



Università di Trieste
Corso di Laurea in Geologia

Anno accademico 2018 - 2019

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 biogeochemical Properties

MARINE BIOLOGY

Water Acoustic Profiling

GEOFYSICS**MARINE GEOLOGY**

Swath Bathymetry



Core sampling and sediment grabbing

Sub Bottom Profiling



Seismic

*basement*

Potential Methods

*moho*

ICEBREAKER

Oceans, polar areas, ice covered areas.

Long endurance.

100-120 m,

6000-12000 tons



Polarstern (DE)



NB Palmer (US)



Araon (KOR)

GLOBAL

Oceans, not ice covered polar areas.

Long endurance.

60-80 m

2000-3000 tons



S.de Gamboa (ES)



OGS Explora (IT)



Celtic Explorer (IR)

REGIONAL

Seldom in ocean waters, Mediterranean, Black Sea

Short endurance.

40-50 m

1000 tons max



Atlantic Explorer (UK)



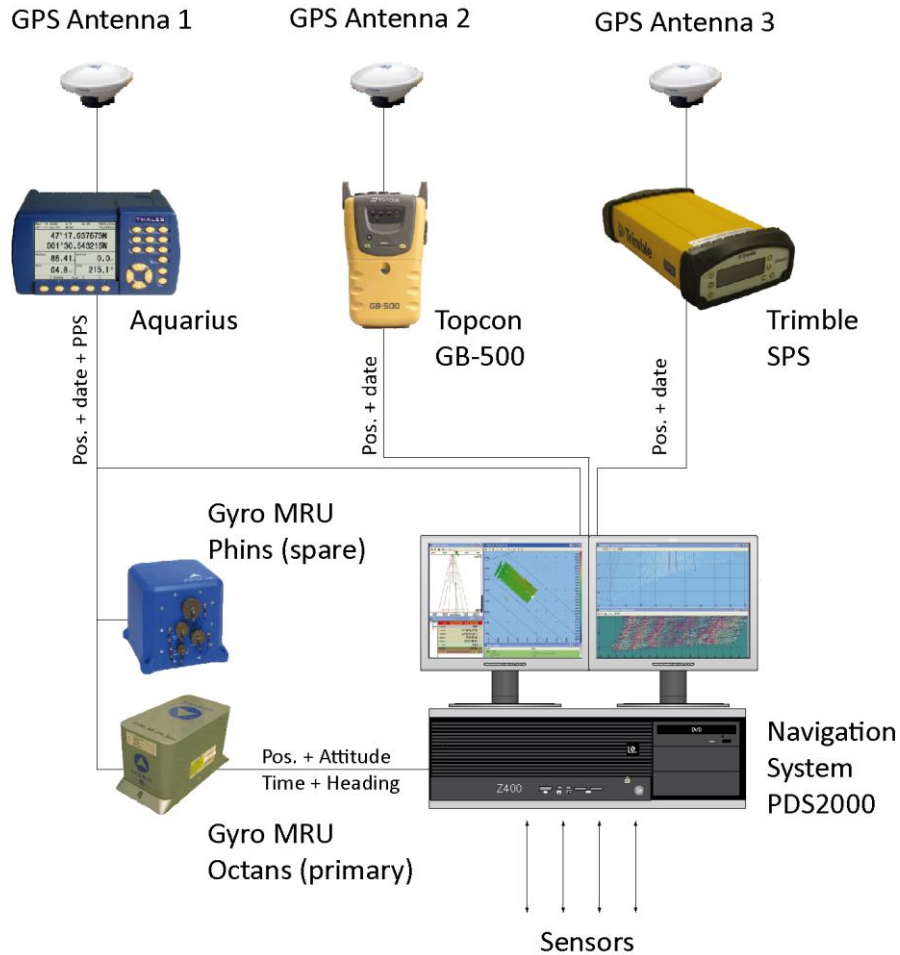
Wega (DE)



