



Università di Trieste
Corso di Laurea in Geologia

Anno accademico 2016 - 2017

Geologia Marina

Parte I

Modulo 2.1 Navi Oceanografiche e metodi acustici

Docente

Fabrizio Zgur

MARINE INFRASTRUCTURES

RESEARCH VESSELS

Meteorological Measurements



OCEANOGRAPHY



Water Physical and chemical Properties

MARINE BIOLOGY



Water Acoustic Profiling

GEOFYSICS

MARINE GEOLOGY

Swath Bathymetry



Core sampling and sediment grabbing

Sub Bottom Profiling



Seismic

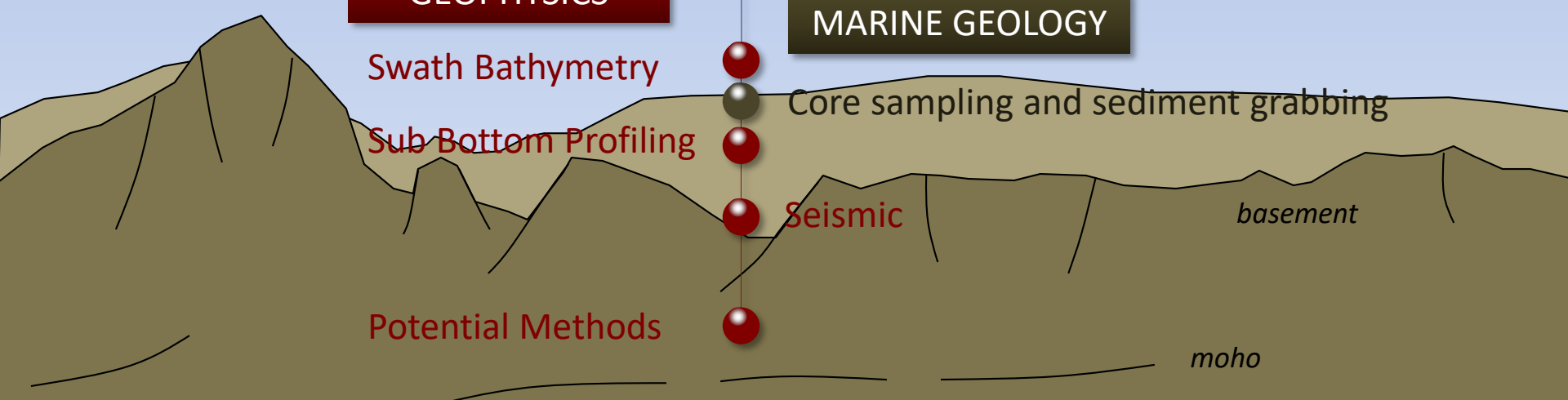


basement

Potential Methods



moho



MARINE INFRASTRUCTURES**RESEARCH VESSELS - CLASSIFICATION****ICE BREAKER**

*Oceans, Polar waters, areas covered by ice.
Long endurance*



Polarstern (DE)



NB Palmer (US)



Italica (IT)

GLOBAL

*Oceans, Polar water, areas not covered by ice.
Long endurance*



S.de Gama (ES)



OGS Explora (IT)

REGIONAL

*Rarely in the oceans,
Mediterranean, Black sea.
Short endurance.*



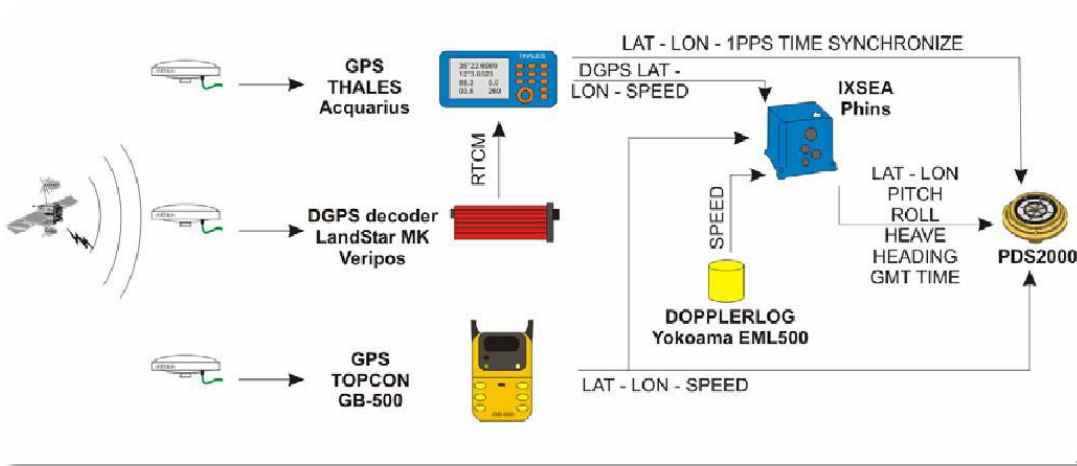
Urania (IT)



