Recent threats on coastal ecosystems by new pollutants: a multiple trace elements study

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Introduction

➡ Some previously poorly studied trace elements can now be considered as chemical pollutants further to the recent modification of their production and uses.

Bioindicators :
- monitoring of the ocean health status ;
- pollutants biologically accessible.

1st objective:

Some previously poorly studied trace elements can now be considered as chemical pollutants further to the recent modification of their production and uses.

• potential use of *Paracentrotus lividus*, *Posidonia oceanica* and *Mytilus galloprovincialis* as bioindicators ;

Sampling strategy:

❖ spatial variability (Marseille, Calvi, Naples)
❖ seasonal (march, june, november) and interannual variability ;
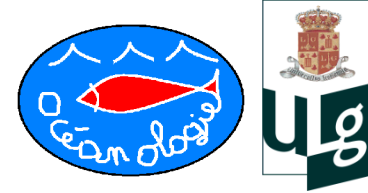❖ trace element distribution in organism tissues.

2nd objective:

Some previously poorly studied trace elements can now be considered as chemical pollutants further to the recent modification of their production and uses.

• bioconcentration and the biomagnification processes ;

• potential use of *Paracentrotus lividus*, *Posidonia oceanica* and *Mytilus galloprovincialis* as bioindicators ;

Paracentrotus lividus

Posidonia oceanica

suspended matter

sea water

sediment

Mytilus galloprovincialis

3rd objective:

Some previously poorly studied trace elements can now be considered as chemical pollutants further to the recent modification of their production and uses.

• dynamics of absorption and excretion of selected elements in experimental mesocosms ;

• bioconcentration and the biomagnification processes ;

• potential use of *Paracentrotus lividus*, *Posidonia oceanica* and *Mytilus galloprovincialis* as bioindicators ;
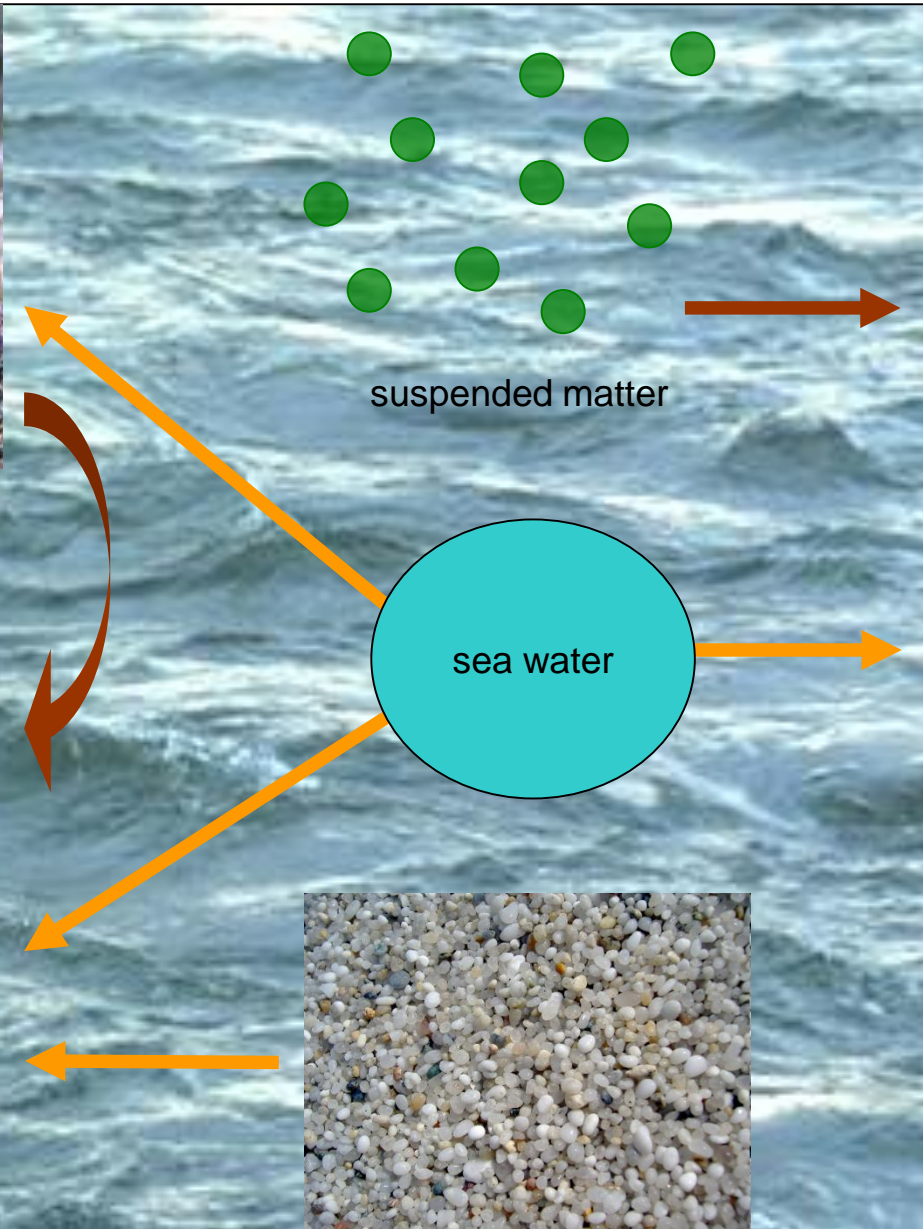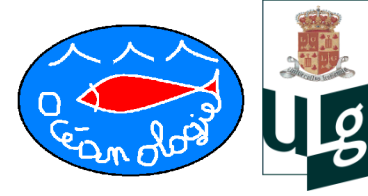
4th objective:

