

Laboratoire de Physique Clermont Auvergne

Jean Orloff





LPCA: who are we?

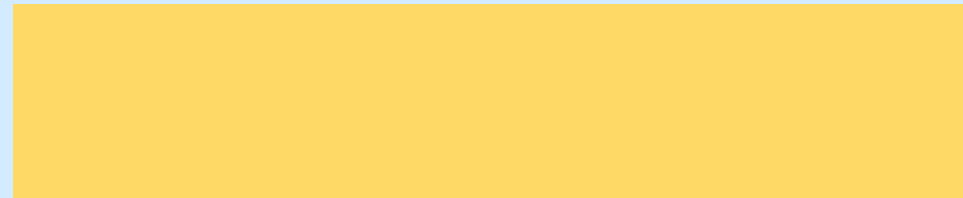
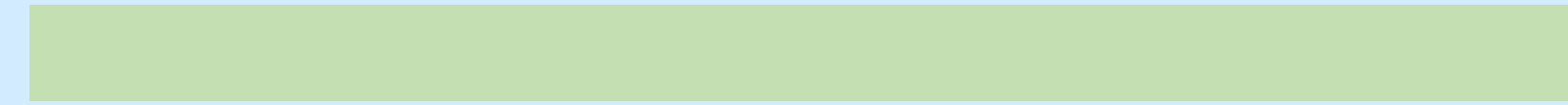