Aegaeo (GR)

RESEARCH VESSELS

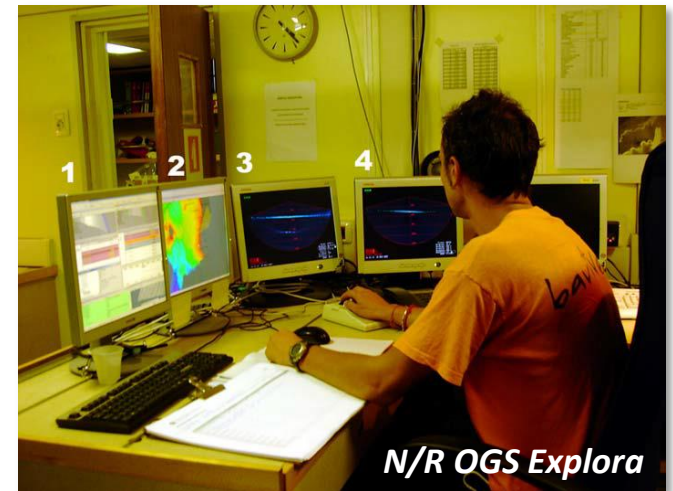
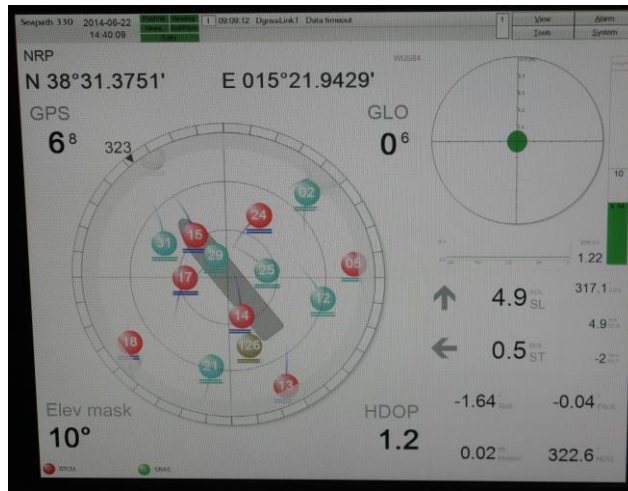
POSITIONING AND NAVIGATION



