

## READING PASSAGE 2

You should spend about 20 minutes on **Questions 14–26**, which are based on Reading Passage 2 below.

### Understanding climate change

*Could the writings of 18th-century sailors unlock the complexities of today's climate changes?*

Are the climatic changes the world is seeing now really unprecedented, or have there been other times when change was just as swift? 'If we go back to the past and find there really hasn't been anything like this before, then that strengthens the case that human activity is responsible for the rapid changes we are seeing today,' says climatologist Dennis Wheeler of the University of Sunderland, UK.

But the past is tricky territory for climatologists. While tree rings and ice cores chart annual changes in climate going back millennia, they cannot show what happened on a month-to-month basis. There are some long-running chronicles of temperature and air pressure over land dating back to the 17th century, but systematic records of air movements over the oceans — which govern most of our weather — were almost non-existent before the mid-19th century, by which time the Industrial Revolution was already well under way, and factory chimneys were pouring carbon dioxide into the atmosphere. In order to establish whether today's climate changes indeed had any precedent in the past, what Wheeler needed was detailed information from earlier times, and he soon became convinced that the multitude of jottings in old ships' records could provide just that.

By the late 17th century, the seafaring nations of Europe had fleets of ships criss-crossing the seas, all keeping meticulous accounts of their voyages, including regular observations of weather conditions. In 1731, it became obligatory for British naval vessels to keep a detailed logbook, and by 1750 the practice was universal. A vast number of such records survive to this day. Despite initial reluctance among climatologists to use these historical documents for scientific research, Wheeler and his team secured funding for a project to sift through two thousand old logbooks. They pored over records of English, Dutch, French and Spanish fleets, with the aim of creating a climatological database for the world's oceans between 1750 and 1850.

In order to reconstruct air pressure fields as they move across the sea, climate 'modellers' need details of wind strength and direction at as many locations as possible. The team's research produced the equivalent of two million days of information but, plentiful as this data was, much of it needed translation. Until 1805, even a day wasn't a day as we know it, but a nautical day, which started at noon. Before 1752, the year began on 25 March, and until September of that year the English calendar lagged 10 days behind the one used in the rest of Europe.

Even the wind's direction posed a problem. It took a long time to work out if the direction noted in the log was based on magnetic north or true north. Get it wrong and the data could be out by as much as 30 degrees. 'On British vessels, most observations were magnetic. Once a day, officers would convert the readings to true north — but the logbooks don't tell you that,' says Wheeler. 'It took some detective work to find out what was going on.'

Harder still was interpreting observations on the strength of the wind. It was 1850 before most ships were equipped with accurate instruments to collect climatic data, previous to which officers had to rely on judgement and experience. And, as the numerical Beaufort scale of wind strength did not become official until 1838, most of the logbooks in Wheeler's archives describe weather conditions using words alone — and often archaic or peculiar ones. A sample of English logs from 1685 to 1700 produced 73 different ways of describing the wind's force. To everyone's relief, closer scrutiny showed that many terms were used just once or twice: most log-keepers stuck to a similar set of terms.

So how strong was a wind described as 'moderate', or a gale described as 'fine'? And did all seafarers have the same thing in mind when they used them? This was tested by checking how far the ships sailed each day, another fact carefully recorded in the logbook. The speed a sailing ship travelled was directly linked to the force of the wind, at least up to Beaufort force 7. 'If you have a large enough sample you can pick out all the days when officers described, for example, a "fine breeze", and check the sea-miles covered,' says Wheeler. 'That gives a measure of the relative wind strength.'

Having to deal with logs from four nations, from both naval and merchant vessels, made the task of translating archaic terms into hard numbers doubly daunting. Toughest of all was unravelling the terms used aboard trading ships. These had their own complex vocabulary of gales, trade winds, and monsoons, each in several grades, Wheeler discovered. But, by checking sea-miles covered, and cross-checking with the logs of occasional naval escorts, the team eventually worked out which terms meant what. Pairs of ships in convoy, or squadrons in the same locality, should have the same records, so allowing the researchers to check for consistency.

The wealth of data Wheeler was able to call on enabled him to show statistically that the expressions used in the logbooks were not vague approximations, but precise terms falling into distinct categories. The researchers have now fitted nearly all the terms used into the Beaufort scale, and have high hopes that the seafarers of the pre-instrumental age will, in time, give today's scientists a valuable insight into the causes of global climate change.

