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今日科学聚焦

Global Warming

全球变暖

REBECCA L. JOHNSON (美) 著

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赵庆和 注

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如果你希望读到地道的英语，在享受英语阅读乐趣的同时又能增长知识、开拓视野，这套由外语教学与研究出版社与美国国家地理学会合作出版的“国家地理科学探索丛书”正是你的选择。

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这套丛书以英文注释形式出版，注释由国内重点中学教学经验丰富的英语教师完成。特别值得推荐的是本套丛书在提高青少年读者英语阅读能力的同时，还注重培养他们的科学探索精神、动手能力、逻辑思维能力和沟通能力。

本丛书既适合学生自学，又可用于课堂教学。丛书各个系列均配有一本教师用书，内容包括背景知识介绍、技能训练提示、评估测试、多项选择题及答案等详尽的教学指导，是对课堂教学的极好补充。

本套丛书是适合中学生及英语爱好者的知识读物。

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Contents 目录

Turning Up the Heat..... 4
调高热量

Life in the Greenhouse 8
温室中的生活

An Atmosphere That Warms
逐渐变暖的大气层

Ancient Fuels, Modern Problems 18
古老的燃料，现代的问题

What Should We Do About Warming?
我们该如何应对全球变暖？



Communication Skill..... 26

沟通技能

Writing Persuasively

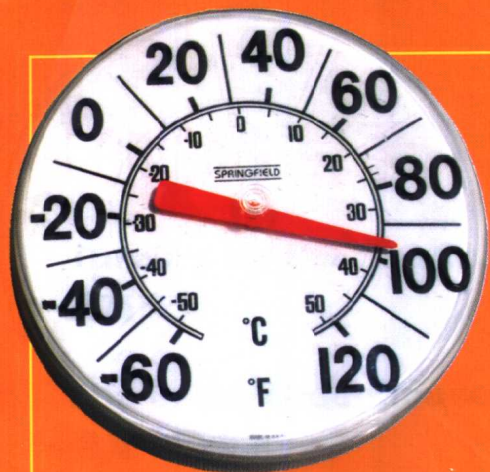
写作要具有说服力

Science Notebook..... 30

科学备忘录

Index 31

索引



Turning

Since 1850 the average¹ temperature² of Earth's surface³ has increased⁴ about 0.6°C (1°F). Scientists predict⁵ it may warm much more by the end of this century⁶. Who's turning up the heat?

Well, it seems that we are! Some of this global warming may be natural. However, nearly all scientists now agree that most of it is due to⁷ people's actions⁸. Over the past 150 or so⁹ years, we've added huge amounts¹⁰ of certain gases, especially¹¹ carbon dioxide¹², to the air. These gases can trap¹³ heat near Earth's surface—so more of them in the air means a hotter planet¹⁴.

As temperatures climb, scientists say we can expect Earth's climate¹⁵ to change in many ways. In this book, we'll take a closer look at¹⁶ global warming—its causes¹⁷ and its possible¹⁸ effects¹⁹ on the planet. Global warming could affect²⁰ everyone on Earth, but not everyone agrees on²¹ what to do about it.

1. average	<i>adj.</i>	平均的
2. temperature	<i>n.</i>	温度
3. surface	<i>n.</i>	表面
4. increase	<i>v.</i>	增加; 增长
5. predict	<i>v.</i>	预测
6. century	<i>n.</i>	世纪
7. due to		由于
8. action	<i>n.</i>	行为
9. or so		大约
10. amount	<i>n.</i>	数量
11. especially	<i>adv.</i>	尤其

12. carbon dioxide		二氧化碳
13. trap	<i>v.</i>	存储
14. planet	<i>n.</i>	星球(此处指地球)
15. climate	<i>n.</i>	气候
16. take a look at		考虑; 关注
17. cause	<i>n.</i>	原因
18. possible	<i>adj.</i>	可能的
19. effect	<i>n.</i>	影响
20. affect	<i>v.</i>	影响
21. agree on		对……取得一致意见



Up^{the} Heat 调高热量





Warmer temperatures could mean longer growing seasons for farmers like these in Colorado!