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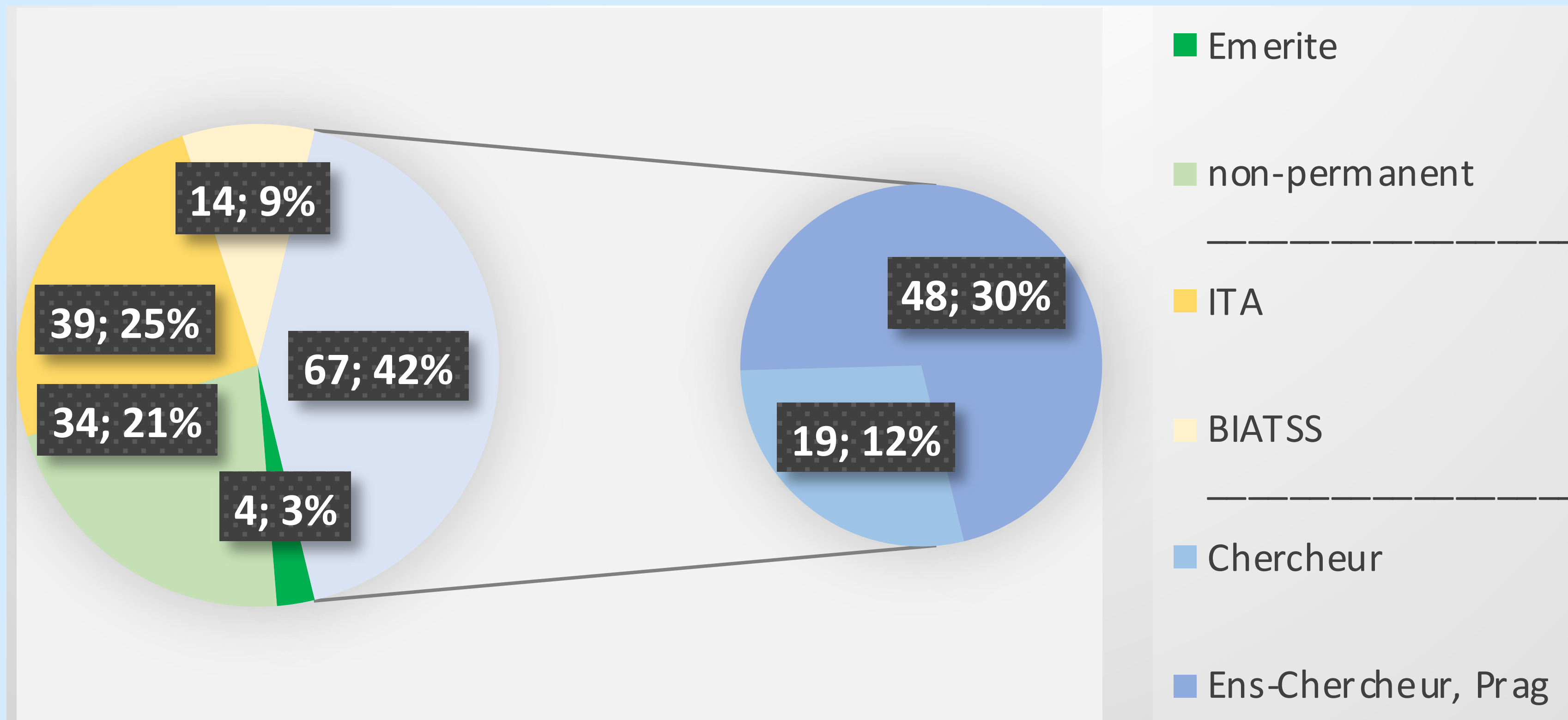
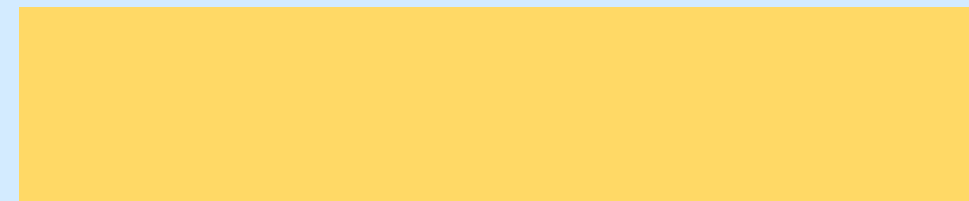
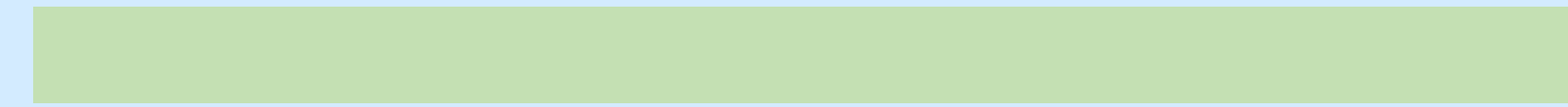
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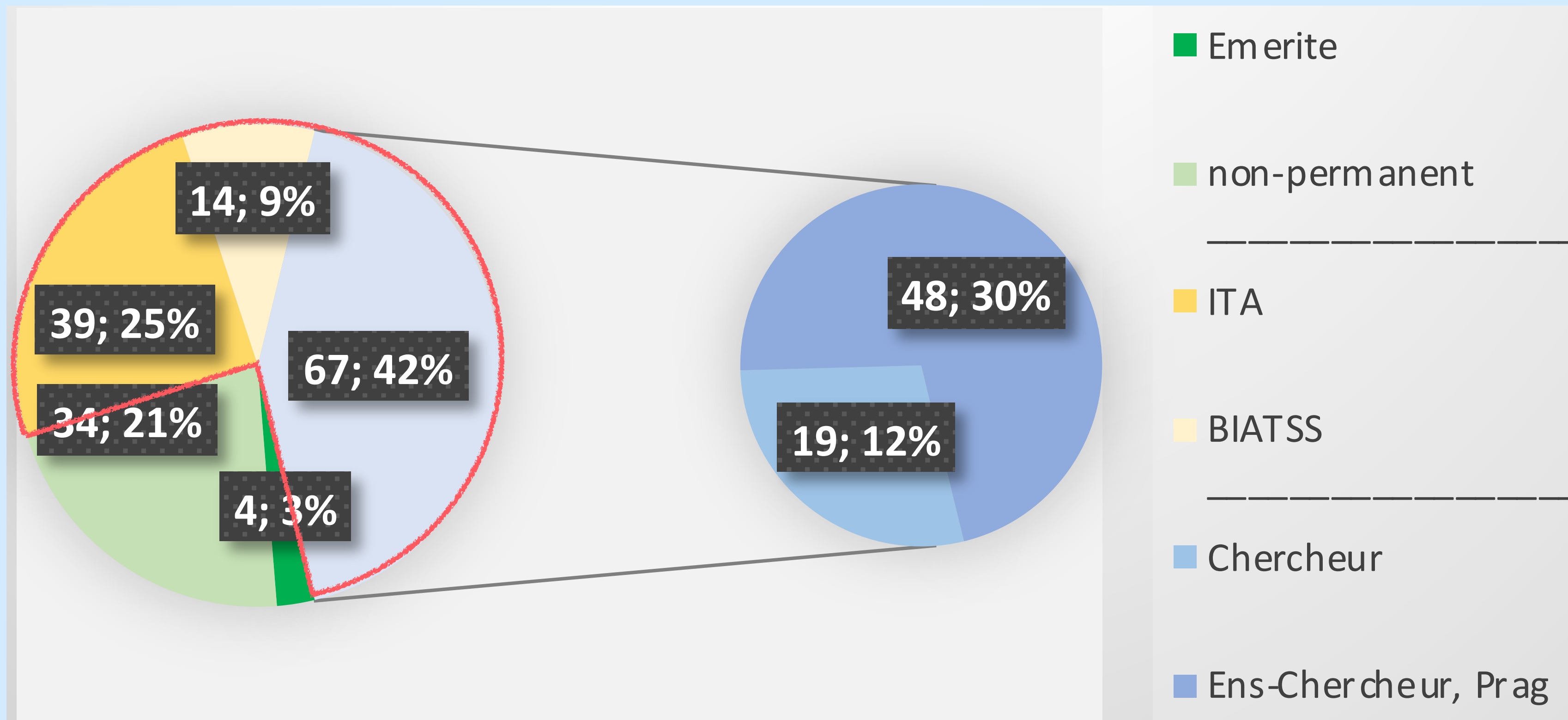
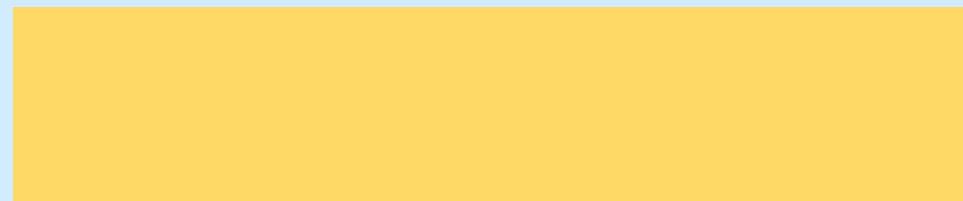
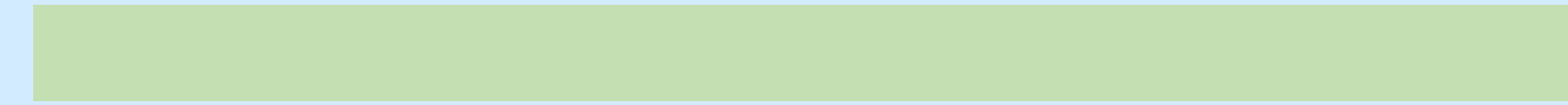
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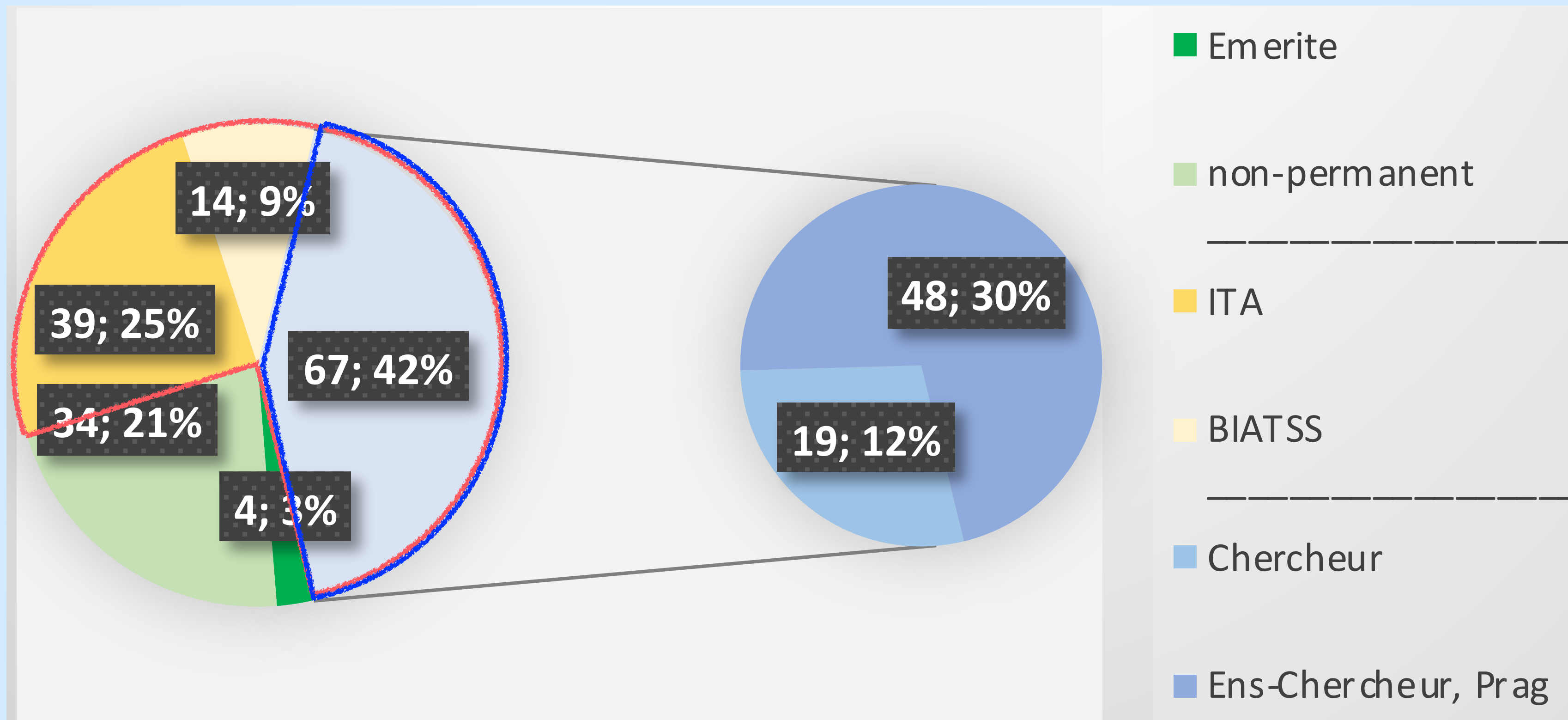
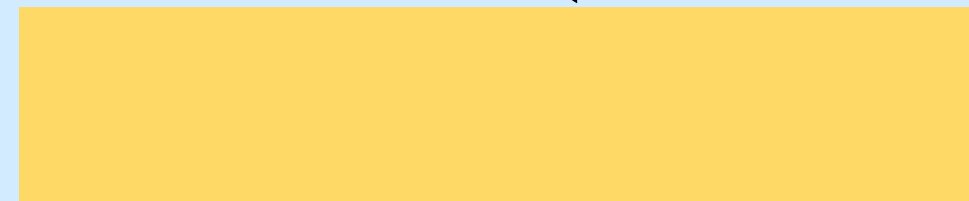
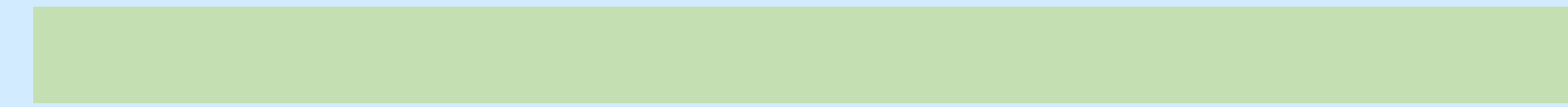
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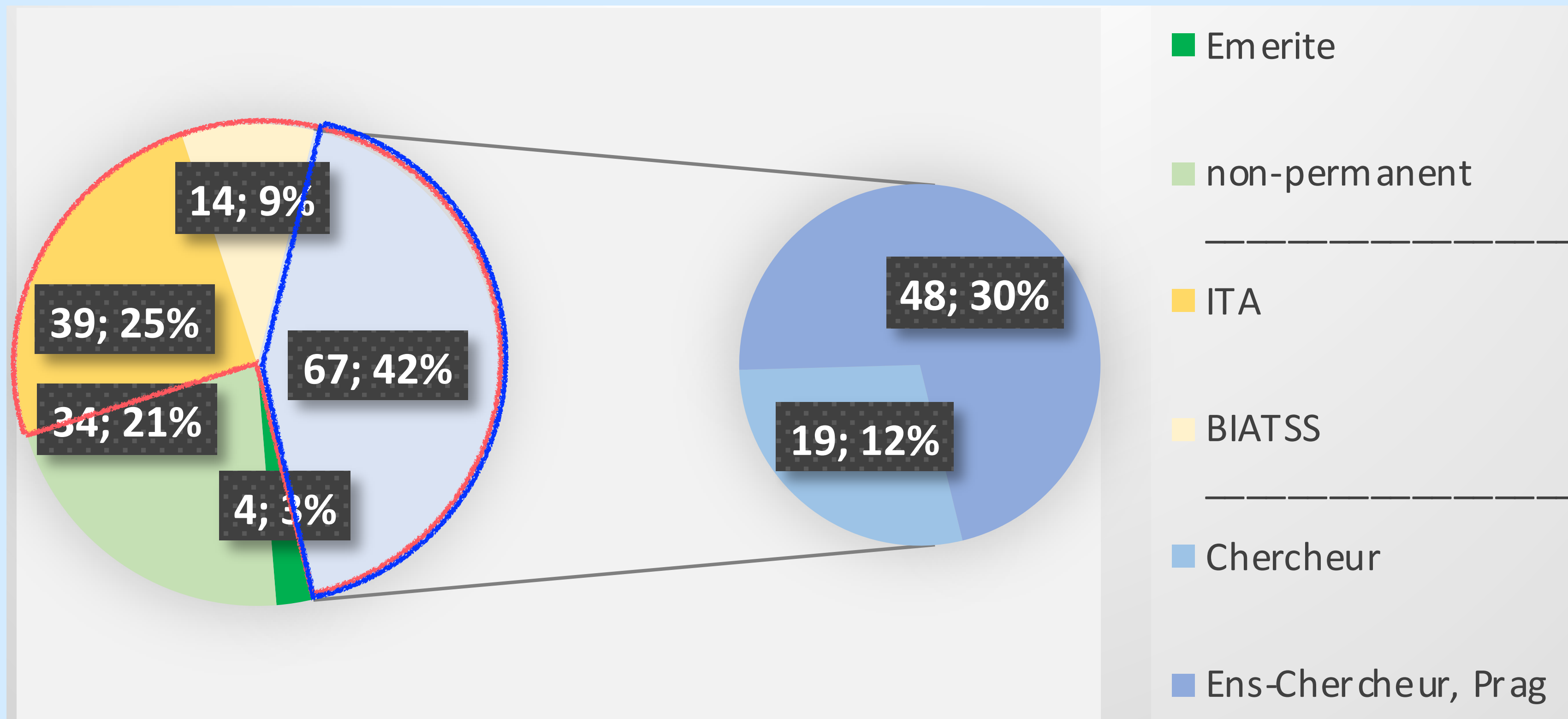
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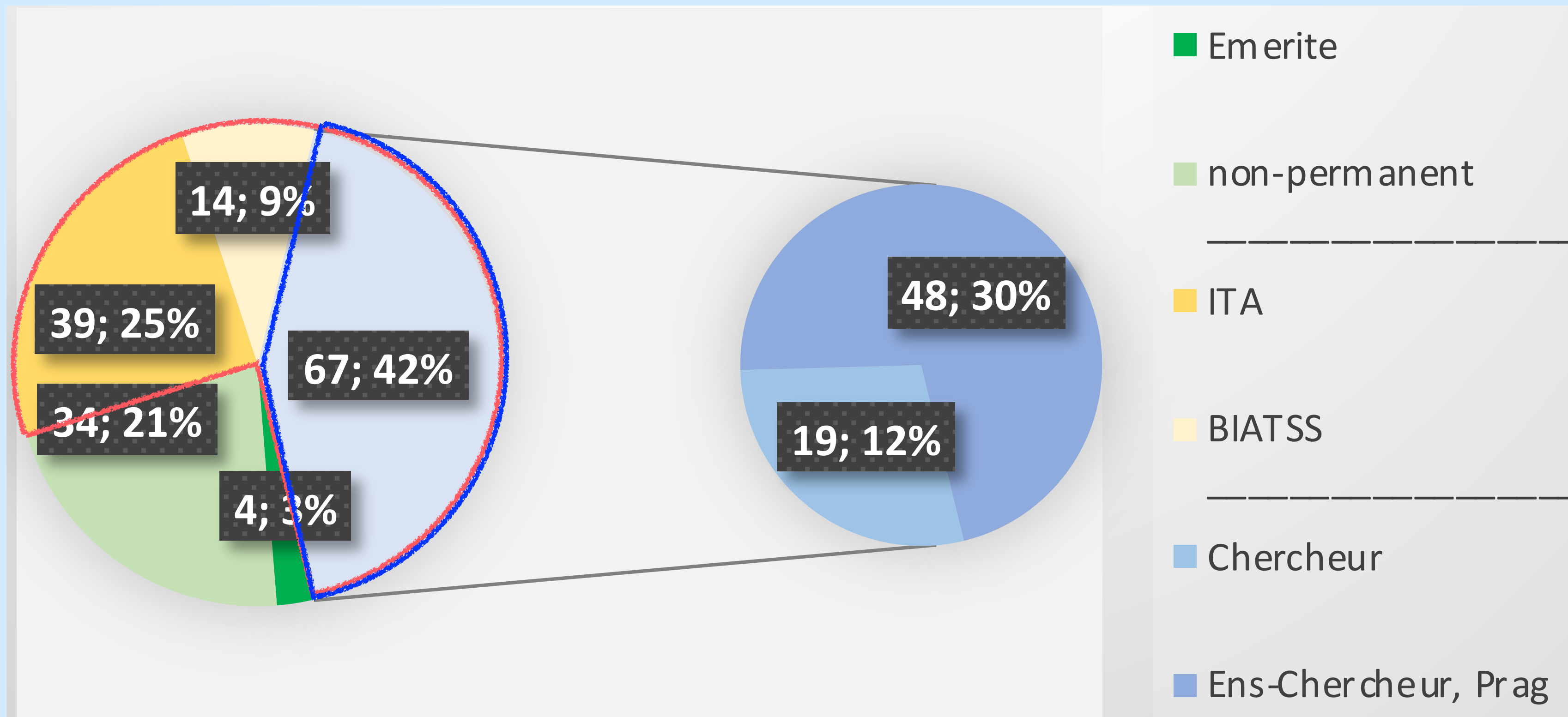
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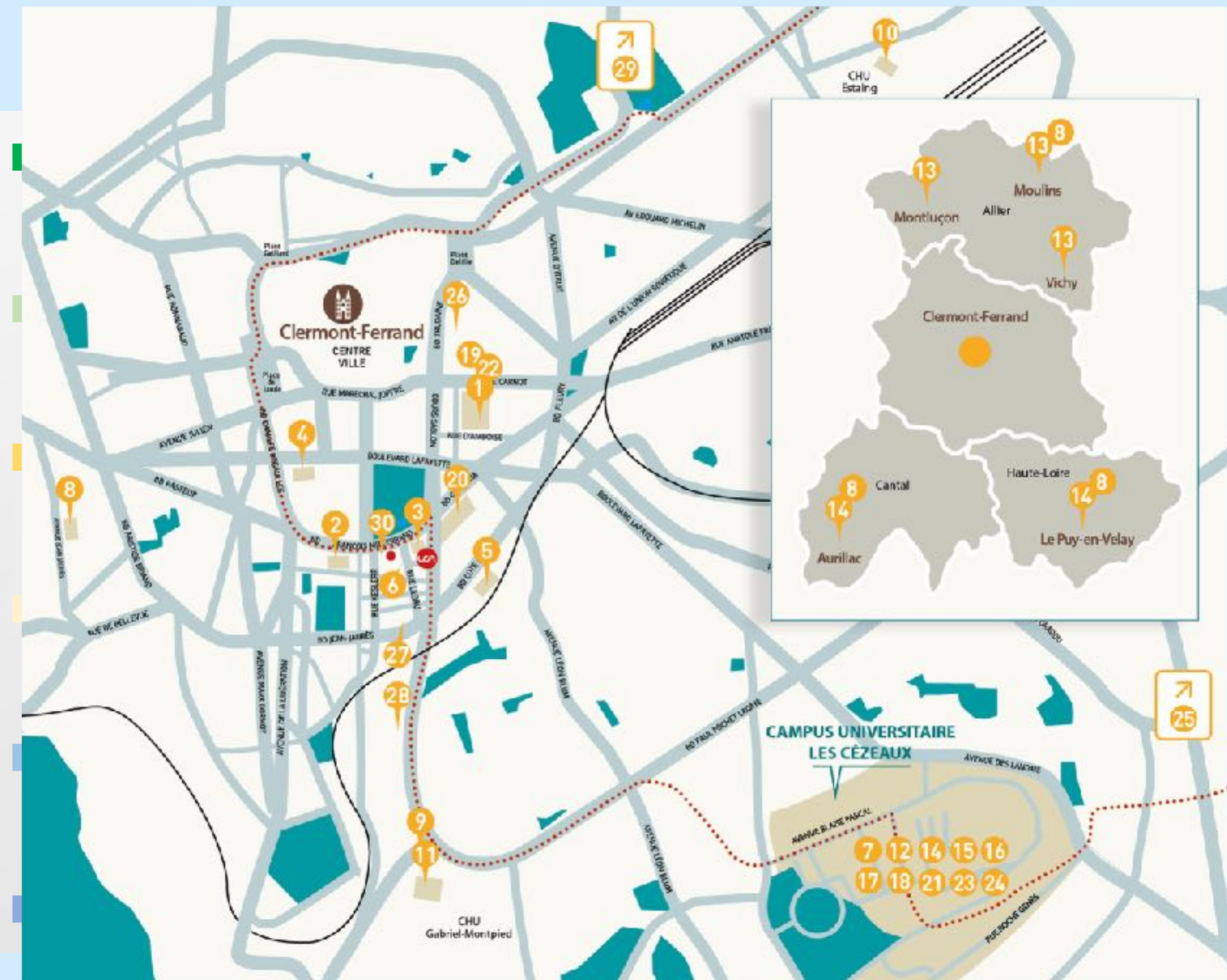
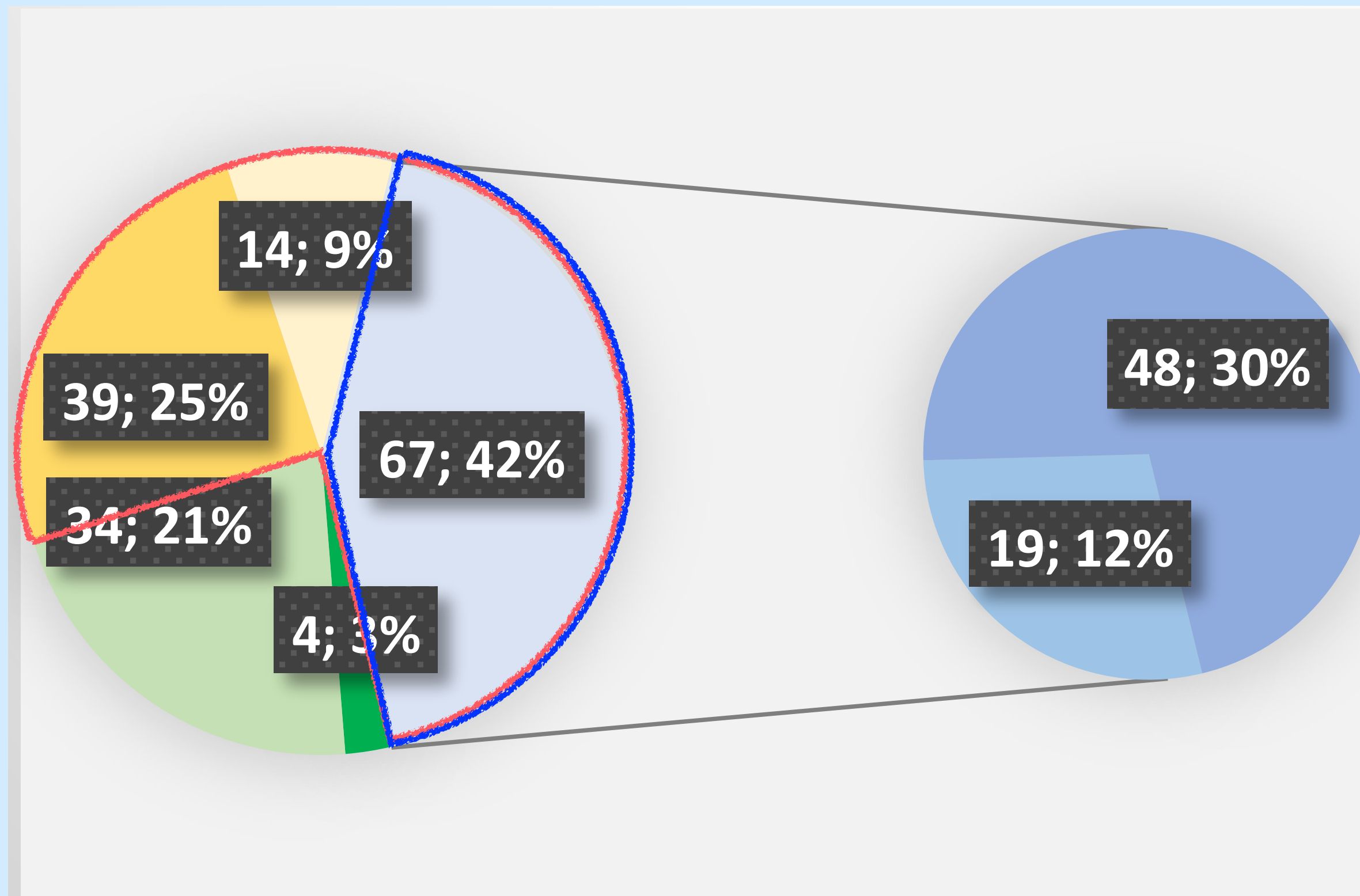
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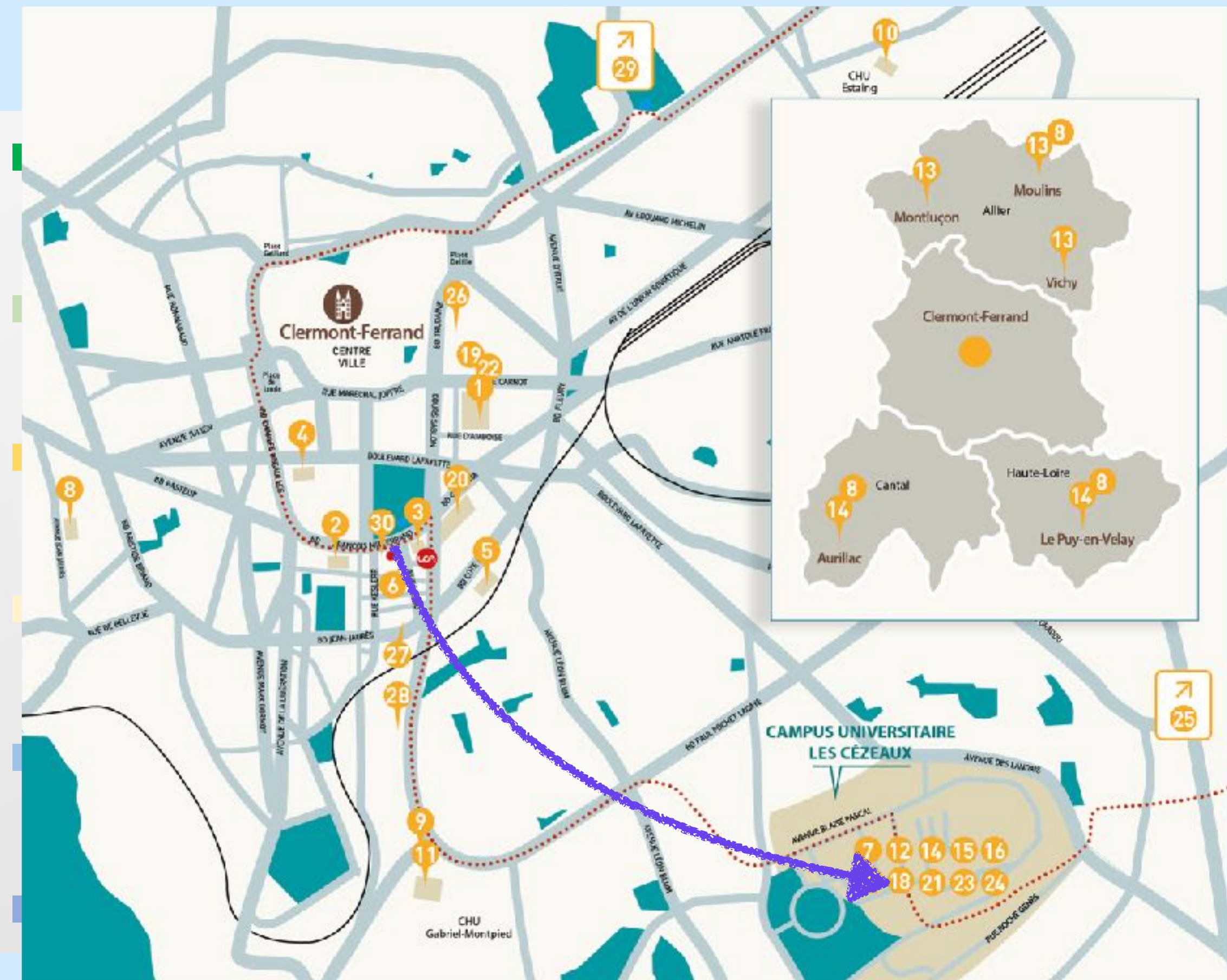
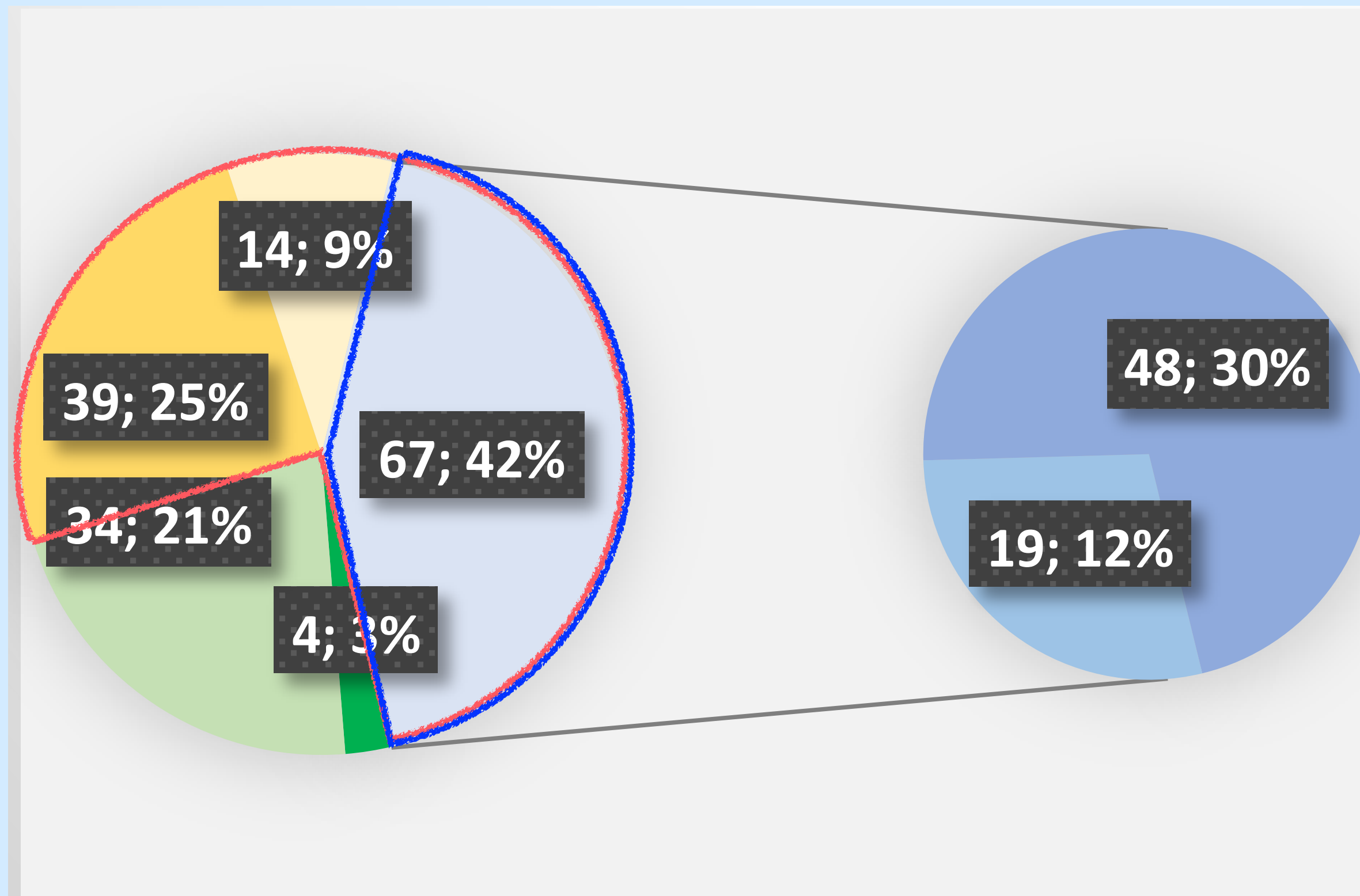
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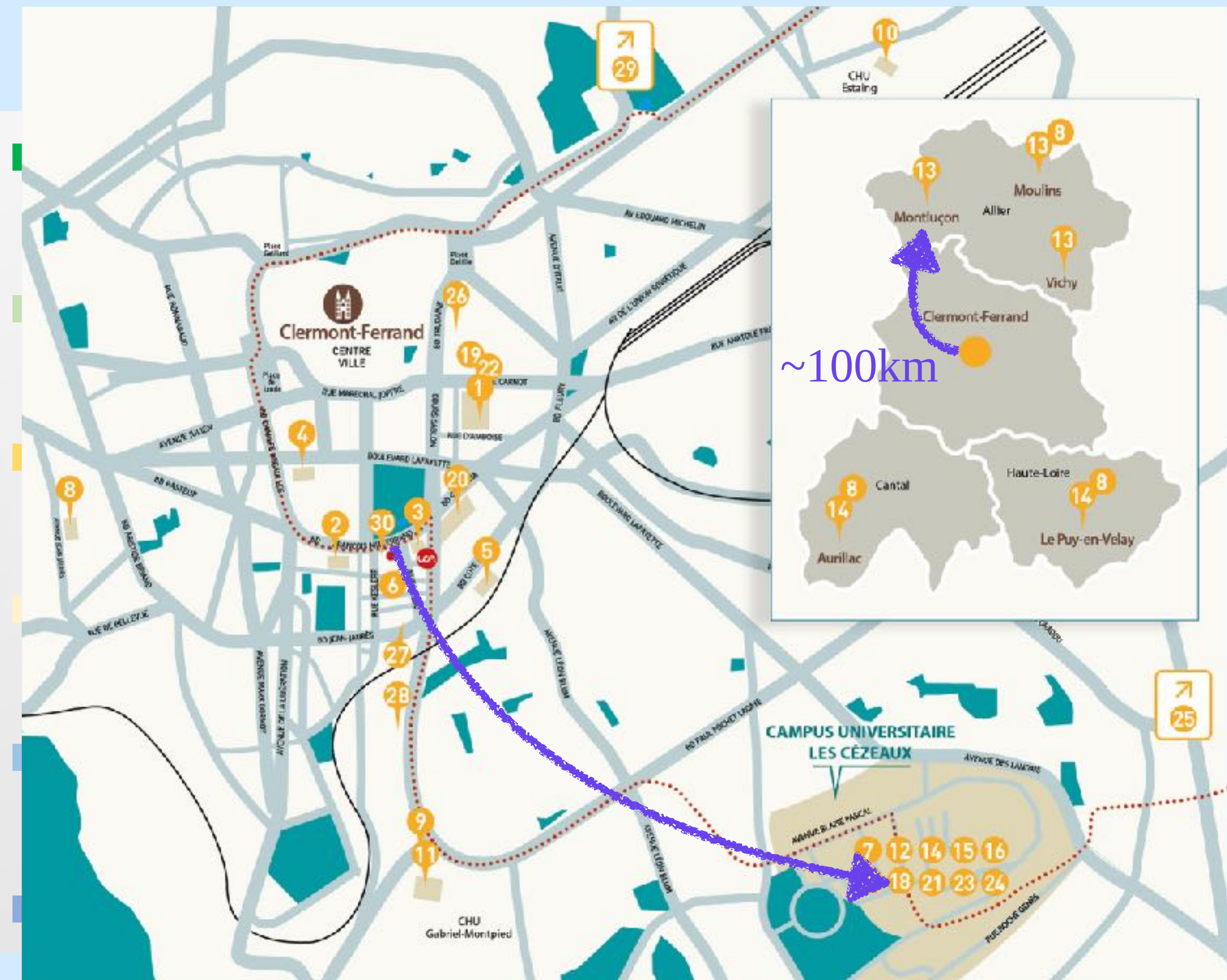
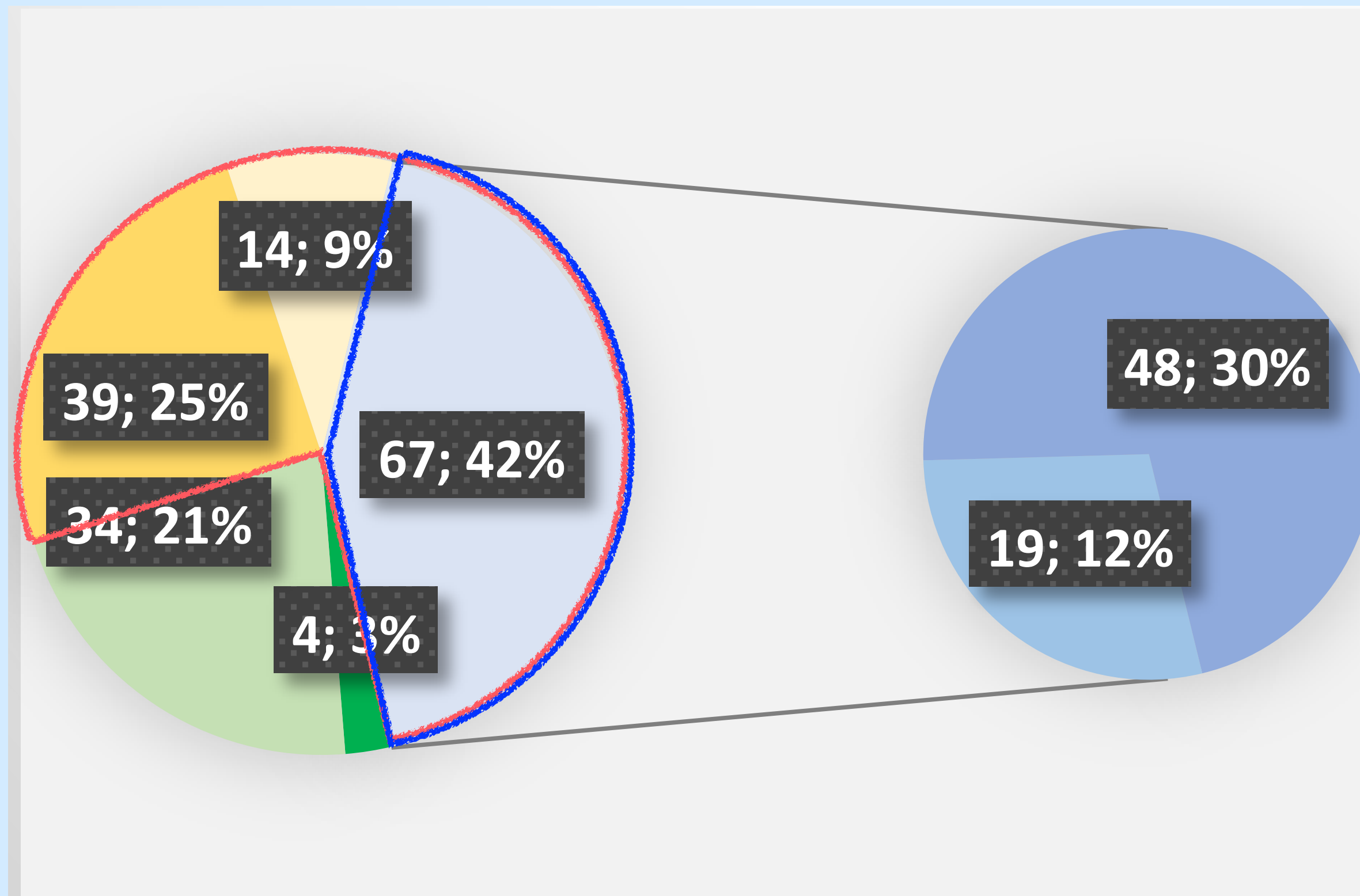
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- **TH (Theory):**