Questions 14–17

Complete the summary below.

Choose **NO MORE THAN TWO WORDS** from the passage for each answer.

Write your answers in boxes 14–17 on your answer sheet.

**Why look at old ships' logbooks?**

Dennis Wheeler of the University of Sunderland set out to determine to what extent **14** ..... is changing the climate of our planet. Scientific evidence of past climate changes, such as wood specimens or samples cut from ice, were of little use for Wheeler's investigations because these materials provided no indication of changing conditions from one **15** ..... to the next.

Wheeler's research called for a large number of highly detailed daily reports on atmospheric conditions occurring over the world's **16** ..... . These reports also needed to date from a period before the **17** ..... , which was, by the middle of the nineteenth century, already causing widespread atmospheric pollution.

Questions 18–21

Complete the table below.

Choose **ONE YEAR** from the passage for each answer.

Write your answers in boxes 18–21 on your answer sheet.

	Year
The keeping of logbooks was made compulsory on British naval ships.	<b>18</b> .....
The system of dates was standardised across Europe.	<b>19</b> .....
Ships' logbooks ceased the practice of starting each day's record at midday.	<b>20</b> .....
A definitive scale of recording wind force was adopted.	<b>21</b> .....
Most ships had been equipped with reliable weather-recording instruments.	1850

Questions 22 and 23

Choose **TWO** letters, **A–E**.

Write the correct letters in boxes 22 and 23 on your answer sheet.

Below is a list of problems concerning the interpretation of early ships' logbooks.

Which **TWO** problems are mentioned in the passage?

- A** inaccurate reports of air movements
- B** insufficient reliable climatological data
- C** non-numerical descriptions of wind force
- D** errors found in the charting of wind direction
- E** variations in terminology used by different sailing professions

Questions 24–26

Do the following statements agree with the information given in Reading Passage 2?

In boxes 24–26 on your answer sheet, write

<b>TRUE</b>	<i>if the statement agrees with the information</i>
<b>FALSE</b>	<i>if the statement contradicts the information</i>
<b>NOT GIVEN</b>	<i>if there is no information on this</i>

- 24** The earliest extensive weather records still in existence date from the 19th century.
- 25** The relationship between wind speed and distance sailed was used to aid interpretation of descriptive vocabulary.
- 26** Comparisons were made between the logbooks of different vessels sailing in the same area.

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Questions 14–17 Summary Completion (摘要填空)

题号	答案	题干翻译	详细定位句 (第X段)	定位句翻译	详细解释
14	human activity	Dennis Wheeler...想确定**.....在多大程度上**正在改变地球气候。	第1段: "...that strengthens the case that <b>human activity</b> is responsible for the rapid changes we are seeing today."	".....这就加强了这样的观点: 人类活动要为我们今天看到的快速变化负责。"	空格问“是什么在改变气候”。原文直接把 "rapid changes" 归因到 <b>human activity</b> , 且题干用 <i>is changing</i> 与原文 "responsible for... changes" 同义对应。
15	month	.....这些材料无法显示从一个**.....**到下一个的变化情况。	第2段: "...they cannot show what happened on a <b>month-to-month</b> basis."	".....它们无法显示逐月(每个月到下个月)发生了什么。"	题干 "from one ____ to the next"= 原文 "month-to-month"。因此填 <b>month</b> 。
16	oceans	Wheeler 的研究需要大量非常详细的每日大气状况报告, 发生在世界的**.....**之上。	第2段: "...systematic records of air movements over the <b>oceans</b> ... were almost non-existent..."	".....关于海洋上空空气运动的系统记录几乎不存在....."	题干 "atmospheric conditions occurring over the world's ____" 对应 "air movements over the <b>oceans</b> (海洋上空的空气运动)"。
17	Industrial Revolution	这些报告还需要来自**.....之前**的时期; 而到19世纪中叶时, 它 (.....) 已造成广泛大气污染。	第2段: "...before the mid-19th century, by which time the <b>Industrial Revolution</b> was already well under way, and factory chimneys were pouring carbon dioxide into the atmosphere."	".....在19世纪中叶之前; 到那时工业革命已如火如荼, 工厂烟囱正把二氧化碳大量排入大气。"	题干说“到19世纪中叶已造成污染的那个时期”= 原文明确点名 <b>Industrial Revolution</b> , 且限制“两词以内”刚好。

