



# InvenioRDM

*A Collaborative Next-Generation Research  
Data Management and Repository Solution*

**Thomas Morrell @temorrell**

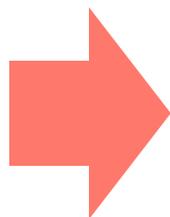
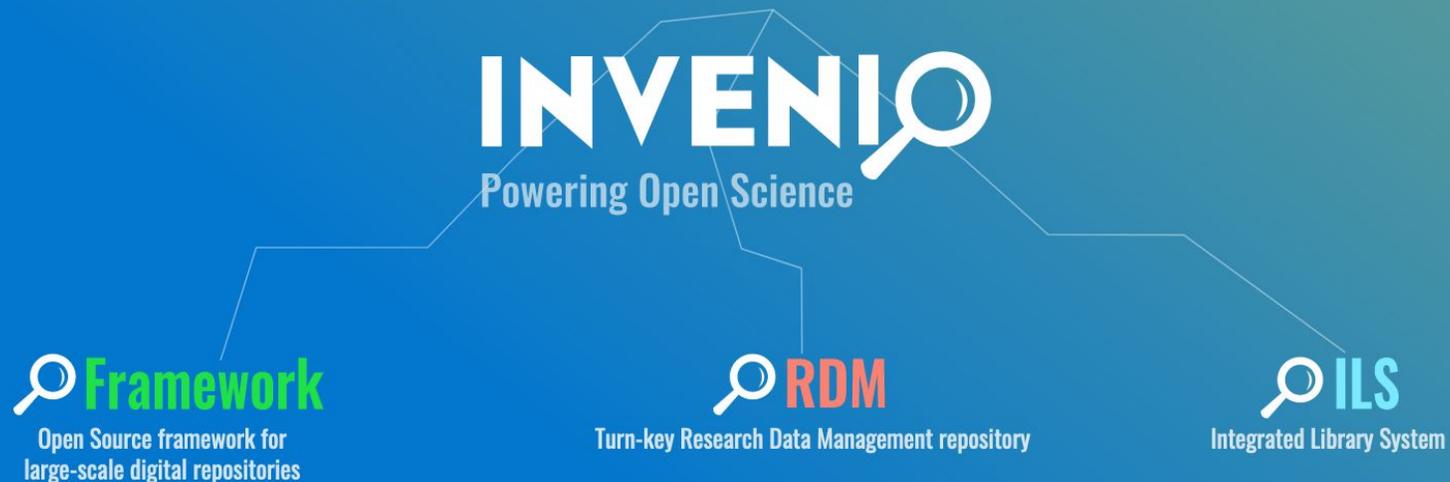
Research Data Specialist, Library  
California Institute of Technology

**Kristi Holmes @kristiholmes**

Director, Galter Health Sciences Library & Learning Center  
Associate Professor of Preventive Medicine-Health and Biomedical Informatics  
Northwestern University Feinberg School of Medicine

**@inveniosoftware**

# Invenio software powers open science



## Free Open Source Software

Invenio is Free Open Source Software supported by a committed community of multidisciplinary institutions.

[Code](#) | [Docs](#) | [Examples](#)



## Friendly and Responsive Community

Although Invenio was born at CERN, its community is growing bigger every day. Talk to the team now in our chatroom or forum.

[Chatroom](#) | [Forum](#) | [Get Involved](#) | [Events](#)



## The "Safe bet"

Invenio community has been around for 20 years. **Solid services** have been built on top of it to ensure long-term confidence.

[Live services](#) | [Products](#)



## The turn-key research data management repository

🚀 Launching in the summer 2020

*Institutional Repository and Data Index & catalog*

*<https://inveniosoftware.org/products/rdm/>*

### Roadmap

We intend to be ready by summer 2020.

### Talk

Join our project forum and collaborate.

### Chat

Find all the partners in our official chatroom.

### Code

Have a look at InvenioRDM code evolution.

### Events

InvenioRDM project events for partners

### Features

Sneak peak at the future InvenioRDM.

# Live Demo

- We're going to install Invenio RDM during this presentation
- This is an Alpha release (limited features, temporary data model, no UI design)
- Follow along at [github.com/inveniosoftware/invenio-app-rdm/wiki](https://github.com/inveniosoftware/invenio-app-rdm/wiki)
- Let's set up the repository, build docker images, and configure database



# How does Zenodo fit into all of this?

- Zenodo is a great model of a modern research data repository
- Even though it's open source, Zenodo was not designed for non-CERN deployment
- Zenodo is a repository service hosted by CERN, InvenioRDM is a repository application

The Zenodo logo is displayed in white lowercase letters on a blue background. The letters are rounded and have a slightly irregular, hand-drawn appearance.

