



## FIRST ANNOUNCEMENT

	<b>Inter-Islamic Science and Technology Network on Oceanography (INOC), Izmir – Turkey</b>
	<b>Dokuz Eylül University Institute of Marine Sciences and Technology Izmir - Turkey</b>
	<b>Islamic Development Bank (IDB), Jeddah - Saudi Arabia</b>
	<b>Ministerial Standing Committee on Scientific and Technological Cooperation (COMSTECH), Islamabad, Pakistan</b>
	<b>International Foundation For Science, Sweden</b>

**Date and Place: 15-24 March, 2018, Izmir Turkey**

### **Scope of the Training Course:**

Exploration of the oceans using the techniques of the geophysicist has had a profound influence on our understanding of the Earth and its behavior through time. Observations in Deep Ocean have played a key role in establishing modern plate tectonic theory, transforming Earth Science in ways that were quite unexpected when geophysicists put to sea. Measurements in shallower waters have revealed how continental margins form, subside and become covered with sedimentary accumulations. The remarkable structural details revealed by seismic and other methods in these regions make geophysics an indispensable tool in the search for petroleum and other resources.

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Activity offshore has been centered, until recent times, entirely on the fisheries and shipping activities. Since the World War II there has been a remarkable increase in interest in the resources of the sea and seafloor, of which the recovery of hydrocarbons-oil and gas- represents by the far the greatest industrial investment. Alongside with this offshore engineering technology and shipping industry have progressed at a phenomenal rate. Compare the typical, long-established harbors with the civil engineering achievements of today. The one occupies a sheltered location adjoining shallow waters, comfortably able to accommodate vessels which seldom exceed 10 m in draught and conveniently close to road and rail distribution links. The other may be a drilling rig or production platform 150 km offshore and subjected to violent storms and 20 m alongside, or a pipeline from oil well to shore, traversing areas of rapid current and shifting seafloor sediments.

In addition to offshore drilling and harbor construction, the totality of industrial activity embraces the following operations:

- Dredging, for harbor conservancy, mineral recovery and reclamation;
- Coastal protection engineering;
- Salvage;
- Desalination of seawater to improve fresh water supplies;
- The extraction of minerals and chemicals from seawater;
- The provision of recreational facilities such as beaches and marinas;
- The prevention or elimination of pollution;
- The development of communications and distribution routes by shipping lane, submarine cable and underwater pipeline;
- The development of the fishing industry.

The impact of this proliferation of activity on the engineer and surveyor has been profound.

As on land, environmental data are required by the geologist and geophysicist, who base their work on the surveyor's map. At sea, in addition, the oceanographer plays his part in determining the seawater parameters. All of these turn to the hydrographic for information on the physical limits of the marine environment. It should be noted that there is a considerable overlap of scope and function of the specialists concerned, each being essentially a team-member working with respect to land surveying and many of the surveying practice. Some factors serve to differentiate between the two, however, and whilst some are obvious, all must be appreciated and taken into account.

The chart is the marine equivalent of the topographic survey where the land surveyor occupies a number of stations in turn, observing angles and measuring distances with all care, precision and number of repetitions required to achieve the specific order of accuracy. The hydrographic surveyor likewise performs this control procedure in most instances. Once afloat, however, the fixation of position becomes

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a dynamic operation. Not only does the observing platform (the survey vessel) occupy a position for an instant only, but the level of seawater surface changes constantly under the influence of tide and wave. The hydrographic operation has been likened to a leveling survey onshore, but using a telescoping staff and a level which is mounted on a well-sprung trolley! Admittedly this type of surveying is fewer privies than the shore-based equivalent, but this does not mean that less careful, less through work is adequate. On the contrary, the most care is essential to ensure that the rather more coarse measurements which are combined to make the chart are not further degraded by slapdash methods.

The nature of the sea environment is probably the most fundamental single factor which separates land from the sea surveying. The effect of the sea on the common surveying techniques has been mentioned, but more important still is an appreciation of the vicissitudes of the sea which not even manual of seamanship can be properly explain. Experience is the only real solution, which both engineer and land surveyor will most probably lack. In its stead, an honest humility towards the sea and seaman in whose care the surveyor will be placed is strongly recommended. fully or overexploited. In response, marine and brackish water aquaculture grew steadily during the last decades.

### **The Aims and Objectives of the Training Course:**

As part of the Training Course, several objectives are targeted:

- **Reinforce the capacities of INOC member's institutions about the modern techniques of marine sonar and seismic surveys;**

Economic exploitation of ocean space and its resources is beset with numerous scientific and technological problems in the majority of these countries. Therefore these countries need "Advanced Marine Science and Technologies" for maximum utilization of marine affairs, protection of marine environment and balancing the multiple uses of ocean space. The pooling of resources and the evolution of common strategy can be greatly facilitated if a mechanism for providing smooth and quick exchange of relevant information and data exists in the Islamic world. The first step of this is to map ocean domain with its many aspects. Marine sonar and seismic data are the first assets in this respect and all other oceanographic data can be placed on these.

