The Agreement was previously published as Miscellaneous No. 12 (1984), Cmnd. 9243

Treaty Series No. 36 (1986)

Agreement

on the Setting Up of an Experimental European Network of Ocean Stations (COST 43)

Brussels, 21 November 1983

[The United Kingdom instrument of ratification was deposited on 31 October 1984 and the Agreement entered into force for the United Kingdom on 1 December 1984]

Presented to Parliament
by the Secretary of State for Foreign and Commonwealth Affairs
by Command of Her Majesty
July 1986

LONDON
HER MAJESTY'S STATIONERY OFFICE
£2.90 net

Cmnd. 9829

AGREEMENT ON THE SETTING UP OF AN EXPERIMENTAL EUROPEAN NETWORK OF OCEAN STATIONS (COST 43)

The contracting parties to this Agreement, hereinafter referred to as "the Parties",

conscious of the need to pursue the co-ordination of their action with a view to setting up an experimental European network of ocean stations for providing meteorological and oceanographic data,

Have agreed as follows:

ARTICLE 1

The contracting parties to this Agreement, hereinafter referred to as "the Parties", shall co-operate in a project, hereinafter referred to as "the project", with a view to setting up an experimental European network of ocean stations (ENOS) for providing meteorological and oceanographic data on a real-time basis.

A description of the project is contained in Annex I.

ARTICLE 2

A Management Committee, hereinafter referred to as "the Committee", composed of one representative of each Party, is hereby established. Each representative may be accompanied by experts or advisers.

The Committee, acting unanimously, shall adopt its rules of procedure, in addition, it shall appoint its Chairman and Vice-Chairman.

At the request of the Parties, the Commission of the European Communities shall provide the Secretariat for the Committee.

At the request of the Parties, the Secretary-General of the Council of the European Communities shall be entrusted with the administration of the costs of co-ordination.

ARTICLE 3

The Committee shall be responsible for co-ordinating the project and in particular shall:

(*a*) make recommendations to the Parties, giving reasons, on any activity relating to the implementation of the property;

(*b*) follow the progress of the work and recommend to the Parties, where appropriate, such changes as may be necessary in the overall direction or the volume of the work being undertaken;

(*c*) take any decisions concerning the activities of the sub-regions referred to in Annex I, the co-ordination of which is necessary to the success of the project;

(*d*) appoint the project leader and define his functions;

(*e*) draw up programme proposals for the possible continuation of the work after this Agreement expires;

(*f*) exchange research results to an extent compatible with adequate safeguards for the interests of the Parties, their competent public authorities or agencies and research contractors, in respect of industrial property rights and confidential material of a commercial nature;

(*g*) publish, annually and at the end of the project, a report containing its conclusions on the results of the operations covered by the project and forward it to the Parties;

(*h*) —draw up the financial regulations applicable to the management;
—adopt its budget annually;
—after examination of the annual administrative accounts decide on the discharge to be given to the Secretary-General of the Council of the European Communities entrusted, according to Article 2, with the adminisration of the costs of co-ordination;

(*i*) examine any problem which may arise from the execution of the project;

(*j*) examine any problem relating to the accession to the Agreement, after its entry into force, by the parties mentioned in Article 8 as well as the conditions for accession.

ARTICLE 4

1. The costs of co-ordination, the total amount of which shall not exceed BF 12 million, shall be divided among the Parties in accordance with a scale based on statistics of the OECD concerning the gross domestic product (GDP) of the Parties for the year 1980. The maximum contributions of all potential parties calculated on the basis of the aforementioned scale are given in Annex II.

2. The parties shall each pay their contributions in four annual instalments. The first instalments shall be payable upon the entry into force of the Agreement and at the latest within three months of that date. Subsequent instalments shall be paid on each anniversary of the entry into force or at the latest within three months of these dates.

