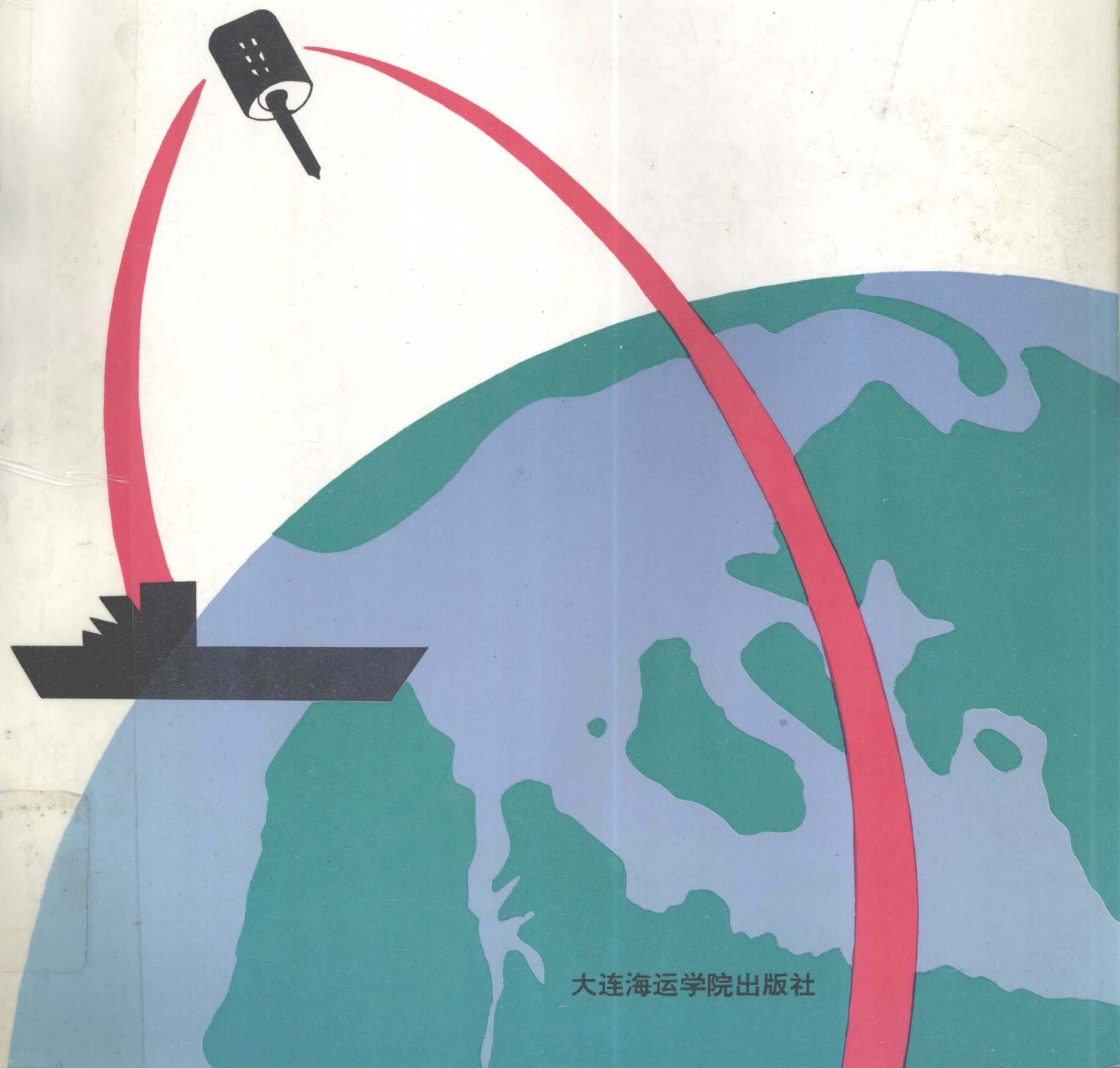
GMDSS无线电人员适任证书培训教材

# GMDSS 通信英语

张仁平　杜长顺　编



大连海运学院出版社

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## 内 容 简 介

本书紧密围绕《1993年GMDSS无线电人员考试大纲》编写，比较全面、系统地介绍了GMDSS各个分系统的组成及工作方式，同时也对相应的国际公约进行了必要的阐述，并增加了写作部分。

