

军队院校重点网络课程《军事英语》配套教材

新军事英语

总主编：张亚非
本册主编：成凤圣

气象与海洋水文

METEOROLOGY AND OCEANOGRAPHY

A
New
Course
Book
for
English
in
Military
Studies

外语教学与研究出版社

FOREIGN LANGUAGE TEACHING AND RESEARCH PRESS

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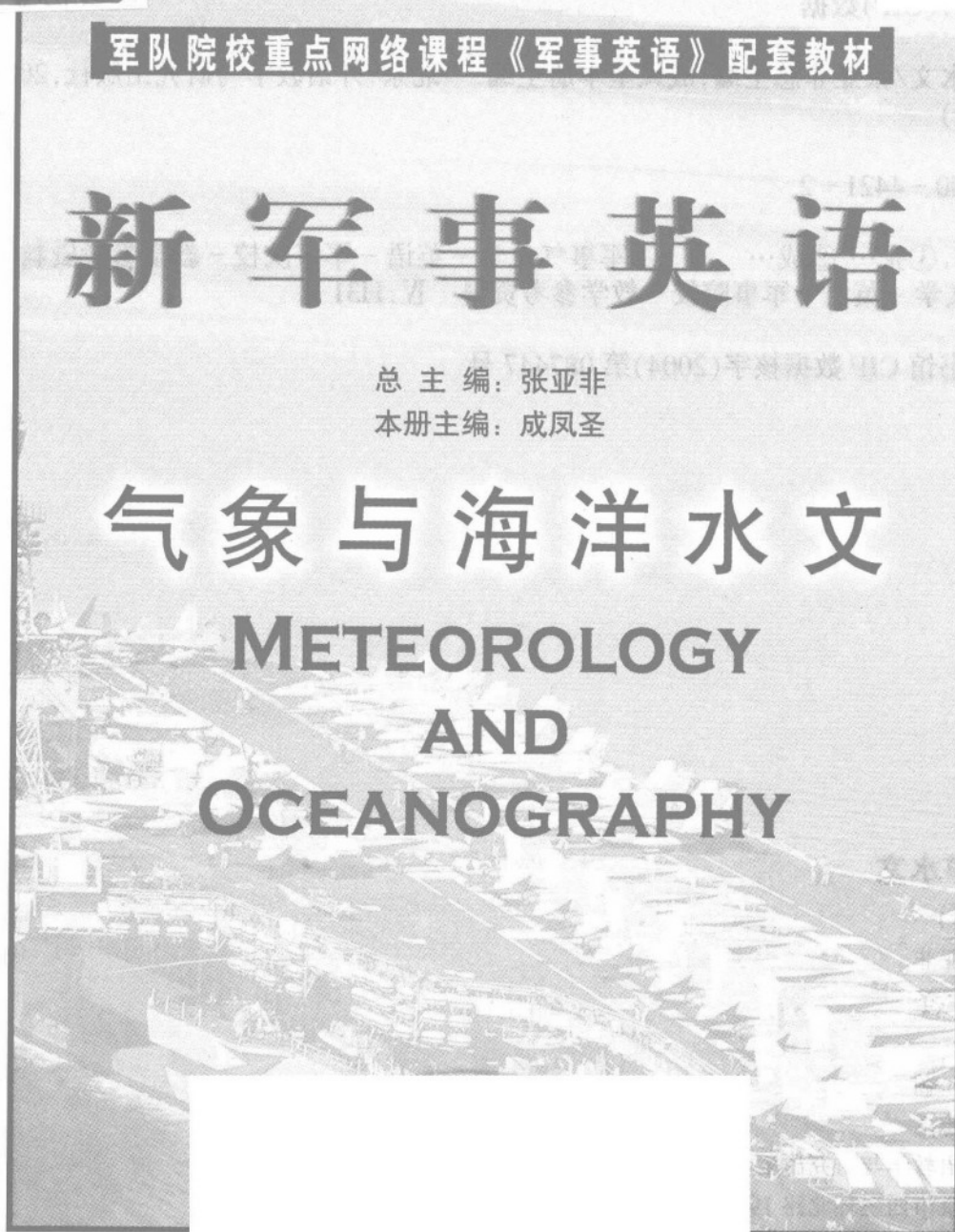
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序