Parties acceding under the terms of Article 8.4. shall pay their initial contribution on the date of deposit of their instruments of ratification or at the latest within three months of that date. Subsequent instalments shall be payable on the same dates as those due under the terms of this article or at the latest within three months of these dates.

3. Any delay in the payment of the contribution shall give rise to the payment of interest by the Party concerned at a rate equal to the highest discount rate obtaining in the Parties on the due date. The rate shall be increased by 0·25 of a percentage point for each month of delay. The increased rate shall be applied to the entire period of delay. However, such interest shall be chargeable only if payment is effected more than three months after the issue of a call for funds by the Secretariat General of the Council of the European Communities.

ARTICLE 5

1. The Parties shall require their establishments and contractors to notify them, for the information of the Committee, of previous commitments and industrial property rights of which they are aware and which might hinder the performance of the work covered by this Agreement.

2. Without prejudice to the application of national law, each Party shall ensure that the owners (falling within its jurisdiction) of industrial property rights and technical information resulting from work assigned to them will be under an obligation, if so requested by another Party, to grant that Party, or a third party nominated by that Party, a licence in respect of those industrial property rights or that technical information and will be under an obligation to supply the technical know-how necessary for use of the licence where the grant of the licence is requested:

—for the performance of work covered by this Agreement; or

—for setting up ocean stations for the provision of meteorological and oceanographic data.

Such licences shall be granted on fair and reasonable terms having regard to commercial usage.

3. The Parties shall accordingly ensure the inclusion in contracts for work covered by this Agreement of conditions enabling the licences referred to in paragraph 2 to be granted.

4. The Parties shall make every effort, in particular by the inclusion of appropriate conditions in contracts for work covered by this Agreement, to make provision on fair and reasonable terms and having regard to commercial usage for the licences referred to in paragraph 2 to be extended to industrial property rights notified in accordance with paragraph 1 and to prior technical know-how owned or controlled by the contractor, insofar as use of the said licences would not otherwise be possible. Where the contractor is unable to agree to such an extension, the case shall be submitted to the Committee, before the contract is entered into, so that the Committee can state its views on the matter.

5. The Parties shall take any steps necessary to ensure that the fulfilment of the obligations laid down in paragraphs 1 to 4 is not affected by any subsequent transfer of the industrial property rights, technical information or

technical know-how. Any transfer of industrial property rights shall be notified to the Committee.

6. If a Party terminates its participation in this Agreement, rights of use which it has granted or is obliged to grant or has obtained in application of paragraphs 2 and 4 and which concern the results of the work carried out up to the date when the said Party terminates its participation, shall continue thereafter, on the conditions laid down in the relevant contract or contracts.

7. The rights and obligations set out in paragraphs 1 to 6 shall continue to apply after this Agreement expires. They shall apply to industrial property rights as long as these remain in force and to unprotected technical information or technical know-how until such time as they pass into the public domain other than through disclosure by the licensee.

ARTICLE 6

The Parties shall apply the provisions of Annex III on the legal status of Ocean Data Acquisition Systems (ODAS).

The Annexes to Annex III may be subject to review independently of the Articles on the legal status of ODAS.

ARTICLE 7

The Parties shall consult each other:

—at the request of one of them, on any problems posed by the implementation of this Agreement;

—in the event of withdrawal by one of them, on the continuance of the project.

ARTICLE 8

1. This Agreement shall be open for signature by the States and by the European Communities which took part in the ministerial conference held in Brussels on 22 and 23 November 1971, and by the Republic of Iceland until it enters into force in accordance with paragraph 3. Any of the foregoing which does not sign this Agreement within the said period may accede to it subject to the unanimous consent of the Committee which may impose conditions therefor. Instruments of accession shall be deposited with the Secretary-General of the Council of the European Communities. The Agreement shall enter into force for the acceding party on the date of deposit of such instrument.

2. This Agreement shall be subject to ratification or acceptance by the Signatories. Instruments of ratification or acceptance shall be deposited with the Secretary-General of the Council of the European Communities.

