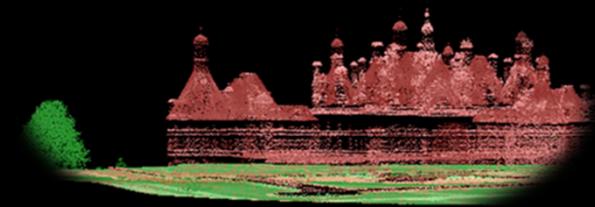


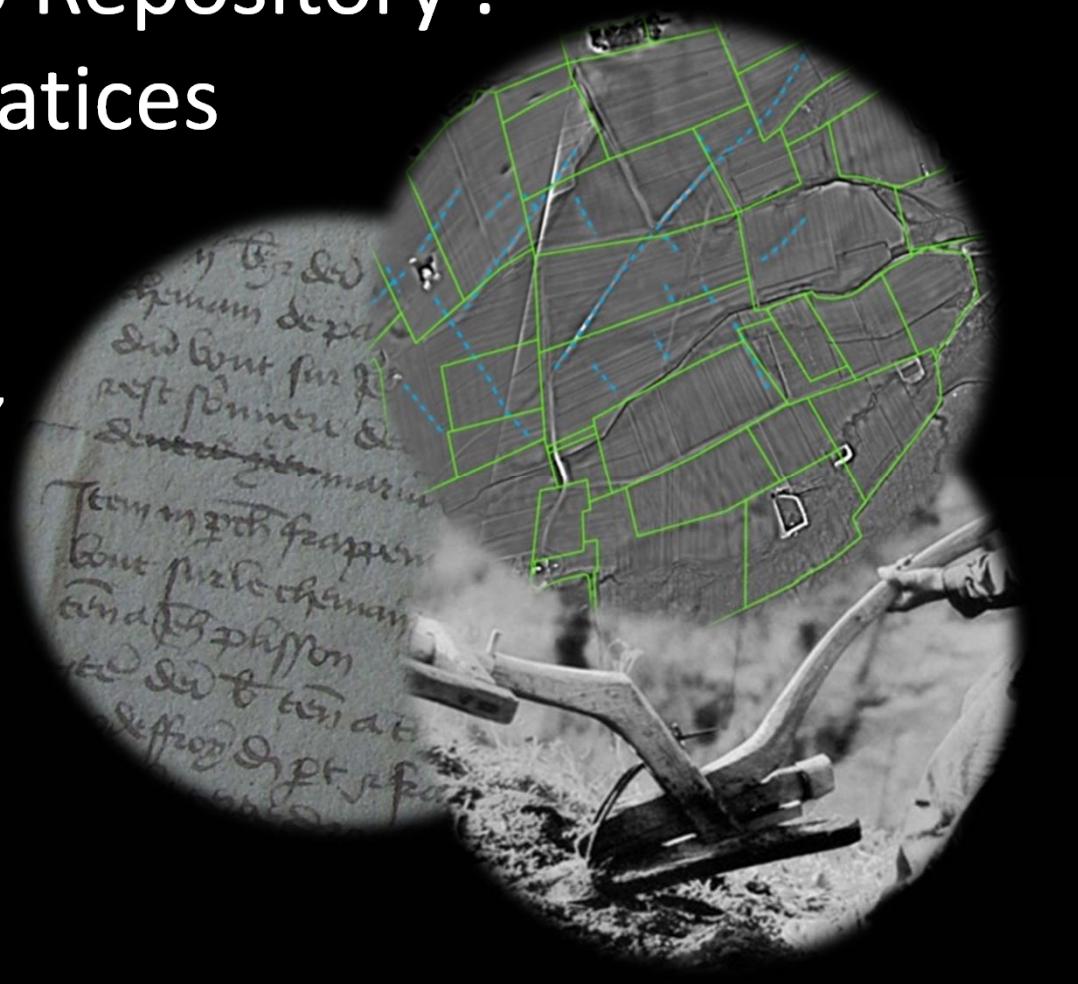
# TRAIL 2016



Training and Research on the  
Archaeological Interpretation of LiDAR  
Chambord (Loir-et-Cher, France)  
17 - 20 May

## Workshop Repository : Lidar & Practices

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Philip Verhagen



# Context and problem setting of the workshop

The idea for this workshop originated from a series of seminars held in Besançon and Tours in 2015, within the framework of a course ‘LiDAR and Practices’ and a workshop focused on LiDAR and modelling of communication networks. These seminars were prompted by the following considerations:

1. The difficulty to progress from the description of anomalies in LiDAR to their interpretation, and the general failure of using only morphological descriptors for this
2. The difficulty to go beyond the cartography to understand the remains within an historical and socio-environmental framework at the micro-scale and from a comparative point of view
3. The difficulty to employ LiDAR data in spatio-temporal modelling approaches.

# Aims of the workshop

On the basis of selected case studies, this workshop aims to :

1. create a first draft of an ontology of topographical objects that are detected, or that can potentially be detected, in LiDAR data
2. define the specifications for a knowledge-base platform to be used by remote sensing experts, archaeologists, historians and modellers

It is not the intention to create an exhaustive thematic database, but rather to formalize the approach needed, so we will work together on selected examples.

# Workshop schedule

1. Introduction to the problem setting and aims of the workshop
2. Presentation of the selected cases
3. Work on the case studies in pairs (approx. 25 minutes)
  1. Developing descriptive forms
  2. Defining relationships between elements
  3. ...
4. Discussion about the results: how to relate objects, conceptual problems, technical issues (approx. 30 minutes)
5. Synthesis of the workshop results (10 minutes)

LidarData:

Lidar Remote Sensing

Record

Topography  
Relief / micro-relief

Domain:

Residual relief  
Observation & model

Caracterize

Detect

Interpret

Model & Process:

Analysis:

Researchers - Professionals

LidarData:

Lidar Remote Sensing

Record

Topography  
Relief / micro-relief

Domain:

Residual relief  
Observation & model

Vocabulary D

Model & Process:

