



LARSyS Lab Associado

Comments on

Atlantic Ocean

***A Draft Marine Research Plan for the
European Atlantic Sea Basin***
Discussion Document

Fernando JAS Barriga
Creminer, LARSyS (Lab Associado)

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General comment

- Draft document is very well organized, easy to read
- Covers extensively nearly all the relevant aspects
- Overall an excellent document

Suggestions

- Deep biosphere and extremophiles should be included (in the Deep-Sea Frontier)
- Climate change research must include the ice and geological record, in addition to monitoring and forecasting
- Minor suggestions and corrections attached

Minor suggestions and corrections

- Page 6, paragraph 2: principal aims, not principle aims
- Page 6: marine and maritime declared treated as synonyms, but defined differently in the same page (see also page 17, Marine Leisure and Tourism, including maritime culture & heritage)
- Page 10, figure 3.1: oil and gas missing entirely
- Page 11, Figure 3.2: Madeira Is., not Maderia
- Page 19, the DSF box: avoid abbreviating “massive polymetallic sulphide deposits” as “polymetallic sulphides” – use “seafloor massive sulphides” (sms) instead

Deep sea geological resources and mining

- Applied research versus industrial activity
- Seafloor and sub-seafloor massive sulphides
 - Inactive ssms
 - Very high potential, must be demonstrated
 - (s)sms underestimated by a factor of 600 (Cathles, 2011)
- New sources of hydrocarbons
 - Deep biosphere
 - Serpentinization
 - Implying new, additional exploration areas for oil and gas (conventional and non-conventional)

Robotic tools needed

- Perfect 3D positioning
- Sniffers and autonomous miniature analysers (H_2O)
- High-precision, near-bottom geophysical mapping tools
 - Side scan, sub-bottom profiling
 - Gravity, magnetics, electrical
- Seafloor robotic geologists (Mars Rover-type tools)
 - Sampling, coring, rock and sediment geochemical analysers, both autonomous and remotely triggered

Seafloor mining is coming

- A major source of societal benefit, but...
- Must be done right
- Concerned scientists must participate, to...
 - Anticipate burdens
 - Design experiments
 - Detect impacts

Thank you