3. This Agreement shall enter into force on the first day of the second month after the date on which seven of the Signatories have deposited their instruments of ratification or acceptance[1].

[1] The Agreement entered into force on 1 December 1984.

4. For Signatories whose instruments of ratification or acceptance are deposited subsequent to the entry into force of this Agreement, it shall enter into force on the date of the deposit of such instrument.

5. Signatories which have not deposited their instruments of ratification or acceptance at the time of the entry into force of this Agreement may take part in the work of the Committee without voting rights for a period of six months after the date of entry into force.

6. The Secretary-General of the Council of the European Communities shall notify all Signatories and acceding States of the date of the deposit of instruments of ratification, acceptance or accession to this Agreement and the date of its entry into force and shall forward all other notices which he has received under the Agreement.

ARTICLE 9

Any Party may give notice of its withdrawal from the Agreement two years after its entry into force by written notification to the Secretary-General of the Council of the European Communities. Such withdrawal shall take effect one year from the date of the receipt by the Secretary-General of the Council of the European Communities of this notification.

ARTICLE 10

This Agreement shall remain in force for four years. If the project is not completed within that time the Parties may agree to prolong it in order to complete the project.

ARTICLE 11

This Agreement, of which the French and English texts are equally authentic, shall be deposited with the General Secretariat of the Council of the European Communities, which shall transmit a certified copy to each of the Parties.

Done at Brussels on the twenty first day of November in the year one thousand nine hundred and eighty-three.

SIGNATURES, COMPLETION OF PROCEDURES AND RATIFICATIONS

State	*Date of signature*	*Date of deposit of instrument of ratification or notification of completion of procedures (CP)*
Belgium	21 Nov 1983	21 Nov 1983(CP)
Denmark	21 Nov 1983	2 Mar 1984

Finland	21 Nov 1983	21 Feb 1984
France	15 Dec 1983	20 Aug 1985
Iceland	16 Dec 1983	21 Mar 1985
Netherlands	21 Nov 1983	21 June 1984
Norway	21 Nov 1983	21 Nov 1983(CP)
Portugal	3 Apr 1984	
Spain	1 Mar 1984	12 Sept 1985
Sweden	21 Nov 1983	13 July 1984(CP)
United Kingdom	21 Nov 1983	31 Oct 1984

ACCESSIONS

State	*Date*
Ireland, Republic of	19 Apr 1985

ANNEX I

Description of the Project

I. INTRODUCTION

1.1. *The Project*

The aim of this extension of COST Project 43 is to complete Phase II of the original project plan which was to set up an experimental European network of ocean stations (ENOS) and, taking into account the interest shown by the users, form an opinion on the extent and progress of the integration of the experimental network into an operational and standardized network covering the whole of the European region.

At the same time the experimental work on evaluation, testing and further development of existing components such as sensors, structures and transmission systems carried out under Phase I of the project will be continued wherever possible.

1.2. *General considerations*

The thermodynamic processes in the ocean and the atmosphere above it are closely interdependent. Meteorological observations made at sea therefore must include data from the upper ocean and oceanographic observations must include data from the lower armosphere.

The ocean and the atmosphere are both subject to continuous variation in space and time. A detailed and continuous supply of data is therefore necessary to monitor maritime environmental conditions. Meteorological and related oceanographic predictions are now based largely upon the integration of large and complex numerical models which are often strongly dependent for their outcome on the quality of the initial observational data from which the integration proceeds. The specification of the boundary conditions associated with the numerical models of both meteorology and oceanography also requires observations of adequate spatial and temporal frequency. Other scientific activities which benefit from these data would be the verification of predictions (hind casting) and the subsequent further development of the models, and the provision of ground truth data against which to evaluate remotely sensed measurements such as those obtained from satellites.