(注释见第 7 页)

How Well Are We Doing?

Good News

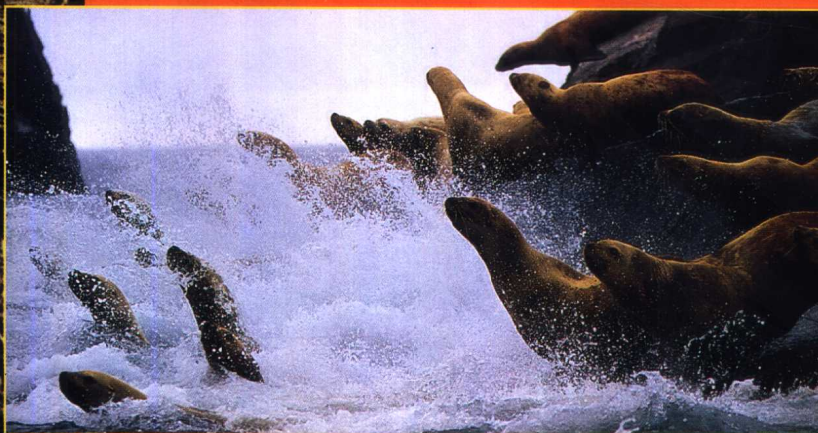
- Global warming may lead to shorter, warmer winters.
- Longer summers mean a longer growing season. Farmers may be able to grow more food.
- Plants need carbon dioxide to live and grow. More carbon dioxide in the air could be good for some kinds of plants.
- Reducing² the amount of carbon dioxide in the air could slow the warming trend³.

Bad News

- Warmer temperatures could melt⁴ glaciers⁵ and polar⁶ ice sheets⁷.
- Melting glaciers and ice sheets add water to the sea. As sea levels⁸ rise, coastlines⁹ and some islands could disappear¹⁰ under water.
- Global warming may change the weather in ways that lead to more severe¹¹ storms, floods¹², and droughts¹³.
- Getting everyone in the world to work together to reduce carbon dioxide is not easy.

1. Colorado		科罗拉多州
2. reduce	<i>v.</i>	减少
3. trend	<i>n.</i>	趋势
4. melt	<i>v.</i>	融化
5. glacier	<i>n.</i>	冰川
6. polar	<i>adj.</i>	极地的
7. ice sheet		冰原
8. sea level		海平面

9. coastline	<i>n.</i>	海岸线
10. disappear	<i>v.</i>	消失
11. severe	<i>adj.</i>	剧烈的；严重的
12. flood	<i>n.</i>	水灾
13. drought	<i>n.</i>	旱灾
14. sea lion		海狮
15. Alaska		阿拉斯加州
16. survive	<i>v.</i>	幸存；存活



Warmer temperatures could make it difficult for sea lions¹⁴ like these in Alaska¹⁵ to survive¹⁶.

An Atmosphere That Warms

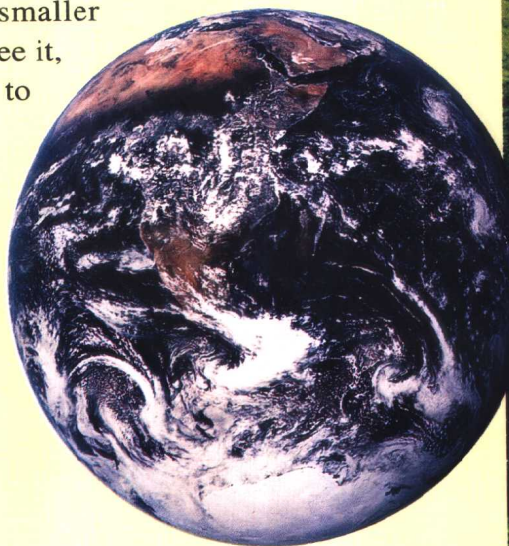
逐渐变暖的大气层

Life in the Greenhouse

温室中的生活

Earth is surrounded¹ by a layer² of air called the atmosphere. Without the atmosphere Earth would be a cold, lifeless³ planet. Why? Because the atmosphere holds heat near the planet's surface that would otherwise⁴ escape⁵ into space⁶. Let's see how this works.

