HOW TO HELP USERS TO MOVE TO INSPIREd PRODUCTS
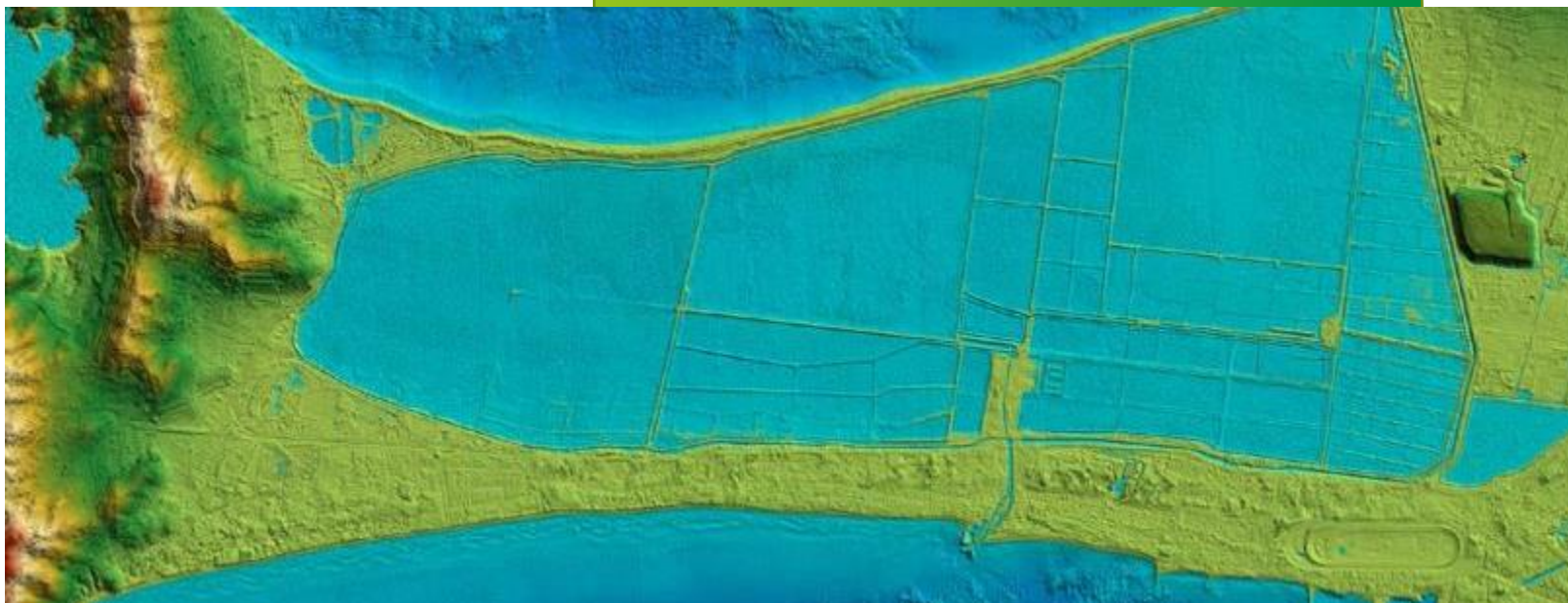
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Dominique Laurent
15 November 2017 – Workshop « Land use/land cover products: challenges and opportunities"

INSTITUT NATIONAL
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Modèle TN-02.018-1.6

