油物探数据采集、处理、解释等诸多方面。全书共 20 课。除篇幅适当的课文外,每课还包括详尽的生词和专业词组注解、习语和短语注解、课文注释和不同类型的练习题及与课文内容相配套的阅读材料。此外,该书附有“课文参考译文”、“练习题答案”、“词汇总表”、“习语和短语总表”及英汉对照的“石油地球物理勘探实用英语口语 300 句”等,充分利于教学与自学。

该书题材广泛、内容充实、重点突出、结构紧凑,具有较强的系统性、可读性和实用性,对石油地球物理勘探专业人士极具实用价值,既可作为高等院校相关专业的英语教材或英语教学参考书,又可作为石油地球物理勘探专业人员的英语培训教材或英语学习用书。

本书所用语法术语略语

<i>a.</i>	adjective (形容词)	<i>pref.</i>	prefix (前缀)
<i>ad.</i>	adverb (副词)	<i>prep.</i>	preposition (介词)
<i>conj.</i>	conjunction (连接词)	<i>pron.</i>	pronoun (代词)
<i>inf.</i>	infinitive (动词不定式)	<i>sing.</i>	singular (单数)
<i>n.</i>	noun (名词)	<i>v.</i>	verb (动词)
<i>num.</i>	numeral (数词)	<i>vi.</i>	intransitive verb (不及物动词)
<i>pl.</i>	plural (复数)	<i>vt.</i>	transitive verb (及物动词)

编著者说明

为适应我国石油领域对外交流与合作的迫切需要,提高石油科技工作者和有关涉外人员的专业英语水平与实用能力,中国石化胜利油田组织编著了石油英语系列教材。该系列教材包括石油地质、地球物理勘探、钻井、测井、采油、安全环保等专业。各专业英语教材的编著自成体系,独立成书。《石油地球物理勘探实用英语》(PRACTICAL ENGLISH FOR PETROLEUM GEOPHYSICAL EXPLORATION)是该英语系列教材之一。

《石油地球物理勘探实用英语》按石油地球物理勘探专业知识结构并兼顾英文难易程度编著。内容涵盖石油物探数据采集、处理、解释等诸多方面。参考、引用文献主要源自较新版的英美石油物探专业原著,资料翔实可靠。经精心编著,力求使课文既内容完整,又层次清晰、重点突出,并使全书从总体上体现连续性、系统性、可读性和实用性。

《石油地球物理勘探实用英语》共 20 课。每课包括:TEXT (课文)、NEW WORDS AND SPECIALIZED PHRASES (生词和专业词组)、IDIOMS AND EXPRESSIONS (习语和短语)、NOTES TO THE TEXT (课文注释)、EXERCISES (练习题)、READING MATERIAL (阅读材料)。全书课文、阅读材料各选编 20 篇,生词和专业词组注解 2 022 条,习语和短语注解 262 条。为充分利于教学与自学,本书附有“课文参考译文”、“练习题答案”、“词汇总表”、“习语和短语总表”及英汉对照的“石油地球物理勘探实用英语口语 300 句”。

此外,为方便读者,本书附有英汉对照的“地质年代与地层时序表”、“地质时代符号表”、“地质图常用符号表”、“常用单位换算表”、“国外主要石油地球物理勘探公司及相关专业公司一览表”、“石油地球物理勘探及相关专业常用英文期刊一览表”。

在中国石化胜利石油管理局教育培训处部署下,在中国石化胜利油田地质科学研究院组织下,全书由中国石化胜利油田地质科学研究院、中国石化胜利油田物探研究院、中国石油大学外国语学院合作编著。中国石化胜利油田地质科学研究院的解曙巍主持了整个编著工作,任主编。

本书编著方案、编著大纲由解曙巍制定。承担编著工作的人员有解曙巍、郭良川、张桂萍、赵剑敏、黄汉明、张建国、王宏。“课文”、“阅读材料”由黄汉明、郭良川、解曙巍、张建国选编；1~10课“课文”由解曙巍注释；11~20课“课文”由张桂萍、解曙巍注释；“生词和专业词组”、“习语和短语”由赵剑敏、解曙巍筛选、注解；“练习题”、“练习题答案”由解曙巍、张桂萍编著；“课文”由郭良川、黄汉明、解曙巍、赵剑敏、王宏翻译、校对；“词汇总表”、“习语和短语总表”由解曙巍、赵剑敏编纂；“石油地球物理勘探实用英语口语 300 句”由黄汉明、郭良川、解曙巍、赵剑敏编著；“地质年代与地层时序表”、“地质时代符号表”、“地质图常用符号表”、“常用单位换算表”由解曙巍选编；“国外主要石油地球物理勘探公司及相关专业公司一览表”、“石油地球物理勘探及相关专业常用英文期刊一览表”由解曙巍、张建国编制。全书由解曙巍统编、定稿。