Questions 18–21 Table Completion (表格填年份)

题号	答案	题干翻译	详细定位句 (第X段)	定位句翻译	详细解释
18	1731	英国海军船只强制记录航海日志。	第3段: " <i>In 1731, it became obligatory for British naval vessels to keep a detailed logbook...</i> "	"在1731年, 英国海军舰船被要求必须记录详细航海日志....."	<i>made compulsory / obligatory</i> 同义对应, 直接取年份 <b>1731</b> 。
19	1752	欧洲范围内的日期系统被统一/标准化。	第4段: " <i>Before 1752... until September of that year the English calendar lagged 10 days behind the one used in the rest of Europe.</i> "	"在1752年之前.....直到那年9月, 英国历法比欧洲其他地区所用历法慢10天。"	题干问“日期系统在欧洲被标准化”。原文说明 <b>1752</b> 年前不统一, 并点出“直到该年9月仍落后”, 暗示1752年完成对齐/统一。因此填 <b>1752</b> 。
20	1805	航海日志不再以正午作为每天记录的起点。	第4段: " <i>Until 1805, ... a nautical day, which started at noon.</i> "	"直到 <b>1805</b> 年, 一天还不是我们理解的一天, 而是从正午开始的‘航海日’。"	既然“直到1805才是那样(从正午开始)”, 则 <b>1805</b> 之后停止该做法, 对应题干“ceased”。填 <b>1805</b> 。
21	1838	一套确定的风力记录标度被采用。	第6段: "...the numerical Beaufort scale of wind strength did not become official until 1838 ..."	".....数字化的蒲福风级直到 <b>1838</b> 年才成为官方标准....."	"definitive scale adopted" 对应 "Beaufort scale... became official", 年份 <b>1838</b> 。

Questions 22–23 Choose TWO letters (选两项)

    题干翻译: 以下列出一些“早期航海日志在解读时会遇到的问题”。文中提到其中哪两个?

题号	答案	题干翻译	详细定位句 (第X段)	定位句翻译	详细解释 (含排除)
22	C	(选两项) 文中提到的解读困难有哪些?	第6段: "...most of the logbooks ... describe weather conditions <b>using words alone</b> — and often archaic or peculiar ones."	".....大多数日志只用文字描述天气状况——而且常常是古旧或怪异的词。"	选项C“风力用非数字方式描述”= 原文“using words alone (只用文字)”, 完全对应。排除: A“空气运动报告不准确”原文没说“不准确”; B说“可靠数据不足”是背景问题(以前记录少), 但题目问的是“解读日志的困难”; E虽提到商船/海军术语差异, 但题目只要两项, 最直接、最核心的两类困难是“风向基准不明+风力文字化”。
23	D	(同上)	第5段: "...work out if the direction noted... was based on <b>magnetic north</b> or true <b>north</b> . Get it wrong and the data could be out by as much as 30 degrees."	".....要弄清日志里的风向是按 <b>磁北</b> 还是 <b>真北</b> 记录。弄错的话数据可能偏差多达30度。"	选项D“风向绘制/记录会出错”对应“ <b>磁北/真北</b> 基准不明, 弄错会偏差很大”。这是典型“解读问题”: 你谈到一个方向, 但不知道它的参照系。

23题不选E, 核心理由可以用“同义是否精准对齐 + 是否属于作者强调的主要问题”来解释:

- E 的表述是“不同航海职业 (sailing professions) 之间术语有差异”。  
但原文更准确说法是: 商船 (trading ships) 有自己一套更复杂的词汇体系 (“their own complex vocabulary...”), 这是在“风力强弱用词难以量化”这个大问题下的细化难点, 并不是在讨论“不同职业之间互相用词不一致”这种横向差异。
- 反而作者在结构上明确点出两类“interpretation problems”:
  - ① 风向基准难判断 (磁北 vs 真北) (对应 D)
  - ② 风力用词非数字化、术语繁多难换算 (对应 C)这两点被用“posed a problem / harder still”这种并列语气突出, 更像命题要抓的两项。