Foreword

当今世界，新军事变革的浪潮汹涌澎湃。这是随着人类社会由工业时代走向信息时代，在军事领域中所引发的一场划时代的革命，其规模之大、内涵之新、力度之强、影响之深，是历史上任何一次军事变革都无法比拟的。国际上的经济全球化和政治多极化，使世界战略格局处于重大的调整与力量重组之中。积极迎接世界新军事变革的挑战，努力推进中国特色军事变革的步伐，是建设一支革命化、知识化、现代化军队的根本要求，是当代中国军人的崇高历史责任。

江泽民主席深刻指出：迎接新的军事发展的挑战，关键在人才。在新的军事变革中，高技术武器装备的广泛应用并没有改变人在战争中的地位与作用。相反，它对军人的综合素质，特别是文化素养、智力水平和科技素质，提出了更高的要求。为此，世界各发达国家都十分重视优化官兵的知识结构，提高官兵的综合素质，以更好地适应未来战争的需要。这一客观背景，迫切要求我们紧扣时代的脉搏，加大我军军事教育改革的力度，大力培养和造就高素质的新型军事人才，推进军队和国防现代化建设的发展。

改革开放以来，我国在世界上的影响力不断增大。我们的国防与军队建设，必须适应时代的变迁，加快走向世界的步伐。学习外语，学好外语，是借助语言之桥梁，汲取世界先进文化营养，跟踪世界新军事变革前沿动态，借鉴别国特别是军事强国军队建设经验的一条重要途径。它对于我们开拓视野、增长见识、启迪思维、激发创新，全面提高我军官兵的综合素质，有着不可替代的作用。

在新时期军队建设方针的指引下，我军院校教育中的外语教学在过去的二十多年里取得了长足的进步，结出了丰硕的果实。外语尤其是英语作为我们面向世界的一种交流工具，不仅在日常的对外交往中得到广泛应用，而且在社会、科技、军事、外交等专门领域的国际交流中也发挥着重要作用。外语的通用性与专业性这一客观性质与特点，要求我们面对世界军事知识海洋和信息洪流，在我军院校的外语教学中，坚定不移地走改革创新之路。在坚持掌握语言基础知识、提高外语应用能力的同时，更好地将外语教学与军事知识的学习有机地结合在一起，使我们培养的军事人才在思维层次上，能够更具开放性、国际性和战略性；在外语知识与能力上，能够通专并蓄，体现鲜明的军事特色；在素质结构上，能够更加贴近部队建设的实际需要，适应中国特色军事变革的时代要求。

“军事英语”集外语学习和军事知识为一体，通过英语这一重要的国际化语言载体，学习军事思想、军事科技、军事装备、军事训练等专门知识与信息，培养借助英语满足我军对外借鉴、学习、宣传、交流等实际需要的能力，是我军新时期军事教育的一个重要组成部分。然而，由于军事专业英语教学起步较晚，军事领域所涉专业门类众多，现代军事思想日新月异，军事科技突飞猛进，至今尚无一套选材新、覆盖面广的军事英语系列教材。在总参军训部的指导下，由解放军理工大学、解放军国际关系学院、解放军外国语学院

院等院校编写的《新军事英语》系列教程，填补了军队院校外语教学上的这一空白，满足了当前军事英语教学的迫切需要。这对于贯彻落实新时期军队院校教学改革的精神，促进院校和部队人才培养质量的提高，无疑是一件十分有意义的工作。

是为序。



（熊光楷）

2003年9月18日

前言

Preface

为适应军队现代化建设的要求,推进军队院校的教学改革,更新教学内容,提高教学质量,我们根据当前军队院校军事专业英语教学的实际需要编写了这套《新军事英语》系列教程。

在新时期军队建设思想的指引下,英语教学在军队院校的学历教育和军官的继续教育中占有十分突出的地位,在培养高素质新型军事人才和做好军事斗争准备方面发挥着极其重要的作用。经过多年的努力,军队院校英语教学的基础阶段,在教学大纲、课程计划、教材建设、教学手段等方面,都已步入正轨,逐步完善,教学质量稳步提高。然而,随着教学改革的不断深入,院校学历教育中“英语教学四年不断线”的要求日显迫切,军官继续教育对英语知识与英语能力的要求逐渐提高,继基础英语教学之后,在院校学历教育的专业学习阶段和部队各类干部的继续教育阶段急需开展面向军事应用领域的专业英语教学,以更好地满足军队现代化建设对军事人才英语知识与英语能力的需求。

