

LET'S EXPLORE THE DEEP SEA?

Objectives

To prepare an oceanographic expedition in order to explore a chosen marine resource

Rules:

- ❖ Funding: 300.000€
- ❖ Choose 1 marine resource (Polymetallic nodules, Polymetallic sulphides, Fe-Mn Crust or Sponges)
- ❖ Choose a vessel
- ❖ Select 5 equipments which seem appropriate for the research of the chosen resource
- ❖ Select a multidisciplinary team with 8 experts

Adicional Informations:

- ❖ A Vessel 's velocity is about 10kt which are 10 nautical miles/hour
- ❖ Vessel Costs: 20.000€ per day (that includes the price of equipments and the payment of researchers and ship's crew)

OCEANOGRAPHIC VESSEL

Description:

Scientific investigation vessel

Function:

Deep sea geological, biological
and geophysical data collection;
Oceanographical data collection



HIDROGRAPHIC VESSEL

Description:

Scientific investigation vessel

Function:

Bathimetric data collection



RESEARCH VESSEL

Description:

Scientific investigation vessel

Function:

Geological and biological data
collection; Oceanographical
data collection



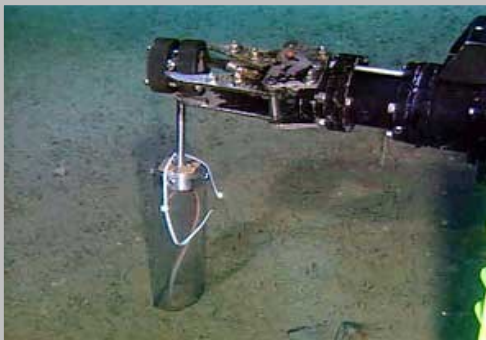
CORER

Description:

Sediment sampling
equipment

Function:

Stratified Sediment sampling



VAN-VEEN DREDGE

Description:

Sampling equipment

Function:

Sediments and benthic
organisms sampling



DREDGE

Description:

Sampling equipment

Function:

Seabed rock sampling



CTD

Description:

Oceanographic data equipment

Function:

Conductivity, temperature and depth data collection



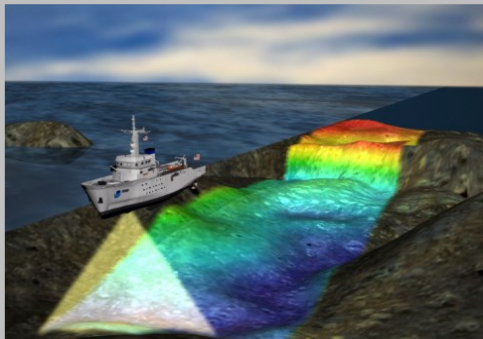
MULTIBEAM

Description:

Oceanographic data equipment

Function:

Deep sea morphological data collection. It allows mapping of the ocean floor



ROSETTE

Description:

Sampling equipment

Function:

Water sampling at different depth collection



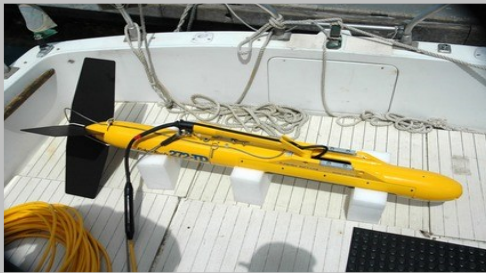
SIDE SCAN SONAR

Description:

Acoustic mapping equipment

Function:

Low depth detection equipment. Allows for the detection of small objects in the seabed and water column



AUV

Description:

Autonomous Underwater Vehicle

Function:

Depending on the sensors added it allows for autonomous mapping, imaging or collection of other oceanographic data. It follows a pre programmed route



ROV

Description:

Remotely Operated Vehicle

Function:

Equipment to explore and collect geological, biological and oceanographic data



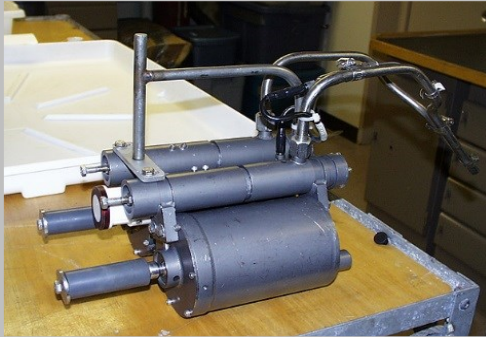
FLUID PROBE

Description:

Hydrothermal fluid sampling equipment

Function:

Hydrothermal fluids sampling for chemical analysis



PLANKTON NET

Description:

Sampling equipment

Function:

Plankton collection



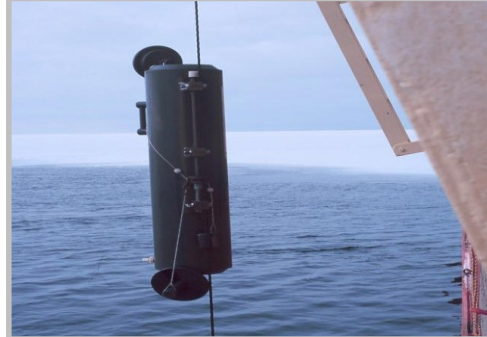
NISKIN BOTTLES

Description:

Sampling equipment

Function:

Water sampling at different depths, for biological and chemical studies



RESEARCH SUBMERSIBLE

Description:

Investigation and sampling equipment

Function:

Equipment to explore and collect geological, biological and oceanographic data.

