Increasing the FAIRness of phytolith data

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EOSC-Life

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Project aims and goals

Aim:

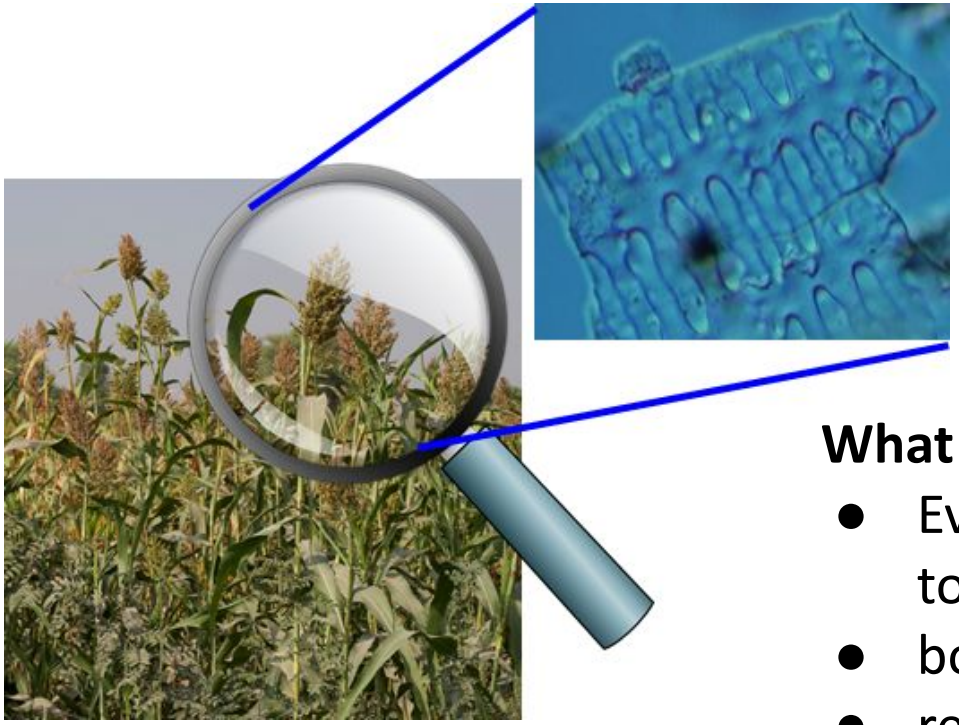
Increasing knowledge of and use of the FAIR data principles in phytolith research.

Goals:

- To find out more about current data sharing and opinions of open science practices in our community by conducting a survey.
- To complete a FAIR assessment of existing phytolith data from two regions - Europe and South America.
- To offer training in FAIR data and open science tools.
- To draw up FAIR guidelines for existing and future phytolith data.

This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No 824087

Project scientific motivation - What are phytoliths?



What are they?

- Microscopic silica-bodies produced by plants
- Robust

What are they used for?

- Ever-expanding list of research topics
- botany, archaeology, palaeoecology
- reconstructing palaeoenvironments and palaeoclimates

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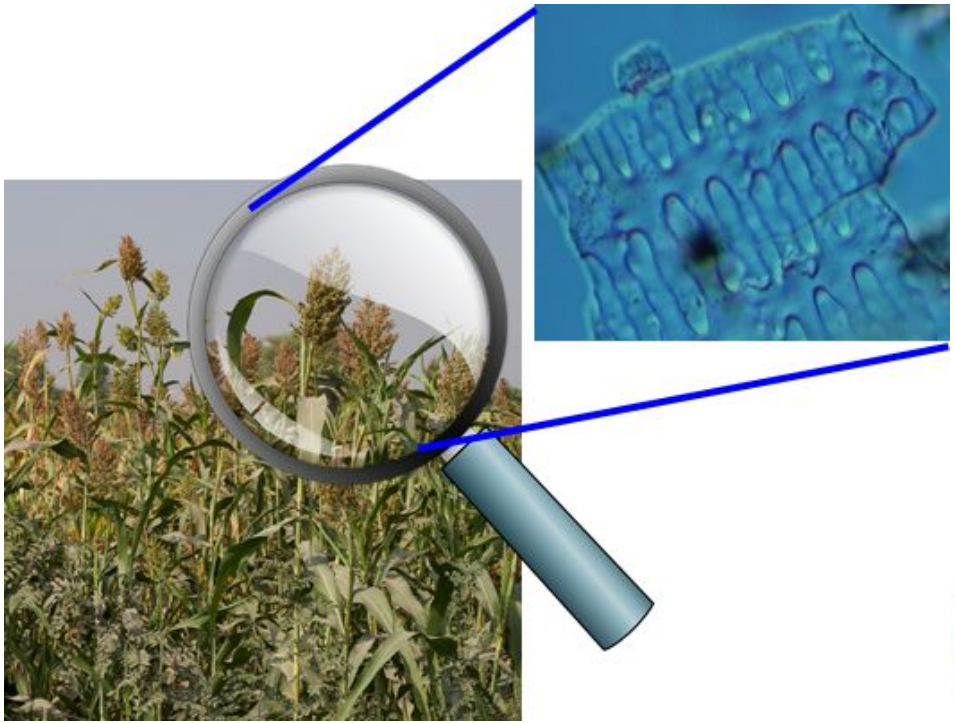
Technical background - Why do phytoliths need FAIRifying?