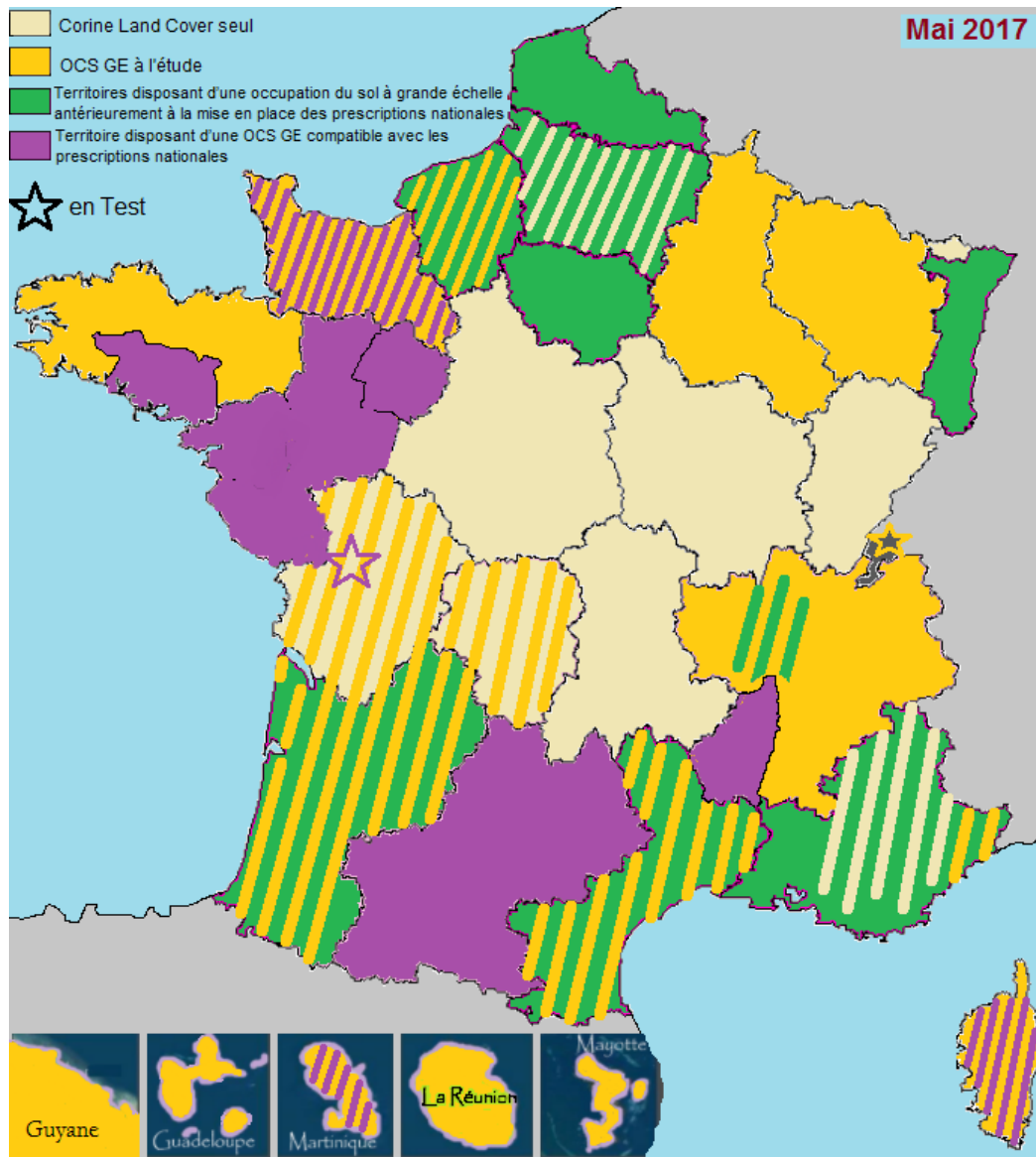ISN 17.115

1

INTRODUCTION

Context

Context

📍 **By end 2014, France has a national standard for LC/LU based on INSPIRE**

📍 **IGN has launched production of core data (OCS GE) based on this national standard**

- In principle, with co-funding by regional authorities

=> INSPIREd product

Issue

📍 **Data not (yet)available on whole territory**

Legend on map:
- Corine Land Cover seul
- OCS GE à l'étude
- Territoires disposant d'une occupation du sol à grande échelle antérieurement à la mise en place des prescriptions nationales
- Territoire disposant d'une OCS GE compatible avec les prescriptions nationales
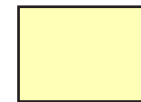- en Test

Mai 2017

National product (OCS GE) available

National product (OCS GE) envisaged

Local product available

Only European product (CLC) available

Why this limited success?