所以: E 看起来相关, 但不如 C/D 那样“精准对应题干措辞 + 被作者作为并列大问题突出”。

Questions 24–26 TRUE / FALSE / NOT GIVEN (判断题)

题号	答案	题干翻译	详细定位句 (第 X 段)	定位句翻译	详细解释
24	FALSE	现存最早的大量 (extensive) 天气记录来自 19 世纪。	第 2 段: “There are some long-running chronicles of temperature and air pressure over land dating back to the 17th century ...”; 第 3 段: “By the late 17th century... keeping... regular observations of weather conditions.”	“有一些关于陆地温度和气压的长期记录可追溯到 17 世纪.....”; “到 17 世纪末.....定期记录天气观测。”	题干把“最早的现存大量记录”说成 19 世纪, 但文中明确给出 17 世纪就已有长期/系统记录 (陆地记录 + 17 世纪末航海日志)。因此与原文矛盾 → FALSE。
25	TRUE	风速与航行距离的关系被用来帮助理解 (翻译) 那些描述性词汇。	第 7 段: “This was tested by checking how far the ships sailed each day...”; “...check the sea-miles covered... That gives a measure of the relative wind strength.”	“通过检查船每天航行了多远来测试.....”; “.....核对航行海里数.....从而衡量相对风力强度。”	原文说用“每天航行多远 (距离/速度)”去反推 “fine breeze, moderate” 等词对应的风力强弱, 本质就是用距离 (及速度) — 风力关系来解释 “描述性词汇”。完全一致 → TRUE。
26	TRUE	对同一地区航行的不同船只的日志做了对比。	第 8 段: “...cross-checking with the logs of occasional naval escorts...”; “Pairs of ships... in the same locality... allowing the researchers to check for consistency.”	“.....并与偶尔随行的海军护航船只的日志进行交叉核对.....”; “同一地点的成对船只/编队应有相同记录, 从而让研究者核查一致性。”	题干的关键是 “were made (确实做了比较)”。文中不仅说这种方法 “允许核对”, 还明确写到研究团队在破解术语时进行了 cross-checking (交叉核对), 这就是把不同船只日志进行比较; 且 “same locality” 正对应 “同一地区”。因此信息给得足够 → TRUE。(常见争议点: 有人抓 “should have... allowing” 觉得像 “可以这样做” =NG; 但前半句已用过去式说明他们确实在做 cross-checking, 所以不 NG。)

26 题为什么是 TRUE (以及 NG 的 “陷阱” 在哪里)

题干说 Comparisons were made..., 这里的 were made 表示 “比较这件事已经发生”。因此判断关键不是 “能不能比较”, 而是原文有没有给出 “研究者确实做了对比” 的证据。

很多同学会误判 NG, 通常是因为只盯着这句:

“Pairs of ships... should have the same records, so allowing the researchers to check for consistency.”

看到 should have / allowing, 会觉得这句话是在说 “理论上同一海域的船应该记录一致, 因此研究者可以用来核对”, 但没有明说 “研究者已经核对过”, 于是认为信息不足 → NG。这一点确实很像雅思判断题常见套路: 用 should/can/allow 让你产生 “只是可能性” 的感觉。

但这题决定性的证据其实在同段前一句 (也是最硬的动词):

“...by checking sea-miles covered, and cross-checking with the logs of occasional naval escorts...”

这里的 cross-checking with the logs 不是 “可以做”, 而是作者在叙述研究流程中 “他们就是通过这些步骤最终弄清术语含义” 的实际操作。而 cross-check 的语义就是 “交叉核对/对照验证”, 必然意味着把不同船只的日志放在一起进行比较——这已经满足题干的核心: comparisons were made between logbooks of different vessels。

至于题干里 “in the same area”, 原文后一句的 convoy / same locality 刚好补齐场景: 同一船队、同一地点的船只记录理应一致, 因此研究者才能用它来做一致性核对。也就是说: 前一句提供 “比较行为确实发生 (cross-checking)”, 后一句解释 “为什么可以在同一区域这样比 (same locality + consistency check)”。

所以综合两句: 原文既有 “已发生的比较动作” (cross-checking), 又有 “同一区域核对” 的语义支撑 (same locality/convoy), 因此 26 = TRUE。