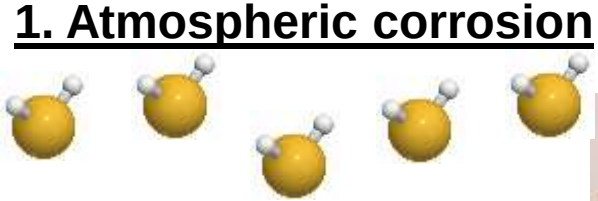
CORSAiR

Atmospheric and marine **COR**rosions. Impact of chemical products from **SAR**gassum decomposition and role of microorganisms on materials degradation. Phenomenological and legal considerations.

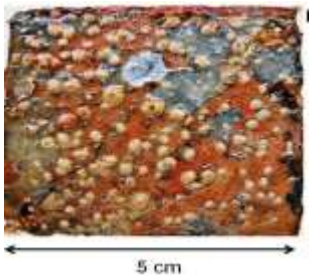
C. ROOS, L3MA, Université des Antilles

Context of the project

1. Atmospheric corrosion



1I. Marine corrosion



III. Legal problem

- € - € - € - €

recurrent degradations

Financial losses and despair

Aims

Atmospheric and marine **COR**rosions studies. **I**mpact of chemical products from **SAR**gassum decomposition and role of microorganisms on materials degradation. Phenomenological and legal considerations.