Organisational issues

- **The national standard is not mandatory ; it is only recommendations**

- **The product (OCS GE) has to be funded by local partners (regions, departments)**

  - Only some of them have ordered the national product OCS GE

Technical issues

- **To be detailed in the following slides**

2

SEPARATION BETWEEN LC AND LU

Issue

Most existing products merge LC and LU in a single classification

=> Users accustomed to 1-dimension product

=> But not to a 2-dimensions product

- **separation of LC-LU considered as a difficulty**

Solution

CNIG Working Group

- **CNIG : National Council for Geographic Information**

- **Objective: to design, promote and accompany the use of national standard**

- **First achievements: guidelines (as fiche) to exploit data**

  - to compute land take indicator using LC – LU

    - LC-LU on same polygon => easy to combine

  - to complement core data (OCS GE) by other data

Fiche example

Solution

CNIG Working Group

- First achievements: survey about use of national standard guidelines

  - **Stakeholders more aware of the interest to separate LC and LU**

  - **But issues with the two other dimensions (morphology – characteristics)**

    - Not implemented by anyone

    - Not clear enough concepts

    - Too complex to deal with 3 or 4 dimensions!

3

COMPUTING HOMOGENEOUS INDICATORS

Issue

Reporting for European Directives done at MS level using homogeneous European data (CLC, LUCAS)

Reporting for national laws done at regional/local level using:

📍 **heterogeneous data (OCS GE not available everywhere)**

📍 **different methodologies**

Heterogeneous indicators

Consequences

📍 **impossible to compare territories**

📍 **unfair: land take indicator has practical impact**

• a planned Land Use document may be rejected if non-efficient consumption of land

Solution

Working Group within CNIG

- **Purpose :**

- to interview the various stakeholders

- to get some agreement about what should be measured and how

- to get a reasonable set of indicators to fulfil various requirements:

    – Scientific/ politic

    – Generic (whole territory) / specific (local)

    – Macro / micro (phenomena description more or less detailed)

Solution

Working Group within CNIG

- **Some ongoing work on a geographic indicator: urban envelop**

- **Main impact**

- Urbanisation inside the envelop: densification 🙂

- Urbanisation outside the envelop : land take 🙁

4a

COMPUTING RELIABLE INDICATORS ALONG TIME

Requirement for time series

Issue

Some regions had already large scale LC-LU data before the national standard was ready

=> Not very willing to adopt new product (OCS GE)

📍 **Reluctance to change**

- persons skills and knowledge

- many tools, methods developed around the "old" product

📍 **Data mainly used to compute evolution indicators**

- need for time series based on persistent data specifications

- **moving to new product => breaking the time series**

Envisaged solution

Working Group within CNIG

📍 **Some test to migrate data**

- **Scenario 1 : go on production of old data, derive OCS GE from old product**

Old Product	✕ →	National standard
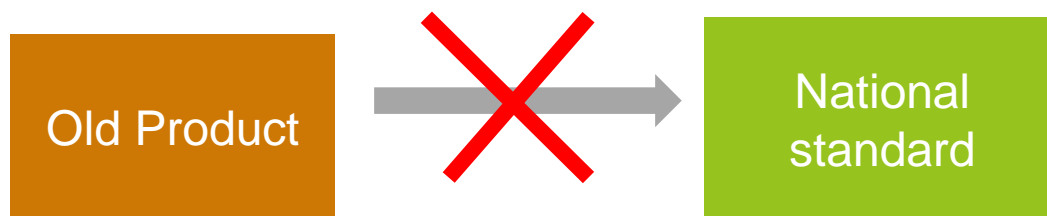
- 1 dimension to several dimensions data : difficult, not always possible
  - MMU generally more detailed in OCS GE

Envisaged solution

Working Group within CNIG

Some test to migrate data

- **Scenario 2 : move to production of new data (OCS GE), derive old product**

New Product (OCS GE) → ? → Old Product

- More detailed classification (local specificities) => issue 5

Potential solution

National law requiring evolution from 10 years

Initiate the time series with the new product (OCS GE)

📍 **order current data (year n)**

📍 **order old data (year n -10)**

Based on national standard

| OCS GE (year n) | *comparison* 🔺 | OCS GE (year n - 10) | → | First evolution indicator |