A relatively dense net of meteorological stations already covers the European continent but the ocean is not adequately covered. Ocean weather-ships-stations occupy selected positions but they are inadequate in number and under threat of withdrawal for financial reasons.

Ocean data acquisition systems (ODAS) are suggested as a contribution which could partially fill this oceanic gap in the meteorological observing station network.

Most ocean phenomena, except those directly related to tidal forces, are very variable. For this reason a reliable and sufficiantly detailed prediction of ocean phenomena cannot be worked out on the basis of the statistical analysis of old time-series.

At the same time there is an increasing demand for ocean data, particularly as regards ever increasing offshore activity. The optimum utilisation of the ocean food resources also demands close monitoring of ocean conditions such as the temperature, currents, oxygen and the nutrient content. Furthermore, pollution in the ocean is becoming a vital problem which calls for continual surveillance, not only to detect the pollutants but also to ascertain the diffusion parameters, that is, wind, currents, state of sea, etc.

It should also be emphasized that a better knowledge of the physical processes of the ocean and the atmosphere—achieved presumably by a denser and improved ocean station network—will increase the safety of human life and property. The proposed project is very comprehensive. Its mere size and complexity make it prohibitive for a single nation to undertake, not only for financial reasons but also for reasons such as data acquisition from waters of foreign nations, deployment and recovery, data transmission, etc.

In order to serve its purpose, the ENOS must cover an area so large that most European countries will benefit directly from the results. It consequently calls for a common European effort to provide the data. It has been stated in connection with the product of ENOS, namely the data, that its special value lies in its real-time availability for forecasting purposes and other immediate uses. It should be emphasized that its forecasting value rapidly deteriorates in time, as does the forecast itself.

It is therefore to be concluded that the data will be used for the following purposes:

—forecasting of ocean and atmospheric phenomena;

—establishment of climatological statistics;

—scientific studies on oceanic and atmospheric phenomena.

Whilst real-time data is imperative for forecasting, it is normally not required for the establishment of standards or for scientific studies.

As to scientific application, it should be mentioned that this project is a general system of data acquisition, whilst a scientific project is normally

structured to provide data for studies of particular phenomena, where care is taken to avoid irrelevant information.

For obvious reasons scientific projects often depend on very specific sensors and equipment which have been built for a particular purpose and are in no way standardized or suited to a general system.

Statistical data forms the background for the planning of a large variety of permanent and mobile marine constructions, such as docks, quays, moles, ships, oil rigs, etc.

Furthermore, statistical analysis on currents, tides, etc. are given as an aid to navigators in pilot books and charts.

II. OBJECTIVES

The meteorological and oceanographic real-time data as provided by this project are of great interest to a number of specific groups of users who need this information to achieve a better knowledge and a closer monitoring of the marine environment in order to:

—improve safety and protection of human life and property;

—improve the exploitation of marine resources;

—improve the economy of marine activity.

The potential users are:

—weather forecasting services;

—storm surge and warning services;

—coastal protection bodies;

—offshore oil-gas and mineral exploration and exploitation firms;

—ship-routeing services and navigators;

—the fishing industry;

—environment protection agencies;

—marine research institutions;

—ice forecasting services;

—marine constructors and shipbuilders.

The priority will obviously vary depending on the locality and the national interest. A brief survey of some of the topics and their practical importance to various users is given below.

Weather forecasting has proved its value and is a self-evident requirement in a modern community. The users cover more or less the whole community, especially ship and aircraft navigators, fishermen and farmers. However, additional information from offshore positions is required in addition to the network

already in existence, if the reliability and resolution of the forecasts are to be improved.

Storm surges, flood warnings. Due to coinciding effect of tides, wind storms, air pressure and low frequency waves, the sea level can rise to extremely high levels. The results can have enormous consequences on those countries which are vulnerable to flooding. Early warning and close monitoring, based on adequate offshore information is therefore of vital importance.