## What motivated the InvenioRDM project?

- Some organizations tried to reuse the existing open source Zenodo source code
  - Other orgs tried to use the Invenio Framework to build a RDM repository from scratch
  - Several orgs tried to make the same modifications but had no easy way of sharing their changes
- All these groups came together to create a collaborative open source project and grow a sustainable community.

**Zenodo will also run on InvenioRDM by the end of the project period.**

# InvenioRDM Features (Research Data Management)

*RDM platforms are critical to help preserve and share research, enable reproducibility, and empower reuse of datasets, protocols, engagement or study materials, & a wide range of other research products.*

- ✓ **Research, shared.** Securely share and preserve data records and research materials with collaborators. Allows easy dissemination to the community.
- ✓ **Get credit & be cited.** Get a DOI to make records easily and uniquely citable. Pre-formatted citation text makes it easy to cite your work and be cited.
- ✓ **Discoverable.** Leverages metadata standards and the powerful Elasticsearch full-text search engine retrieves, facets, sorts, and filters your searches with ease.
- ✓ **Metrics.** Industry standard usage statistics for record pages with all tracking completely anonymized.
- ✓ **FAIR.** Advanced features to make your research Findable, Accessible, Interoperable, & Reusable.
- ✓ **Communities.** Create and curate your own community (e.g., workshop, project, lab, or journal).
- ✓ **Comply.** Comply with data sharing mandates\* and acknowledge your grants.
- ✓ **Easy.** Turn-key research data management platform & index can be easily deployed in the local environment by your team or by a service provider, such as TIND. Customize the look and feel to your local environment.

\*Draft NIH Policy for Data Management and Sharing [https://osp.od.nih.gov/wp-content/uploads/Draft\\_NIH\\_Policy\\_Data\\_Management\\_and\\_Sharing.pdf](https://osp.od.nih.gov/wp-content/uploads/Draft_NIH_Policy_Data_Management_and_Sharing.pdf)

# Why this, why now? Examine current repositories



- Dated technology, nearly impossible to advance
- Minimal interoperability
- Requirements for modern research not supported
- No end-to-end support for FAIR
- No end-to-end support for NGR
- Silos, anyone?
- Rarely coordinated vision and direction
- They're really hard to implement and maintain
- Closed (truly or *effectively*) hamper access, innovation, translation, impact, accountability, ...

# Why this, why now? Examine InvenioRDM benefits



## Top of the class UX

Finally a repository that your users will love! We have thought hard about user experience for everyone: end-users, curators, system administrators, and developers. Expect more of your repository!



## Institutional integration

InvenioRDM integrates with your institution. It supports your Single Sign-On (SSO) solution, your storage systems, your public/private clouds, your permissions models as well as your custom fields.



## Repository Profiles

InvenioRDM comes with pre-configured repository profiles for institutional repositories (IRs), research data management (RDM) systems as well as domain-specific repositories for health and biomedical sciences.



## Scalability

InvenioRDM scales with you! Handle 1 or 100 million records, 1 byte or several petabytes. It runs on bare-metal, VMs and container platforms such as Kubernetes and OpenShift.



## Next Generation Repository

InvenioRDM implements the Next Generation Repository (NGR) vision and integrates with other Open Science infrastructures such as ORCID, DataCite & OpenAIRE.



## Resilient

Architected from ground up to be resilient to changing business requirements. Stable APIs, easy maintenance and upgrade, as well as an extensible platform to ensure a reliable core on which you can build new innovative features and integrations.