编著这样一部内容完整而系统的石油地球物理勘探专业英语教材，是一件很有意义的事情，但也是一项颇为复杂的工程。为此，我们付出了辛勤的努力，但由于我们水平有限，书中难免存有差错或不当之处，敬请读者批评指正。

编著者

2005年5月

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LESSON ONE



TEXT

GEOPHYSICAL PROSPECTING

(地球物理勘探)

Geophysical prospecting is the application of the principles of physics to the study of subsurface geology. Geophysical methods can be used to measure the thickness of sediments and to map the shape of structures within the sediments. The successful location of buried structures in which oil has accumulated has been the major factor in the success of the intensive search for oil of the last twenty years.

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Geophysical prospecting is an essential part of a systematic exploration programme. Geophysical surveys usually follow the geological reconnaissance survey and precede the drilling phase of such a programme. When surface geology gives evidence of structure, geophysical methods are often used to confirm the continuation of the structure at depth. When surface indications of structure are absent, as in jungle and swamp-covered country, desert and marine areas or where surface structure is liable to differ appreciably from structure at depth, geophysical prospecting methods provide the only practical means of exploring the area.^①

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The most commonly used geophysical methods are: magnetic surveys in which effect on the earth's magnetic field of variations in the magnetic properties of subsurface rocks is measured, gravity surveys in which the effect on the earth's gravitational field of variations in the density of subsurface rocks is measured and seismic surveys in which the time taken by seismic waves to travel through subsurface rocks is measured.

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In addition to these methods, the effects of variations in the electrical and radio-active properties of rocks can be measured. Except when the effects of these variations are measured in boreholes, they are not widely used in the exploration for oil.^② At the present time there is no geophysical method capable of detecting directly the presence of oil in the subsurface rocks.

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Geophysical surveys can be divided into two broad categories: reconnaissance surveys, to outline possible areas of interest where there are thick sediments and the possibility of

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structural traps, and detailed surveys, to define well locations to test specific structures. Gravity and magnetic surveys are generally regarded as reconnaissance methods. Seismic surveys can be used for reconnaissance purposes and are almost invariably used for the detailed surveys.

The study of the form and occurrence of earthquake waves recorded by seismographs has been the principal source of knowledge of the constitution of the interior of the earth. Using a special type of seismograph, or geophone, seismic surveys explore the geological structure in the earth's sedimentary section by recording the ground movements produced by man-made explosions.^③ The waves created by the explosions are reflected and refracted back to the earth's surface by the elastic discontinuities that occur at changes of rock types in the sediments. Seismic surveys are divided into two categories depending on the path taken by the waves in the sediments between the explosion and the geophones.^④ They are called the "reflection" and "refraction" methods. Seismic surveys provide more detailed information about the shape and depth of subsurface structures than any of the other geophysical methods. They are the methods most widely used in the exploration for oil.

Both seismic methods measure the time taken by the waves to travel from the explosion, or shot-point, to the geophones. It is, therefore, necessary to record both the time of the shot and the time of arrival of the waves at the geophones.^⑤ The travel times are rarely longer than six seconds and are measured to one thousandth of a second.^⑥ The information is recorded on magnetic tape in the field and the tapes are subsequently processed in a data-processing center.

◆ NEW WORDS AND SPECIALIZED PHRASES

geophysical [ˌdʒi(:)əʊ'fɪzɪkəl] * *a.* 地球物理的, 地球物理学的

prospecting [prəs'pektɪŋ] *n.* 勘探, 勘察, 勘测
geophysical prospecting 地球物理勘探, 物探

application [ˌæpli'keɪʃən] *n.* 应用, 运用; 请求, 申请

principle ['prɪnsəpl] *n.* 原理; 原则; 法则

subsurface ['sʌb'səʊfɪs] *a.* 地下的, 地面下的; 水面下的 *n.* 地下; 地表下岩石

geology [dʒi'ɒlədʒi] *n.* 地质, 地质学

subsurface geology 地下地质, 地下地质学

measure ['meɪʒə] *vt.* 测量, 估量 *vi.* 量 *n.* 尺寸; 测量; 措施; 方法

thickness ['θɪknis] *n.* 厚度; 密度

sediment ['sedɪmənt] *n.* 沉积, 沉积物

map [mæp] *vt.* 测绘, 为...绘制地图; 勘测; 制订 *n.* 图, 地图, 布局图

shape [ʃeɪp] *n.* 形态, 形状 *vt.* 制作; 使成形 *vi.* 成形; 形成

structure ['strʌktʃə] *n.* 构造, 结构 *vt.* 构成; 建筑

successful [sək'sesfʊl] *a.* 成功的; 有成就的

* 所注音标中可不发音的音素用斜体表示。