4b
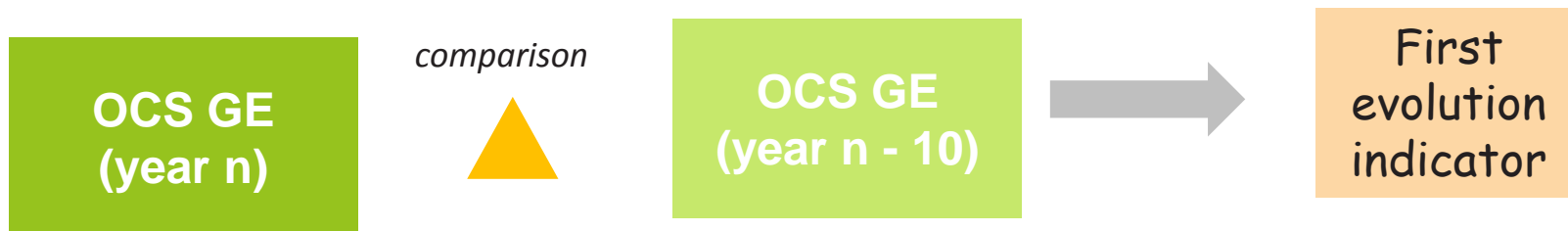
COMPUTING RELIABLE INDICATORS ALONG TIME

Dealing with uncertainties

Issue

What is the reliability of indicators?

📍 **evolutions are relatively small (e.g. 1%)**

📍 **there are uncertainties in data**

- IGN ensures 98% of semantic accuracy for OCS GE => 2% uncertainties

📍 **does the indicator measures evolutions?**

📍 **or is it completely made meaningless by the data uncertainties?**

Potential solution (1)

Document uncertainties

- **assess the LC-LU data quality**

  - evaluate risks of confusion

- **propagate the uncertainties in the indicator computation**

- **publish indicator as : value +/- error estimate**

- **=> get indicator less accurate but more reliable at a given time**

Potential solution (1)
Experience by IGN

📍 **Comparison between 2 products based on national standard**

• OCS GE : by IGN, human photo-interpretation, aerial image

• OCS RA : local OCS, by automatic photo-interpretation, satellite image

OCS RA :
Land Cover Rhône -
Alpes
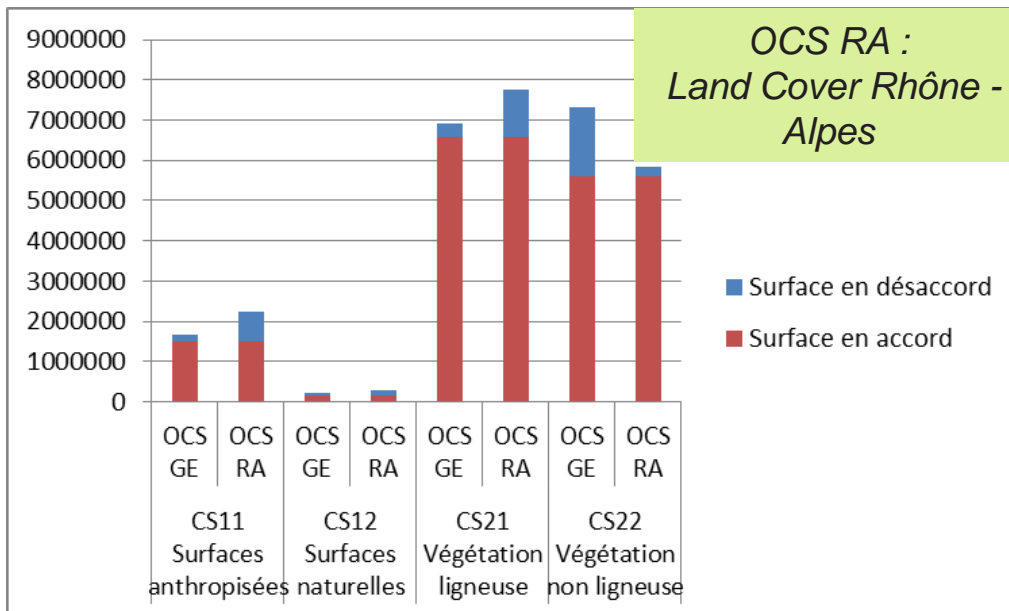
Results not so clear: are the 2 products providing similar information?