Direct observation allowed



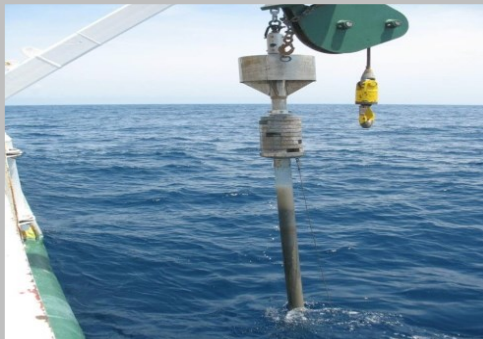
GRAVITIC CORER

Description:

Sampling equipment

Function:

Stratified sediments sampling up to 30 m (Calypso Corers)



CHEMIST

SAILOR

GEOPHYSICIST

ELECTRICAL
ENGINEER

FIREMAN

ROV PILOT

SIG's EXPERT

BIOLOGIST

SCUBA DIVER

NURSE

CIVIL
ENGINEER

ARCHITECT

OCEANOGRAPHER

GEOLOGIST

COOK

DOCTOR

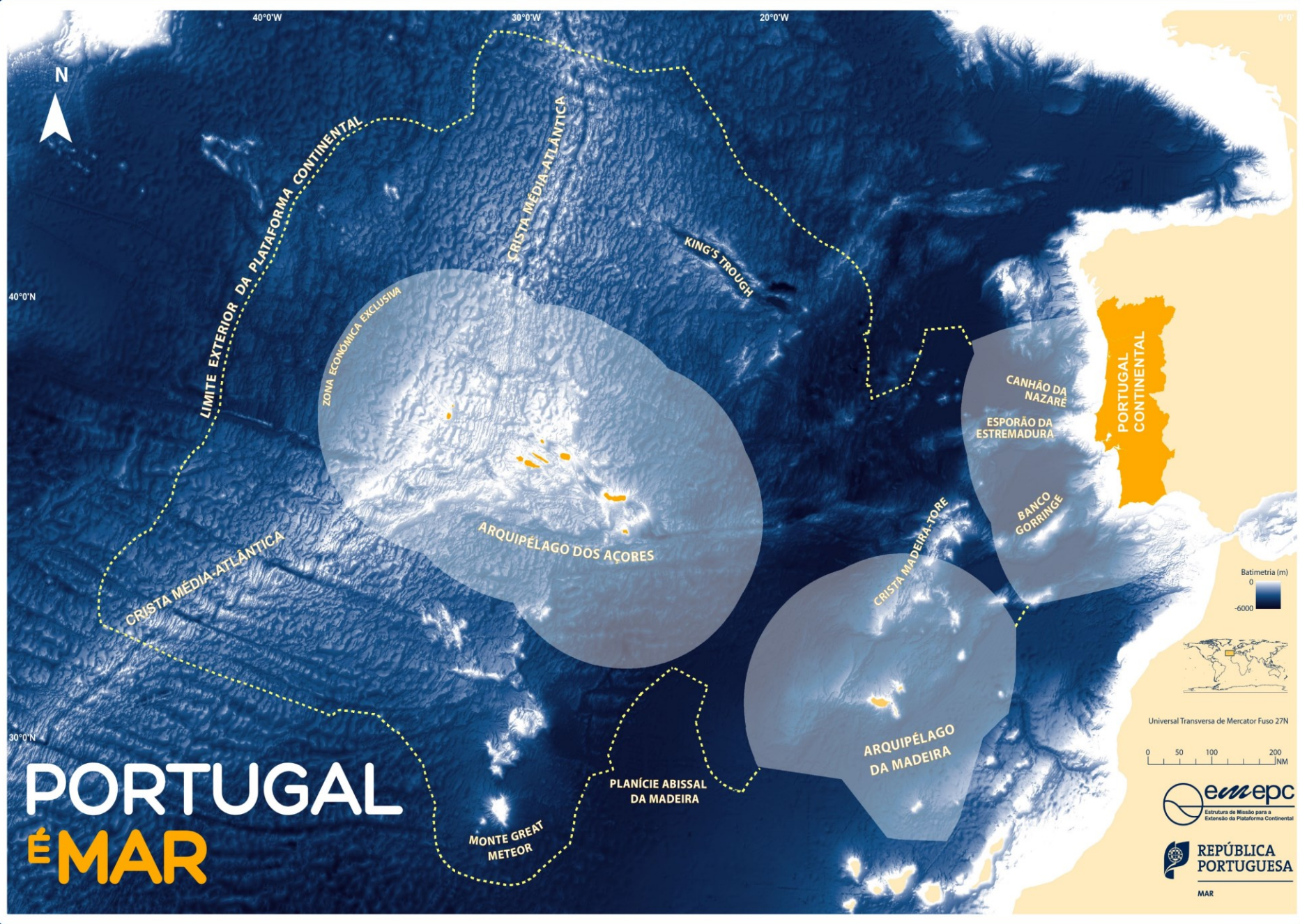
ELECTRICIAN

FISHERMAN

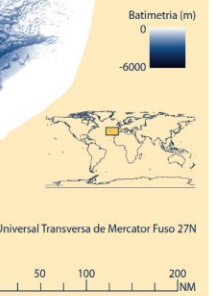
HYDROGRAPHER

VESSEL COSTS
20.000€ PER DAY

VESSEL VELOCITY: 10 kt
(1 knot ~ 1 nautical mile/hour)



PORTUGAL É MAR



Limite exterior da Plataforma Continental, submetido por Portugal em 2017 e em avaliação na Comissão de Limites da Plataforma Continental das Nações Unidas. Para mais informações sobre o Projeto de Extensão da Plataforma Continental de Portugal consulte: www.emepc.pt