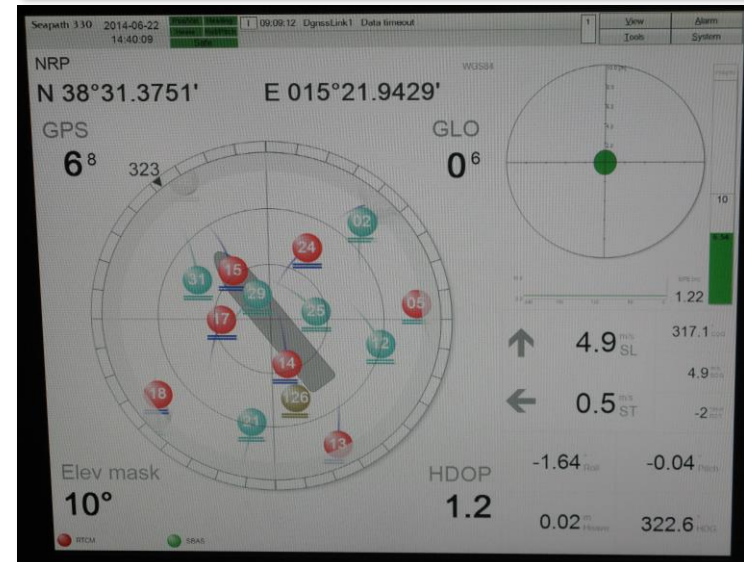
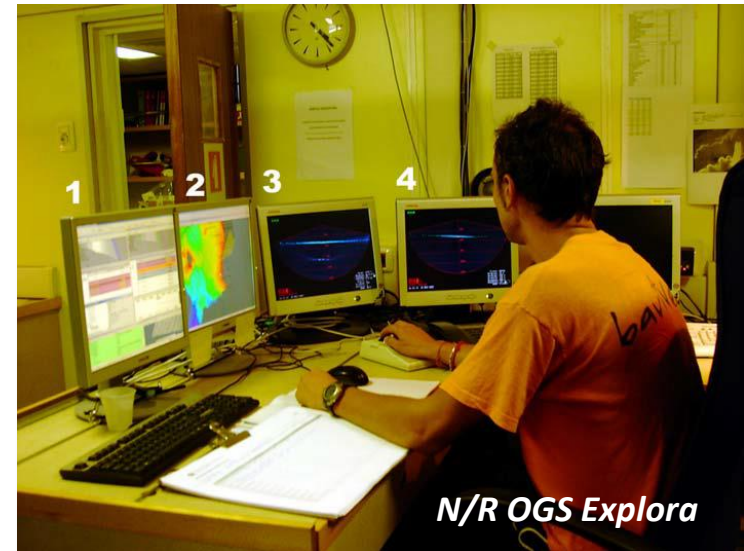
Minerva 1 (IT)

RESEARCH VESSELS

POSITIONING AND NAVIGATION



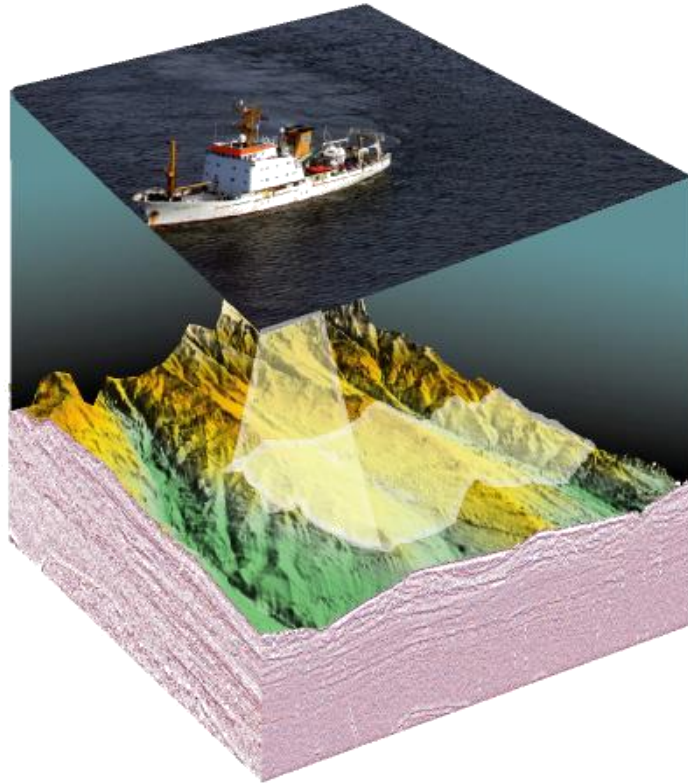
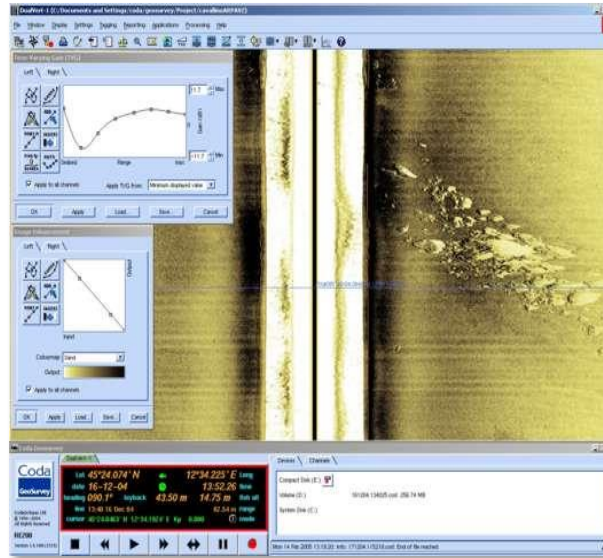
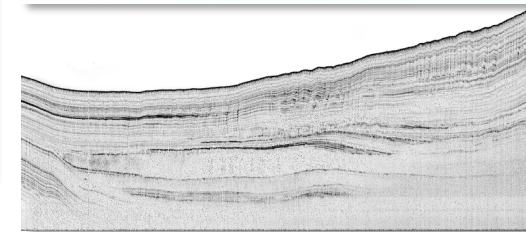
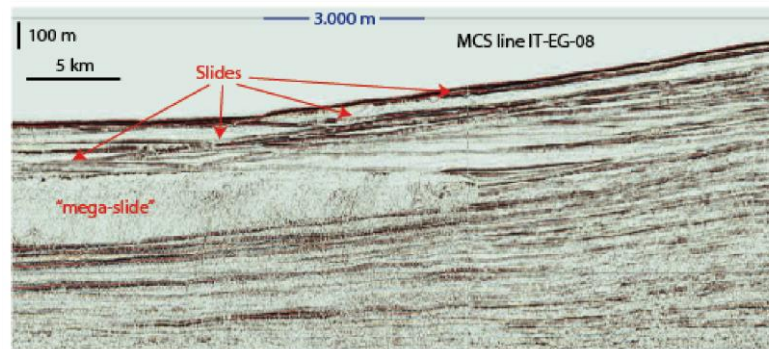
**Real time
position
monitoring**