Ocean forecasting. Prognostic oceanography or prediction of ocean conditions of *e.g.* waves, state of sea, temperature, currents, contents of nutrients etc., in a form similar to a weather forecast, is probably still a long way ahead, because the dynamics of the ocean are not well enough understood and the information available is inadequate for the purpose. Nevertheless, a pilot project on synoptic oceanography was carried out under the auspices of the ICES[2] in the late sixties. The result of this pilot project was highly prized. However, the facilities were inadequate to maintain and develop the project which was considered premature at that time. Like weather forecasting, ocean forecasting is assumed to be an important source of information where offshore projects, coastal engineering, shipping and fisheries are concerned.

Coastal and ocean engineering. The offshore activity relating to exploitation of the seabed obviously depends greatly on local weather conditions. Unfavourable and unexpected weather and sea conditions—during a critical operational phase— may be disastrous. In this connection it is assumed that, for some operational purposes the user will need to receive the relevant data at his own operations centre, in real-time, in addition to the standard forecast. Such information is therefore considered of special value where coastal and offshore construction operations, deployment of pipelines, cables, etc., are concerned.

Ship routeing. Estimation of the most favourable sailing route between two points at a given date, based on weather forecasting and knowledge of the state of the sea and currents, has proved its value. This method saves sailing time, results in less damage and danger to ships and cargo and gives greater passenger comfort and safety.

Fishing. Rational and optimum exploitation of maritime food resources requires adequate information on ambient water conditions such as temperature, salinity, currents, oxygen and nutrient content, because life in the ocean is closely inter-dependent and linked to those parameters. Ocean forecasting is therefore considered an important tool for improving fishery research and, eventually, for obtaining maximum yields of fish.

Navigation. Ship-routeing has been mentioned. In addition, ocean forecasting and real-time data will prove a valuable aid in the handling of large ships, oil carriers, platforms, etc., in narrow and shallow waters. The existing charts and pilot logs are based on statistics which are often insufficiently accurate in relation to actual conditions. The large ships of today develop less engine

(2) International Council for the Exploration of the Sea.

power per ton than the smaller ships, and consequently are more susceptible to the effects of wind and currents.

Monitoring of Pollutants. Pollution is a problem of increasing impact to the marine environment. Key parameters are the detection and monitoring of the diffusion rates and the movement of pollutants from place to place. In this connection a net of ODAS can play an important rôle by acting as a means of monitoring, providing, as it does, immediate information on the presence of polluting elements, together with those factors responsible for all aspects of their movements from place to place, i.e. wind, currents and waves.

At present there are no adequate automatic sensors for detecting pollutants on the market. However, great efforts are being made in this direction and it is believed that the first prototype sensors will appear on the ODAS in the near future.

III. TECHNICAL CONTENT

3.1. *Structure of the Programme*

The programme includes:

—sub system development;

—implementation of a network;

—data exploitation and their integration into the WMO/IOC[3] network.

3.2. *Description of the Regions*

During the early stages of Phase II of the project, of which this extension forms the second part, the five regional networks which comprised the original pilot project were merged into two larger regions. These are:

A. The Northern Region comprised of the Baltic Sea, the Norwegian Sea, the North Sea, the Irish Sea, the English Channel and the North-Eastern Atlantic east of the 35°W meridian and north of the 50°N parallel.

B. The Southern Region, comprised of the Atlantic east of 35°W and bounded by the 27°N parallel and the 50°N parallel together with that portion of the Mediterranean Sea west of the 12 east meridian.

These limits are in no way absolute, but are chosen as a convenient definition which may be adjusted if so required.

3.3. *Scope of Co-ordination*

The co-ordination will include:

Co-ordination of data;

(3) World Meteorological Organisation/Intergovernmental Oceanographic Commission.

Compatibility of data;

Collection of data;

Data format;

Dissemination of data;

Co-ordination of technical topics including joint ODAS programmes;

Calibration/Intercalibration of sensors;

Registration of ODAS;

Deployment and recovery of ODAS;

Testing of ODAS.