Our atmosphere is a mixture⁷ of many gases. Nitrogen⁸ and oxygen⁹ are the gases that make up¹⁰ most of the atmosphere. Other gases, including carbon dioxide, are found in smaller amounts. Even though¹¹ you can't see it, our atmosphere is one of the secrets to life on Earth.



1. surround	v.	包围
2. layer	n.	层
3. lifeless	adj.	无生命的
4. otherwise	adv.	不然
5. escape	v.	溢出; 逃脱
6. space	n.	太空
7. mixture	n.	混合物
8. nitrogen	n.	氮
9. oxygen	n.	氧
10. make up		组成
11. even though		尽管; 虽然

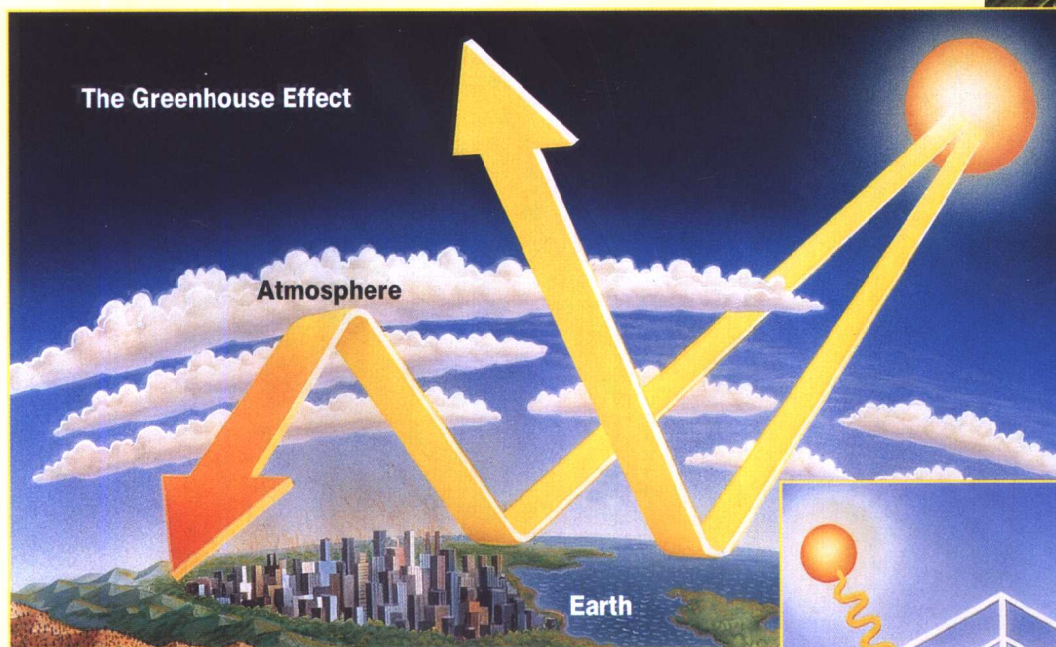
The atmosphere makes life on Earth possible.



Light from the sun passes through the atmosphere, just as sunlight passes through panes¹ of glass in a greenhouse. When energy² from the sun strikes³ our planet's surface, the sunlight warms the land and the top layers of the ocean⁴. The warmed surface radiates⁵, or gives off, heat.

As that heat rises, some of it is "trapped" by gases in the atmosphere and reflected⁶ back toward the planet's surface. Like the glass in a greenhouse that holds heat inside the building, gases in the air hold in heat around Earth. Scientists call this global heat-trapping process⁷ the greenhouse effect⁸. The greenhouse effect keeps the temperature of our planet's surface comfortably⁹ warm.