为此,我们编写了《新军事英语》系列教程。本教程作为军队院校学历教育和军官继续教育的重要内容之一,旨在培养和提高使用者以英语为工具,在当代军事理论与思想、军事指挥与作战、军事科学与技术、军事教育与训练等领域获取、处理与交流信息的能力。同时,本教程以英语为窗口,能够增强我军院校学员和部队官兵对当今世界军事发展和外军的了解,提高军事外语水平,以适应有中国特色的军事变革的总体要求。

本教程按目前军队院校所设置的学科专业,经过适当组合,分为若干分册,构成一个互相联系、相对独立的教材体系。在编写上,我们力求使其体现现代英语在军事领域中使用的特点与规律,反映当今军事领域的发展动态,满足不同军事专业英语教学的需要,以适应新时期军队建设对高素质的新型军事人才的要求。

本教程以英语在军事领域中的应用为主要内容,突出提高使用者的军事英语知识和培养在军事领域中应用英语的能力。本教程适合完成基础英语学习、通过大学英语四级考试、具有中级英语水平的军队院校学员使用,也适合具有同等英语水平的部队官兵使用。本教程可作为正式教材,用于军队院校的专业英语教学、部队指挥与科技干部的继续教育以及部队官兵科技练兵的英语教学与培训,也可作为普及军事专业知识的中级英语读物。

本教程还可作为总参军训部组织制作的军队院校重点网络课程《军事英语》的配套教材使用。

本教程中的课文一般都选自英美等国的素材,为保持其原有语言特点和整体风格,我们未作改写。有的课文所表达的观点,难免受其作者社会及文化背景的影响,反映西方国家的看法,请读者在阅读时注意审辨。

对我们而言,编写一套涉及多个专业领域的军事英语教材是一次新的尝试。由于我们缺乏经验,水平有限,教程内容中的错误与疏漏在所难免。欢迎大家在使用时给予指正,帮助我们完善《新军事英语》系列教程。

编者

2003年9月

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Part I

Weather Support in the Battlefield

Lesson

1

The Meteorological Impact on Conventional Warfare

Military Terms in the Text

maneuver	调动; 机动; 演习	escort	护航
footing	立足点; 编制	carrier battle group	航母战斗群
weapon performance	武器性能	catapult	弹射器
munitions (ammunition)	弹药	underway replenishment	海上补给
arming	装引信; 解除保险	surface ship	水面舰艇
effective range	有效射程	load (弹药的)	一次装入(量)
free rocket	无控火箭	transfer line (本文指)	货物输送线; 火力转移线
guided missile	导弹	seaworthiness	适航性
ballistic trajectory	弹道飞行轨迹	visual flight regulation	目视飞行规则
artillery round	炮弹	instrument flight regulation	仪表飞行规则
visual surveillance	目力监视	socked-in (因天气恶劣)	机场关闭
target acquisition	目标搜索	ground	停飞
forward observer	前方观察员	outpost	前哨
line-of-sight weapon	视距瞄准型武器	close air support	近距离空中支援
antitank missile	反坦克导弹	gunship	武装运输机
sharpshooter	一等射手	nap-of-the-earth flight	超低空飞行
exhaust plume (导弹、炮弹的)	排气火舌	cruise ship	巡洋舰
armored vehicle	装甲车	psychological operation	心理作战
sustained rate of fire	持续射击速率	airborne division	空降师
mortar base plate	迫击炮的炮盘	abort	非因敌人行动而引起的中途返航; 中断飞行
hand grenade	手榴弹		
aircraft carrier	航空母舰		

Text

The Meteorological Impact on Conventional Warfare*

Impact on Conventional Land Warfare

1 Traffic Ability. Information about the possible impact of precipitation and temperature on traffic ability deserves a high priority, because ground forces

* Excerpts from *Professional English for Undergraduates Studies in Meteorology*, by Professor Zhang

Donghua in July, 1997.

cannot maneuver effectively when the footing is unfriendly. They move fast across open terrain that is frozen solid, but mud stalls men and machines.