International Code for Phytolith Nomenclature (ICPN) 2.0

International Committee for Phytolith Taxonomy (ICPT)

Annals of Botany, Volume 124, Issue 2, 24 July 2019, Pages 189–199, https://doi.org/10.1093/aob/mcz064

Published: 24 September 2019 **Article history**

International Phytolith Society

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Technical background - Why do phytoliths need FAIRifying?

Karoune 2020 - Review of Open Science Practices in Phytolith Research

- **341 articles** with primary phytolith data.

Collected data on:

- data format,
- reusability of data,
- photo inclusion,
- fully described method,
- use of standard nomenclature (ICPN 1.0),
- open access.

Results:

- Data sharing in any form = 53%
- Reusable raw data = 4%

Data paper - http://doi.org/10.5334/joad.67 **Pre-print of research articles** - https://osf.io/fa7q3/

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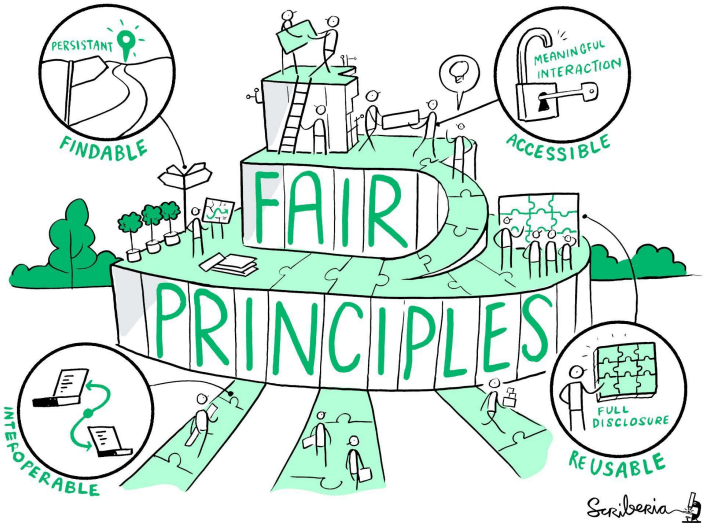
What is FAIR? Responsible Science



Findable, **A**ccessible

Interoperable, **R**eusable

DOI:10.5281/zenodo.5336872

Adapted from talk by Philippe Rocca-Serra (2020)