1. pane	<i>n.</i>	窗格	6. reflect	<i>v.</i>	反射
2. energy	<i>n.</i>	能量	7. process	<i>n.</i>	过程
3. strike	<i>v.</i>	照射	8. greenhouse effect		温室效应
4. ocean	<i>n.</i>	海洋	9. comfortably	<i>adv.</i>	舒服地
5. radiate	<i>v.</i>	放射(光、热等)	10. arrow	<i>n.</i>	箭头

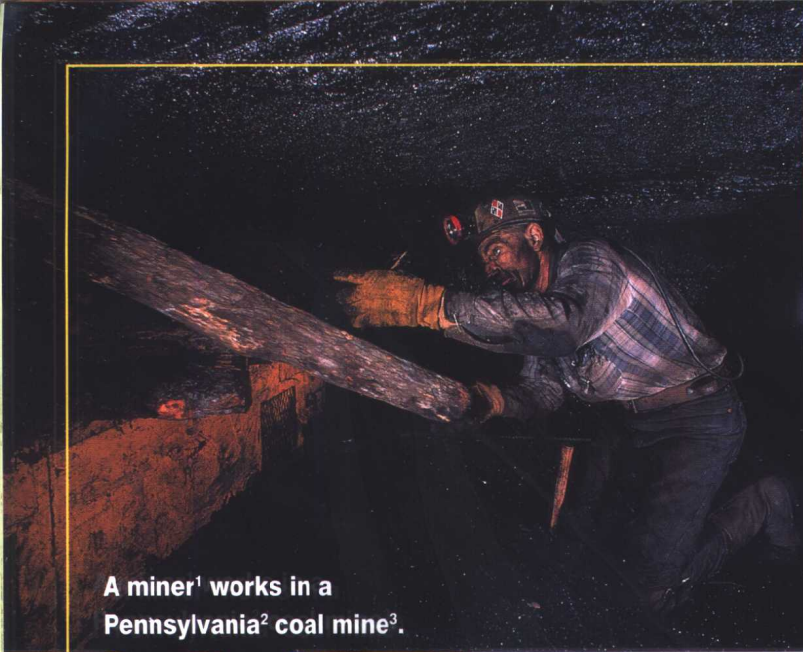


Some of the energy from the sun passes through the atmosphere and warms Earth's surface (yellow arrows¹⁰). Some of the heat that radiates from Earth's surface is trapped by gases in the atmosphere and reflected back to Earth's surface (orange arrow).

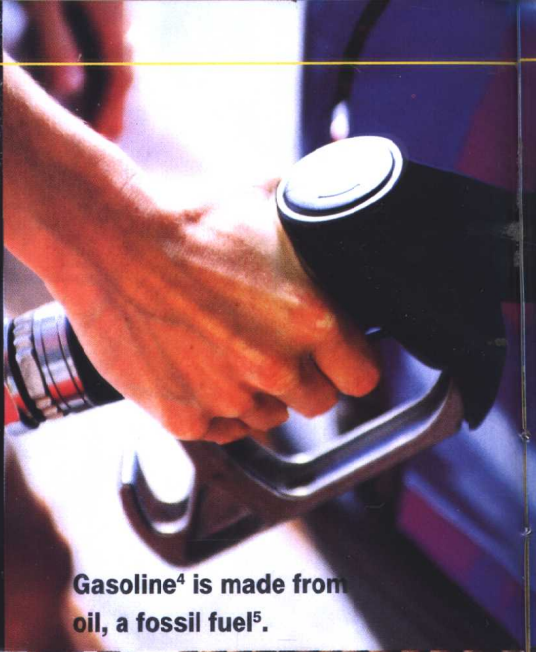




Like the atmosphere around Earth, the glass of a greenhouse lets light pass through but traps heat inside.



A miner¹ works in a Pennsylvania² coal mine³.



Gasoline⁴ is made from oil, a fossil fuel⁵.



- | | | |
|-----------------|-----------|----------|
| 1. miner | <i>n.</i> | 矿工 |
| 2. Pennsylvania | <i>n.</i> | 宾夕法尼亚州 |
| 3. coal mine | <i>n.</i> | 煤矿 |
| 4. gasoline | <i>n.</i> | 汽油 |
| 5. fossil fuel | <i>n.</i> | 矿物燃料 |
| 6. oil rig | <i>n.</i> | 石油钻探平台 |
| 7. roughneck | <i>n.</i> | <口>油井修理工 |
| 8. handle | <i>v.</i> | 操作; 处理 |
| 9. pipe | <i>n.</i> | 管道 |
| 10. drill | <i>v.</i> | 钻探 |

Oil rig⁶ workers, called roughnecks⁷, handle⁸ a pipe⁹ that drills¹⁰ for oil.