本书是GMDSS无线电人员英语考试的指定教材，对院校GMDSS专业和驾通合一专业的教师、学生及其它人员也有一定的参考价值。

# 更 名 启 事

经国家教委批准，大连海运学院已更名为大连海事大学。经国家新闻出版署批准，大连海运学院出版社随之更名为大连海事大学出版社。

# 前　言

根据《1993年GMDSS无线电人员考试大纲》，大连船员考试中心，会同大连地区有关院校组织编写了本教材，紧密配合即将开展的GMDSS无线电人员的英语考试工作。

本教材比较全面、系统地介绍GMDSS各个分系统的组成及工作方式，同时也对相应的国际公约进行了必要的阐述；并对文中的单词及重要的语句进行了一定的说明。本教材不仅可作为GMDSS无线电人员培训、考试使用，而且可供现在职船岸报务员自学使用。对院校GMDSS专业和驾通合一专业的教师、学生和其它人员也有一定的参考价值。

本书由张仁平、杜长顺编写，杨广治、张绪吾、张仲超、刘文光承担了本书的审校工作。

承蒙交通部水上安全监督局、交通部通信中心、大连海上安全监督局以及大连海运学院出版社有关领导的大力支持和关心，使本书得以顺利编写；水监局郭洁平、徐增祥、陈鹏、杜力国等同志为本书提供了资料并给予了热情鼓励和支持；大连海事大学任茂东老师对本书提出了许多宝贵意见，在此一并致谢。

由于编写时间仓促，教材涉及范围广泛，加上编者水平所限，错漏在所难免，恳请读者批评指正。

**编　者**

一九九三年十月于大连

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# CHAPTER 1

# GLOBAL MARITIME DISTRESS AND SAFETY SYSTEM (GMDSS)

# 全球海上遇险安全系统

## INTRODUCTION

Since it was first used at sea more than 90 years ago, radio has helped to save the lives of tens of thousands of people. But, even so, the existing system has a number of basic flaws which cannot be overcome using traditional, terrestrial techniques. For example:

——Reception difficulties: The quality of some messages can be adversely affected by changes in propagation conditions.

——Uncertainty of the message being received: the maximum range of the telegraphy and telephony equipment required by current regulations is only about 250km. A message transmitted from a ship in mid—ocean is therefore unlikely to be received on shore. The service is primarily a ship—to—ship service and depends on another ship being within range. Rescue, in fact, is often a matter of chance.

——The need for specialization: Morse telegraphy, the basis of the existing service, requires many years of training and practice to perfect. If something happens to the radio operator, it is unlikely that anyone else on board will be able to use the telegraphy equipment.

——Congestion: The development of radio on land means that competition for air space is fierce. There is little chance of the frequencies allocated for maritime purposes being increased.

These deficiencies were becoming apparent in the early 1960s, shortly after IMO met for the first time. Then, in 1962, an event occurred which was to transform global communications: Telstar, the world's first communication satellite, was put into orbit.

## PART 1 THE INTRODUCTION OF SATELLITE COMMUNICATIONS

## 卫星通信的引进

* Among the drawbacks to the use of radio is the fact that some radio waves travel in

straight lines. Because the earth is round, this means that a message does not follow the earth' s curvature but eventually heads off into space. Others are reflected from the ionosphere and the quality of the message can be affected by climatic and other conditions.

Satellites, situated far above the earth' s surface, enable this problem to be overcome. The message is sent from earth to the satellite and then redirected to the desired location back on the earth. * Not only is the range of the message extended but the quality of reception is improved.

Although for most people satellites tend to be associated with television and entertainment, they have many other applications, and IMO was quick to appreciate the possibilities they offered world shipping.

As early as February 1966, IMO' s Maritime Safety Committee (MSC) decided to study the operational requirements for a satellite communications system devoted to maritime purposes. the following year, the World Administrative Radio Conference convened by the International Telecommunication Union (ITU) — the United Nations agency responsible for the Radio Regulations among other things — invited IMO to continue this work.

By 1971, IMO' s studies had advanced sufficiently for it to submit two recommendations to the ITU conference on space telecommunications. They specified, among other things, that maritime satellite communications could be used for the exchange of information by telephony and telegraphy, including data transmissions, direct printing and facsimile.

In particular, satellite communications offered great advantages in alerting and locating ships in cases of distress or emergency; facilitating search and rescue operations; issuing safety and urgency messages; and a number of other functions such as automatic reporting of ships' positions, position determination, traffic guidance, automatic navigation warnings and weather routeing. In addition, maritime satellite communications promised to be of great use in the operation and administration of ships.

A panel of experts which had been holding regular meetings on the subject for the previous two years identified the following reasons for establishing such a system:

——to improve distress, urgency and safety communications;

——to relieve existing congestion in the medium—frequency (MF) and high—frequency (HF) bands;

——to improve reliability, quality and speed of communications;

——to improve geographical coverage and ensure continuous availability of services;

—— to provide more reliable circuits and permit automation of radiotelephony and teleprinters;

——to cater for services not possible at present in the MF and HF bands, such as high —speed data transmission;

Not surprisingly, IMO Assembly adopted two resolutions which were to form the basis of the Organization' s future work in this area. The first, resolution A. 283(VIII), dealing with the development of the maritime distress system, authorized the MSC to continue its

work in improving distress communications in the "near future" and in developing a "distant future" distress system. It was agreed that this system should evolve naturally and should include improved telecommunications as they became available.