Potential solution (1)

Experience by IGN

⦿ **Get reference data (sample)**

⦿ **Get confusion matrix between each of the 2 products and reference data**

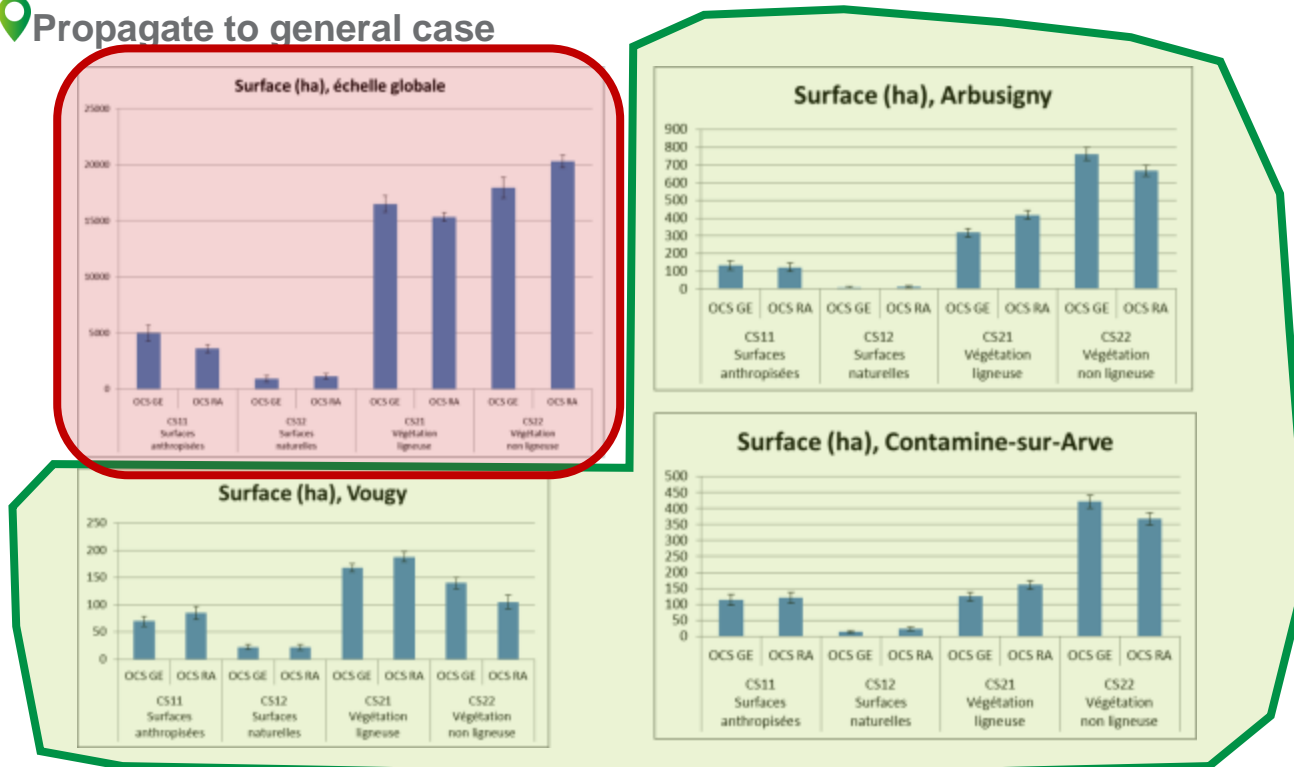|		Reference Data			
		Water	Forest	Urban	Total
Classified Data	Water	21	6	0	**27**
	Forest	5	31	1	**37**
	Urban	7	2	22	**31**
	Total	**33**	**39**	**23**	**95**

Potential solution (1)

Experience by IGN

- **Build confidence interval (done on sample in 3 municipalities)**

- **Propagate to general case**

Potential solution (1)

Experience by IGN : conclusions

- The 2 products give significantly different information

- Data content doesn't depend only on specification but also on the production method

- The matrix confusion should be provided to users

- It may help to build indicators with a "reliability interval"

- Be aware if changes in indicators are meaningful (real evolution) or not (uncertainties)

Potential solution (2)

