The French “ALeRT” project: a participative approach at the bedside of the threatened archaeological heritage

Marie-Yvane Daire and Chloë Martin, in cooperation with Elías López-Romero, and Pau Olmos
Geographical Context: Western Europe

**Study area:** Western France

**Regions:** Brittany, Normandy and Pays-de-la-Loire

**Coastline features:**
- 2 coastal façades: Atlantic and English Channel
- More than 2,970 km of coasts
- 69% of the total French mainland coasts
Diversity of the coastal features/morphology...

Various impacts of climate changes (coastal erosion)

[Map showing English Channel and Atlantic Ocean]
## Cultural Context

### Richness of the coastal cultural heritage at risk

<table>
<thead>
<tr>
<th>Préhistoire</th>
<th>Protohistoire</th>
<th>Périodes Historiques</th>
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<tbody>
<tr>
<td>Paléo - Mésolithique</td>
<td>Age du Bronze</td>
<td>Antiquité</td>
</tr>
<tr>
<td>Néolithique</td>
<td>Age du Fer</td>
<td>Moyen Age</td>
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- 500 000 - 7 000 a - 6 000 - 2 000 - 800 - 50 - 500 - 15e s.

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1 – Context  
2 – ALeRT project  
3 – Actions and methods  
4 – Conclusion
Coastal erosion and heritage vulnerability: also a question of rhythm

Effects of climate change on cultural heritage can be either slow and progressive...

*Plomeur, La Torche (Finistère), WWII Blockhaus*
(ph. M. Monros)
Coastal erosion and heritage vulnerability: also a question of rhythm

Effects of climate change on cultural heritage can be either slow and progressive... or sudden and rapid!

3 metres of coastal retreat during the winter 2013-2014

*Pors Hir cliff (Plougrescant, Côtes d’Armor) Palaeolithic and Iron Age*  
(ph. P. Olmos)
General issues:

- **Loss** of heritage and scientific data
- **Lack** of dedicated rescue programs in France
- **Need** for tools to survey and minimize the destruction of coastal heritage

*Neolithic megalithic monument in Plouescat (Finistère) (UMR 6566 CRéAAR archives)*
Coastal erosion and heritage vulnerability: also a question of...
Genesis:

• ALERT started in **2006**

• **Interdisciplinary** approach

• Coastal heritage at **risk**

*Penestin cliffs expertise (Morbihan) (UMR 6566 CReAAH archives)*
Main objectives:

• Development of **strategies** (research and management) at various scales:

• Coastal heritage data **preservation**

• Assessment of the coastal heritage **vulnerability**

• Contribution to heritage coastal **management**.

**Penglaouic Neolithic standing stone (Finistère)**
(UMR 6566 CReAAH archives)
ALeRT (Archéologie Littoral et Réchauffement Terrestre)
Archaeology, Coasts and Climate changes

- Observation/data collection
- Preservation by record
ALeRT (Archéologie Littoral et Réchauffement Terrestre)
Archaeology, Coasts and Climate changes

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Archaeology, Coasts and Climate changes

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Different **contributors** involved:

- public
- volunteers
- scientists
- heritage managers and authorities
- coastal managers.

*Penestin cliffs sites erosion, field expertise (Morbihan) (UMR 6566 CReAAH archives)*
Observation / data collection

• The Vulnerability Evaluation Form (VEF)
## The ‘Vulnerability evaluation form’ (VEF)

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<th>Variable evaluation</th>
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<tr>
<td></td>
<td></td>
<td>5 Very strong&lt;br/&gt;&lt;10 m</td>
</tr>
<tr>
<td>A</td>
<td>Infrastructures</td>
<td>X</td>
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<tr>
<td></td>
<td>Activities</td>
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### Nature

- **A. Inacti**
  - >500 m: Very strong
  - 200 < <500 m: Strong
  - 50 < <200 m: Moderate
  - <50 m: Weak
  - <10 m: Very weak

### 1 – Context

- ALeRT project

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**Vulnerability = A - B**

**Multiple results:**

Scale (site, local scale, regional scale)
Chronology
Type of variable
Mapping the cultural heritage vulnerability

- From the site to the regional scale
- Ranking the sites/areas vulnerability
- Use in coastal heritage management and for public information

Vulnerability map of the Vilaine river estuary heritage
ALeRT

Specific tools:

• a dedicated interactive database

https://alertarcheo.univ-rennes1.fr/
ALeRT

Specific tools:

• « Alert Mobile » application for pads and smartphones

https://alertarcheo.univ-rennes1.fr/
Sites monitoring

- Multi-scale analysis of the data
- Ranking/selection of the most vulnerable site
- Help for decision
- Methods and actions (surveys, excavations...)

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Archaeological sites monitoring

The Triélen Island case study (Finistère)
Deepened investigations

Archaeological investigations, environmental analyses...

Yoch islet (Finistère)

Excavation, Groix island (Morbihan)

3D scan (Finistère)

(doc. UMR CReAAH)

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Coastal erosion and vulnerability

Archaeological sites monitoring

The Locquémeau-Trédrez case study


Documents J.M. Cariolet, UBO

Fouille programée juillet 2009

Photos J. Lejeune 11/03/08
Winter 2013-2014
Combination of storms (rain, flooding and winds up to 140 km/h), and high tides (114 coef.).
Field expertise on the Batz island (Finistère)

Moulin de la Rive, Locquirec (Finistère)

Presentation to the ARSSAT members (Côtes d’Armor)

Field trip with volunteers in the Santec area (Finistère)
Information/communication/network

Organisation of training courses for:

- students
- volunteers of local associations,
- coastal guards of the nature reserves
- « Conservatoire du Littoral »...

(potentially 900 in France)

Training: from the theory to the field reality...
Information/communication/network

- a dedicated website
- Social medias

http://alert-archeo.org

- Presentation of the project
- Participation process
- Communication
- Case study
- Fieldwork agenda
- Links to the tools (database)
Information/communication/network

- printed posters and leaflets
- systematic mailing to all the local authorities
  (city councils, departemental offices...)

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Conclusions

• ALeRT methods and tools: efficient in the regional/national context

• Adaptability to other areas: the Spanish (Galicia) experience

Collaborative international projects (GALA, Bregantia, eSCOPES)
Conclusions
Conclusions

The current european context

SCAPE
Rapid Coastal Zone Assessment / CitiZan
Arfordir

Arch-Manche

ALeRT
Arvor
Bregantia
GALA

Noé Cartodata

Archi-Med
eSCOPES
Conclusions
Thank you for your attention...