- Analyses BSM in Flavour Physics and Dark Matter;
Percolation model of pandemics

- **PU (Particles and Universe):**

- Instrumental and physics contributions to ATLAS, LHCb, ALICE,
CKMfitter, COMET, Future Colliders

- Observational cosmology through SuperNovae with LSST/ZTF,

- Development of Fink broker for transient objects with LSST/ZTF (beyond SN) & others

- **SE (Health & Environment):** effects of radiation on living organisms and environment:

- simulation for radiotherapy

- radiobiology and biophysics

- physical chemistry of nanostructure surfaces

- biomaterials

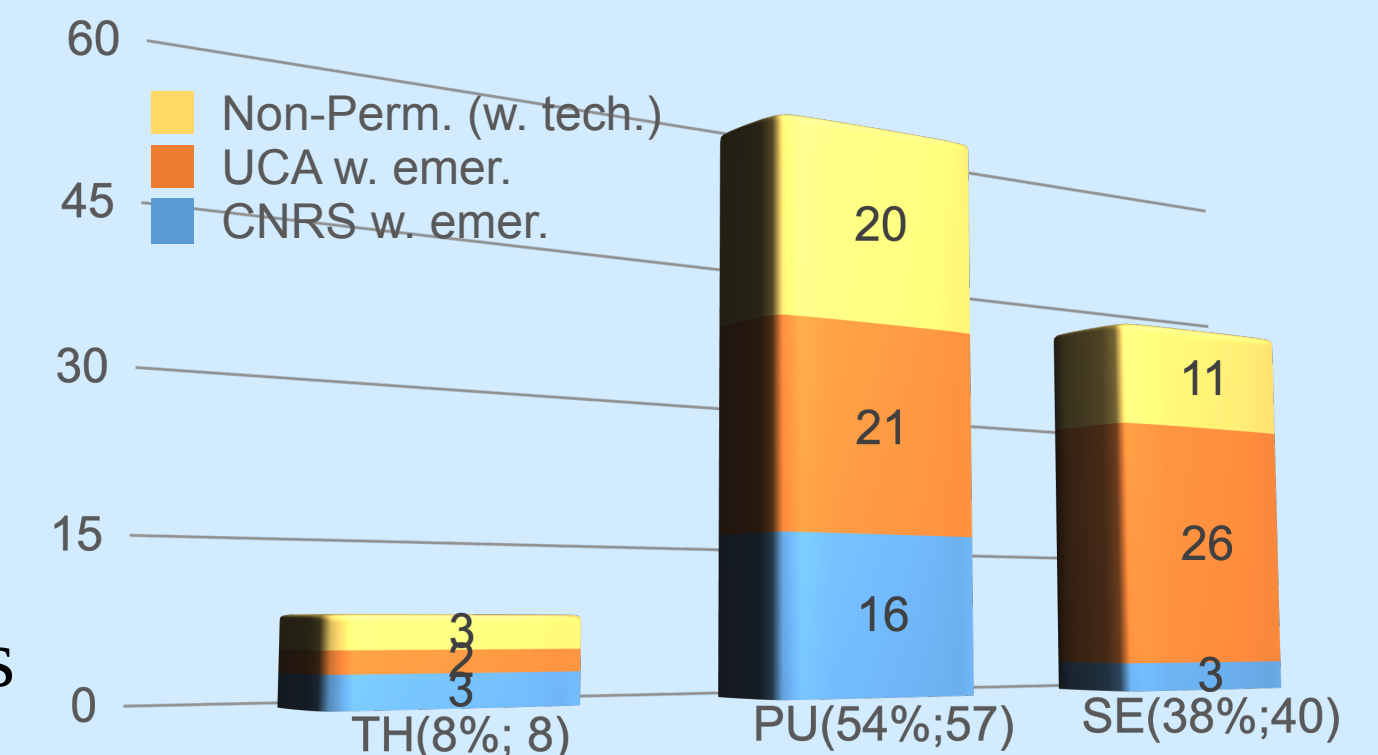
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- innovative IoT from sensors to clouds