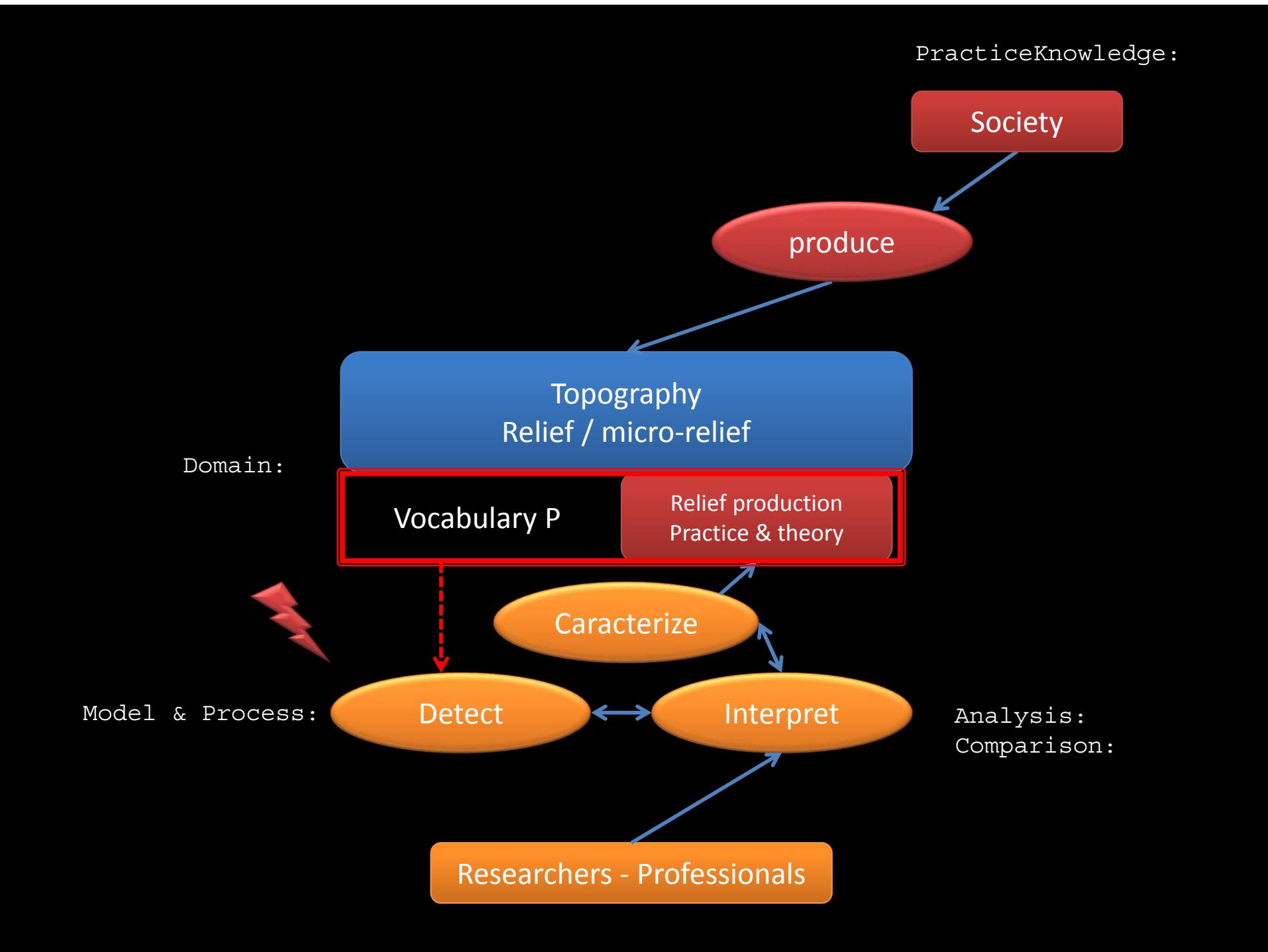
Caracterize

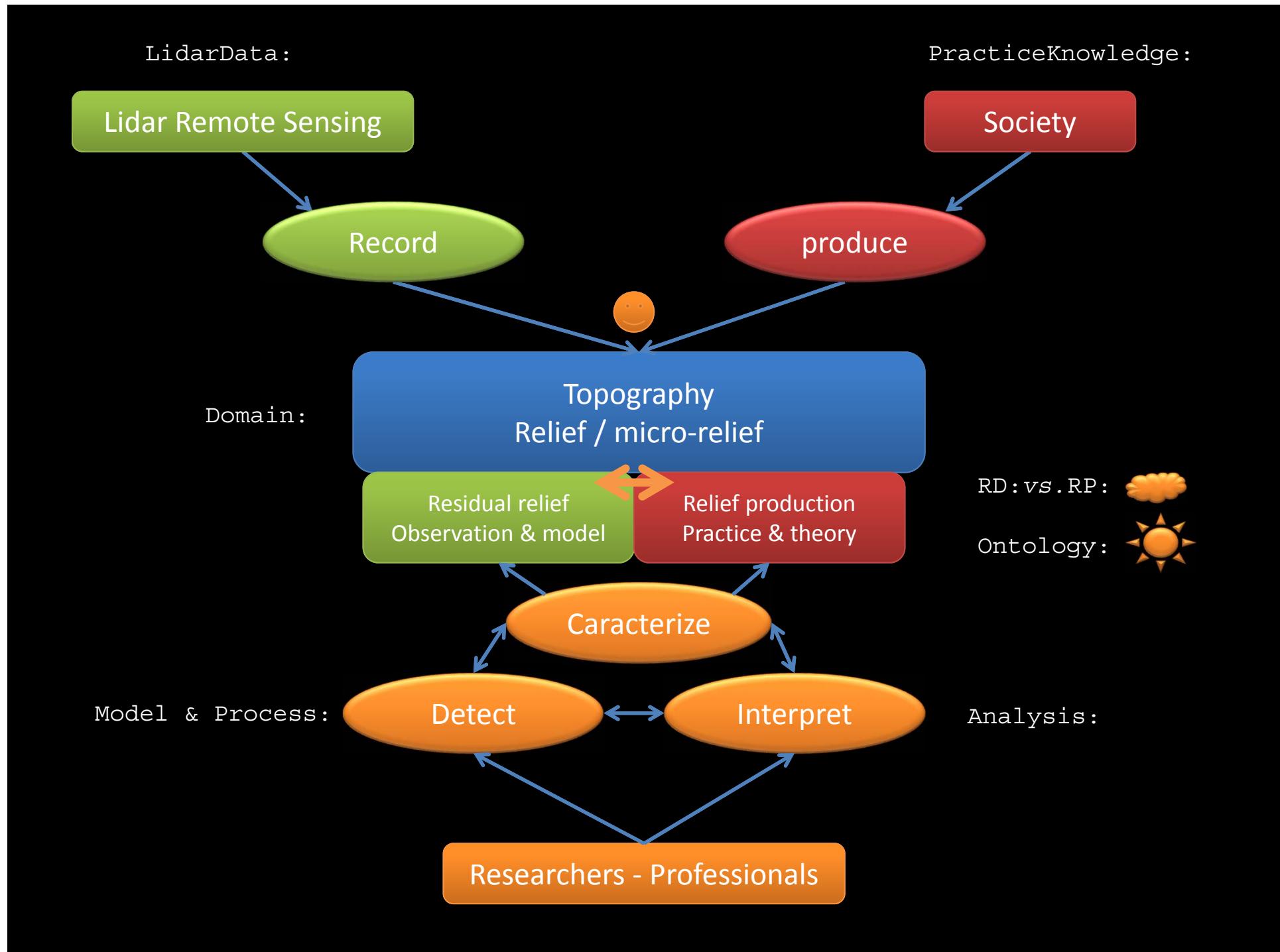