Some previously poorly studied trace elements can now be considered as chemical pollutants further to the recent modification of their production and uses.

• cartography of the seagrass bed health status of PACA and Corsica coasts (trace element, biometry, stable isotopes and C:N:P ; collaboration with the IFREMER);

• dynamics of absorption and excretion of selected elements in experimental mesocosms ;

• bioconcentration and the biomagnification processes ;

• potential use of *Paracentrotus lividus*, *Posidonia oceanica* and *Mytilus galloprovincialis* as bioindicators ;

Sampling strategy:

❖ 42 sites sampled in april 2007

5th objective:

⟹ Some previously poorly studied trace elements can now be considered as chemical pollutants further to the recent modification of their production and uses.
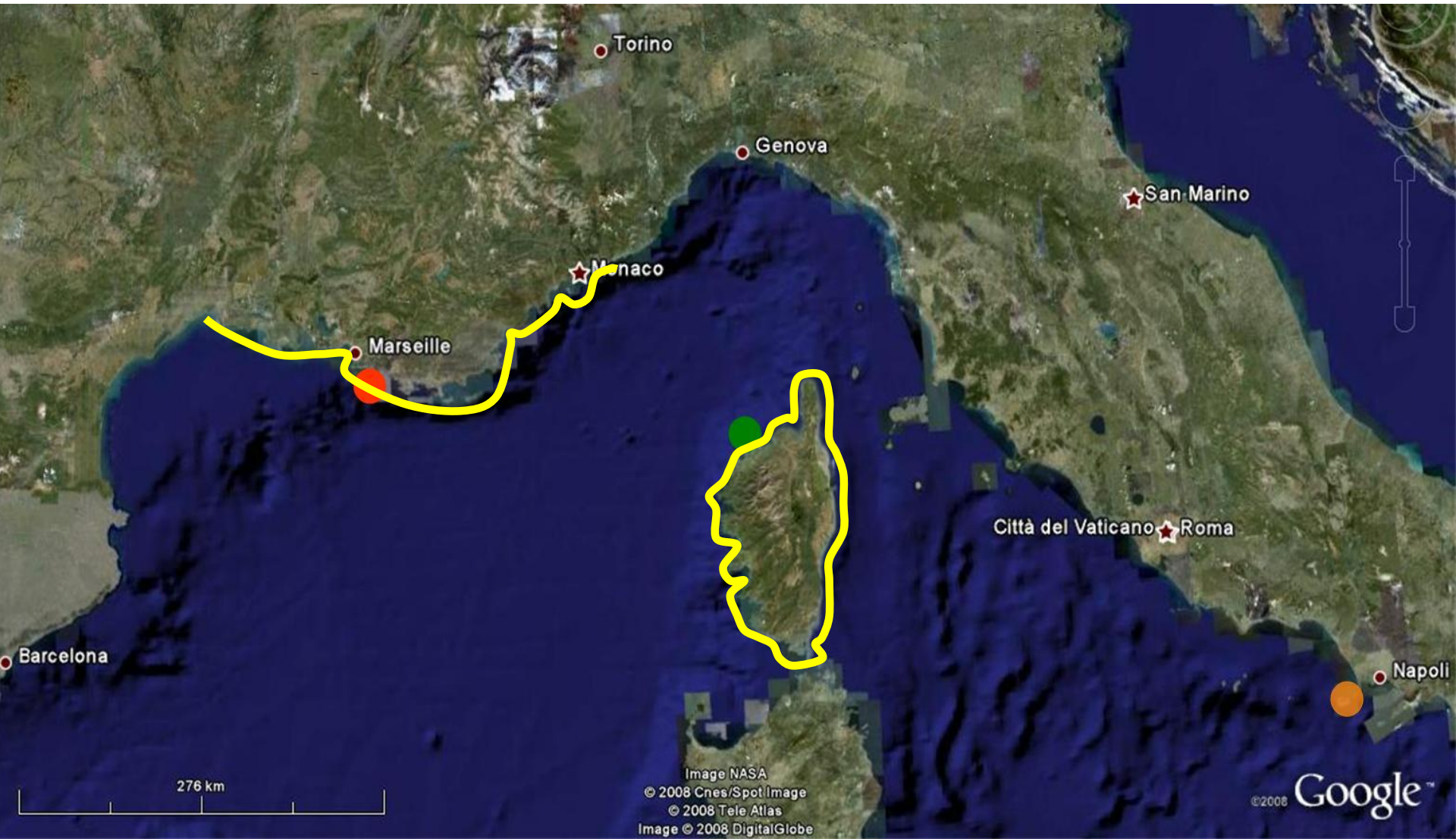
• lepidochronological analyses.