RESEARCH VESSELS

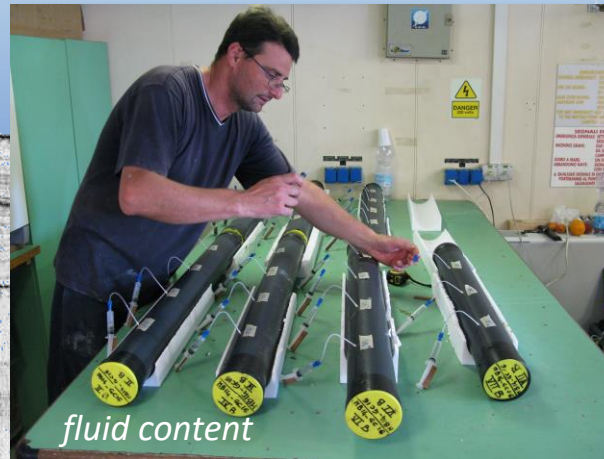
WATER PROPERTIES AND ACOUSTIC PROFILING

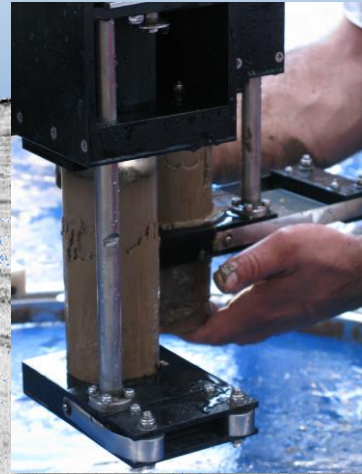
*water sampling and CTD**acoustic doppler current profiler**thermosalinograph*

