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Introduction: Research Data Management

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Digital Scholarship Centre

University of Oslo Library

April 12, 2023

Agenda

What is research data?

Why to manage research data?

How to manage research data?

Q & A



The coordinates are
46.3959775, 23.5838889.

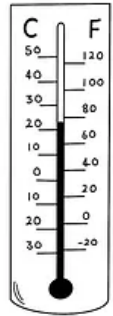
The pasta tastes
creamy.



The temperature is
24 degrees Celsius.



The flower smells
sweet.



What are Research Data?

“Information, especially facts and numbers, collected to be examined and considered and **used to help decision-making...**”

(Cambridge online dictionary)

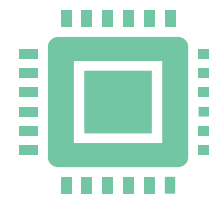
“Data collected or produced in the course of scientific research activities and **used as evidence in the research process, or commonly accepted in the research community** as necessary to validate research findings and results. ”

(European Open Science Cloud - EOSC)



Observational data

recognising, noting, recording
facts, occurrences of
phenomena



Computational data

products of executing
computer models,
simulations, or workflows



Experimental data

procedures in controlled
conditions to test or
establish hypotheses or to
discover or test new laws



Records

any phenomenon or human
activity, can be treated as
data for research

Qualitative or Quantitative

Primary (new) or **Secondary** (existing)

Personal data

- General (non-sensitive) personal data
- Sensitive personal data



Research Data Management (RDM)

Activities and practices that **support long-term, preservation, access, and use** of data



Protection

Organization

Documentation (and metadata)

Classification

Short-term storage

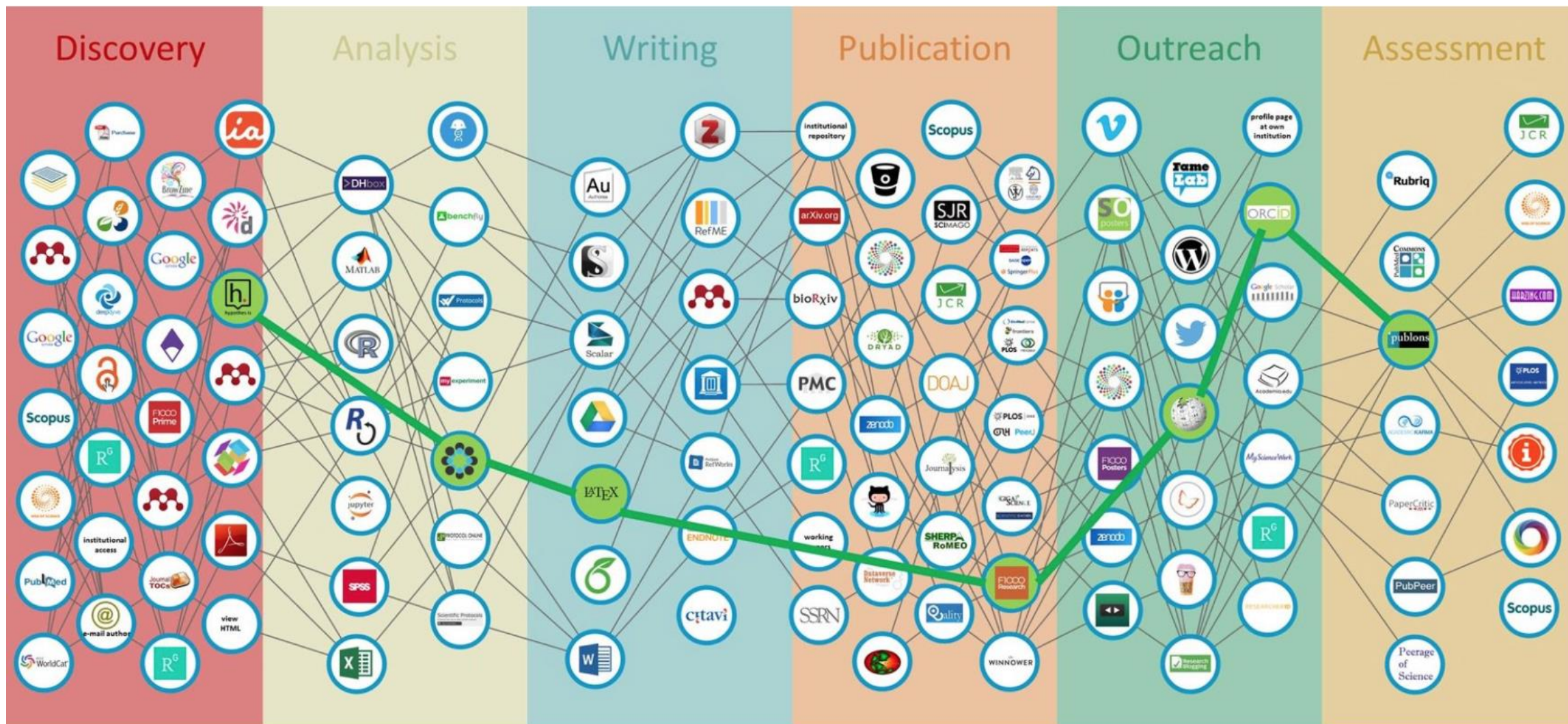
Licensing

Sharing

Long-term preservation

Dissemination (publishing)