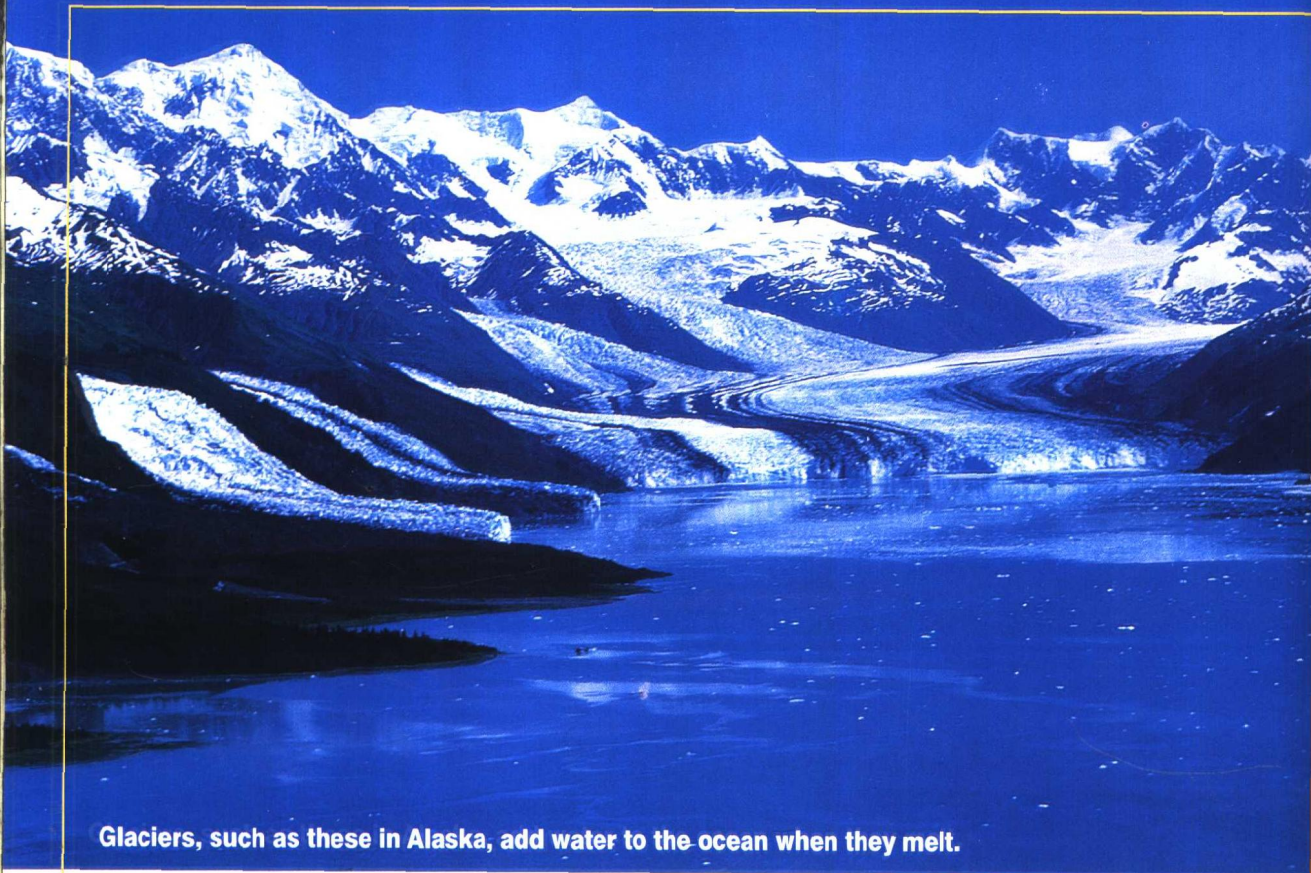
Too Much of a Good Thing

Several gases in the atmosphere contribute to¹ global warming. The one you've probably² heard the most about is carbon dioxide. Carbon dioxide is a good heat-trapping gas—a greenhouse gas, as scientists say. A certain amount of carbon dioxide in the atmosphere is natural. In fact³, you add some to the air every time you breathe out⁴.