2 **Weapon Performance.** Atmospheric phenomena significantly affect the performance of weapon systems and munitions. Pressure changes and relative humidity alter barometric fusing and arming calculations, dense air reduces maximum effective ranges, gusty crosswinds near Earth's surface make free rockets and guided missiles wobble erratically, while winds aloft influence ballistic trajectories. Rain-soaked soils deaden artillery rounds, but frozen ground increases fragmentation from contact-fused shells. Dense fog, which degrades visual surveillance and target acquisition capabilities, also makes life difficult for forward observers, whose mission is to adjust artillery fire. Line-of-sight weapons, such as tube-launched, optically tracked, wire-guided (TOW) antitank missiles, are worthless where visibility is very limited. Exhaust plumes that follow TOWs moreover form ice fog in cold, damp air, which conceals targets from gunners even on clear days, and reveals firing positions to enemy sharpshooters. Scorching heat makes armored vehicles too hot to touch without gloves, reduces sustained rates of fire for automatic weapons, artillery, and tank guns, and renders white phosphorus ammunition unstable. ❶ Brutal cold has quite different effects, where mortar base plates broke on the rock hard ground and hand grenades became unpopular, because users who removed mittens to pull the pin suffered frostbitten fingers if they held the cold metal for more than a moment.



Impact on Conventional Surface Naval Warfare

3 Winds, towering seas, and frigid temperatures influence naval operations more than any other atmospheric factors.

4 **Aircraft Carriers.** Large aircraft carriers are less affected than their escorts by heavy seas¹ and strong winds. Small wonder², therefore, that US carrier battle

1. heavy seas: 风涛海面

2. small wonder: 不足为奇

groups plying back and forth³ between Bosnia⁴ and Norfolk⁵ Naval Base, Virginia⁶, in August 1995 took special pains to⁷ bypass three hurricanes that then were active in the Atlantic Ocean⁸. Less than gale force winds demand additional tie downs⁹ for fixed-wing aircraft and helicopters, repositioning becomes a complex proposition when decks are slick, and fighters may not be able to spread folding wings until they reach catapults. Underway replenishment, always a delicate business, becomes additionally hazardous in rough weather, when waves may wash away loads suspended on transfer lines and cargo handling on deck becomes infinitely more difficult. Foul weather procedures consequently emphasize smaller than normal loads, longer than normal transfer times, and greater than normal distances between support ships and recipients to prevent collisions.

5 Other Surface Ships. Persistent heavy weather endangers surface ship stability, buoyancy, power, and structural integrity. ② Experienced helmsmen have a hard time maintaining course when beset by sharp pitching, swaying, surging, yawing, and heaving, but repeated wide-angle rolls from starboard to port and back again are exceptionally dangerous, because most surface combatants and support ships may capsize if efforts to restore stability fail. Conditions are worst when ships steer a course that parallels the storm path and their roll period coincides with the period between wave peaks and troughs. Paths, perpendicular to the onrushing sea minimize roll but maximize pitch, which alternately causes bows to slam and propellers to beat thin air at high speed and engineers take special pains to maintain propulsive power, because wallowing ships are helpless.

6 Thick layers of ice can quickly form on most parts of the ship when salt spray hits ship surfaces at subfreezing temperatures. Two feet or more totaling several hundred tons may accumulate within 24 hours in very cold climates, depending on wind velocities and wave heights. Seaworthiness and combat effectiveness then suffer from top heaviness and increased wind resistance.

Impact on Conventional Air Warfare

7 Military aviators almost everywhere in peacetime must comply with visual and instrument flight regulations (VFR/IFR). VFR limitations for land-based, fixed-wing US military aircraft generally prescribe a ceiling of at least 1,200 feet (366 meters), visibility of 3 statute miles (4.8 kilometers) at destinations as well as departure airfields.

3. plying back and forth: 来往的

4. Bosnia: 波斯尼亚

5. Norfolk: 诺福克 (美国弗吉尼亚州一地名)

6. Virginia: (美) 弗吉尼亚州

7. to take special pains to do: 极难对付

8. Atlantic Ocean: 大西洋

9. tie downs: 系留索

Lower ceilings or poorer visibility obligate pilots to file IFR flight plans. VFR for land-based helicopters are more lenient. US aircraft carrier captains, who generally determine whether weather is agreeable for takeoffs and landings, consider prospects for successful recovery at suitable bases ashore as well as aboard the mother ship. All armed forces shelve peacetime restrictions when combat or other high priority operations commence, because assigned missions then take precedence over¹⁰ safety.