- radon on active volcanoes

- thermal plasmas of natural and industrial origin

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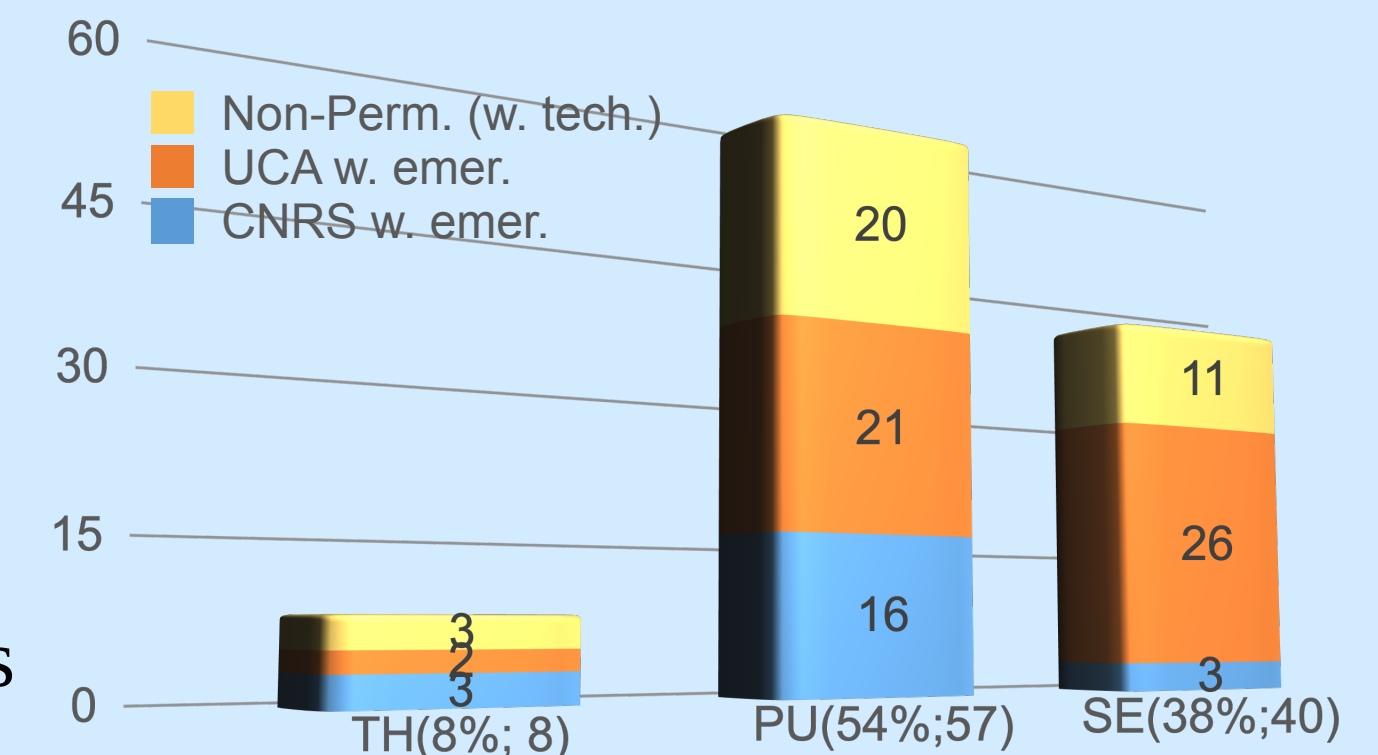
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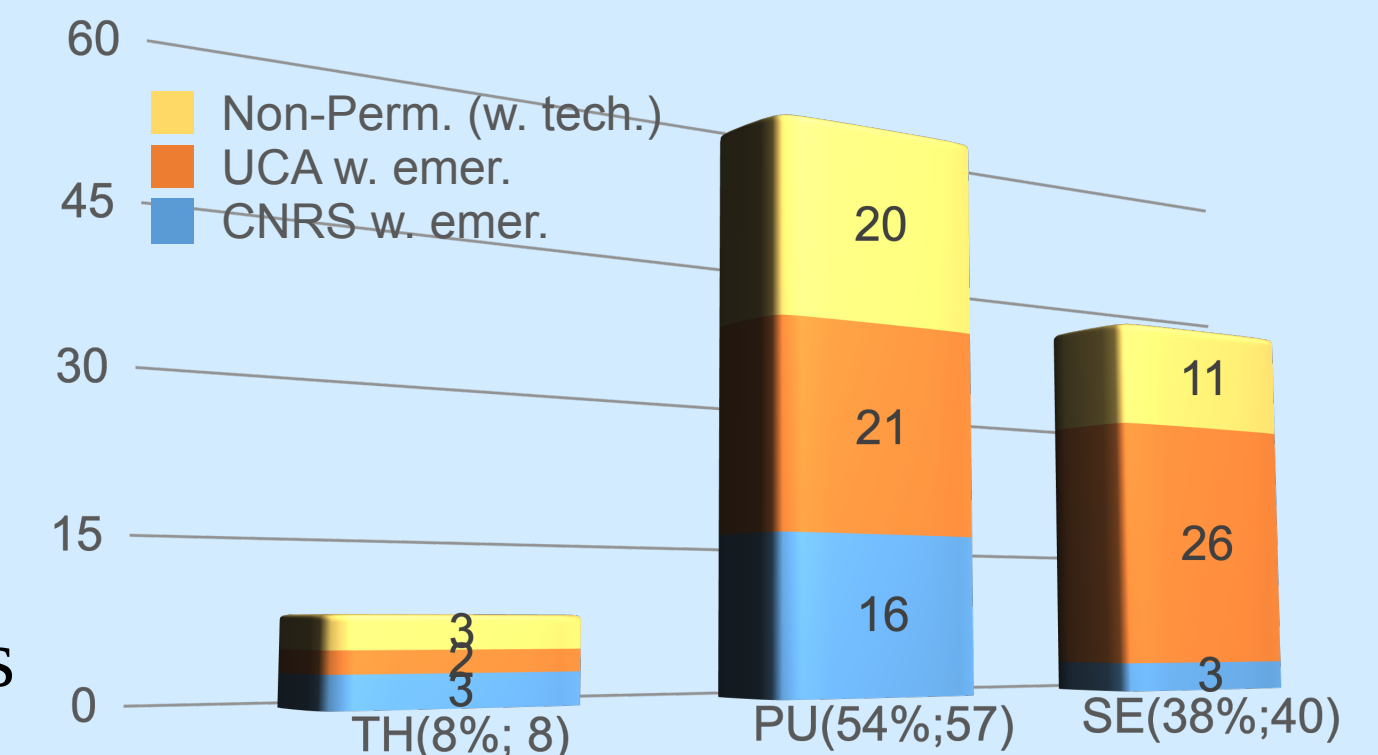
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- **PAVIRMA:** X-Ray irradiation and environmental radiological analysis platform

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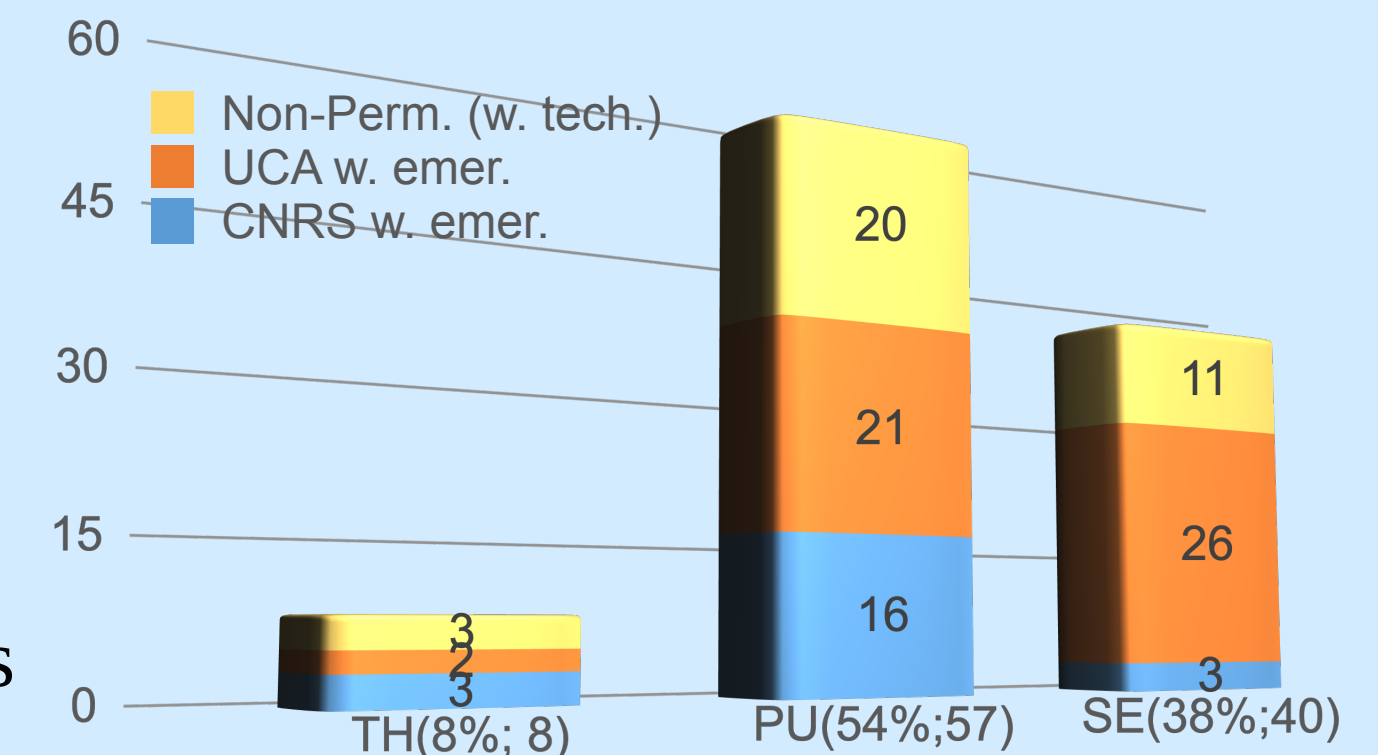
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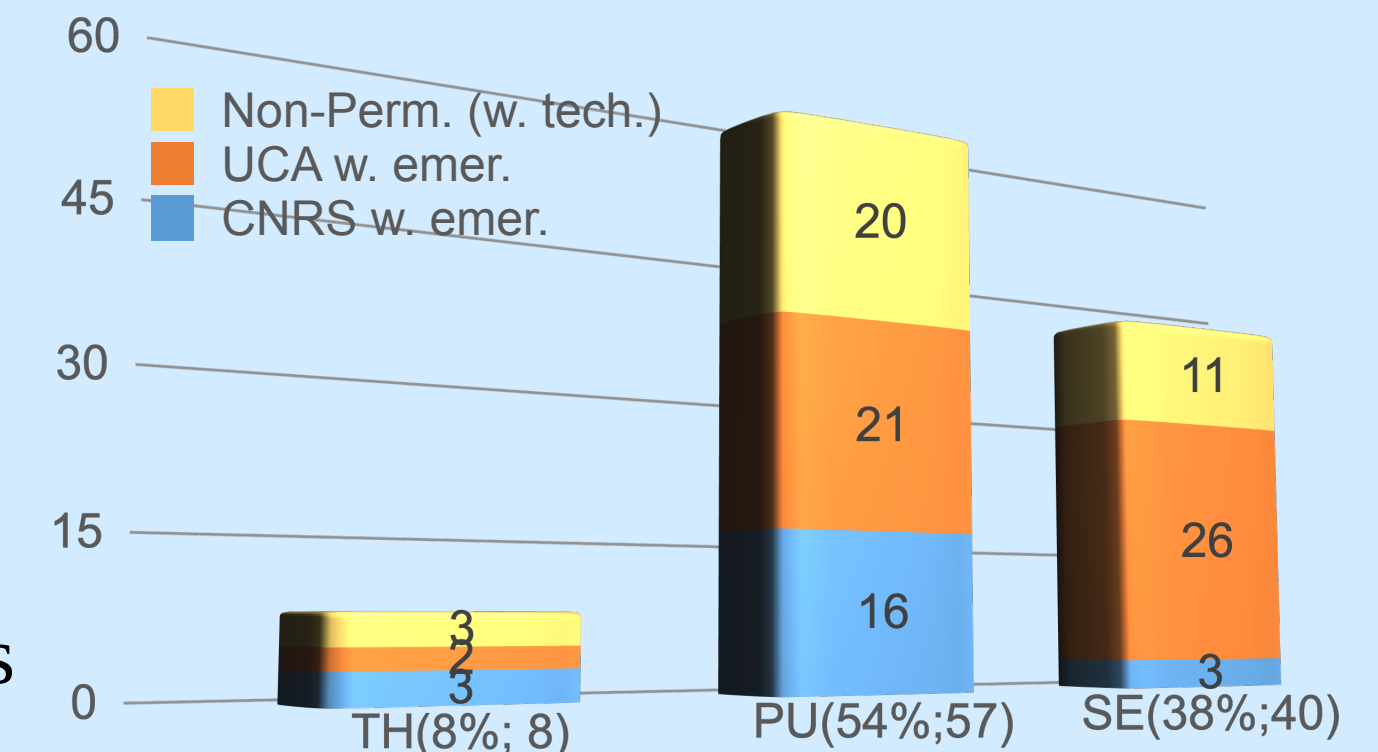
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- NB: UMR = Mixte : 2 **supervisory bodies**, both **CNRS** (IN2P3) and University Clermont Auvergne (**UCA**)

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Credo: Good Physics DATA ARE Precious!





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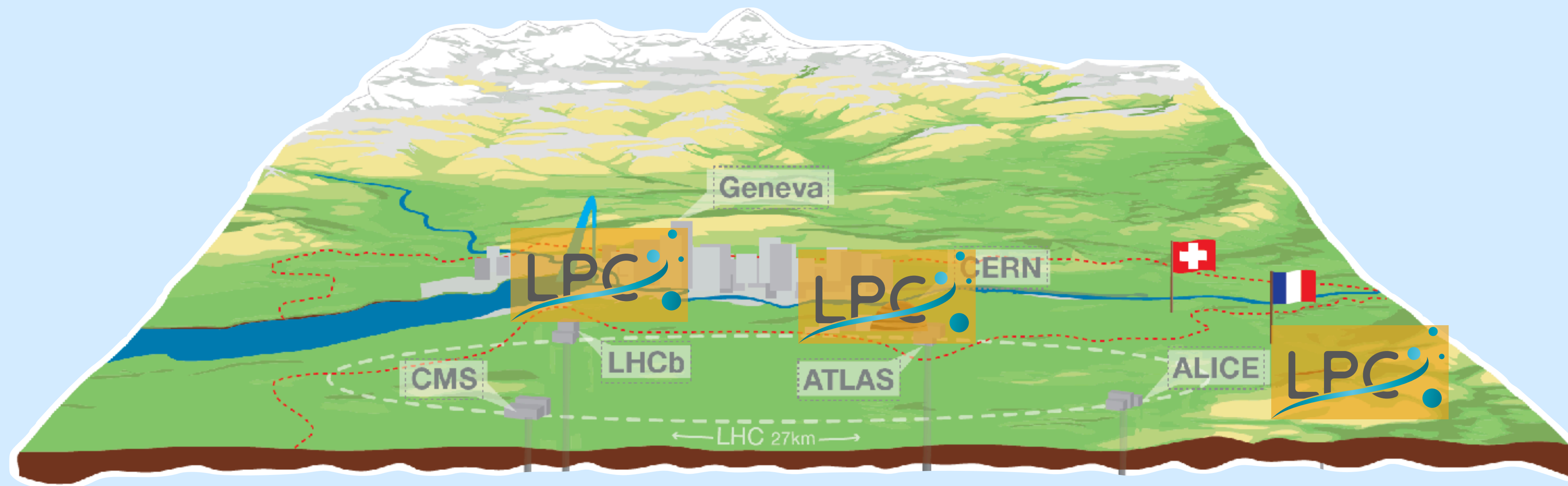


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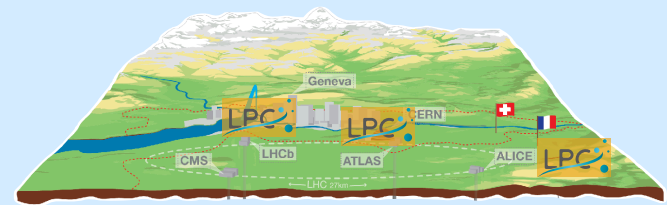