We also add carbon dioxide to the air when we burn things, especially fossil fuels. Fossil fuels are energy sources⁵ formed⁶ from the remains⁷ of plants and animals that lived millions of years ago. Coal, oil, and natural gas⁸ are all fossil fuels. People in the United States and other countries started burning large amounts of fossil fuels more than a century ago. The amount of fossil fuels being burned each year has been increasing worldwide⁹. The more we burn, the more carbon dioxide is released¹⁰ into the atmosphere. More carbon dioxide means more heat is trapped near Earth's surface.

Years ago, some scientists predicted a global warming if we added large amounts of carbon dioxide and other greenhouse gases to Earth's atmosphere. Other researchers began to track¹¹ Earth's temperature and the amount of carbon dioxide in the air. And guess what! Like two people walking hand in hand, as the amount of carbon dioxide in the air increased over time¹², so has Earth's average surface temperature. Some scientists reported that if we keep adding carbon dioxide and other greenhouse gases to the atmosphere at the current rate¹³, Earth will probably warm at least¹⁴ another 1.4 to 5.8°C (2.5 to 10.4°F) by the year 2100. That's a huge change in a very short time.

1. contribute to		是导致……的部分原因	8. natural gas		天然气
2. probably	adv.	可能	9. worldwide	adv.	全世界范围内
3. in fact		实际上	10. release	v.	释放
4. breathe out		呼气	11. track	v.	跟踪
5. source	n.	来源	12. over time		随着时间的推移
6. form	v.	形成	13. at the current rate		按目前的速度
7. remains	n.	残留物	14. at least		至少

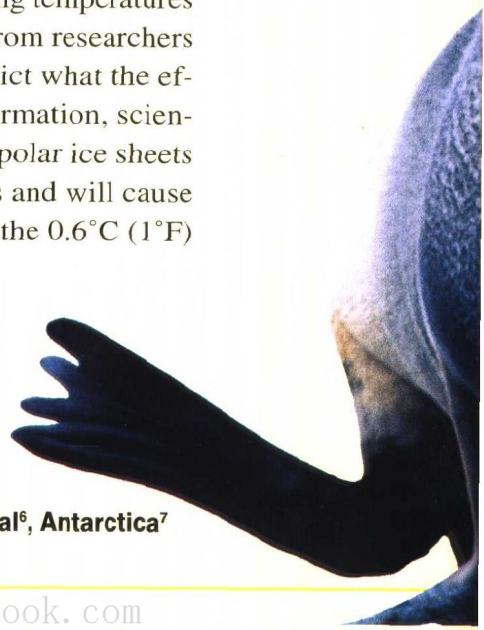


Glaciers, such as these in Alaska, add water to the ocean when they melt.

Melting Ice, Rising Seas

What's the big deal¹ about Earth warming a few degrees²? Why are some people worried? What will happen? To figure out³ how rising temperatures could affect Earth, scientists have gathered⁴ information from researchers all over the world. They use the data⁵ they collect to predict what the effects of global warming may be. Using the collected information, scientists predict that as global temperatures rise, glaciers and polar ice sheets will melt at a faster rate. This will add water to the oceans and will cause sea levels to rise worldwide. Many scientists believe that the 0.6°C (1°F)

- | | | |
|---------------|-----------|-------------|
| 1. big deal | | 至关重要的大事 |
| 2. degree | <i>n.</i> | 度数 |
| 3. figure out | | 理解; 明白 |
| 4. gather | <i>v.</i> | 收集 |
| 5. datum | <i>n.</i> | (pl.data)数据 |
| 6. fur seal | | 海狗 |
| 7. Antarctica | | 南极洲 |



Fur seal⁶, Antarctica⁷