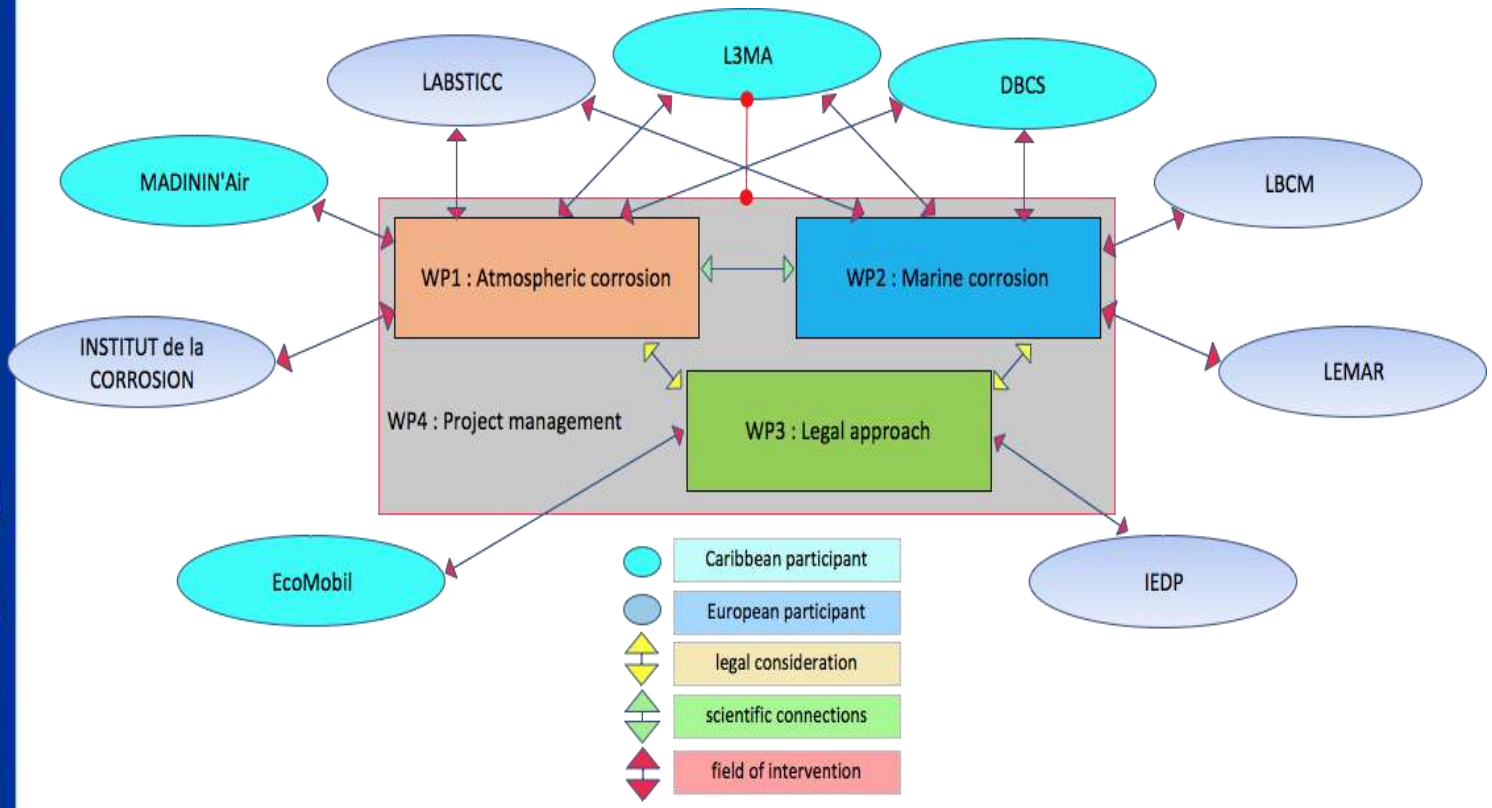
FOR appropriate

Technical Solutions
Legal Answers

The consortium

9 partners with an efficient complementarity

a balanced partnership between partners in the Caribbean and mainland France



The consortium

Cross skills and performant technical devices

Environmental Law

Network of connected exposures sites

Societal analysis

Corrosion

Biofilms/biofouling

CORSAiR

Biocorrosion

Marine molecules

Coating / green inhibitors

SRBs

Electrochemistry/electrochemichal system

Management of the project - WP

- WP1 : Atmospheric Corrosion
- T1 : Sampling Plan
- T2 : Measurement of the corrosivity
- T3 : Understanding, modeling and prediction
- T4 : Biocompatible local natural inhibitors

Climatic exposure station of metal samples -T1
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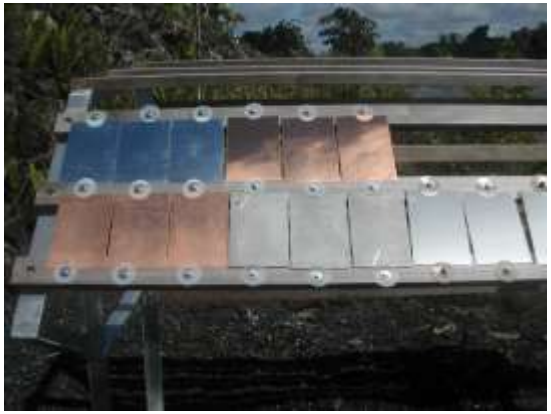

Management of the project - WP

- WP2 : Marine Corrosion
- T1 : Sampling Plan
- T2 : Characterization of the marine environment (chemical and biological components)
- T3 : Biofilms characterization
- T4 : Quantification of the corrosion
- T5 : Understandig and modelling of biocorrosion
- T6 : Local molecules of biocidal power (antifouling)
- T7 : Electroactivty of biofilm and energy recovery

experimental device before immersion
© L3MA - T1

microbial fuel cell prototype - T7
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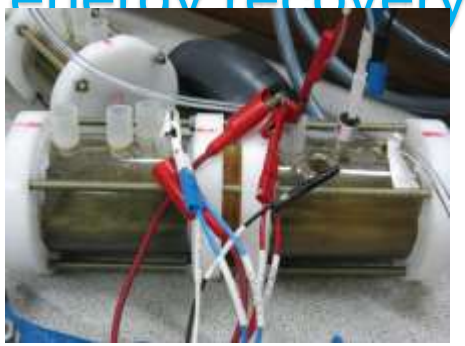

Management of the project - WP

- WP3 : LEGAL APPROACH
- T1 : Compilation of data
- T2 : Legal approach

- Private law aspects : review, implement, improve

- Aspects of public law : review and ways of improve

- Aspects of international la
coope

3 Research questions addressed

- WP1 : how to act to limit corrosion due to the combined presence of H_2S and Cl^-?
- WP2 : Is there a link between ecosystem of rafts of Sargassum, the presence of SRBs in it and the acceleration of the corrosion of submerged metal structures?
- WP3 : Is it necessary and possible, in the light of the existing legal arsenal, to make it more effective and / or to improve it? in a regional and international context?

Results expected

- WP1 : Corrosivity of exposure sites.

Understanding and modeling of the phenomenon of corrosion. Natural inhibitory solution

- WP2 : Characterization of biofilms (SRBs).

Corrosion rate.

Development of a new generation of sensors.

Electroactive potential of micro-organisms.

Natural molecules with antifouling performance.

- WP3 : Compilation of legal tools.

Proposals for improvements from the private, public

and international perspectives.

Dissemination
Perspective for development

- Dedicated WEB site : Corsair_project
- Public events (science festival, open day, …)
- Communications (oral or poster) - congress
- National and International publications
- WP1 : Ecocompatible local inhibitory solution (sargasses against sargasses ?)
- WP2 : Molecule with biocidal power - New sensors technology - Bioelectrochemical system sargasses ? Development of a natural coating.
- WP3 : improvements of legal arsenal

Institut de la Corrosion
French Corrosion Institute

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Laboratoire de Biotechnologie et Chimie Marines

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Thank you for your attention
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