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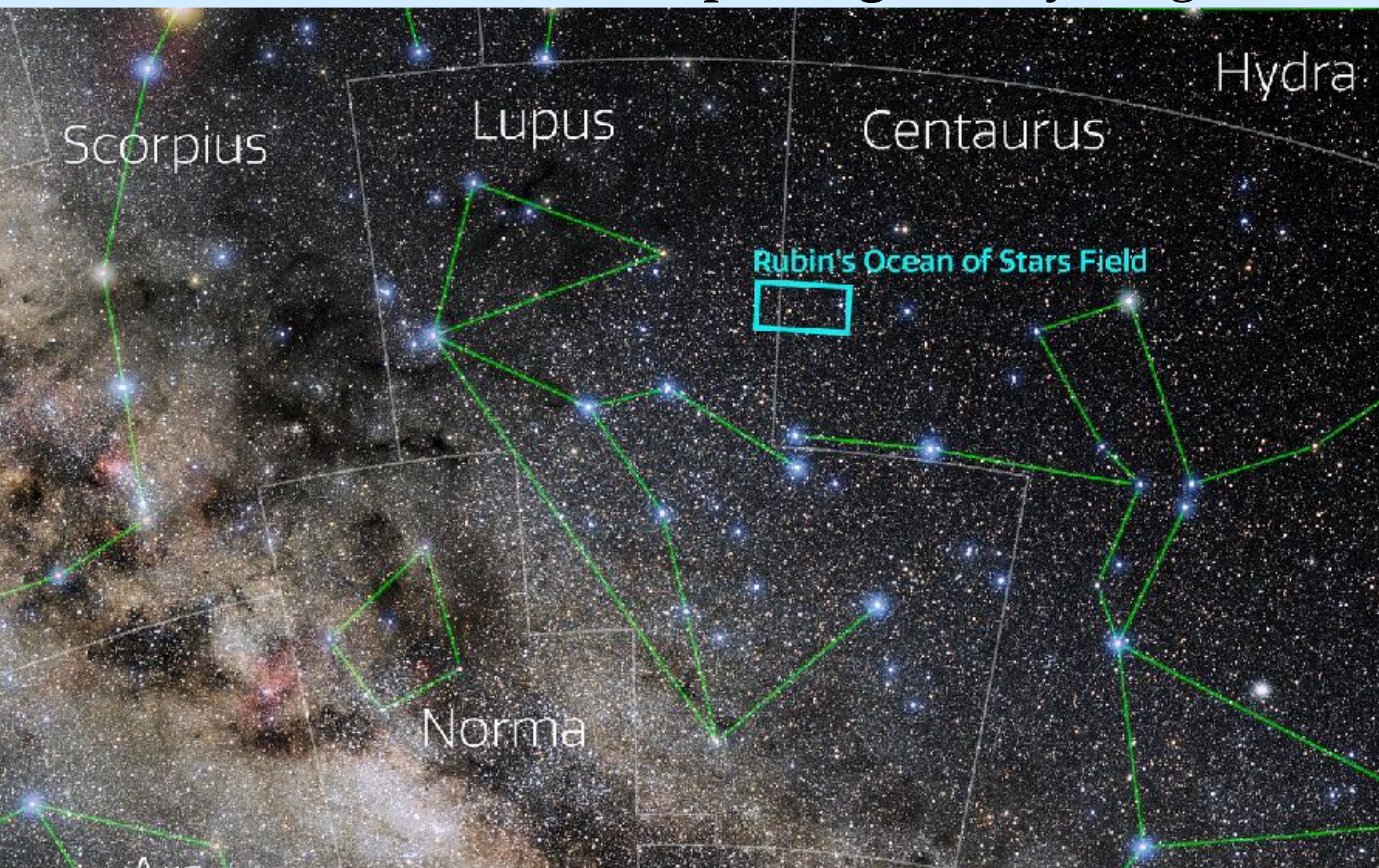
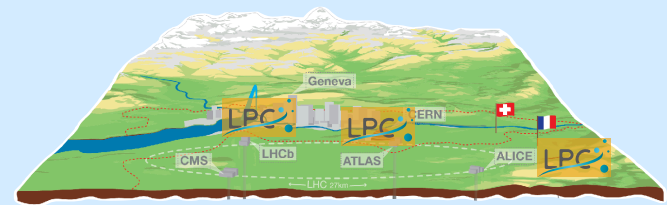
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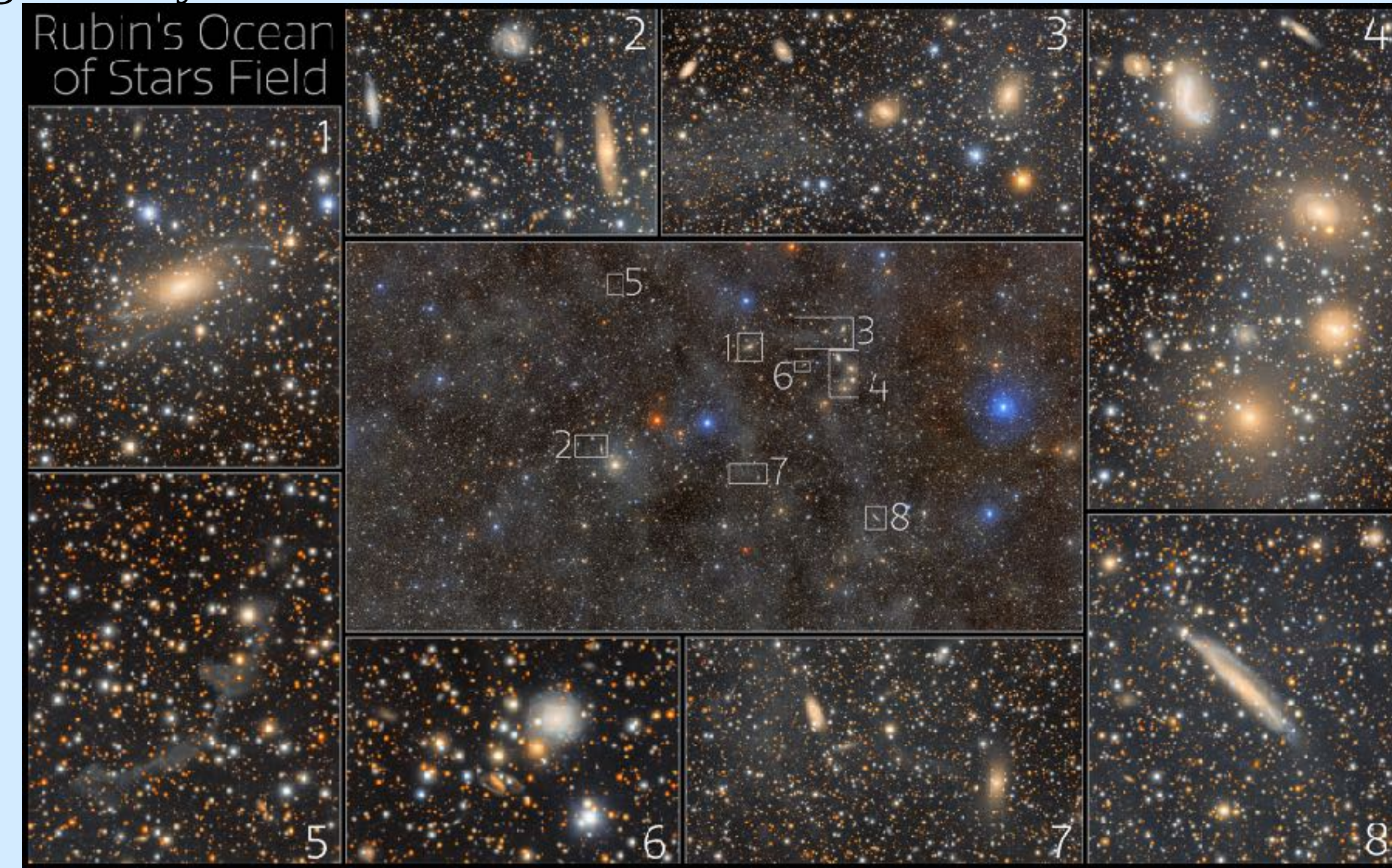
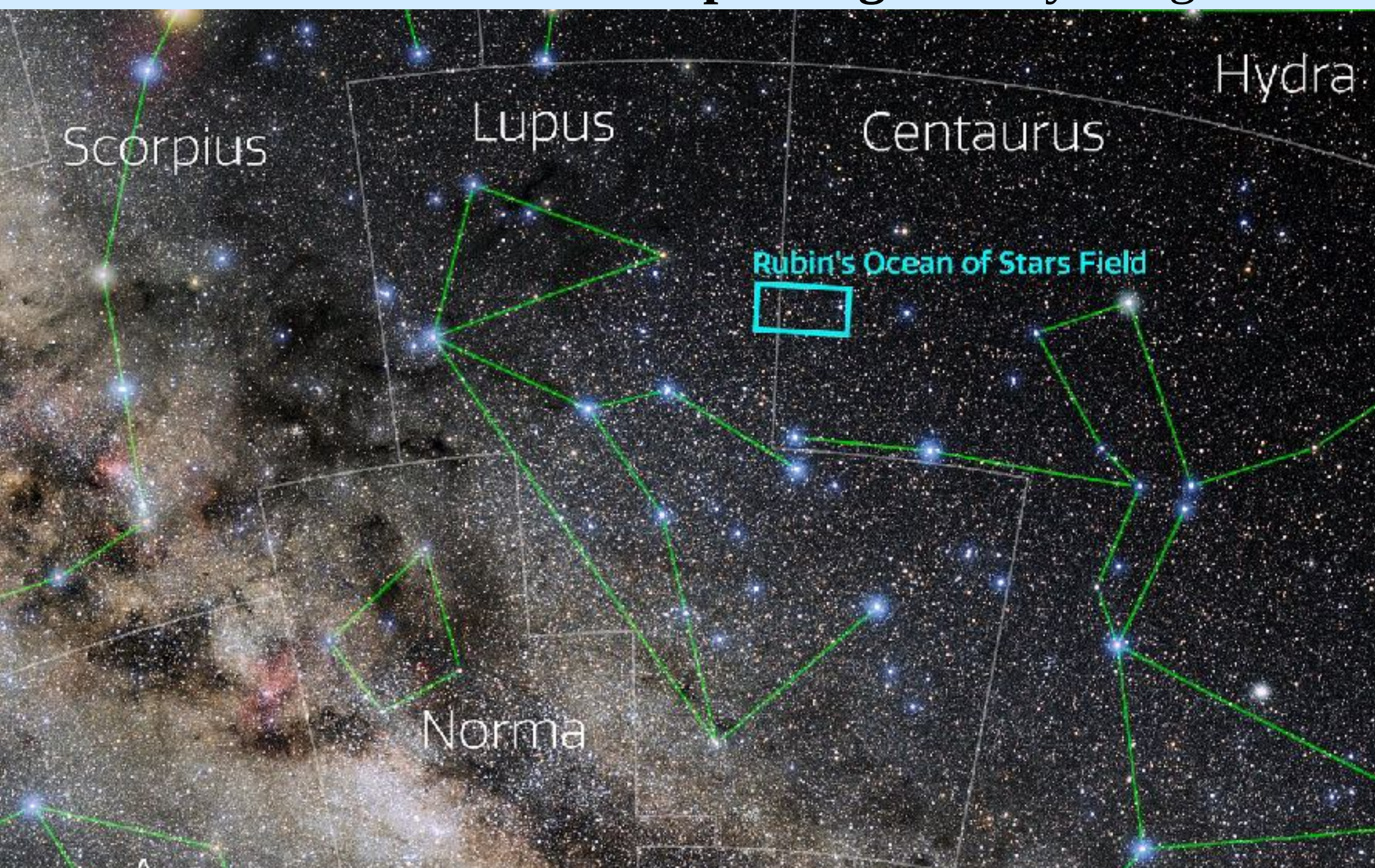
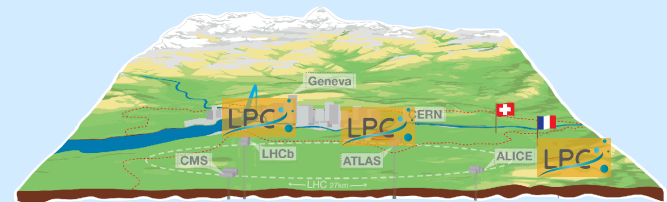




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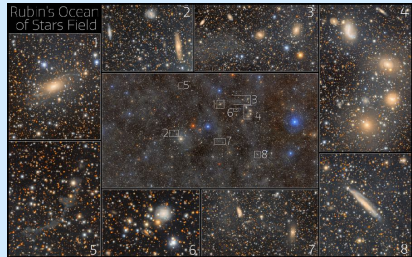
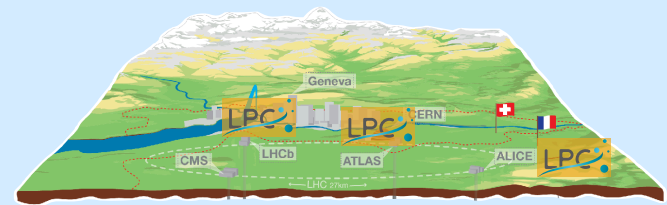


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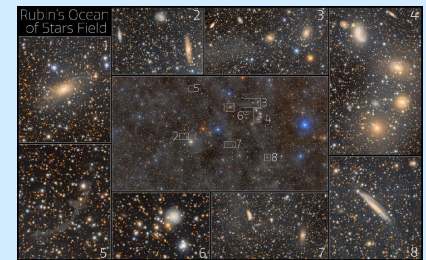
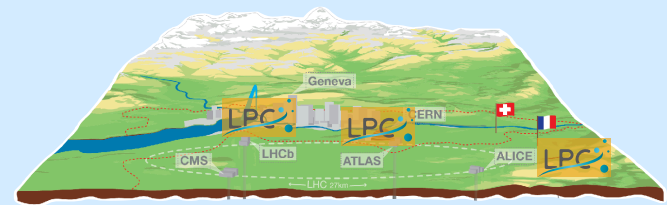


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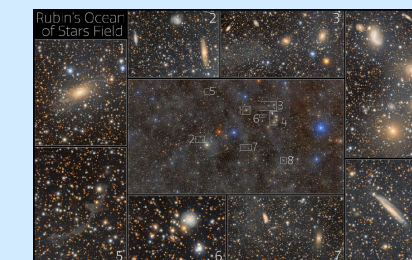
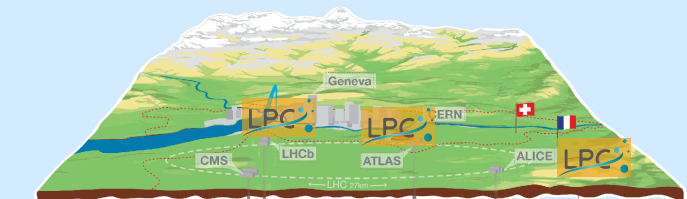


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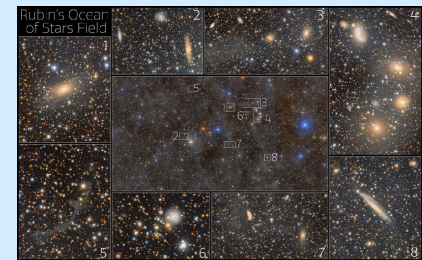
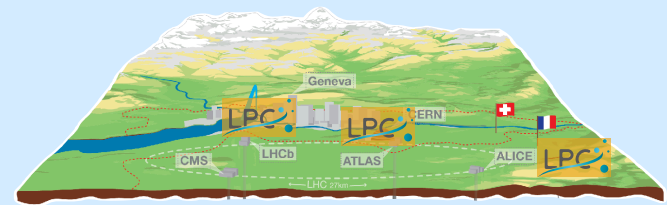


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- **new data analysis** schemes pioneering ML & AI (Fink, ATLAS, **data scientist** university diploma...)



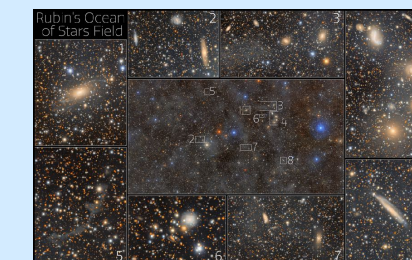
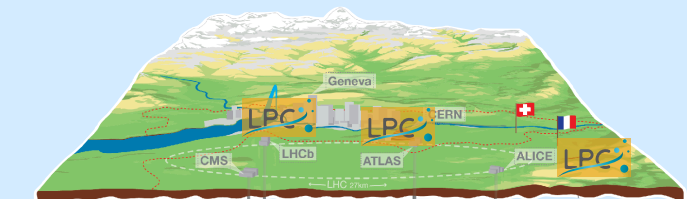


Credo: Good Physics DATA ARE Precious!