Detect

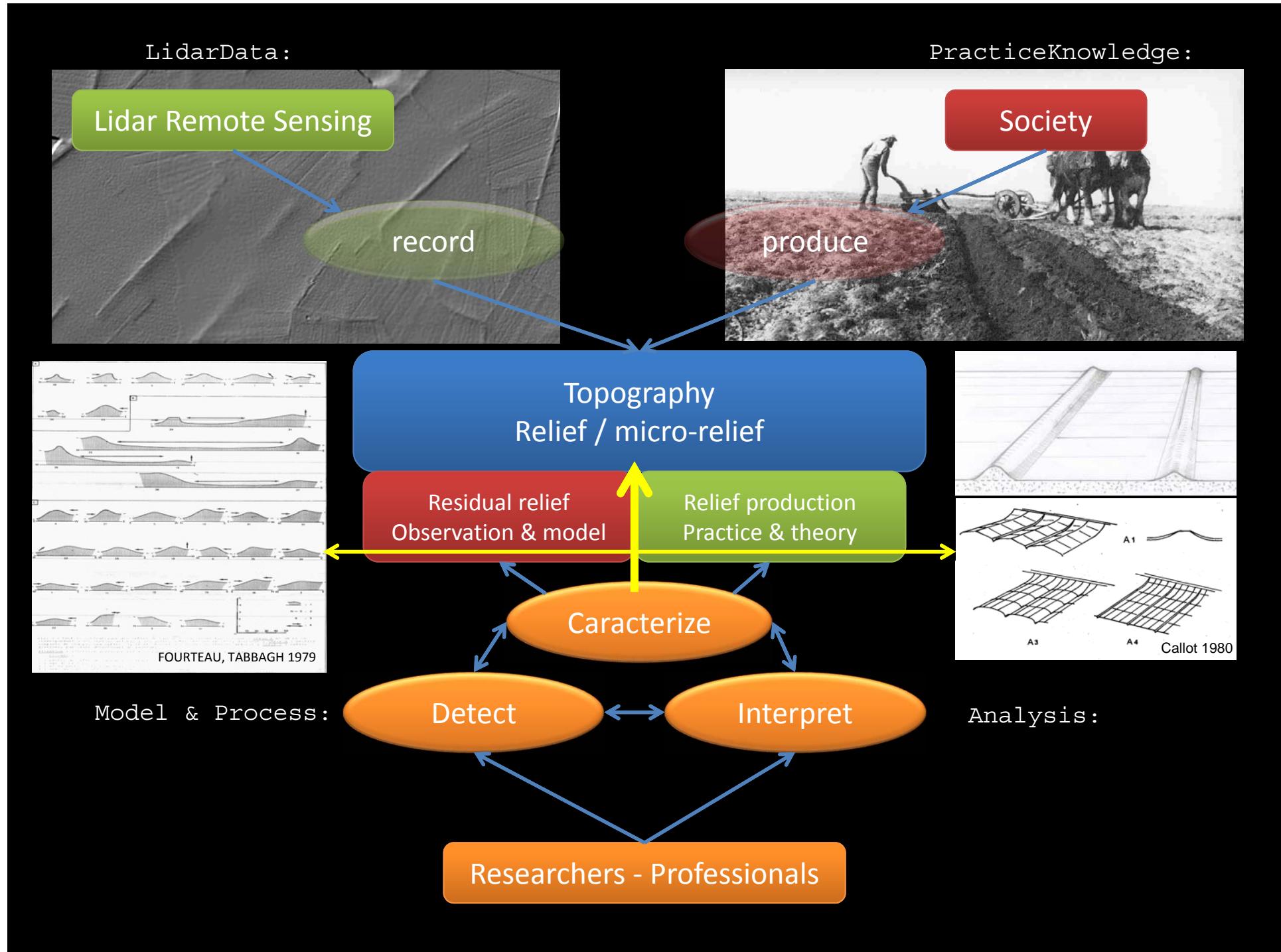
Interpret

Analysis:  
Comparison:

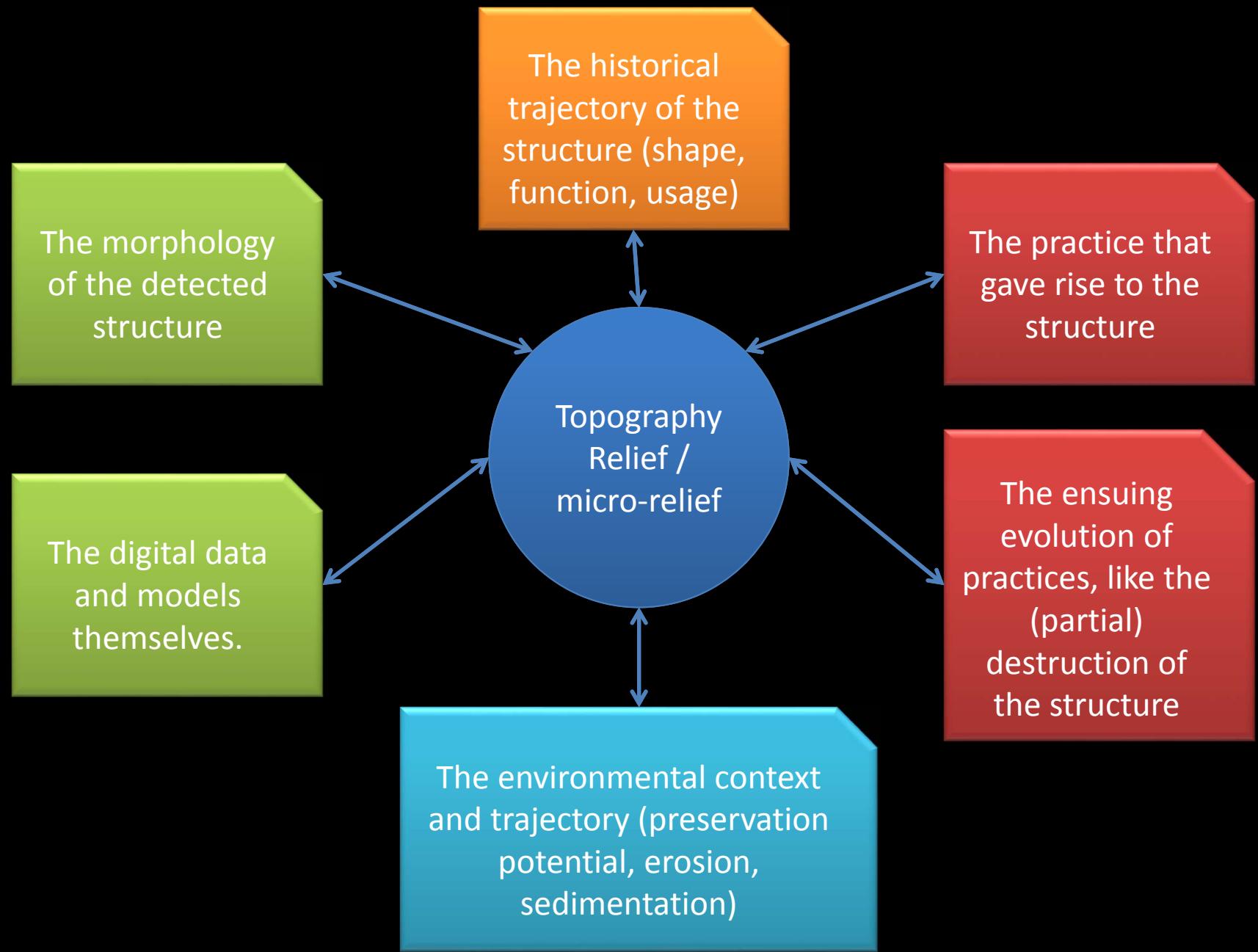
Researchers - Professionals







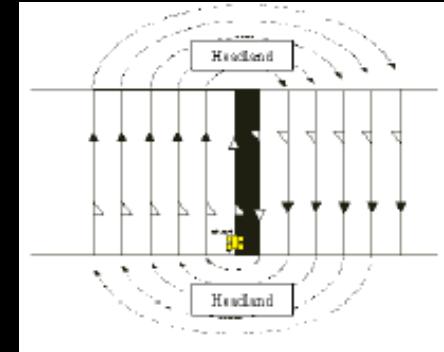
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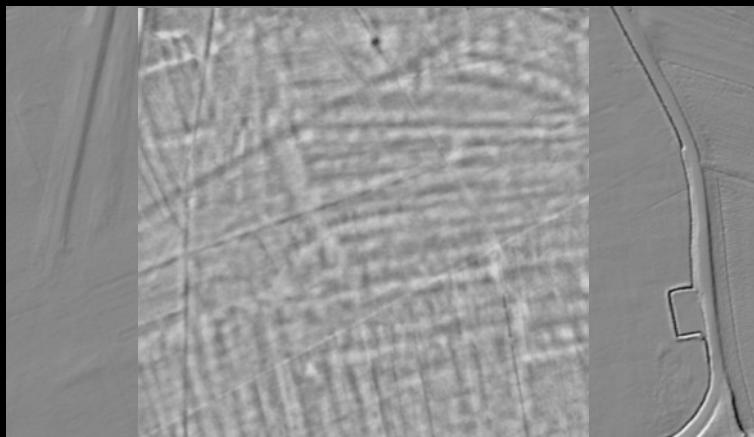
# Headlands



The Last Furrow by Henry Herbert La Thangue (1895)