N/O Urania

Redundancy

Real time
position
monitoring



N/R OGS Explora

RESEARCH VESSELS

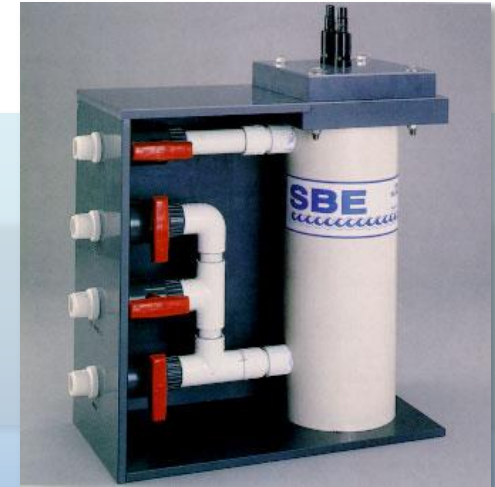
WATER PROPERTIES AND ACOUSTIC PROFILING



water sampling and CTD

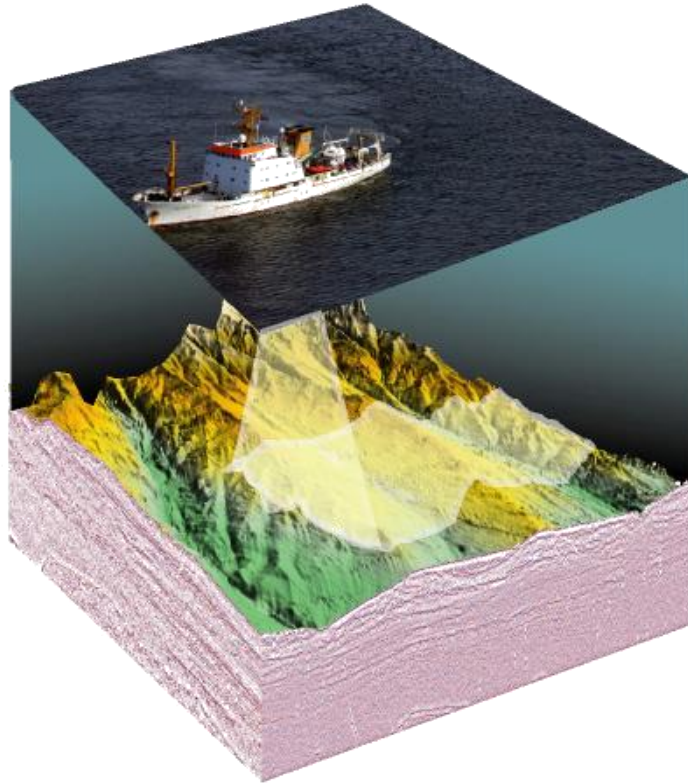
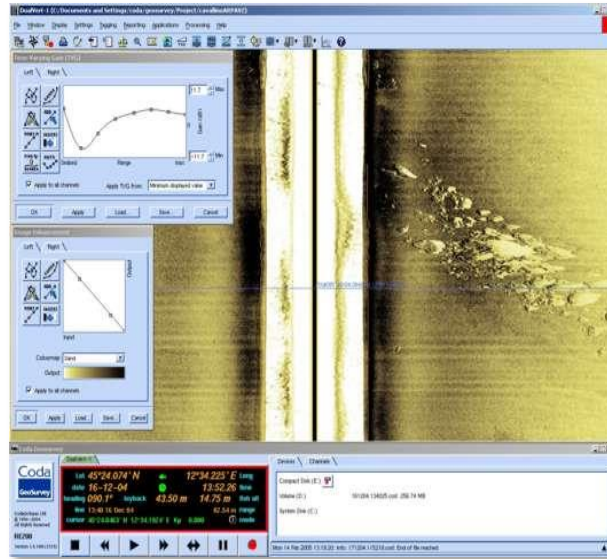
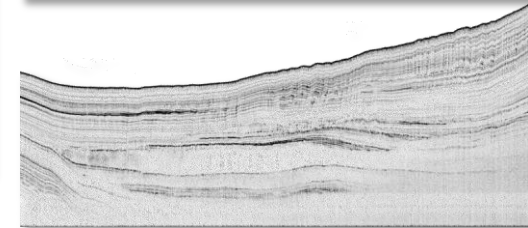
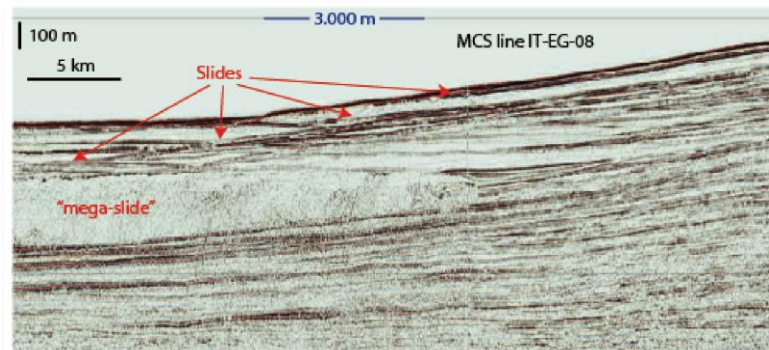


acoustic doppler current profiler



thermosalinograph



RESEARCH VESSELS**GEOPHYSICS***Morphobathymetry**Seismic**Side Scan sonar**Sub Bottom Profiling*