Reusing





**As open as possible,
as closed as necessary**



Scriberia 



Easy to find by both **humans and computer** systems

Based on **mandatory description of the metadata**



Stored for **long term**

Easily **accessed and/or downloaded**

Well-defined **license and access conditions**
(Open Access *when possible*)



Ready to be **combined and integrated** with other data by humans as well as computer systems



Ready to be **used for future research** and to be **processed further** using computational methods.

Data Management Plan (DMP)

LIVING document

Specifies the **TYPES** of data

Describes how you plan to **MANAGE** your data

Organize, Document, Classify, Store, License

Conveys whether and how the data can be **SHARE**

AGREEMENT between project members

Keep **OVERVIEW** over data

Data Management Planning



Time and place: Apr. 14, 2023 9:00 AM–10:30 AM, Zoom

Data management planning

Get started with data management planning for your research!



Time and place: Apr. 19, 2023 2:00 PM–3:30 PM, [Georg Sverdrups hus: DSC-Oasen](#)

Workshop on Data Management Plans

Join us for this practical and interactive workshop on writing data management plans (DMPs) and learn how to create a DMP for your research project!



Time and place: Apr. 24, 2023 12:00 PM–1:30 PM, [Georg Sverdrups hus: DSC-Oasen](#)

Workshop on Data Management Plans

Join us for this practical and interactive workshop on writing data management plans (DMPs) and learn how to create a DMP for your research project!

Why is important?

Facilitates data **sharing, reuse and preservation**

Verification or refinement of published research results

Defines **roles and responsibilities** among the project team

Promote **new research**

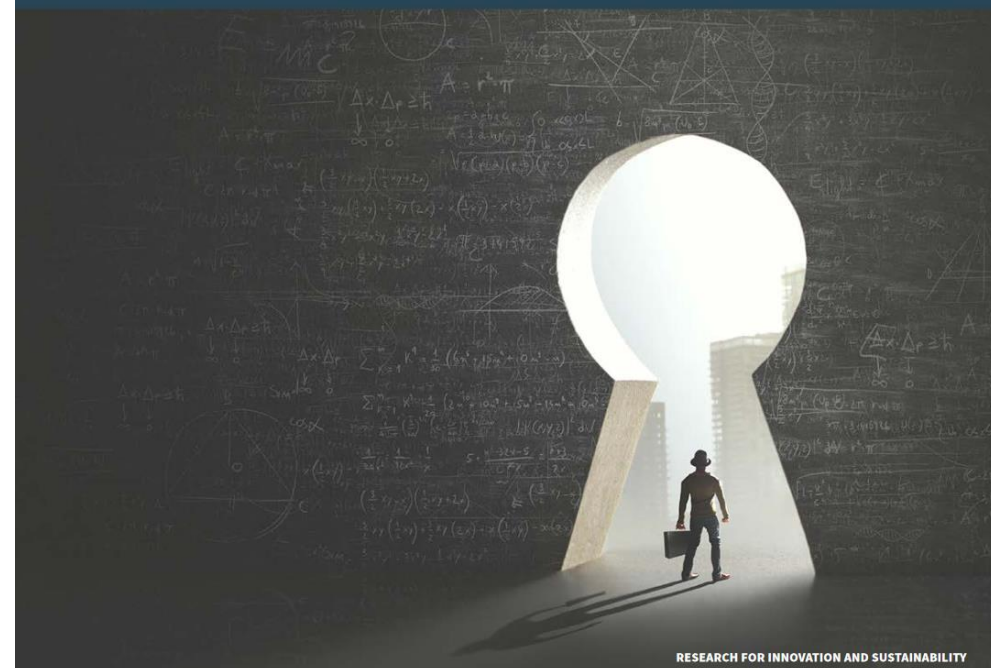
Collaboration

Demand by **founders or institutions**



The Research Council Policy for Open Science

In effect from 2020



RESEARCH FOR INNOVATION AND SUSTAINABILITY



Open Science across the programme

Open Science

Mainstreaming of open science practices for improved quality and efficiency of R&I, and active engagement of society

Mandatory immediate Open Access to publications: beneficiaries must retain sufficient IPRs to comply with open access requirements;

Data sharing as 'open as possible, as closed as necessary': mandatory **Data Management Plan** for FAIR (Findable, Accessible, Interoperable, Reusable) research data

- Work Programmes may incentivize or oblige to adhere to **open science practices** such as involvement of citizens, or to use the **European Open Science Cloud**
- Assessment of open science practices through the **award criteria** for proposal evaluation
- Dedicated support to **open science policy actions**
- **Open Research Europe** publishing platform

Assess the need to develop a data management plan in relation to all projects awarded funding.