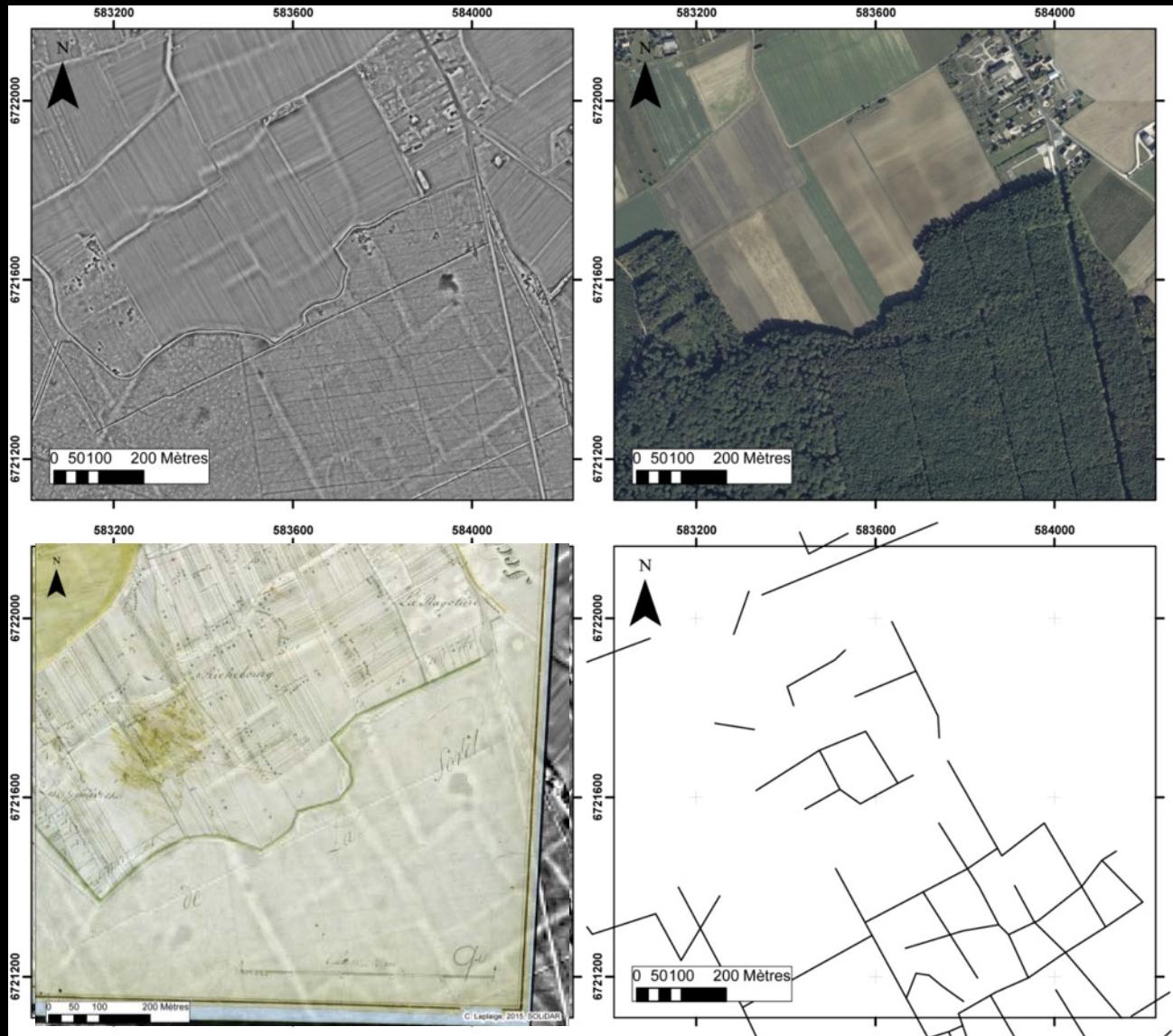


Headlands have been mainly studied by the archaeology community in plains of northwestern Europe; they are more developed in planar context. They are often associated with field border networks created during the Middle Ages and have been active for several decades to a few centuries ( [Zadora-Rio, 1991], Leturcq, 2008 and [Brown, 2009] ).



# Huisseau (forêt de Boulogne) association LiDAR cadastre 19e

SOLEIL AIR

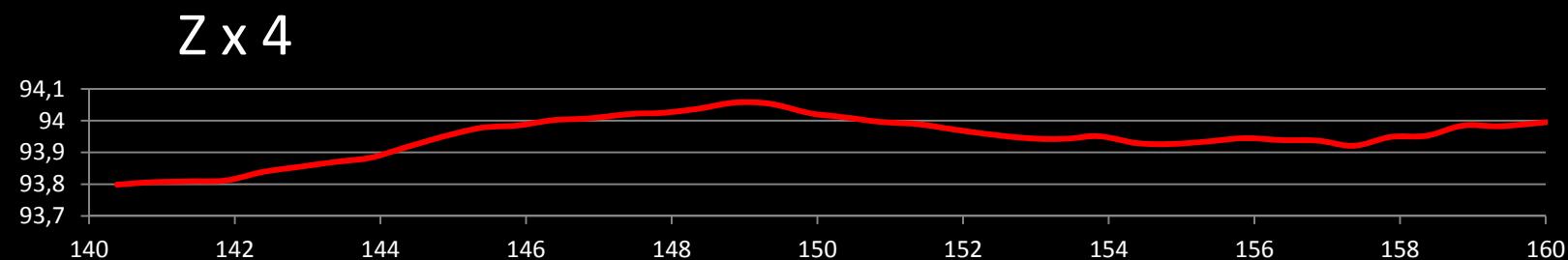
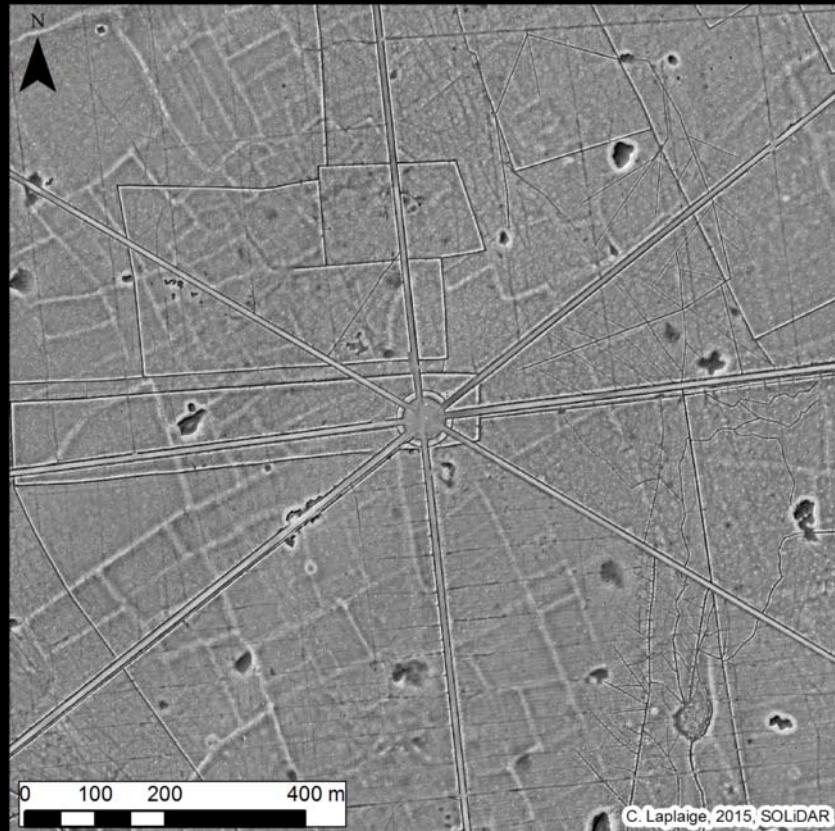