Distinguish real changes from error corrections

- **update process and delivery**

- **phase 1 : data production at reference year n**

- **phase 2: use of data (reference year n)**
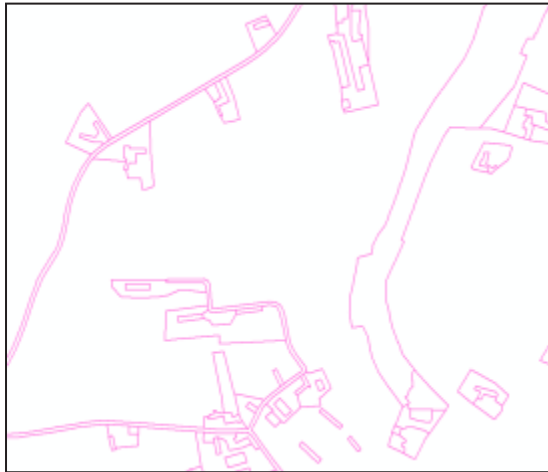
  - Users discover errors
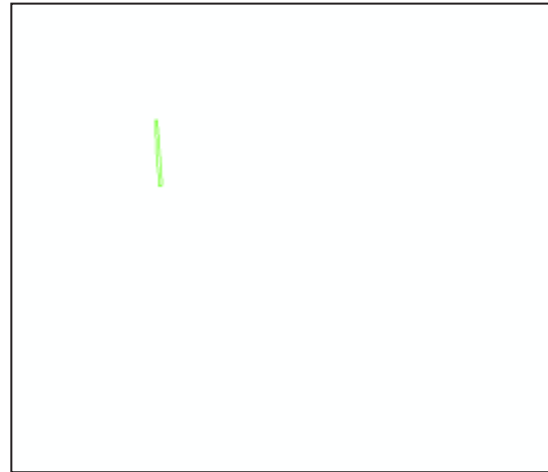
  - Errors are stored by IGN

  No change in the data supplied to users

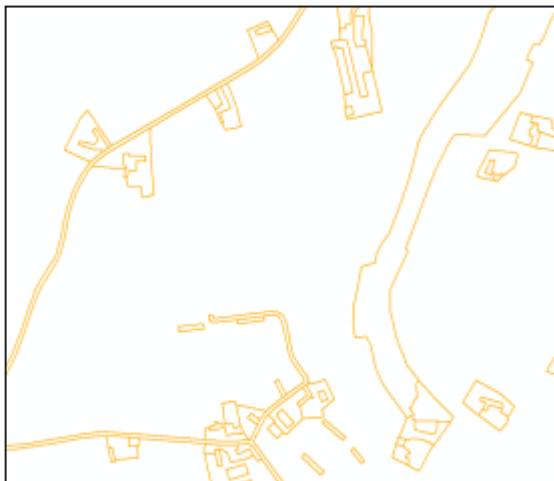- **phase 3 : production of new version (year n +/- m) => action!**

Potential solution (2) : the update package

Year A corrected

Difference between year A and year A corrected

Year B
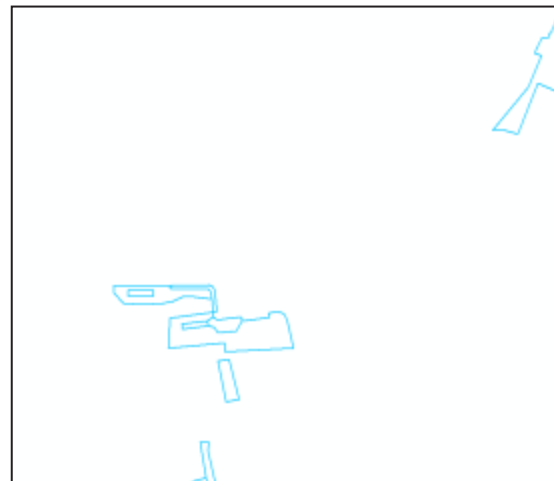
Difference between Years A and B

Layer with years A and B

Potential solution (2)

Distinguish real changes from error corrections

⦿ next phases : what to do when (in future) more than 2 versions?

• document only the changes /corrections from the previous version?

• or from whole set of versions

– Useful?

– Feasible? Exploitable?

5

DEALING WITH LOCAL SPECIFICITIES

Issue

France is a territory with various types of landscapes

📍 **e.g. due to climate :**

• Oceanic

• Mountain

• Mediterranean

• Tropical (over-sea territories)

📍 **specific use cases => need for specific data**

• E.g. More details on some specific LC classes

Potential solution

Adapt the national standard

📍 **CNIG working group**

- refinement for over-sea territories

- better adaptation

Adapt the implementation core data in compliancy with of the standard

📍 **OCS GE is core data … that may be enriched by more details**

📍 **IGN has whole data model in its data base => host more detailed data than just OCS GE**

Possible help of IGN Consulting Unit

6

CONCLUSIONS

Main learnings

INSPIREd national standard bring better data but considered as complex, difficult to use (new, separation LC – LU)

- **A lot to do to train users**

- **or to make derived and user-friendly products**

We don't make enough benefit of standardised data

- **national indicators not (yet) standardised**