RESEARCH VESSELS

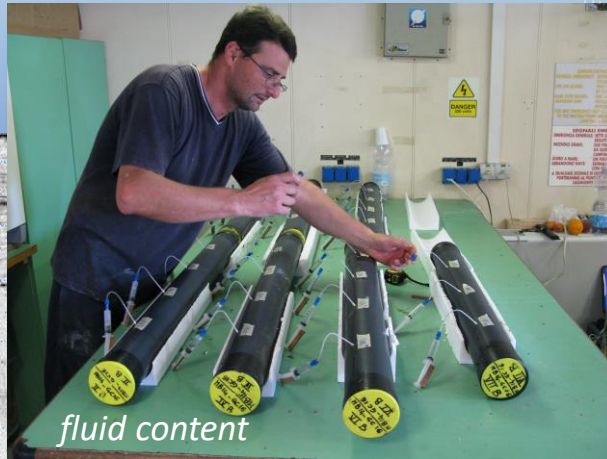
SEDIMENT SAMPLING AND SEDIMENT PROPERTIES



gravity cores



sample description



fluid content



magnetic properties

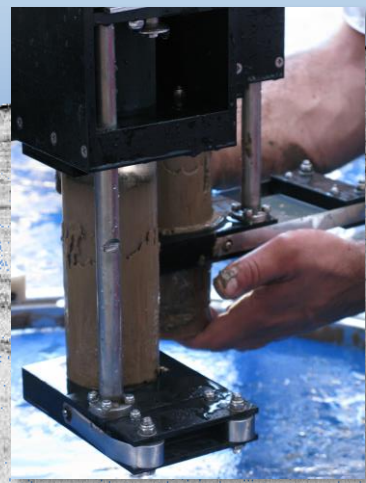
RESEARCH VESSELS

SEDIMENT SAMPLING AND SEDIMENT PROPERTIES

STUDY OF BENTHIC COMMUNITIES



box corer



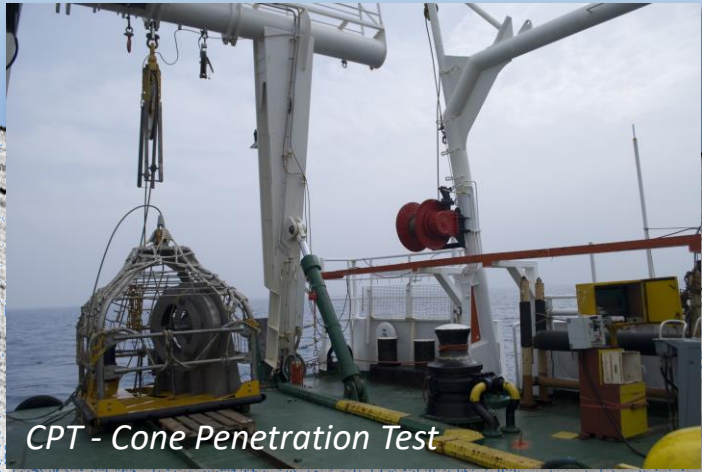
to collect undisturbed seafloor samples

RESEARCH VESSELS

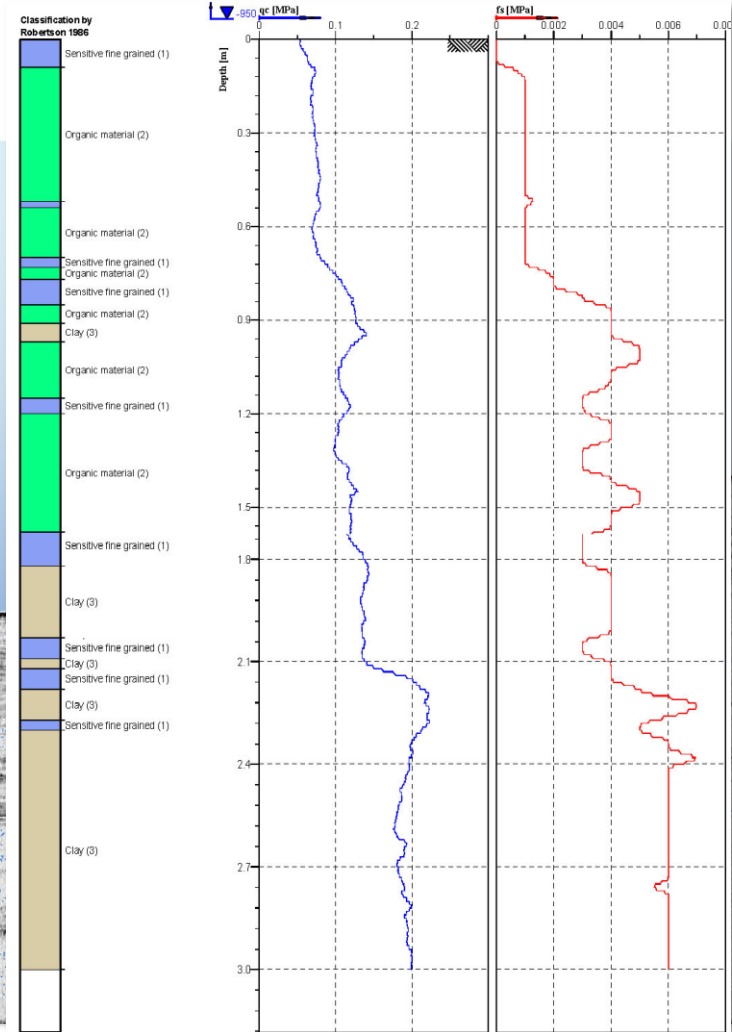
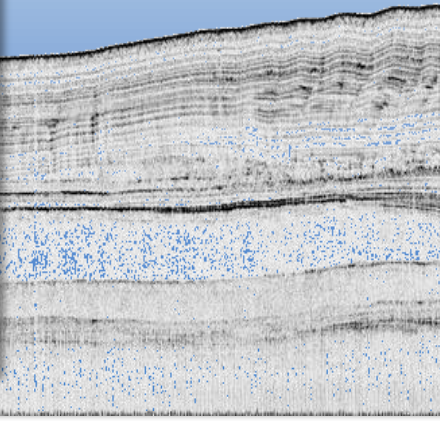
SEDIMENT SAMPLING AND SEDIMENT PROPERTIES

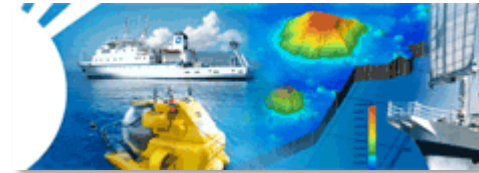
The cone penetration test (CPT) is a simple technique which can be used for compaction studies in soft clay and fine-to-coarse grained sand.

The equipment consists of mechanical, electrical, electronic and hydraulic units, and a coiling system. Data on tip resistance and sleeve friction are collected, which in turn provide the friction ratio, that is used for the textural classification of soils/sediments. Tip resistance and sleeve friction give an idea about the sediment density, which further helps in proper planning and design in shallow marine areas. The CPT is accurate and time dependent rather than vibrocoreing.



CPT - Cone Penetration Test



RESEARCH VESSELS**A EUROPEAN COMMON STRATEGY****Eurofleets**Towards an Alliance
of European Research Fleets

24 marine institutes, universities, foundations and SMEs, + 1 associated partner from 16 European countries, agree to propose together their research vessels, associated equipment, and their know how within the EUROFLEETS project.

OBJECTIVES

- define a common strategic vision for European research fleets and associated heavy equipment (e.g. underwater vehicles as ROV and AUV);
- use more efficiently the existing European Ocean/Global and Regional fleets, and develop their interoperability capacities;
- facilitate a wider sharing of knowledge and technologies across fields and between academia and industry;

EUROFLEETS Coordinator: Ifremer, France