• cartography of the seagrass bed health status of PACA and Corsica coasts (trace element, biometry, stable isotopes and C:N:P ; collaboration with the IFREMER);

• dynamics of absorption and excretion of selected elements in experimental mesocosms ;

• bioconcentration and the biomagnification processes ;

• potential use of *Paracentrotus lividus*, *Posidonia oceanica* and *Mytilus galloprovincialis* as bioindicators ;
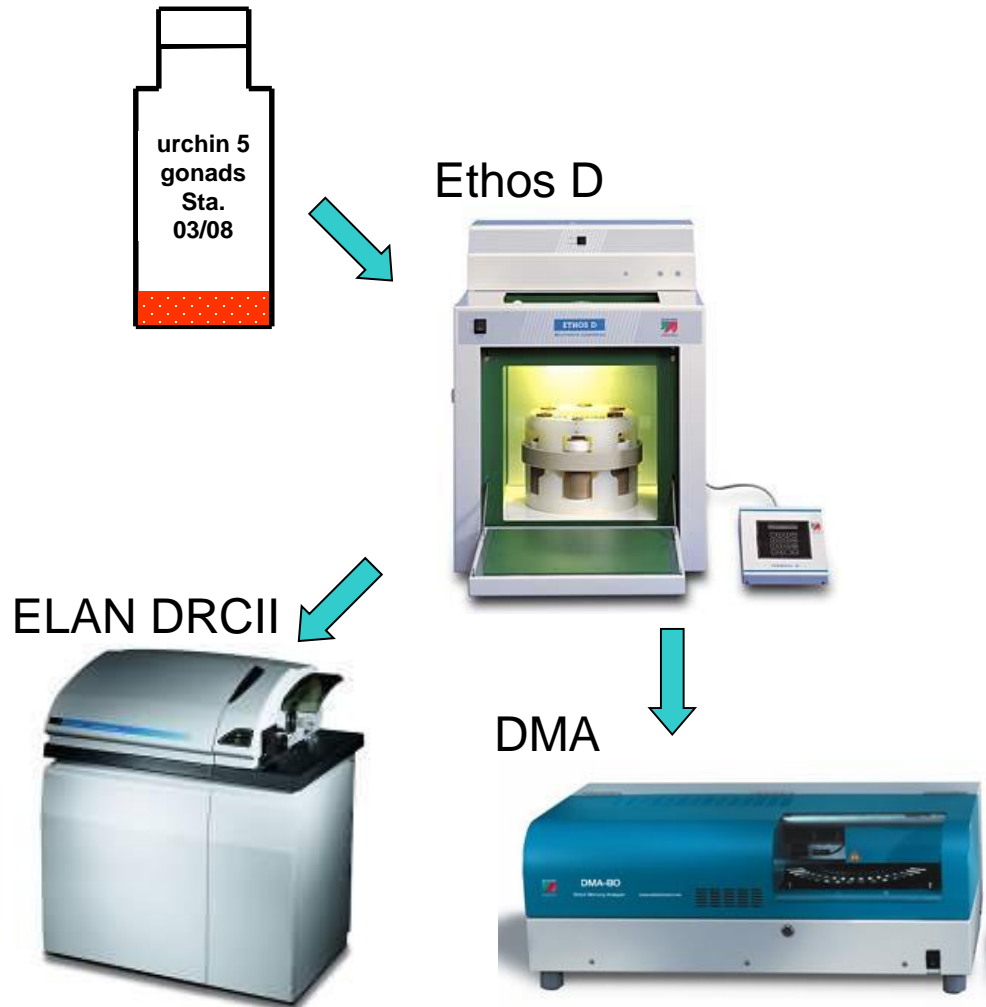
Conclusion:

➢ biodindicators for trace element pollution ;

➢ environmental accessibility and bioamplification ;

➢ contamination dynamics ;

➢ cartography of the seagrass bed health status ;
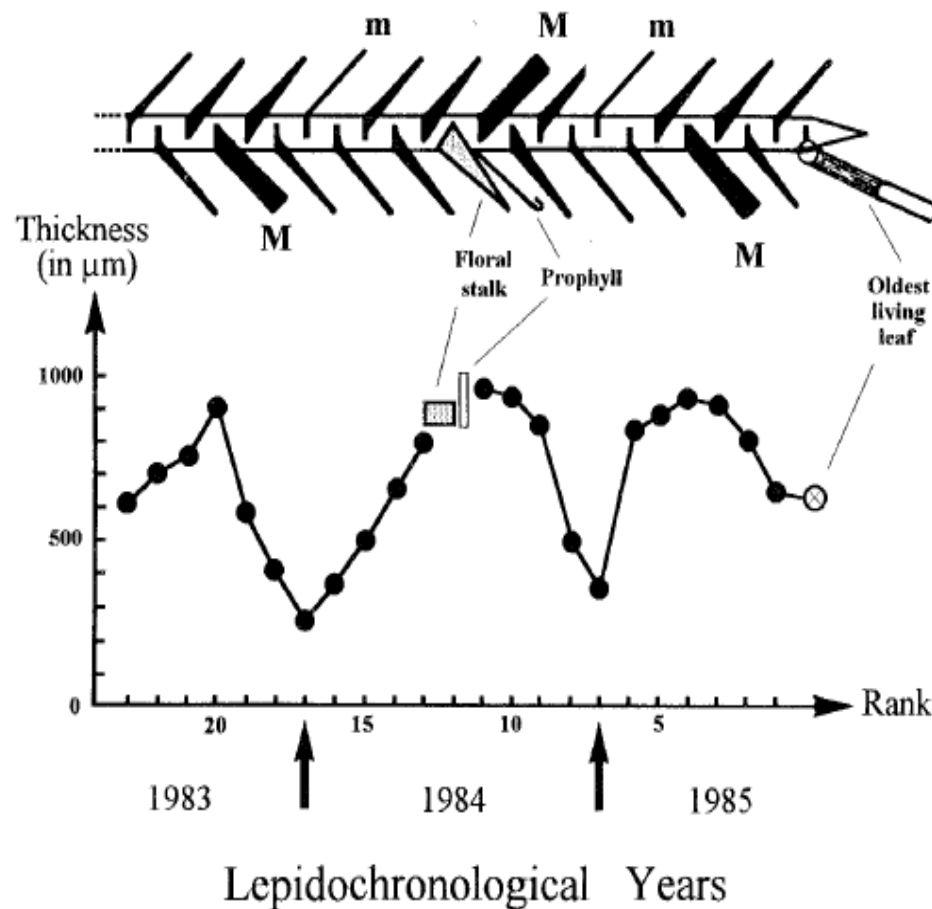
➢ lepidochronological analysis.

Laboratory analyses

urchin 5
gonads
Sta.
03/08

Ethos D

ELAN DRCII

DMA

Analytical steps:

• homogeneous sample

• acidic digestion in a microwave oven

• measures :
  ➢ inductively coupled plasma mass spectrometer
  ➢ Hg analyser

Lepidochronology

> similar to dendrochronology ;

> relate past trace element pollution of the environement

Pergent-Martine and Pergent (1994).