# The InvenioRDM project is an open source collaboration with two main goals



## Repository Platform

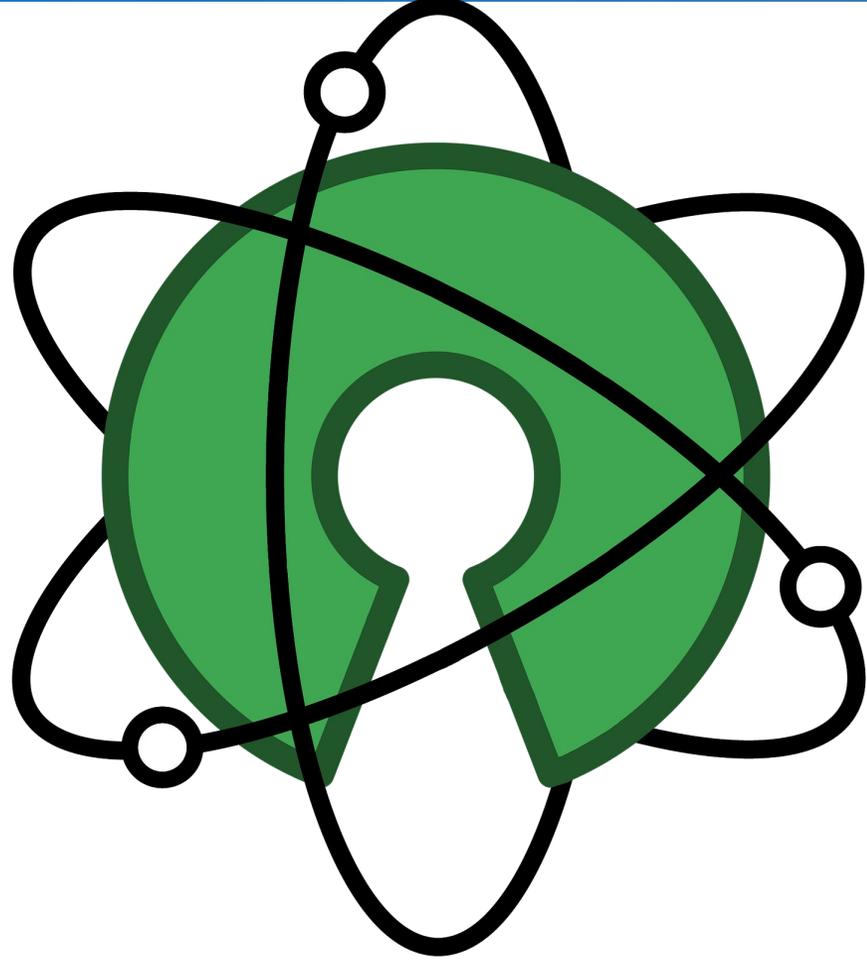
Build a turn-key research data management (RDM) repository platform based on [Invenio Framework](#) and [Zenodo](#).



## Community

Grow a community of research institutions, private companies and individuals to sustain the platform going forward.

# Building the community



# The InvenioRDM collaboration



The turn-key research data management repository

🚀 Launching in the summer 2020



## Repository Platform

Build a turn-key research data management (RDM) repository platform based on [Invenio Framework](#) and [Zenodo](#).



## Community

Grow a community of research institutions, private companies and individuals to sustain the platform going forward.

The project is scheduled to deliver the first release of InvenioRDM by summer 2020 🚀

[FAQ](#)

**BROOKHAVEN**  
NATIONAL LABORATORY

**Caltech** Library



**NATIONAL CENTER FOR DATA TO HEALTH**

**data futures**

**HZDR**

HELMHOLTZ  
ZENTRUM DRESDEN  
ROSSENDORF

**NORTHWESTERN UNIVERSITY**

**OpenAIRE**

**TIND**

**ULAKBİM**

**TU Graz**

**Universität Hamburg**  
DER FORSCHUNG | DER LEHRE | DER BILDUNG

**WWU MÜNSTER**

# How do we support open, collaborative work on geographically dispersed teams?

## InvenioRDM resources: open source via GitHub

Repository: [github.com/inveniosoftware/invenio-app-rdm](https://github.com/inveniosoftware/invenio-app-rdm)

Documentation: [invenio-app-rdm.readthedocs.io/en/latest](https://invenio-app-rdm.readthedocs.io/en/latest)

## Invenio RFC (Request For Comments):

- Coordinate the design process
- Produce consensus among Invenio stakeholders
- Document design decisions

RFCs aid communication between geographically dispersed teams and document Invenio development so that we can avoid knowledge loss when people leave and ease knowledge transfer when people join.

[github.com/inveniosoftware/rfcs](https://github.com/inveniosoftware/rfcs)

## Project Boards

- Coordinate development during the monthly sprint
- Document responsibility and priorities
- Identify issues and context in the monthly sprint: to-do, in-progress, blocked, in review, and done

Work in progress for InvenioRDM this month:

[github.com/orgs/inveniosoftware/projects/29](https://github.com/orgs/inveniosoftware/projects/29)

# How do we support open, collaborative work on geographically dispersed teams?

The image shows a GitHub InvenioRDM December Board Kanban board. The board is organized into columns representing different stages of project completion: To do (12 items), In progress (2 items), Blocked (3 items), In Review (7 items), Pending Merge (0 items), and Done (2 items). Each card represents a task, including its title, repository name, and the person who opened it. Some cards have labels like 'RDM', 'Framework', or 'question'. A red box highlights the 'December Project Board' text on the right side of the board.