LPCA thrives to build **new detectors**, for producing **new DATA** from our physical world, interpreted with **new analysis methods**, compared with **new simulations**, validating or constraining **new physics models**

- present at the 3(/4) hottest sources of **highest energy data** in the world: LHCb, ATLAS, ALICE; prepared many **detector** elements to get the **best data** there: MFT, SciFi, FENICS, ALTIROC, ...
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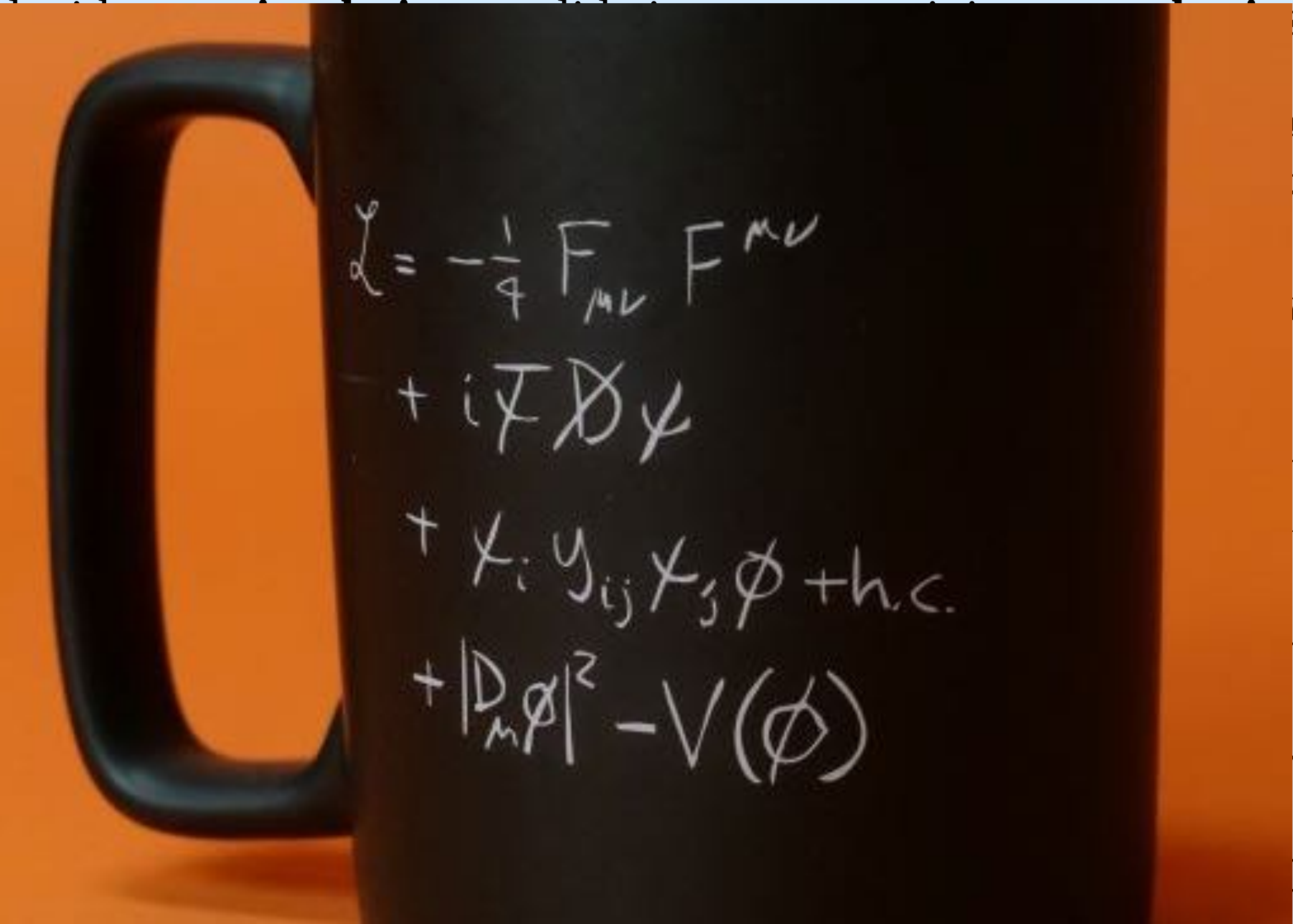


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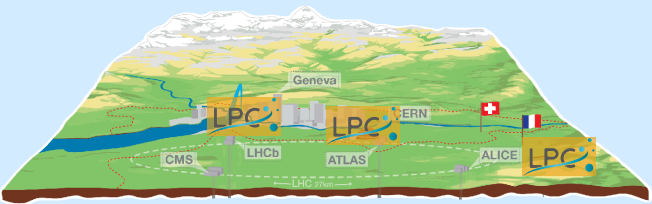


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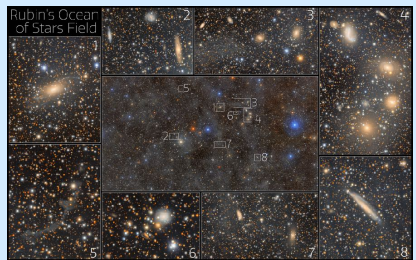
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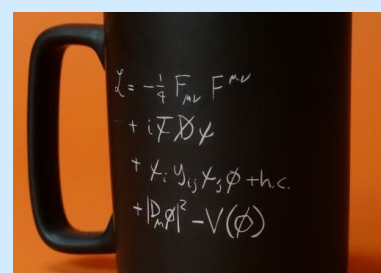
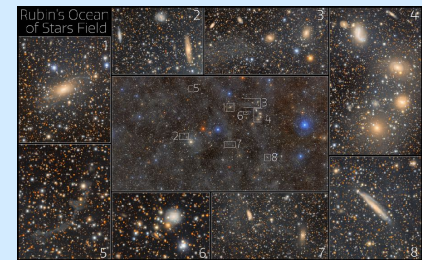
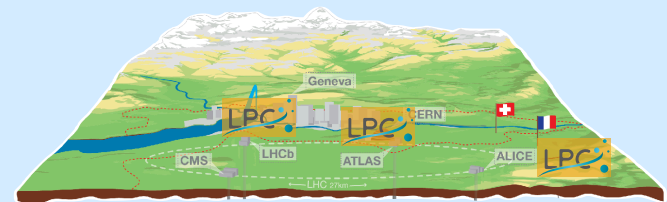


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This importance of **data** has a **long and deep history in Clermont**:



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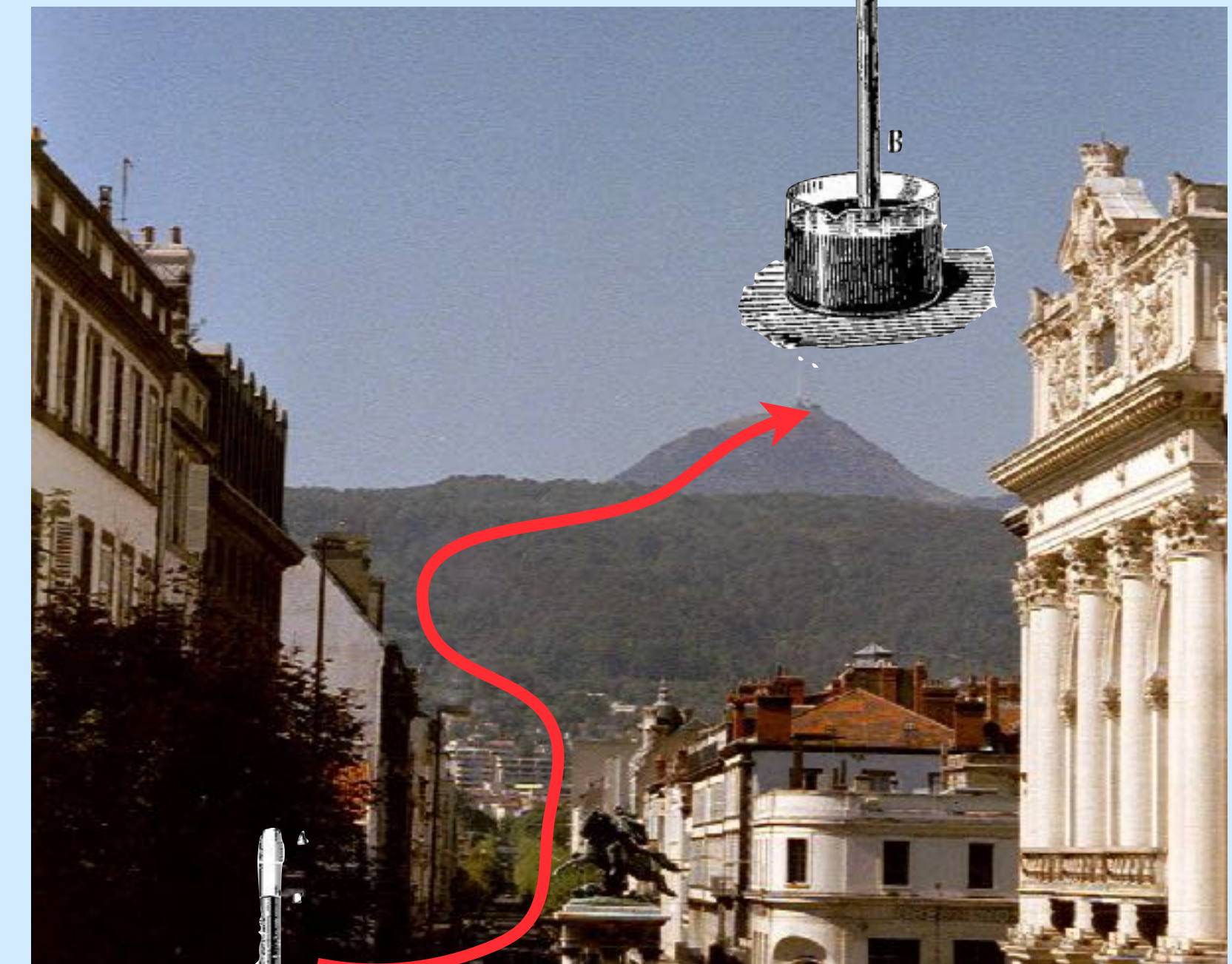
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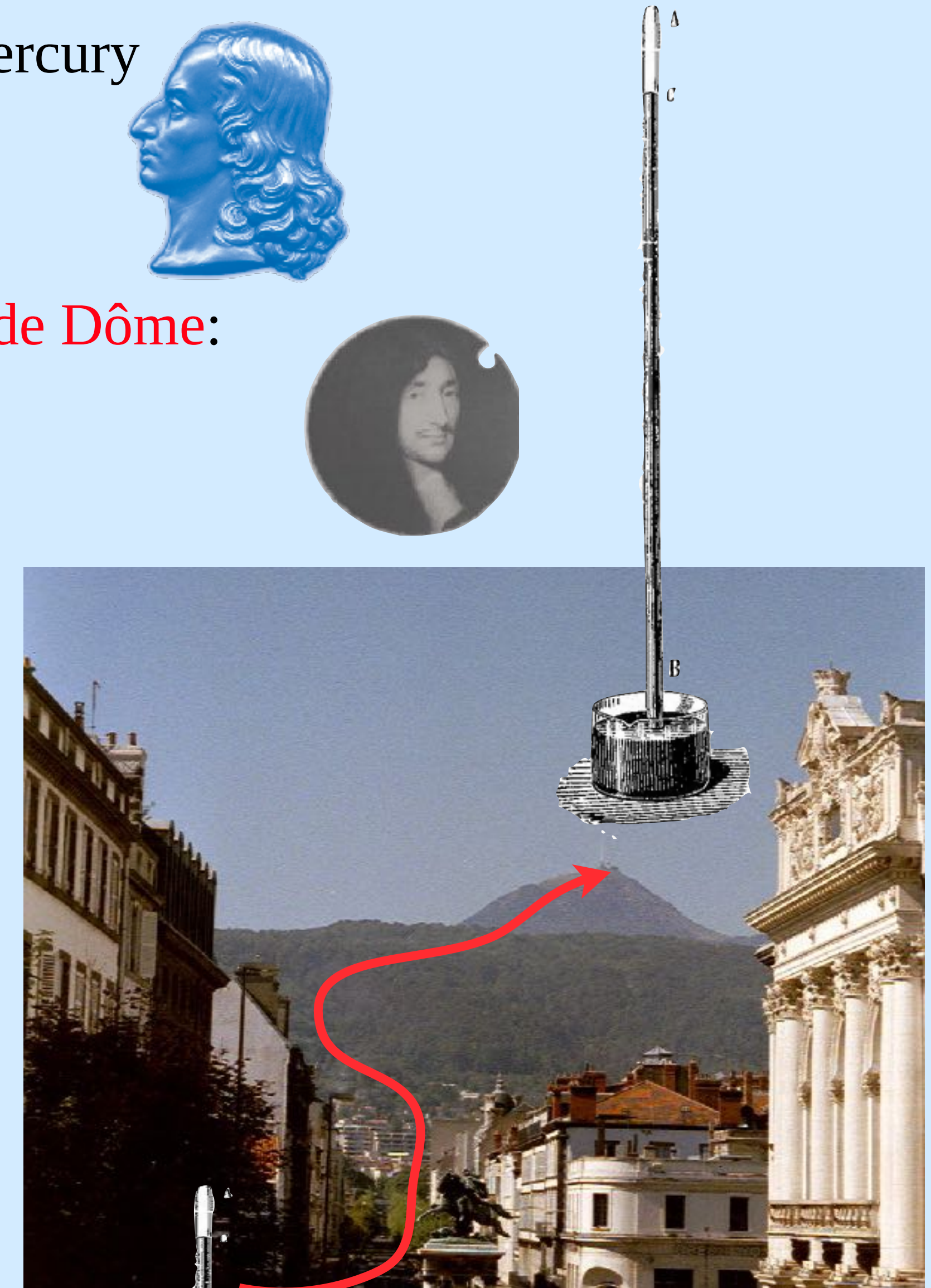
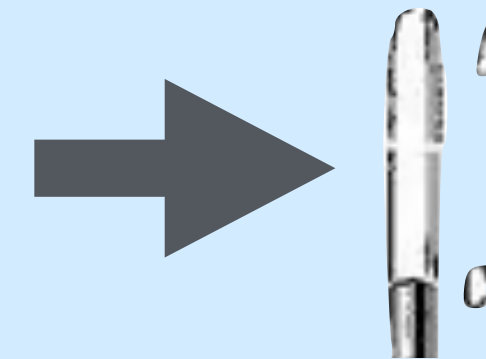
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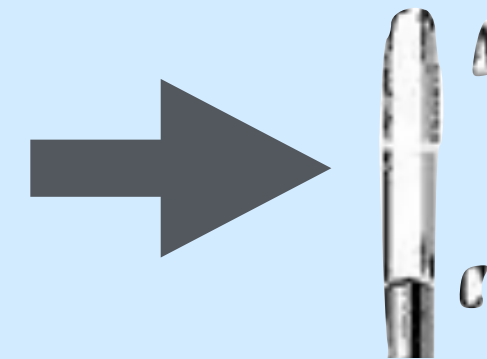


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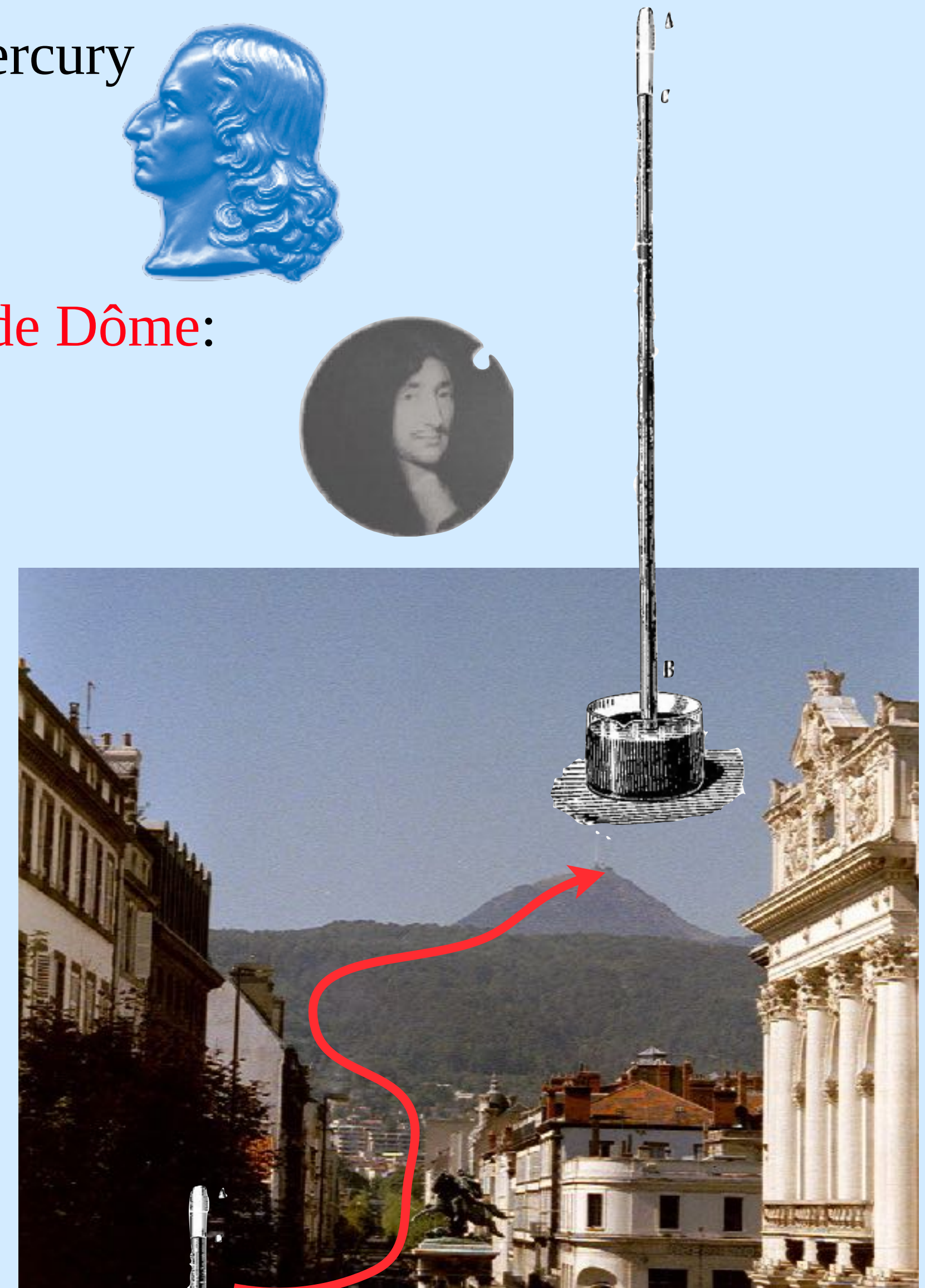
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- Today LPCA researchers approach this question with experiments in Geneva and Chile, ...