If you decide that a data management plan is not needed, you must provide an explanation.*

Final version of the DMP delivered with the final report of the project.

Funder DMP Policy



Research Data Policy

Openly available

Available at an **early** stage

Data management plan required

Metadata and be **documented**

Securely **archived**

Licenses for access, reuse and redistribution

Made freely available, but the actual
distribution cost should be covered



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Ingvild Elise Bjerke

”We are hoping that these data, **openly shared** through the EBRAINS research infrastructure, will **provide a lasting contribution** to the neuroscience community.”



Data and Knowledge

Online solutions to facilitate sharing of and access to research data, computational models and software

All services



Elisabeth Lundsør

“...substantial effort in enabling FAIR storage of historical sampling events of phytoplankton from the Inner Oslofjord. ”

[Get data](#) [How-to](#) [Tools](#) [Community](#) [About](#)

SAMPLING EVENT | REGISTERED JUNE 18, 2021

Inner Oslofjorden Phytoplankton Database

Published by [UiO Department of Biosciences](#)

Lundsør E • Eikrem W

[DATASET](#) [PROJECT](#) [METRICS](#) [ACTIVITY](#) [DOWNLOAD](#)

22,635 OCCURRENCES 10 CITATIONS

The inner Oslofjorden Phytoplankton Database is a comprehensive data collection containing quantitative phytoplankton cell counts, associated metadata and available environmental data. The primary source for the collection is the monitoring programme for inner Oslofjorden conducted with varying yearly frequencies from 1973 until today, mainly by the Norwegian Institute for Water Research (NIVA). From 2006 to 2020, sampling frequency was approximately monthly. Secondary, the database is also supplied with data from various projects from 1896 to 1976, conducted by researchers from University of Oslo (UiO).



Publication date: November 17, 2022
Metadata last modified: November 17, 2022
Hosted by: GBIF Norway
Licence: CC BY 4.0
[How to cite](#) [DOI](#) 10.15468/gugesq

22,635 Occurrences

99.8% With taxon match

100% With coordinates

100% With year

22,635 GEOREFERENCED RECORDS



<https://www.digitallifenorway.org/news/winner-of-the-dln-fair-data-award-2022.html>

Services and tools for RDM support

- Research support and IT staff at your faculty/institute
- Subject librarian for your discipline
- [Research data management website](#)
- Digital Scholarship Center (DSC)
research-data@uio.no
- Norwegian Centre for Research Data (NSD, now Sikt)

Research data management

Norwegian

Welcome to UiO's data management pages maintained by the research data group at [Digital Scholarship Center](#).

Data management plans
(DMPs)