3.4. *Calibration/ Intercalibration*

The national programmes on which this project is based cover a variety of ODAS regarding design and size. Although most of them are well designed and serve their purpose well, the data from the various ODAS are, unfortunately, not compatible. Compatibility of the data is a paramount demand for this project.

Sensors showing reliable and unambiguous results in the laboratory may appear to diverge seriously when exposed to the open rough sea. Furthermore, quite obviously the calibration of the sensors depends, to a certain extent, on the platform on which they are mounted.

Institutions taking part in the project will co-operate wherever possible in joint calibration/intercalibration work. The comparison of sensors against standard references in the laboratory and the adjacent deployment of different types of ODAS both in sheltered and open waters will be aimed for.

3.5. *Deployment, Service and Recovery of ODAS*

A substantial part of the expenses involved in the execution of this project goes to provide ships for deployment, service and recovery of ODAS. It is then proposed that the use of the ship's time can be optimized in connection with deployment and regular servicing by mutual arrangement between the participating laboratories. However, in the case of emergencies such as lost or drifing ODAS, all participating countries are encouraged to give priority to the recovery of ODAS, providing this can be done without seriously interfering with other programmes.

In order to increase the benefit of the network by ensuring the best possible coverage of ODAS, the participating countries which are not capable of deploying ODAS within the waters under their jurisdiction, should encourage other nations to do so.

3.6. *Data Transmission*

The data will be transmitted by means of various transmission systems, from ODAS to shore stations, which will re-transmit them to a central station.

Subject to the satisfactory proving of the accuracy of the system, the central station(s) will disseminate the data according to the standard format of the WMO to the various national centres who, in turn, will provide the users with the data.