8 Clouds and Fog. Technological improvements make life much easier for modern airmen, but “socked-in” airports and low ceilings still ground them occasionally regardless of pressing requirements, and low ceilings sometimes obscure approaches to target areas. US and allied troops at highland outposts in Vietnam¹¹, for example, lacked close air support (CAS), assistance from gunship, and aerial resupply for all or most of many days during rainy seasons. High-performance, fixed-wing CAS aircraft at such times were limited to low-level, low-angle avenues that maximized their exposure to enemy air defense weapons and small arms.

9 Barometric Pressures. All aviators set altimeters to reflect barometric pressure at departure airfields before they take off and update readings before they land so they always know how high they are above land or water. Accurate indications are most important for military airmen whose missions demand low-level or nap-of-the-earth flights through mountainous terrain under blacked out¹² or murky weather conditions. ③ Barometric pressures, together with temperatures and humidity, determine air density, which limits the ability of any given type aircraft to get off the ground with any given load and thereafter perform effectively. Heavy air¹³ that is common on cold days at sea level provides the best possible lift, but density decreases when thermometers climb. Altitude thins Earth’s atmosphere so rapidly that regulations require US military air crews to use supplemental oxygen when cabin altitude exceeds 10,000 feet (3,048 meters).

10 Winds. Wind velocities and vectors strongly affect military air operations in many ways that civilian fliers seldom experience. Expeditionary airfield users cannot switch runways every time strong crosswinds develop because they possess only one runway, so prevailing winds dictate the orientation of these fields. ④ No ocean liner or cruise ship ever deliberately heads toward a storm, as carrier commanding officers often do in search of sufficient “wind over deck” to launch

10. to take precedence over: 比……重要
11. Vietnam: 越南

12. to black out: 灯火管制
13. heavy air: 低压空气, 压缩空气

and recover fixed-wing aircraft. Psychological operations (PSYOP) leaflets are worthless when winds blow in the wrong direction. Paratroopers of the 82nd Airborne Division had to accomplish their missions in July 1943 despite 35-mile-an-hour winds that scattered them across Sicily¹⁴ and slammed them against stone walls in the dead of night. ⑤ Efforts to rescue US hostages that Iranian radicals held in Teheran¹⁵ (1980) failed when three of the eight mission-essential helicopters aborted, one because wind-blown dust storms turned it back.

New Words

meteorological /ˌmi:tɪərə'lɒdʒɪkəl/ *a.* 气象的
precipitation /ˌpriːsɪpɪ'teɪʃən/ *n.* 降水
stall /stɔːl/ *vt.* 迫使或被迫停止移动或前进
humidity /hjuː'mɪdətɪ/ *n.* 湿度
barometric /ˌbærəʊ'metrɪk/ *a.* 气压的
gusty /'gʌstɪ/ *a.* 有阵风的; 起大风的
crosswind /'krɒswɪnd/ *n.* 侧风
wobble /'wɒbəl/ *vi.* 颤动; 摇摆
erratically /ɪ'rætɪkəlɪ/ *ad.* 飘忽不定地
aloft /ə'lɒft/ *ad.* 在高空; 在上面
degrade /dɪ'greɪd/ *vt.* 降低; 降级
damp /dæmp/ *a.* 潮湿的
scorching /'skɔːtʃɪŋ/ *a.* 酷热的
phosphorus /'fɒsfərəs/ *n.* 磷
mitten /'mɪtən/ *n.* 手套
pin /pɪn/ *n.* 销, 栓
frostbitten /'frɒst,bɪtən/ *a.* 冻伤的
towering /'tauəɪŋ/ *a.* 激烈的; 极大的
frigid /'frɪdʒɪd/ *a.* 严寒的
proposition /ˌprɒpə'zɪʃən/ *n.* (要对付的或须注意的) 事情, 问题
recipient /rɪ'sɪpɪənt/ *n.* 接受者
buoyancy /'bɔɪənsɪ/ *n.* 浮力
integrity /ɪn'tegrətɪ/ *n.* 完整性
helmsman /'helmzmən/ *n.* 操舵员, 舵手
sway /sweɪ/ *vi.* 摇摆