**Invenio digital library framework**

Repositories 132 Packages People 67 Projects 5

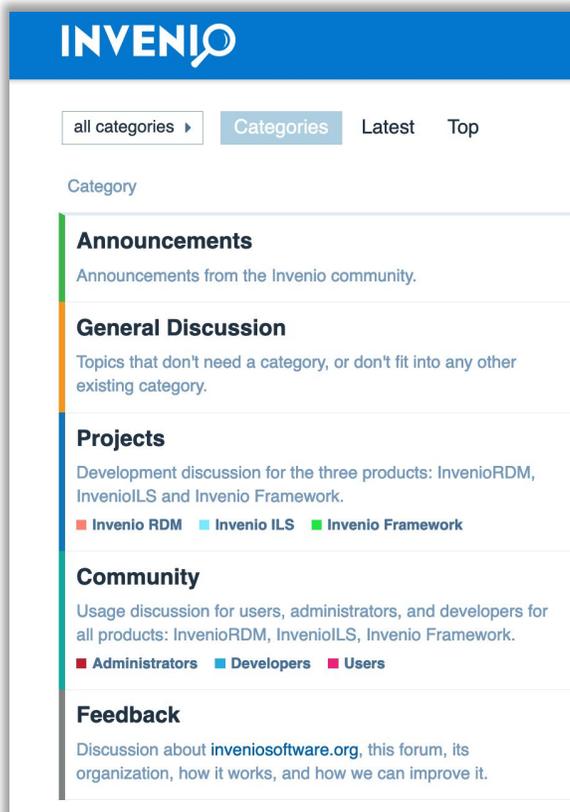
**InvenioRDM December Board** Updated 2 hours ago

Filter cards Fullscreen Menu

- 12 To do**
  - global: integrate invenio v3.2 (invenio-app-rdm#29 opened by ppanero)
  - Create `templates` folder for custom templates (cookiecutter-invenio-rdm#14 opened by fenekku)
  - ui: landing page (record page) (invenio-app-rdm#32 opened by ppanero)
  - Combine or disambiguate access and access\_right (invenio-rdm-records#37 opened by fenekku) **question**
  - build: allow assets regeneration without installing all deps (invenio-cli#24 opened by ppanero) **good first issue**
  - datamodel: treating internal fields with `\_` (invenio-rdm-records#38 opened by ppanero)
  - repo: investigate technologies for central repository for RDM documentation (invenio-app-rdm#21 opened by ppanero) 0 of 2
  - customization: css (invenio-app-rdm#5 opened by ppanero)
- 2 In progress**
  - ui: search page (invenio-app-rdm#31 opened by ppanero)
  - ui: front page (invenio-app-rdm#30 opened by ppanero)
- 3 Blocked**
  - Implement permissions metadata fields (invenio-rdm-records#20 opened by fenekku)
  - docs: create end use docs (invenio-cli#13 opened by ppanero)
  - [SHELVED like RFC #12] Allow explicit (additional) permissions (invenio-records-permissions#16 opened by fenekku)
- 7 In Review**
  - rdm: access control (rfcs#7 opened by ppanero) **RDM**
  - Changes approved
  - Select profile and customize RDM via flavour (rfcs#6 opened by fenekku) **RDM**
  - Changes approved
  - rdm: define (crea,contribu)tors schema (rfcs#11 opened by fenekku)
  - Data models terminology (rfcs#2 opened by Nielsen) **Framework RDM**
  - Changes approved
  - Installation and upgrade workflows for RDM (rfcs#4 opened by ppanero)
  - Changes approved
  - rdm: outline access levels (rfcs#13 opened by fenekku)
  - Implement Access Levels (invenio-records-permissions#28 opened by fenekku)
- 0 Pending Merge**
- 2 Done**
  - environments names (invenio-cli#57 opened by ppanero)
  - logging (invenio-cli#47 opened by ppanero)