It was so recognized that a maritime satellite organization — already being developed by IMO — would form an important part of the system, and the second resolution agreed to call a conference to establish this organization. The conference first met in 1975 and held three sessions, the last of which, in 1976, resulted in the adoption of the Convention on the Establishment of the International Maritime Satellite Organization (INMARSAT).

* The establishment of INMARSAT as an independent organization marked a great step forward for maritime radiocommunications. For the first time, shipping had a communications system reserved solely for its own use and designed for its own purposes. The INMARSAT system offered advantages which could not be provided by terrestrial radiocommunications.

The present INMARSAT system utilizes geostationary satellites positioned above the Atlantic Ocean(East and West), the Indian Ocean and the Pacific Ocean. From these four positions, satellites virtually cover the globe as far north and south as 75°. Only the polar regions, where shipping is infrequent, are not covered.

One of the important advantages of the INMARSAT system, from the ship owners' point of view, is the business opportunity the system provides. The INMARSAT system not only provides good — quality radiotelephone conversations, it also provides a service for telex, facsimile and high—speed data transmission. Moreover, there is guaranteed privacy of communications between ship and owner — an important point in a commercial operation — whereas terrestrial radio messages can be overheard by anyone with the right receiver. Communications in either direction are simple and in many countries the ship can be contacted by merely dialling the appropriate telephone number.

The system also provides for reception of medical advice and assistance, meteorological reports and weather forecasts, navigational reports and warnings and ship position reports.

From IMO's point of view, INMARSAT's most important function is the provision of improved distress and safety communications. By using the INMARSAT system a ship can send a distress message and know with certainty it will be received.

With the INMARSAT Convention successfully adopted, it was possible to start work in earnest on the development of the "distant future" distress system. The IMO Sub—Committee on Radiocommunications began its work in September 1978 and since then the Sub—committee and its various groups have spent more than 30 meeting—weeks planning the system.

Much of this work has been concerned with developing the necessary amendments to the 1974 SOLAS Convention. This is the most important of all international conventions dealing with maritime safety. Chapter IV, which deals with radiocommunications, is especially relevant.

In 1979, resolution A. 420(XI) was adopted by the IMO Assembly and established IMO

policy for the new system. Its main recommendations were as follows:

——In order to provide an effective link between the international radiotelegraph distress frequency (500kHz) and the radiotelephone distress frequency (2182kHz), all ships subject to the requirements for radiocommunications under SOLAS (basically this means ships of 300 gt and above) should be fitted with radiotelephone equipment and be required to keep a continuous listening watch on 2182kHz.

——SOLAS ships should be fitted with a maritime VHF installation and, where practicable, maintain watch on 156.8MHz (channel 16). This would also increase the possibility of distress messages transmitted by small craft equipped only with VHF equipment being received by larger ships. An amendment to SOLAS requiring VHF to be fitted on all passengers ships and on cargo ships of 300 gt and upwards and to require those ships to keep a continuous listening watch on Channel 16 entered into force in 1984.

——The carriage of emergency position—indicating radio beacons (EPIRBs) should be required. EPIRBs are designed to give an automatic distress signal when a ship sinks suddenly. They are also provided for use in some survival craft for manual operation by survivors.

——A selective calling system should be implemented. This is a system whereby individual ships or groups of ships can be automatically connected with a station that has a message for them and vice versa.

——Narrow—band direct—printing for the promulgation of navigational and meteorological warnings should be introduced.

——Equipment performance should be improved and training should be in compliance with the requirements of the International Convention on Standards of Training, Certification and Watchkeeping for Seafarers, 1978.

The resolution also contains the basic requirements for the GMDSS.

The following radiocommunication systems are used in the GMDSS:

1) the INMARSAT system using automatic calling, radiotelephone, direct—printing telegraphy, satellite EPIRBs and the SafetyNET MSI service;

2) VHF, MF and HF terrestrial systems, using digital selective calling, radiotelephone, direct—printing radiotelegraphy and the NAVTEX and HF MSI services; and

3) the COSPAS—SARSAT system using the 406 MHz polar orbiting satellite EPIRB service.

## New Words

| | | | | | |
|---|---|---|---|---|---|
| flaw | *n.* | 缺陷 | techniques | *n.* | 技术 |
| overcome | *v.* | 克服 | adverse | *a.* | 不利的,有害的 |
| traditional | *a.* | 传统的 | propagation | *n.* | 传播 |
| terrestrial | *a.* | 地面 | perfect | *v.* | 使…熟练,使精通 |