- **contributing to the development of marine sonar and seismic survey techniques;**

In order to solve those environmental and social concerns, it is necessary to call for a swift inclusion of aquaculture within integrated coastal zones management and maritime policies. In this respect, space limiting factors, administrative and local conflicts are real and need a collaborative approach to be solved.

- **Ensure a better understanding of the edging technological developments with respect to instrumentation among the INOC Member Countries;**

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In the World, it isn't easy to talk about a real existence of a common strategy towards the understanding of very fast development in the field of marine sonar and seismic techniques. This course would help the scientists who are involved with these surveying issues.

### **Beneficiaries of the Training Course:**

The INOC member states will participate in this workshop. These countries include: Algeria, Azerbaijan, Bahrain, Bangladesh, Cameroun, Egypt, Indonesia, Iran, Iraq, Jordan, Kazakhstan, Kuwait, Lebanon, Malaysia, Mauritania, Morocco, Oman, Pakistan, Palestine, Qatar, Saudi Arabia, Senegal, Syria, Tunisia, Turkey, Turkmenistan, United Arab Emirates and Yemen.

### **Schedule of the training course and its program:**

#### **Marine Sonar and Seismic Surveys**

1. Introduction to Marine Surveying
2. Planning of Marine Surveys
  - 2.1. General Aspects  
As with any activity, careful planning and preparation will pay dividends in the subsequent operation. Although no two surveys are alike, the sequence of events will have to be considered accordingly.
  - 2.2. The Survey Vessel
  - 2.3. The Survey Plan
  - 2.4. Tidal Control
  - 2.5. Navigation Systems
  - 2.6. Vessel Control
  - 2.7. Positioning and Data Processing
3. Principles of Acoustic Measurements
  - 3.1 Sonar Instrumentation
  - 3.2 Frequency
  - 3.3 The Acoustic Transmission
  - 3.4 Resolution
  - 3.5 Accuracy
  - 3.6 The Sonar Record
  - 3.7 The Side-Scan Sonar Record
4. Bathymetric Mapping
  - 4.1 Mapping Systems
    - a. Conventional Echo-sounding
    - b. Multibeam Surveys
  - 4.2. Mapping the seafloor with Side-Scanning Sonar
  - 4.3 Subottom Profiler
5. Marine Seismics
  - 5.1 Seismic Exploration at Sea: A Theoretical Background
  - 5.2. Seismic Data Acquisition
  - 5.3 Marine Seismic Data Processing
  - 5.4 Marine Seismic Data Interpretation
6. ROV (Remotely Operated Vehicle) and AUV (Automated Undersea Vehicle) survey operations

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7. Marine Sonar and Seismic and Survey Practices (With the research vessels)
8. Analysis of the Collected Data

### **Notes:**

All practical works will be performed in groups of 5 to 10.

Participants are expected to deliver 10 minute power point presentation on the overview of the marine sonar and seismic activities in their country.

### **Trainers**

Experts from Intergovernmental Oceanography Commission (IOC) and Inter Islamic Science and Technology Network for Oceanography (INOC).

### **Sponsors:**

- Inter Islamic Science and Technology Network for Oceanography (INOC);
- National Institute of Marine Sciences and Technology (INSTM), Tunisia
- Islamic Development Bank (IDB);
- Ministerial Standing Committee on Scientific and Technological Cooperation (COMSTECH) of the OIC (Organization of Islamic Cooperation)
- IFS, International Foundation for Science

### **Trainees**

Trainees will mainly include experts and managers from INOC and IOC Member Countries.

The applicants should have a good command of English and must have the basic marine geophysical studies...

### **Workshop/Training Level**

Advanced level

### **Date and Venue**

The Workshop/Training course will be conducted from 15-24 March 2018 in Izmir, Turkey. More information about this center and this training course can be found on the website of INOC (<http://www.inoctr.org/>) and IMST ([www.deu.edu.tr](http://www.deu.edu.tr)).

### **Working Language**

The training course will be conducted in English.

### **Deadline for Application**

The filled-in application form shall be sent to INOC at the following addresses **no later than 15 January 2018**. All applicants will be informed of the final selection result no later than **30 January 2018**...

Prof.Dr. Mustafa Ergun, INOC Executive Director, Izmir, Turkey

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Web Site: www.inoctr.org

**Visa**

Selected trainees traveling to Turkey probably need to apply for entry visa to Turkey in accordance with relevant laws and regulations. Please check the visa requirements with the Turkey Embassy/Consulate in your country and apply for it as soon as possible. The local secretariat of INOC will be glad to provide you any assistance upon your request.

**Contacting Information:**

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**Scientific Secretary of the Training Course:**

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