surge /sɜːdʒ/ *vi.* 波涛汹涌; 澎湃
yaw /jɔː/ *vi.* 偏航
starboard /'stɑːbəd/ *n.* (船或飞机的) 右舷, 右侧
port /pɔːt/ *n.* (船或飞机的) 左舷, 左侧
capsize /kæp'saɪz/ *vt.* (船) 倾覆
trough /traʊf/ *n.* 波谷
perpendicular /ˌpɜːpən'dɪkjələ(r)/ *a.* 垂直的
onrushing /'ɒnɪrʌʃɪŋ/ *a.* 猛冲的; 汹涌的
propeller /prəʊ'pelə(r)/ *n.* 螺旋桨
spray /spreɪ/ *n.* 浪花
velocity /vɪ'lɒsətɪ/ *n.* 风速; 速度; 速率
ceiling /'siːlɪŋ/ *n.* 云幕, 云幕; 云幕底部高度; 垂直能见度
lenient /'liːnjənt/ *a.* 不严格的, 宽松的
shelve /ʃelv/ *vt.* 搁下; 搁置
commence /kə'mens/ *vi.* 开始
murky /'mɜːki/ *a.* 昏暗的
vector /'vektə(r)/ *n.* 风向
expeditionary /ˌeksprɪ'dɪʃənəri/ *a.* 远征的; 探险的
prevailing /prɪ'veɪlɪŋ/ *a.* 盛行的; 占优势的
dictate /dɪk'teɪt/ *vt.* 决定; 支配
hostage /'hɒstɪdʒ/ *n.* 人质
radical /'rædɪkəl/ *n.* 激进分子

14. Sicily: (意大利) 西西里 (岛)

15. Teheran: 德黑兰 (伊朗首都)

Notes

- ① Brutal cold has quite different effects, where mortar base plates broke on the rock hard ground and hand grenades became unpopular, because users who removed mittens to pull the pin suffered frostbitten fingers if they held the cold metal for more than a moment.

这是一个复合句，因含有多个从句，所以句子较长且复杂。

(1) “where” 引导的是非限制性定语从句。

(2) “because ... moment” 是原因状语从句。在这个从句中，“who ... fingers” 是定语从句，修饰 “users”。

[译文] 酷寒则带来截然不同的影响。迫击炮的炮盘在坚硬的地面上被震坏，手榴弹也不常用了，因为投掷者在摘下手套拉引信的时候，握着冰冷的金属柄的手很快就会被冻伤。

- ② Experienced helmsmen have a hard time maintaining course when beset by sharp pitching, swaying, surging, yawing, and heaving, but repeated wide-angle rolls from starboard to port and back again are exceptionally dangerous, because most surface combatants and support ships may capsize if efforts to restore stability fail.

(1) 此句结构比较复杂，其主体部分是 “Experienced helmsmen have ..., but repeated wide-angle rolls ... are ...”，即由 “but” 连接的两个并列句。

(2) “have a hard time maintaining ...” 是一个常用句型，其基本形式是 “have a ... time doing ...”。“time” 之前一般使用 “good, difficult, hard” 等形容词修饰，意为 “做……很愉快（艰难、困难）”。

(3) “when beset by ...” 是一个省略的时间状语从句，其完整形式为 “when they (helmsmen) are beset by ...”。

(4) “because” 引导一个原因状语从句，解释说明 “are exceptionally dangerous”。

[译文] 即使是有经验的舵手也很难在波涛汹涌的海面上使剧烈颠簸的船只保持平衡，使其不偏离航线。而船只频繁地大幅度地左右摇摆格外危险，因为如果无法使船只恢复稳定和平衡，大部分海上战斗员和补给船只就会被海水倾覆。

- ③ Barometric pressures, together with temperatures and humidity, determine air density, which limits the ability of any given type aircraft to get off the ground with any given load and thereafter perform effectively.

“which” 引导的是非限制性定语从句，修饰 “air density”。

[译文] 空气密度是由气压、温度和湿度决定的，它对任何型号、任何负载的飞机的起飞和飞行都有一定的影响。

- ④ No ocean liner or cruise ship ever deliberately heads toward a storm, as carrier commanding officers often do in search of sufficient “wind over deck” to launch and recover fixed-wing aircraft.