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

RESEARCH VESSELS

SEDIMENT SAMPLING AND SEDIMENT PROPERTIES



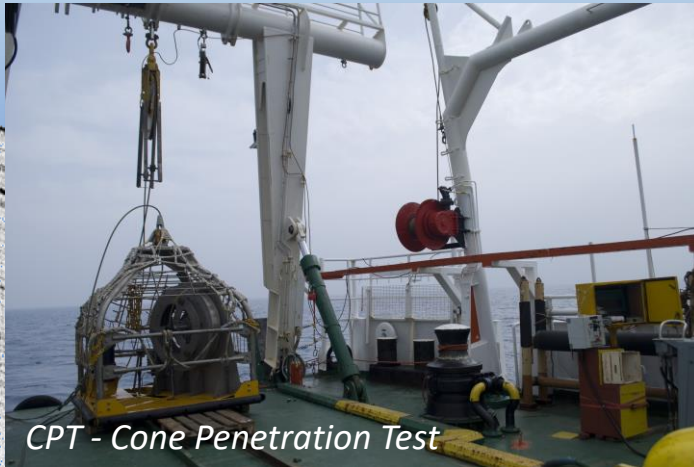
RESEARCH VESSELS**SEDIMENT SAMPLING AND SEDIMENT PROPERTIES****STUDY OF BENTHIC COMMUNITIES***box corer**to collect undisturbed seafloor samples*

RESEARCH VESSELS

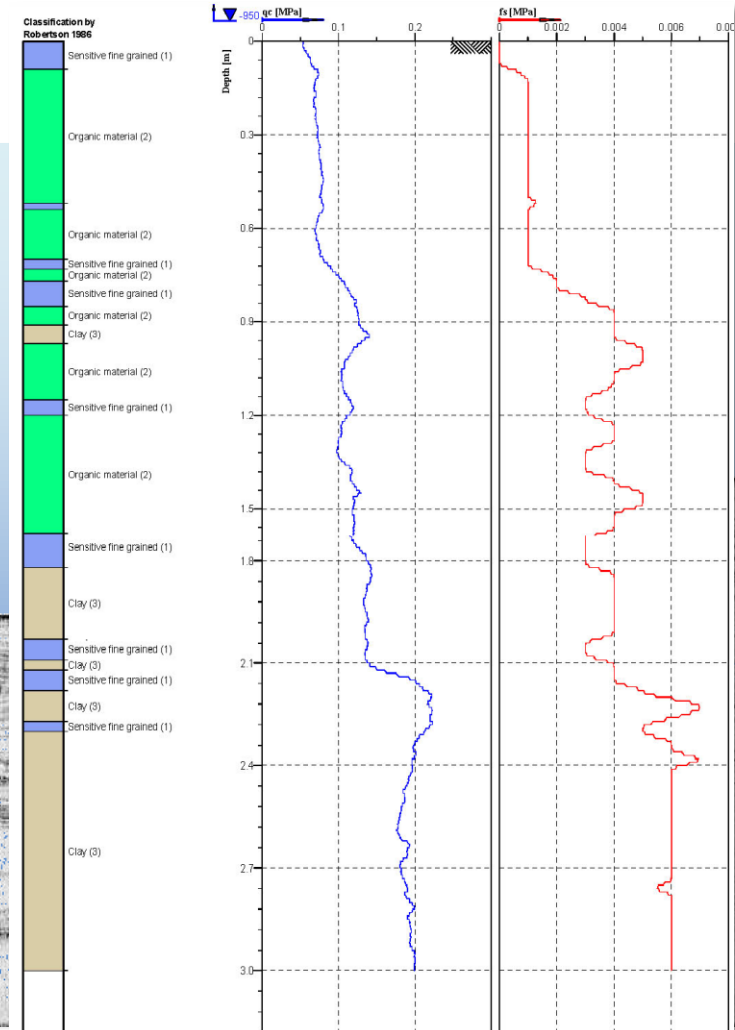
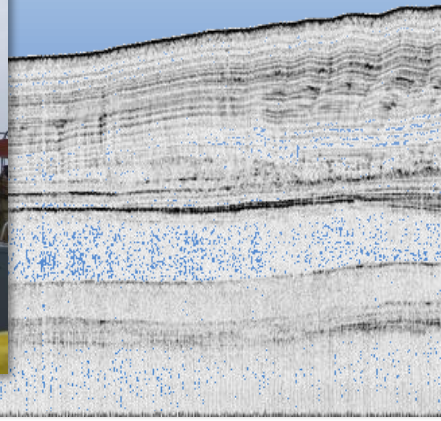
SEDIMENT SAMPLING AND SEDIMENT PROPERTIES

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.

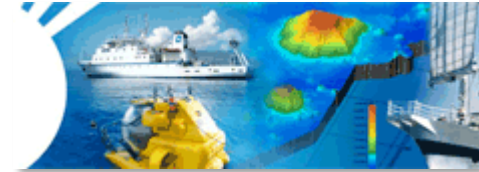


CPT - Cone Penetration Test



RESEARCH VESSELS**A EUROPEAN COMMON STRATEGY**

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