# Huisseau (forêt de Boulogne) association LiDAR cadastre 19e

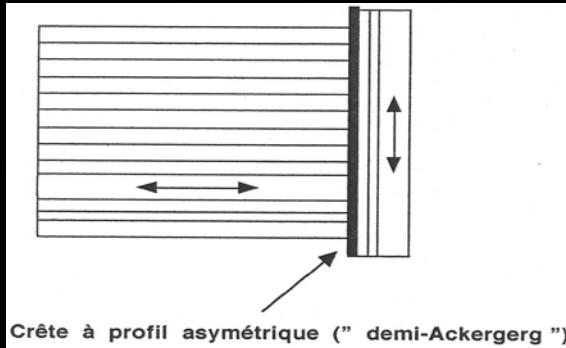
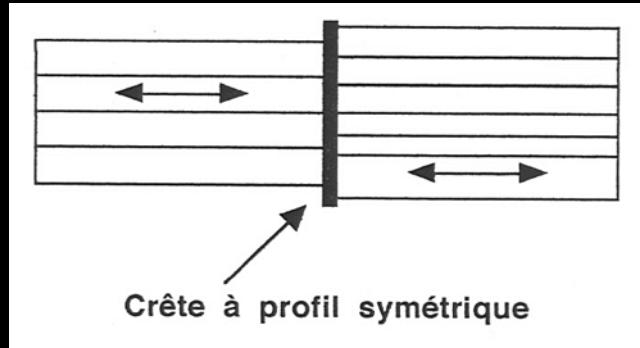
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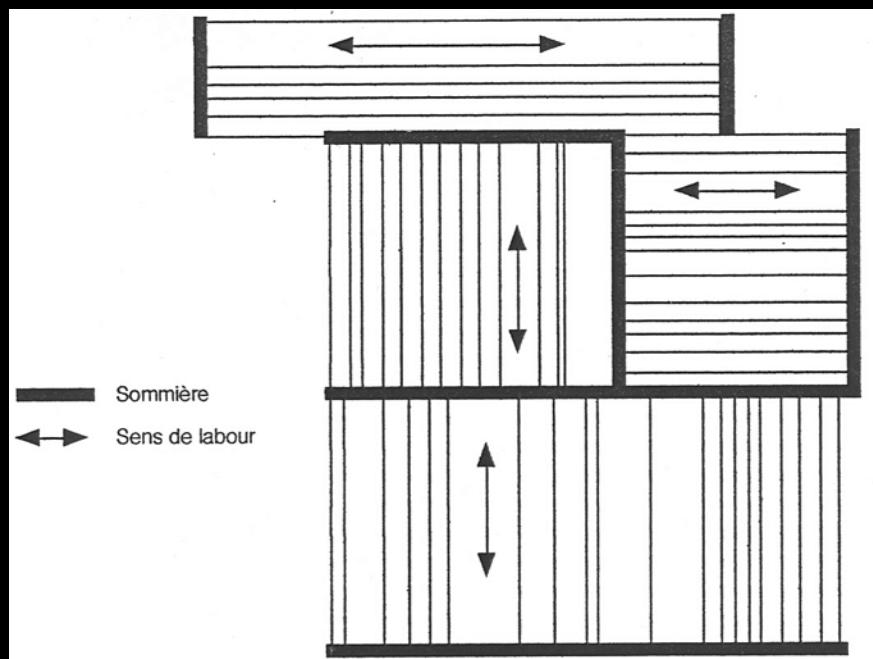
Ce type d'anomalie microtopographique forme un parcellaire (Russy)



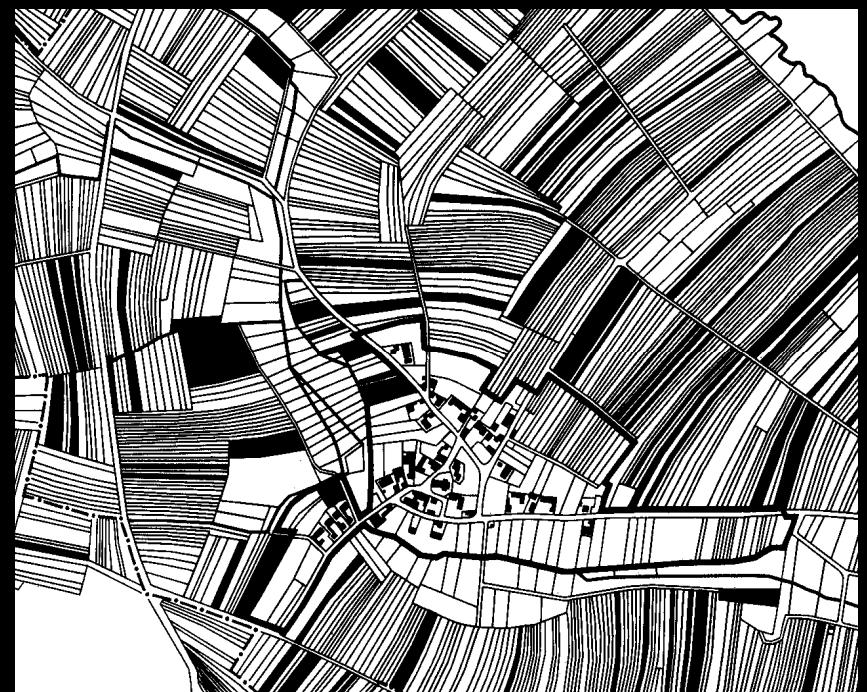
# Headlands to field system



S. Leturcq 2015



S. Leturcq 2015



B. Sittler 2015

# Censier de Toury de 1446

Longe gremz estreame le bapoz m b pch  
 Lez trez feuthon cougnet pour gruelle Billaut b  
 Lez enfez feuthon cougnet m b. b pch  
 La feme feut et courtois po b. b v. qte  
 Lecture de pommele po m pch jadis  
 Pictot godfroy pchendre m qte qte  
 Lez enffem se perut baron pch m qte qte  
 pictot barbuzet po. b pch  
 Thon manesson q b pchendre  
 Guillot cougnet le feun pchendre  
 Thon baudin ee pch. s. deu  
 Thon mon domelle m pch m qte qte

# Te n b. deu au long du  
 chemum depad pappent  
 du bout sur pch pissen  
 est sonier des ouies  
 denez germain Billat  
 Item m pch frappent dunes  
 bout sur le chemin de parie  
 tina pch pissen . m pch  
 et deu t en athon  
 godfroy dpt pappent d  
 sur la terre drouin le ro

**A**m

Marguerite fille le priez piquant pour  
 sur la terre drouin le ro  
 assie a la fouteurine ou chambert de le chateau  
 ce que frappent sur la  
 le pappent dunes bout sur le bout parr a est sonier  
 la que chemin de paris frappent dunes bout sur le bout parr a est sonier  
 a devant bout du chemin de cescez qui frappent dess le temz chateau de  
 le bapoz  
 Teding zet pappent du te n b. pappent sur le chemin depard le dune t p  
 ent le bapoz de la fontaine a deh le bapoz  
 poudre de la fontaine de la fontaine  
 bout pour m b. deu au long du chemum de la pinte  
 a gelle chene bateau  
 lez goutte de la fontaine de la fontaine de la fontaine  
 bout de la fontaine de la fontaine de la fontaine  
 bout de la fontaine de la fontaine de la fontaine