1905: Variation of earth magnetism and symmetry breaking

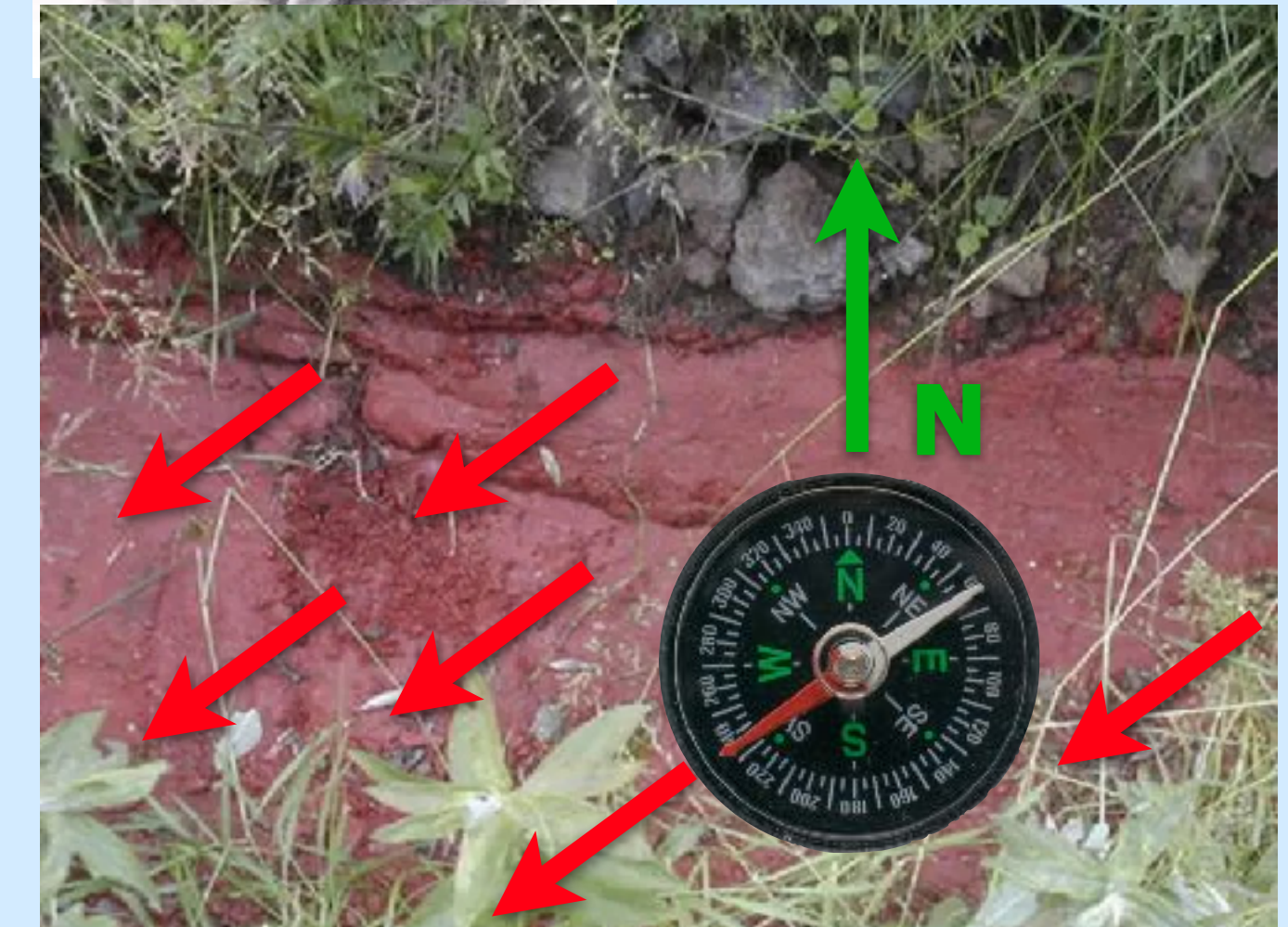


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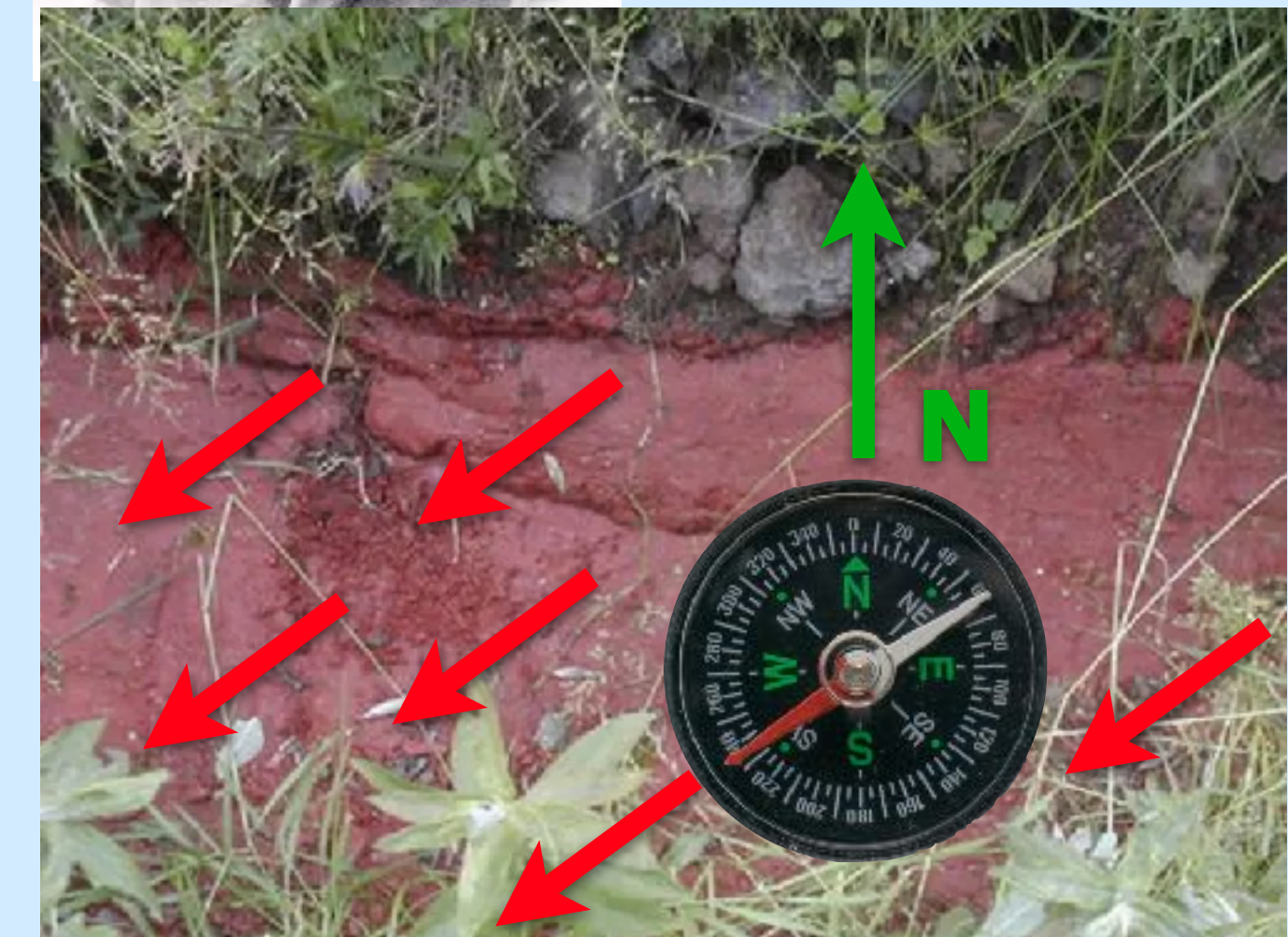
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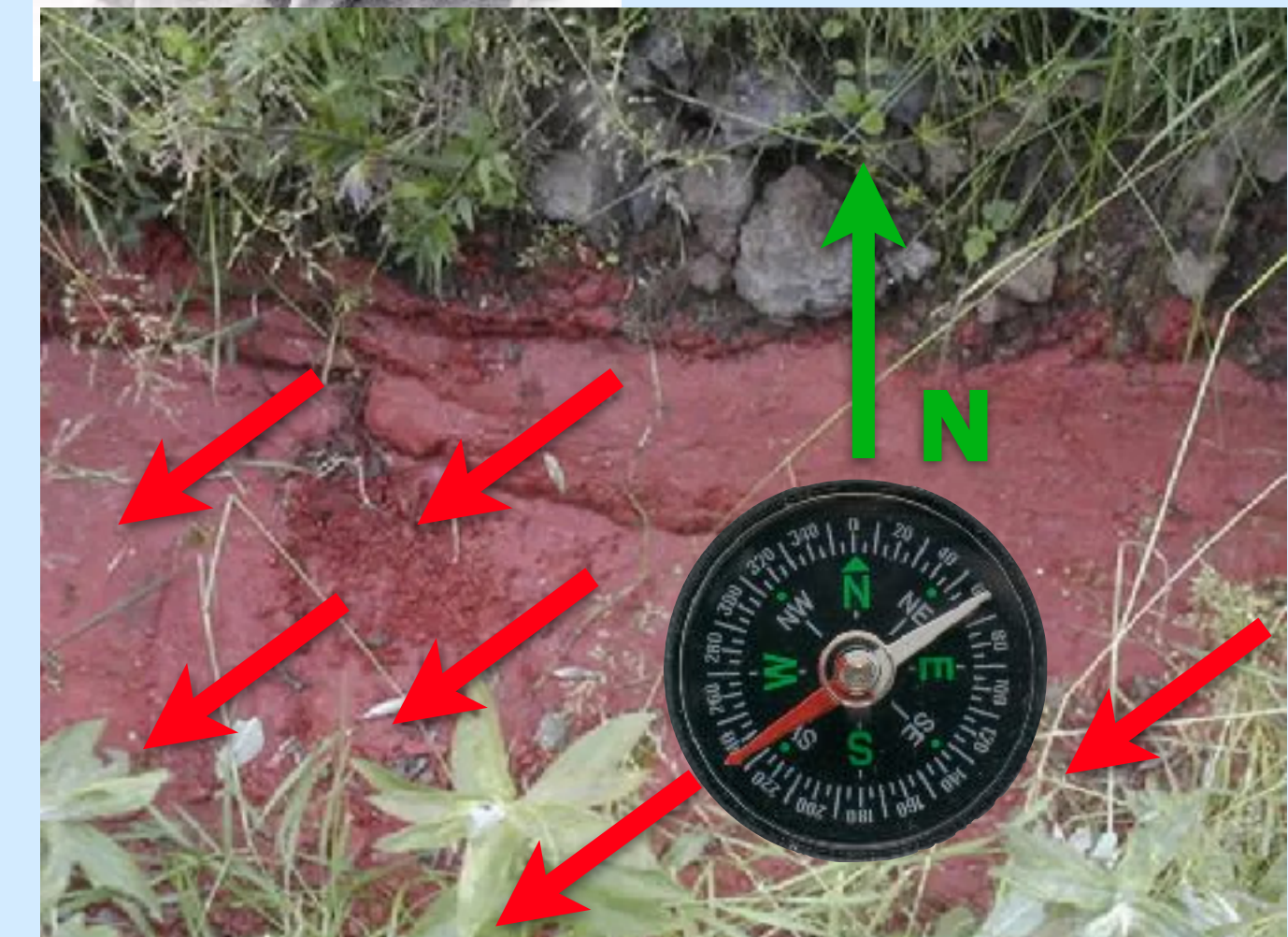


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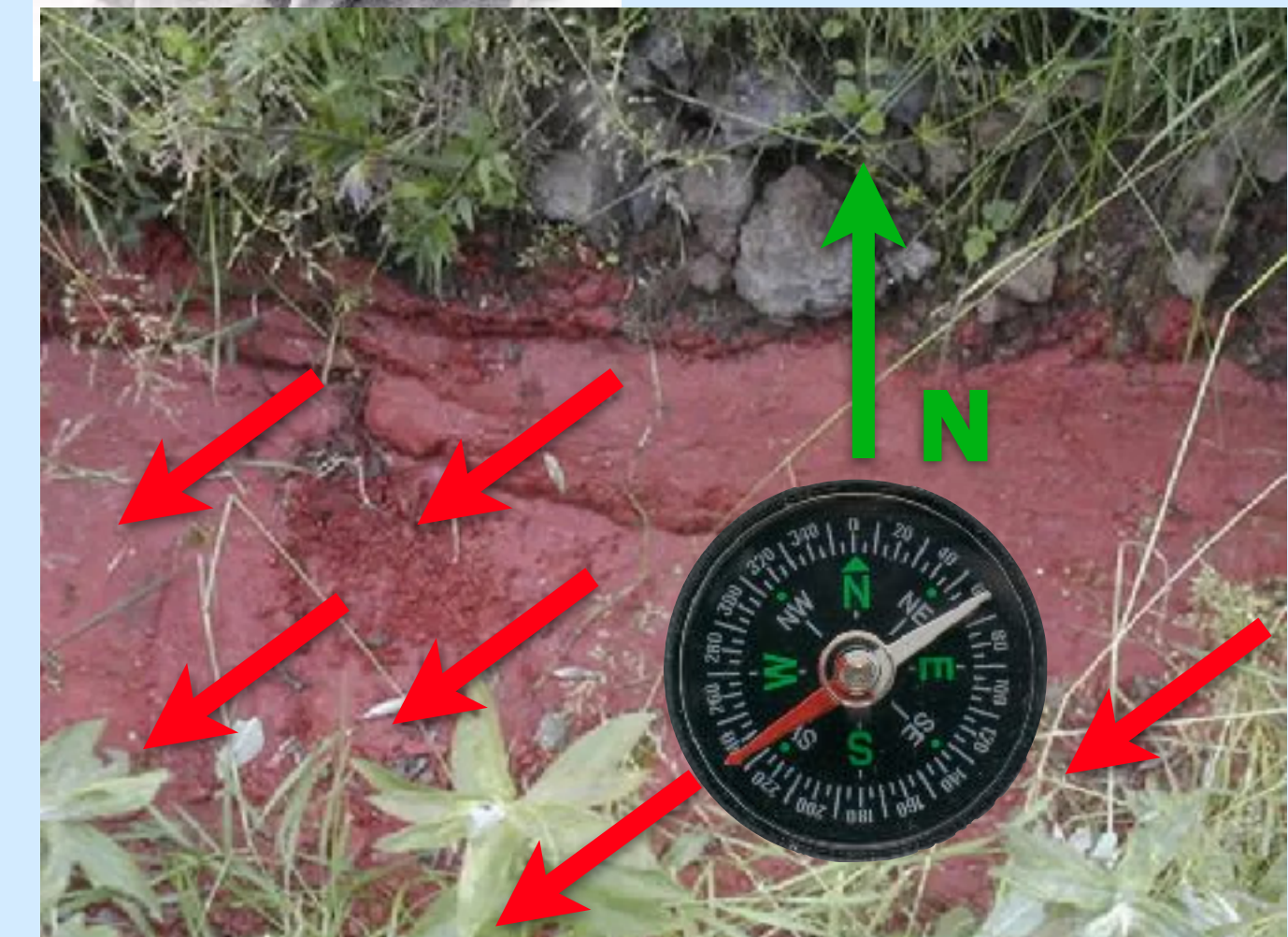


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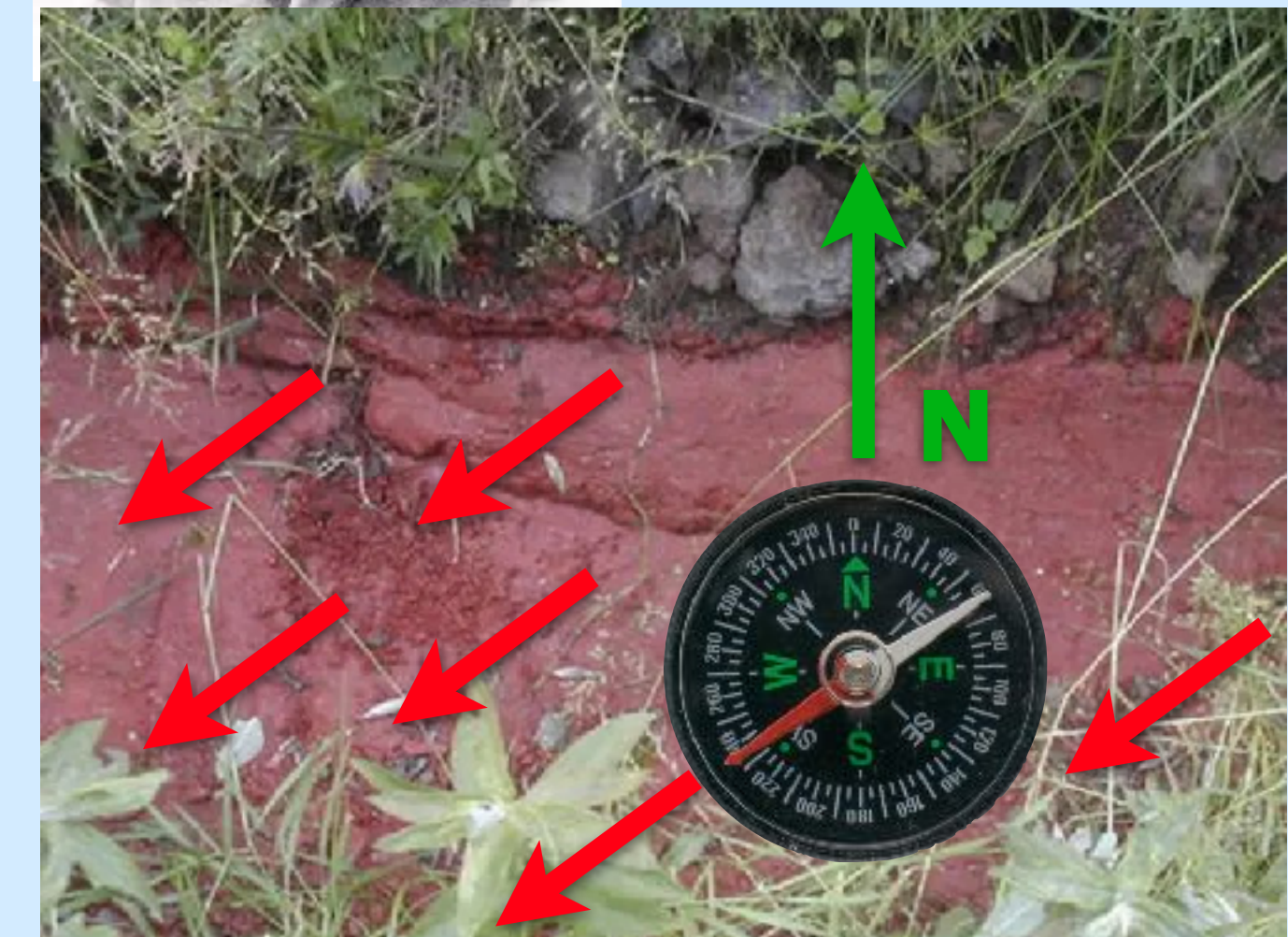