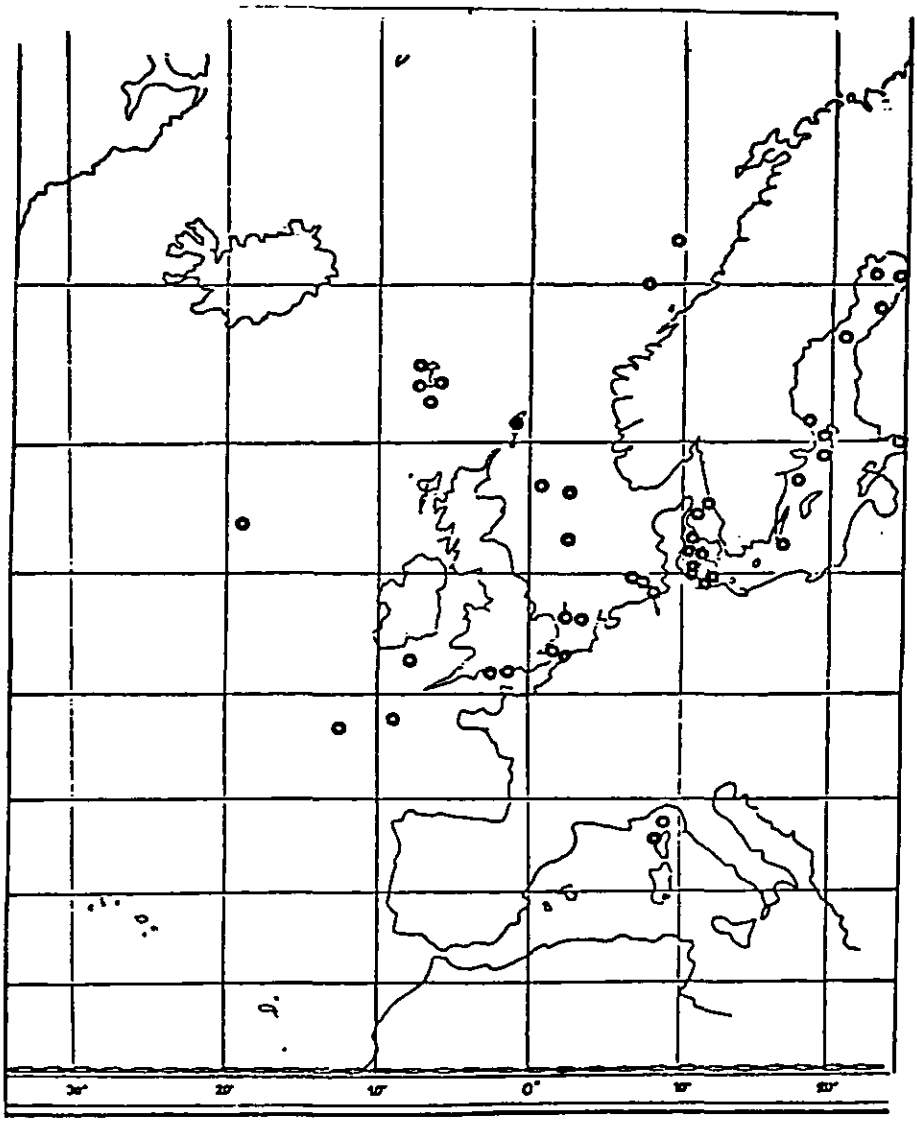
IV. THE PILOT NETWORK

The ODAS implemented by the halfway stage of the period of the original COST 43 Agreement are shown in map 1. Not all these stations have operated simultaneously and continuously but all have contributed to the data made available by the Project. They have been supplemented by a series of drifting buoys of limited life which were deployed around the Azores and by experimental deployments of moored buoys in the Faeroe-Shetland gap. It is important to maintain this network for long enough to obtain sufficient data to permit a proper evaluation of its worth. It is also important to encourage the co-operation necessary to establish further experimental open-ocean ODAS especially in the West of the COST 43 region. The ODAS contributions are listed by Nation in the COST 43 ODAS inventory.

The further co-operation under the terms of the revised Agreement of which this document is an Annex, will be in the form of unilateral, bilateral and multilateral actions by Member States on an opportunity basis. Contributing Nations have indicated areas of the COST 43 region in which they have a special interest and these are shown on map 2. Where these areas overlap there is clearly a degree of common interest and through the mechanisms of the COST 43 sub-groups for the North and South regions, COST 43 will encourage mutual co-operation between member nations with a view to establishing further experimental ODAS.