# Te n b. deu au long du  
 chemum depad pappent  
 du bout sur pch pissen  
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 Item m pch frappent dunes  
 bout sur le chemin de parie  
 tina pch pissen . m pch  
 et deu t en athon  
 godfroy dpt pappent d  
 sur la terre drouin le ro

Source : AD Yvelines, D 1315

# Déclaration de Marguerite, fille de feu Pierre Picart, pour les parcelles détenues dans les grands cens de Semonville, paroisse de Poinville (voisine de Toury) en 1446

*Pour III buniers assis à la fontasne au champs dit le carteau frappent d'ung bout sur le bois parc (?) et est sommière des terres qui frappent dessus le grand chemin de Paris*

*Item II buniers frappent sur le chemin de Paris tenant d'ung costé à Jehan Lebrun*

*Item pour IIII buniers et demi au bout du chemin de la plante tenant à maistre Raoul Chartin*

*Item VIII perches frappent sur le chemin de Paris tenant à maistre Raoul Chartin*

*Item II buniers et demi au long du chemin de Paris frappent du bout sur Jehan Plisson et est sommière des ouches de Marmonville (?)*

*Item III perches frappent d'ung bout sur le chemin de Paris tenant à Jehan Plisson*

*Item demi bunier tenant à Thomas Godeffroy d'une part et frappent sur la terre Drouyn Leroy*

*Item demi bunier frappent sur le grand chemin de Paris et tenant au long du chemin de la plante*

*Item IIII perches frappent du bout à la haye de la fontasne (...) tenant d'une part à Guillaume Chenu laboureur*

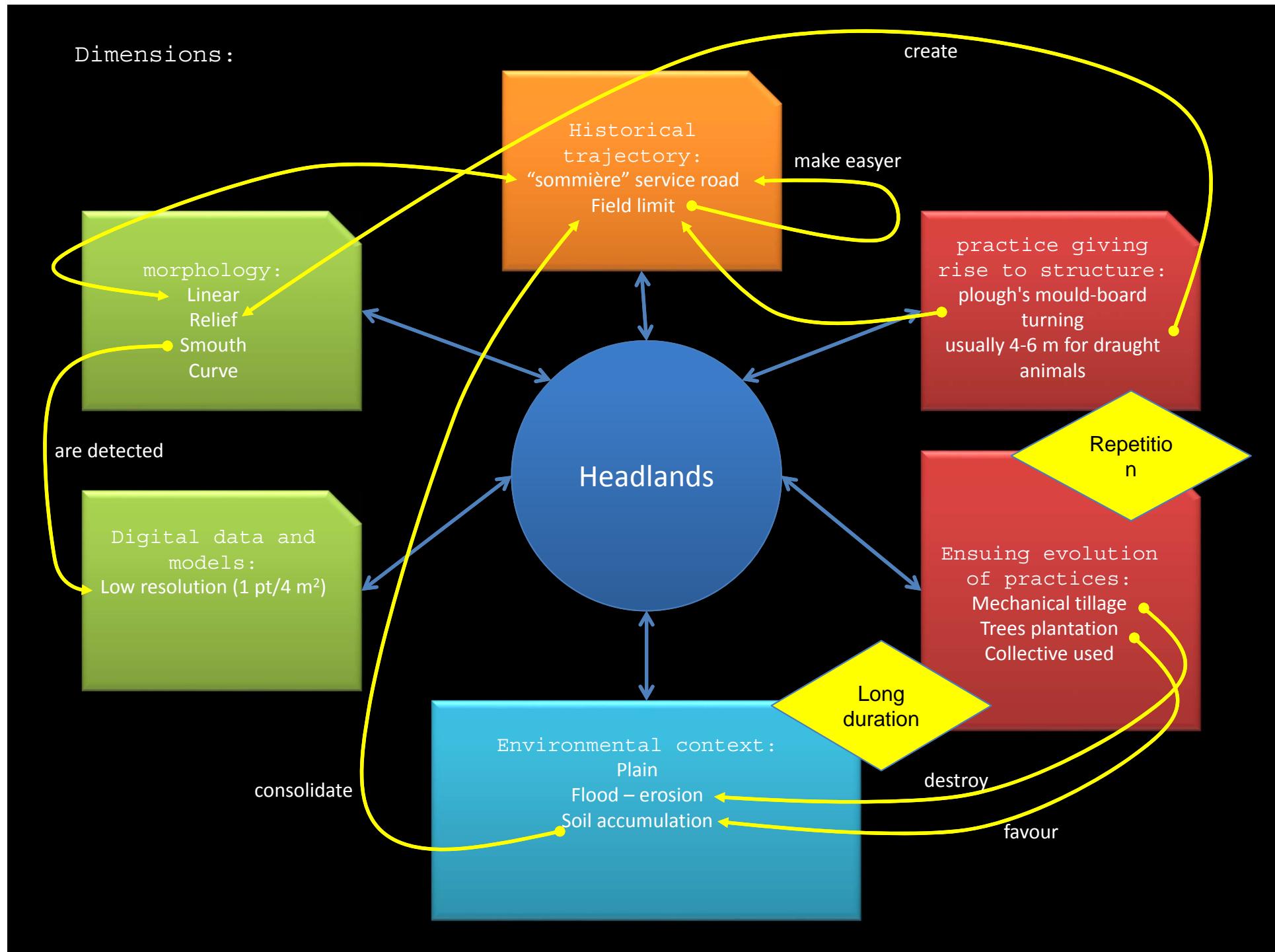
*Item VIII perches frappent du bout sur le grand chemin et à maistre Raoul*

Source : AD Yvelines, D 1315

S. Leturcq 2015

**Sommière** = used as « service road »

*For III buniers (surface unity) located at the « fontasne » (spring) at the field said « le carteau » touch one side on the « bois parc (?) » and is sommière of the fields touching above the « grand chemin de Paris » (road from Paris)*



# How to start ?

1. Chose a case study among those we will present just after
2. Make a list of :
  1. Names related to the micro-relief (topography, actors, ...)
  2. Adjectives describing the created or residual micro-relief
  3. Verbs describing process of creation / use of the micro-relief or natural processes impacting them
3. Make links between names &/or adjectives &/or verbs or using verbs to qualify the relation between terms and the micro-relief studied
4. Reclass terms from general to particular vs. Particular to general
5. Redefine links between classes