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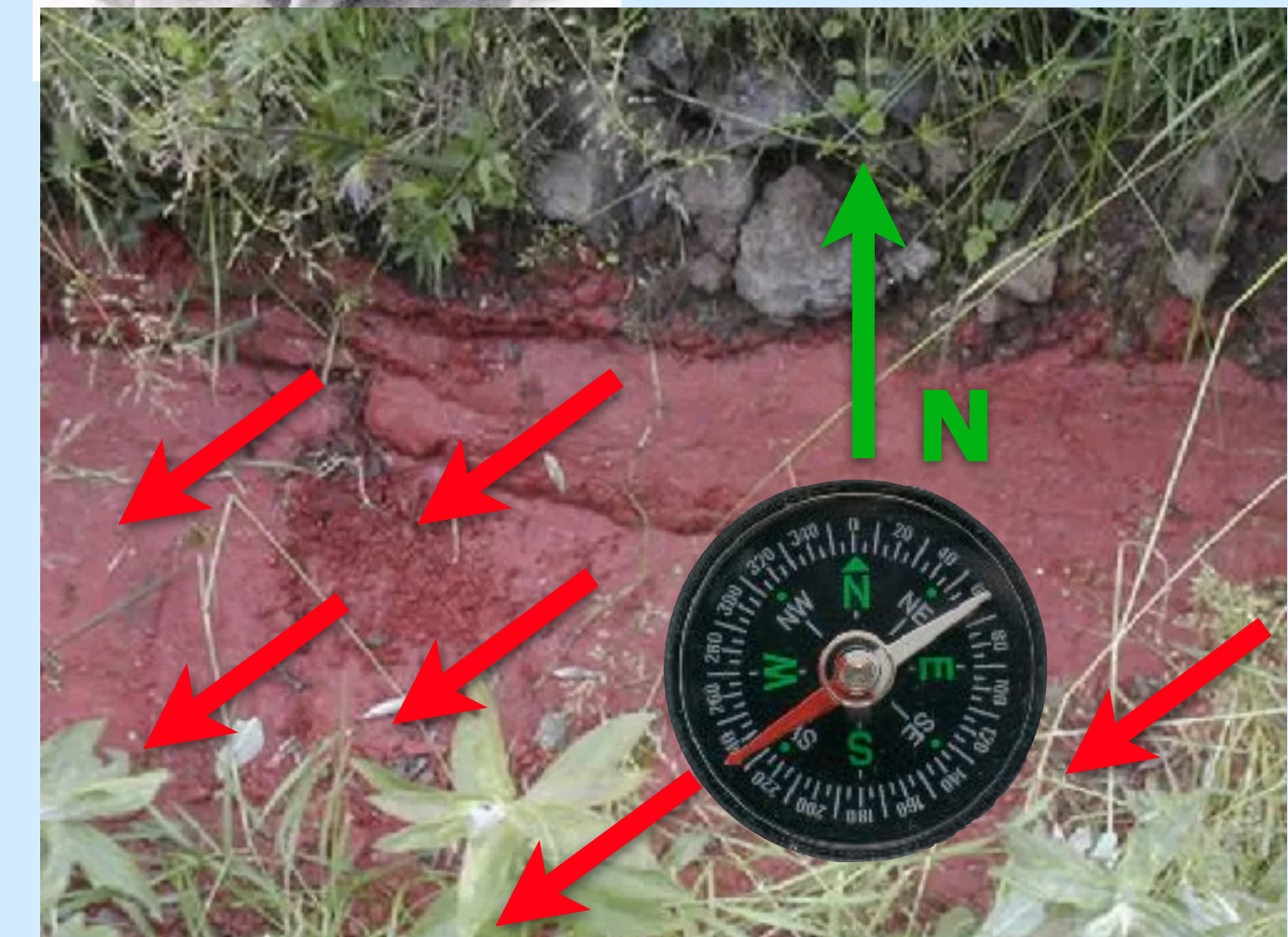


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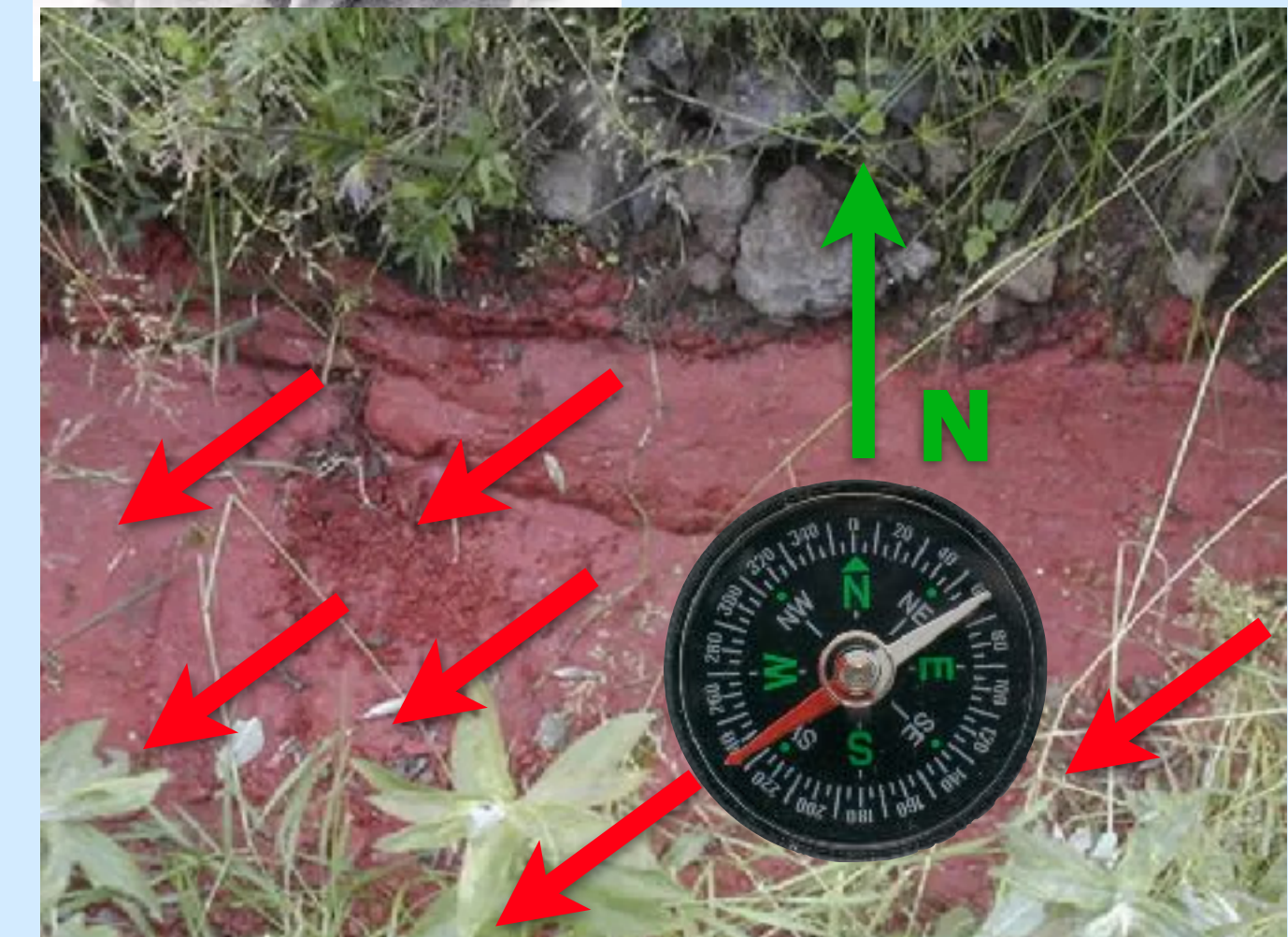
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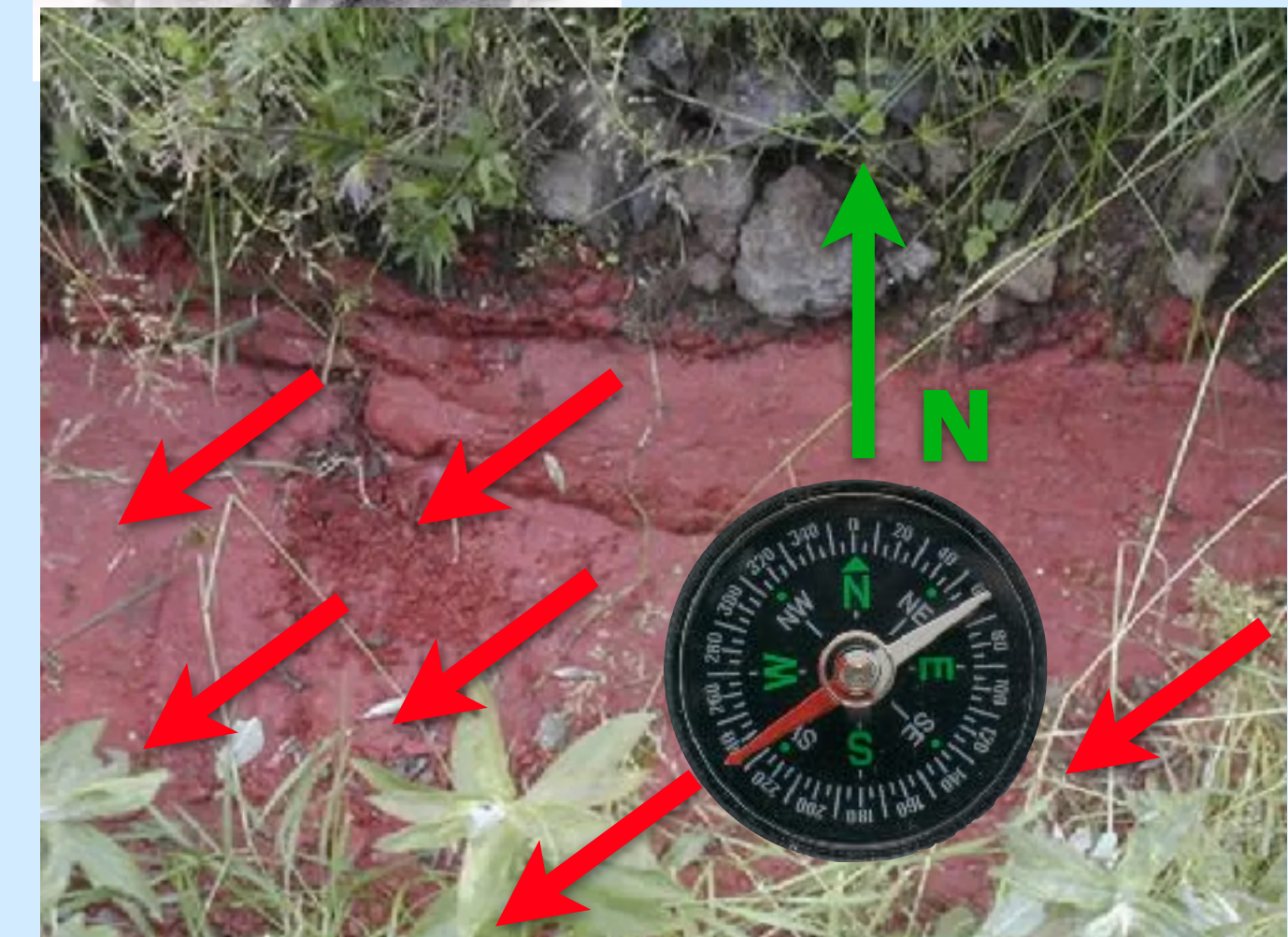
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The study of both is today the main goal of LPCA’s **Particles and Universe** department



Health & environment applications



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- 60 years later, this component has been reinforced in 2017 with the addition a team of biologists





Summary: Welcome & Enjoy!





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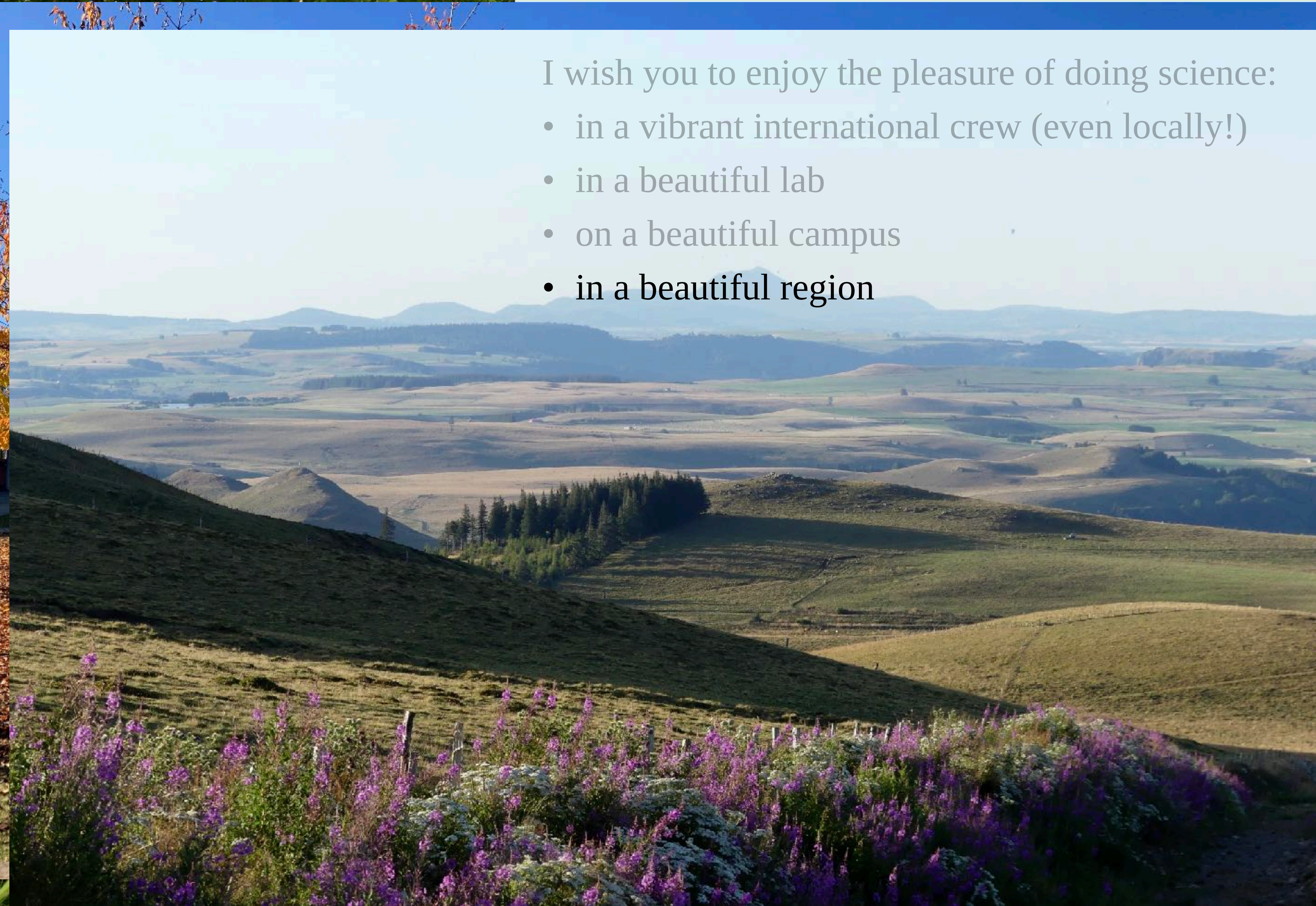
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and hope these beauties will help your career taking off and shining bright!