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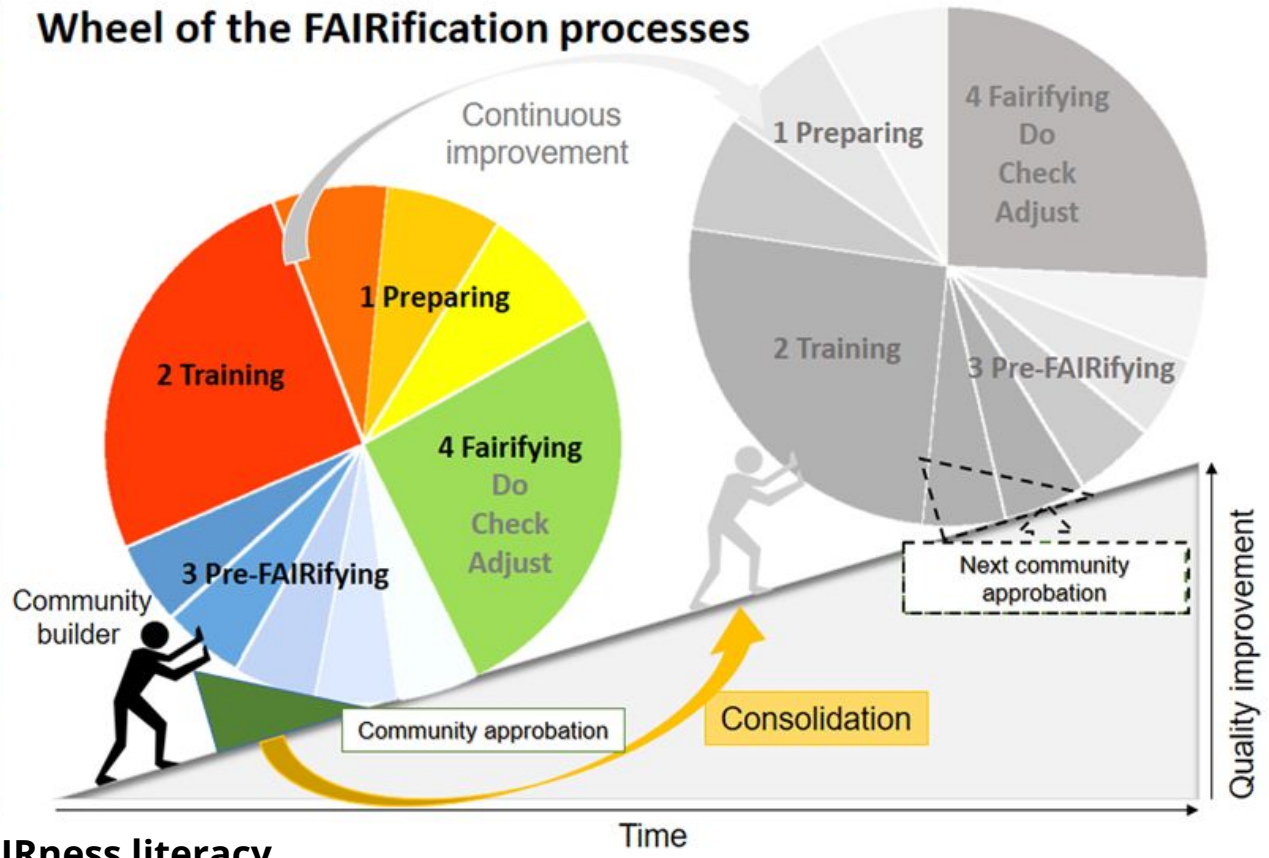
Process	Steps
Preparing FAIRification	Explain FAIRification
	Define constraints
	Define advantages
Training	Increase FAIR literacy Convince partners
Pre-FAIRifying	Building shared strategy
	Define community
	Define objects and variables
	Select items to be identified
	Analyse common denominators
FAIRifying	**Do:** Downward levelling
	Check: first interoperations
	Adjust: Identifying gaps and new expectation



Taken from David *et al.* 2020 - FAIRness literacy

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Current status of data resource and workflows

1. Community engagement

- Conducted a community survey.
- IMPR talk - intro to project - slides + video on Zenodo.
- ICOPS - wider community engagement and governance.

2. Project infrastructure:

- Open-source project repository on GitHub.
- Webpage, Twitter.

3. FAIR assessment

- Assessed 100 papers, developing FAIR guidelines and community review.

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Project impact Phytolith Community

Community building for FAIR and open science - community survey -> ICOPS

New initiatives in open science - nomenclature, open publishing guidelines, first special issue with guidelines

Open Science Skills - Github training, Open Life Science

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Project impact

Wider Communities

Dissemination of Community-led FAIR in related communities

- Archaeobotany
- Environmental Archaeology
- Archaeology - EAA and IPPA IPHES-CERCA commission on Open Science
- Computational Archaeology
- Botanical Societies

Open Training

- Github
- Open Science Skills

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Project impact Wider still

Our team members are mentoring within the **Open Life Science** program

EOSC-future - taking part in discussions

ELIXIR-UK FAIR Data Fellow - producing training materials for FAIR data management

- Case study in the FAIR Cookbook

The Turing Way - guide for reproducible data science

Software sustainability Institute - data science training

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Thank you

Historic England

EOSC-Life

upf. Universitat Pompeu Fabra Barcelona

CaSEs Culture and Socio-Ecological Dynamics research group

Open Life Science

International Phytolith Society

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