Discuss everything by pairs  
and list all :

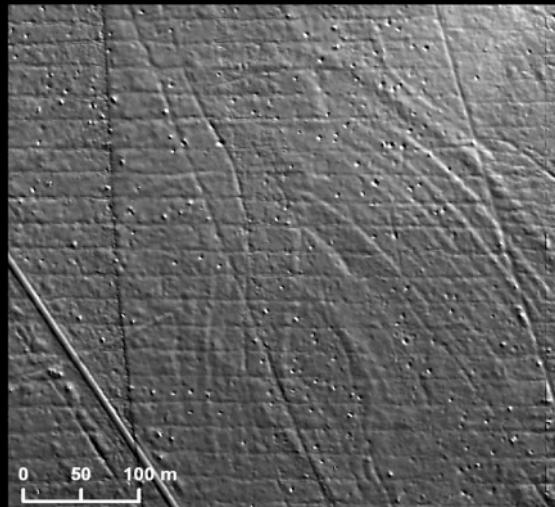
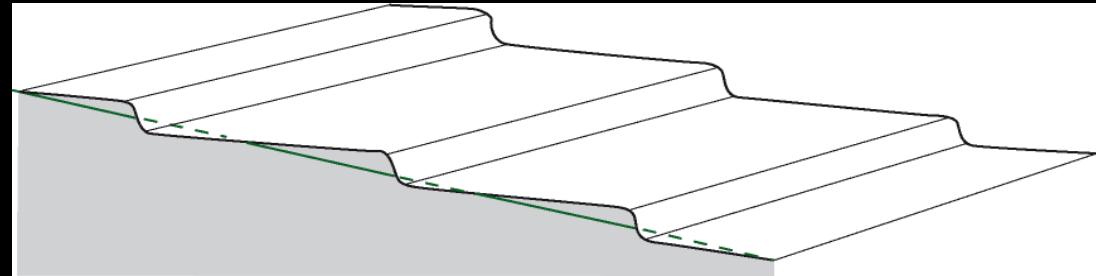
Issues  
Debates

Make table, text of graph  
or draw ...  
(stay confortable !)

Presentation of the selected cases  
**WORK ON THE CASE STUDIES**

# Lynchets & terraces

Lynchets are the result of the repeated action of the plough's mould-board turning the loosened soil outwards and downwards; over time forming a level strip or tread for cultivation with a scarp slope (a 'riser') down to the next strip below.



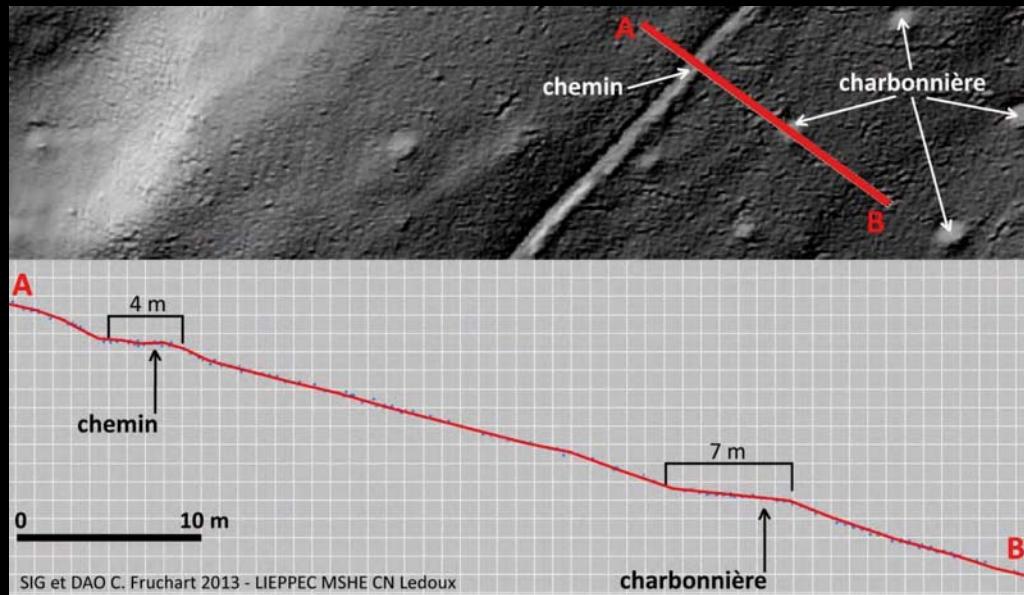
# Charcoal place



Charcoal platform forest Besançon. Photo : D. Daval 2010)



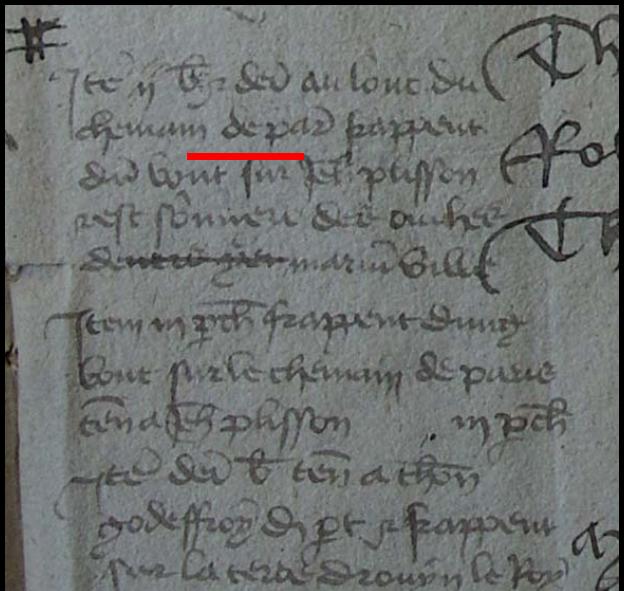
Charcoal oven (Savoie, France), photo :  
Gérard Barré 2011  
<http://www.sentier-nature.com/>)



# Pathways



„Celtic“ fields (B. Sittler)



Sommière = used as « service road »

For III buniers (surface unity) located at the « fontasne » (spring) at the field said dit « le carteau » touch one side on the « bois parc (?) » and is **sommière** of the fields touching above the « grand chemin de Paris » (road from Paris)

Censier de Touy de 1446, [Source](#)  
: AD Yvelines, D 1315  
S. Leturcq 2015