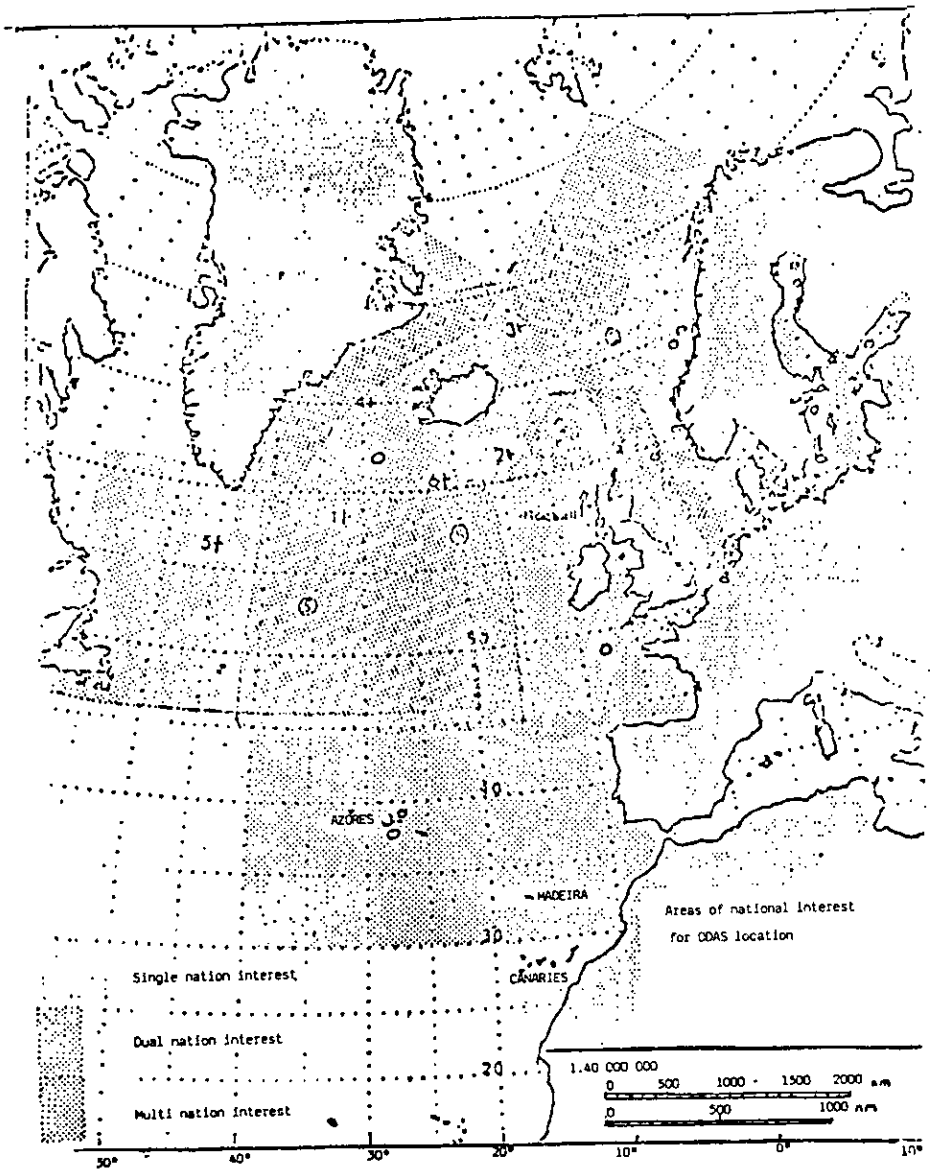
All contributing nations will seek slowly to increase the emphasis upon the operational aspects of ODAS deployment in preparation for the gradual implementation of an operational ODAS network which was Phase III of the original Project and remains an aim of this continuation of the work.

Special emphasis will be placed by COST 43 upon an evaluation of the experimental network and Phase II of the project will end with the production of a report in which the results of Phase I and II will be assessed, conclusions drawn and recommendations made for the implementation of an operational network.



COST 43 ODAS NETWORK AS AT JUNE 30TH 1980

Drifting buoys have not been included.


AZORES
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Areas of national interest
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ANNEX II

The following table shows the contributions of all possible parties calculated on the basis referred to in Article 4, if all those parties will actually participate in the project.

	States	*4 years*	*p.a.*
1.	Belgium	695.050	173.760
2.	Denmark	396.095	99.025
3.	Spain	1.259.720	314.930
4.	Finland	297.760	74.440
5.	France	3.889.845	972.460
6.	Ireland	106.215	26.555
7.	Iceland	17.065	4.265
8.	Norway	341.855	85.465
9.	Netherlands	1.000.270	250.070
10.	Portugal	143.690	35.920
11.	United Kingdom ..	3.119.970	779.995
12.	Sweden	732.405	183.115
	Total	12.000.000	3.000.000

ANNEX III

Legal Status of Ocean Data Acquisition Systems (ODAS)
Unchanged text of current agreement document COST/288/79([4]).

([4]) See Treaty Series No. 76 (1979), Cmnd. 7677 Page 31.

Printed for Her Majesty's Stationery Office by J. W. Arrowsmith Ltd.
Dd. 601829 7/86 2844 T9806

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