Data classification and
storage



Data organization



Data documentation and
metadata



Data sharing and publishing

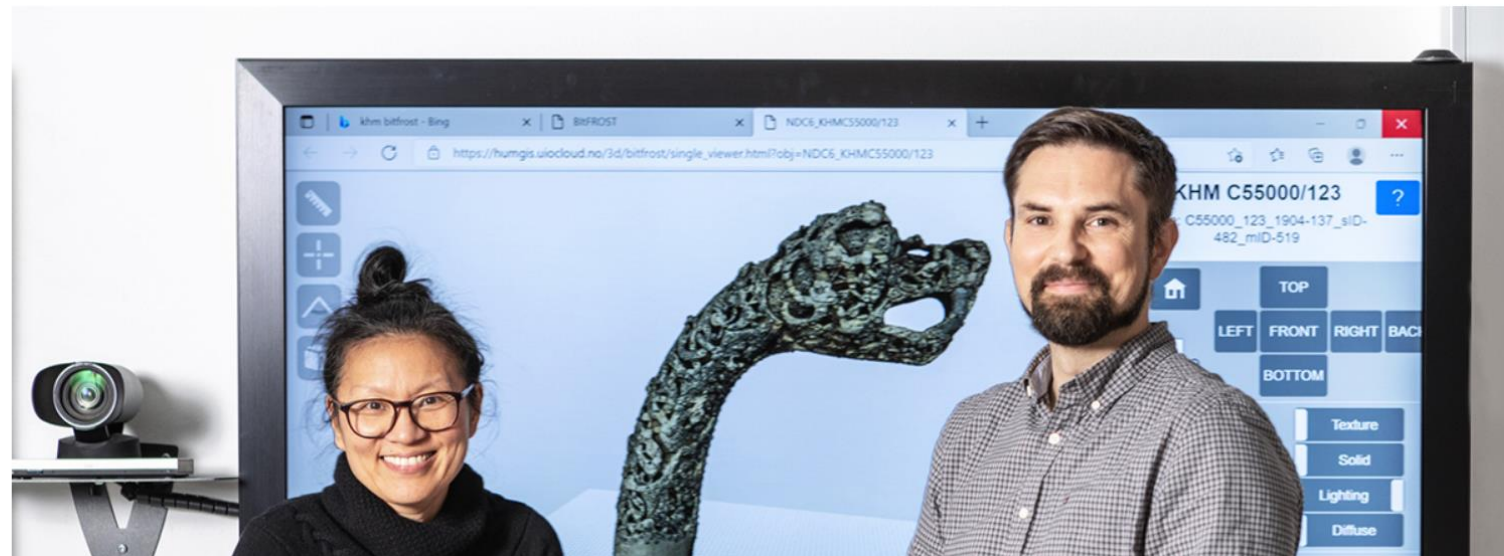


Finding and reusing data



Digital Scholarship Centre

At the Digital Scholarship Centre (DSC) you get guidance on how you can make the best possible use of digital tools and methods in your research and communication activities.



Courses in research data management and sharing

April 12th – 27rd 2023

Introduction to research data management

Apr. 12, 9:00 AM, Zoom

Data management planning

Apr. 14, 9:00 AM, Zoom

Data organization, metadata, and documentation

Apr. 19, 9:00 AM, Zoom

Data classification and storage selection

Apr. 21, 9:00 AM, Zoom

Copyright and licensing

Apr. 21, 1:00 PM, Zoom

Sharing and archiving research data

Apr. 26, 9:00 AM, Zoom

Finding and reusing research data

Apr. 27, 9:00 AM, Zoom



Carpentry@UiO

Carpentry@UiO is a community of people who are passionate about learning, teaching, and sharing best practices and digital skills for making the research process more reproducible and effective. If you want to get involved, or join one of our workshops, check us out!



The Unix Shell

Shell speeds up repetitive and tedious processes. It is also essential skills needed to use high-performance computing (HPC) resources.



Version Control with Git

Git helps you to keep track of what you've done, for a better collaboration and for yourself in future. In the workshop we use GitHub as well.



Programming in Python

Python is now widely used in scientific computing with various powerful packages. Carpentry@UiO runs workshops for participants with no programming experience ("Plotting and Programming in Python" lesson) and for participants at intermediate level ("Programming with Python" lesson, episodes 10-12).



R for Reproducible Scientific Analysis

R is commonly used for statistical analysis, but it is also a powerful programming language. Workshops on R focuses on teaching best practices for scientific computing: breaking down analyses into modular units, task automation, and encapsulation. Workshops on R may use lessons from Data Carpentry instead.



Using Databases and SQL

Databases include powerful tools for search and analysis, and can handle large, complex data sets. The lesson will show how to use a database to explore research data by using SQL.

ReproducibiliTea

Journal Club

**JOIN IN AND DISCUSS WITH FELLOW
STUDENTS AND RESEARCHERS**

**OPEN RESEARCH, REPRODUCIBILITY
and RESEARCH IMPROVEMENT**



Join us

Everyone is welcome to join us - whether you are an enthusiast of open and reproducible research, a skeptic, or a cautious explorer. Currently, all meetings are hybrid with the possibility of joining on-site at Blindern or via Zoom. Grab a cup of tea (coffee?) and join us!

Subscribe to our mailing list





University of Oslo Library

Digital Scholarship Center and Open Research

Open Science Lunch 2023

Each last Thursday of the month at 12.00 we invite you to join us virtually for an online open lunch to hear about how to make your research more open.

February 23rd

Open your data with DataverseNO

March 30th

Public health reporting: an open source approach

April 27th

Open knowledge resources: Store norske leksikon and Wikipedia

May 25th

Keep the rights to your work: UiO's Rights Retention Policy



Upcoming



Time and place: Apr. 27, 2023 12:00 PM–1:00 PM, Hybrid: Georg Sverdrups hus and Zoom

Open knowledge resources: Store norske leksikon and Wikipedia

Join us for a discussion on using, maintaining and contributing to freely available open knowledge resources.



Time and place: May 25, 2023 12:00 PM–1:00 PM, Hybrid: Georg Sverdrups hus and Zoom

Keep the rights to your work: UiO's Rights Retention Policy

Learn about how you can retain the rights to your published work with the new Rights Retention Policy at UiO.

Thank you!

Contact us at:

research-data@uio.no



April 12, 2023