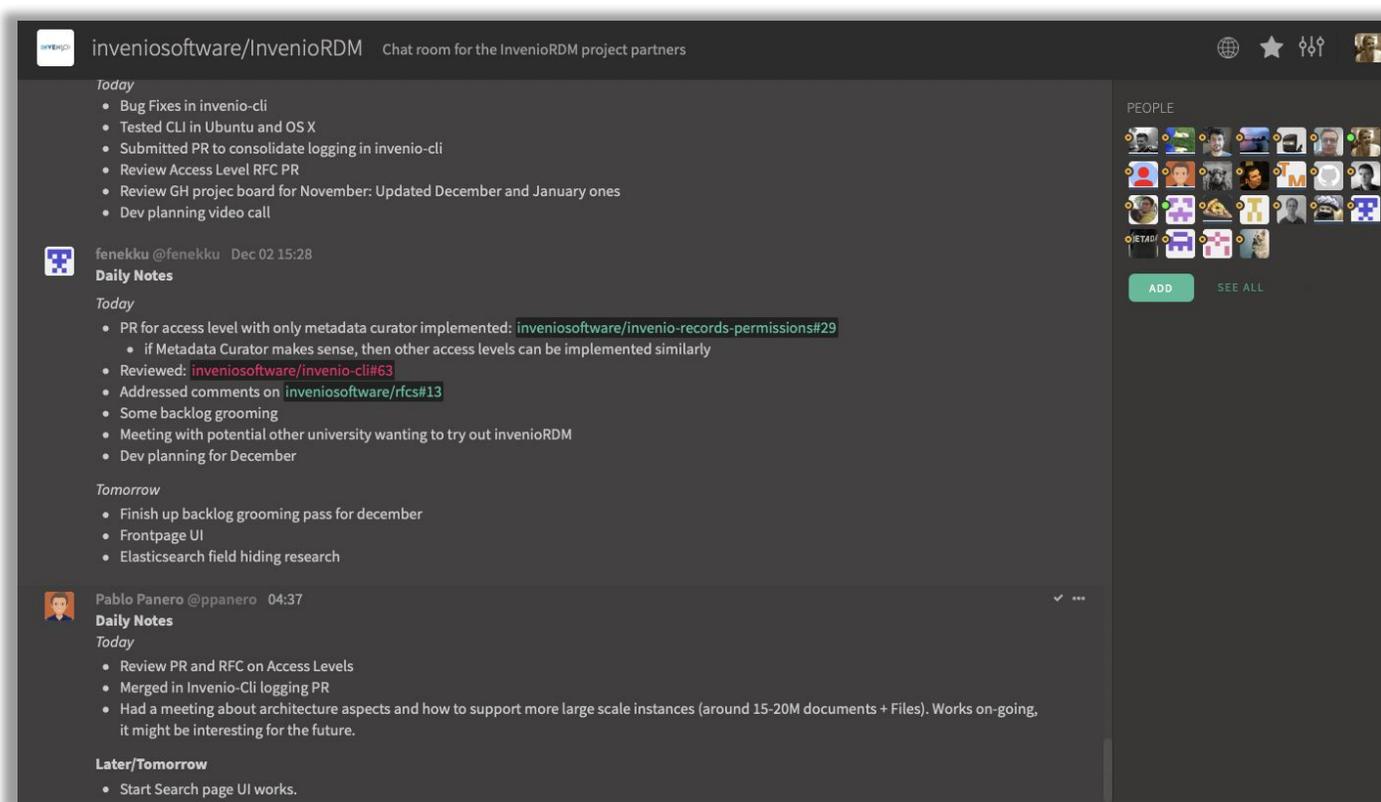
# How do we support open, collaborative work on geographically dispersed teams?

## Discourse Forum



The screenshot shows the Invenio Discourse Forum interface. At the top is the Invenio logo. Below it are navigation options: 'all categories', 'Categories', 'Latest', and 'Top'. A 'Category' dropdown is visible. The main content area is divided into several sections: 'Announcements' (with a sub-section for 'Announcements from the Invenio community'), 'General Discussion' (described as 'Topics that don't need a category, or don't fit into any other existing category'), 'Projects' (development discussion for InvenioRDM, InvenioILS, and Invenio Framework, with color-coded links for each), 'Community' (usage discussion for users, administrators, and developers), and 'Feedback' (discussion about the organization and its forum).

## Gitter (incl. daily development updates):



The screenshot shows a Gitter chat room for 'inveniosoftware/InvenioRDM'. The chat history is organized by date. Under 'Today', there are two 'Daily Notes' sections. The first note lists updates: 'Bug Fixes in invenio-cli', 'Tested CLI in Ubuntu and OS X', 'Submitted PR to consolidate logging in invenio-cli', 'Review Access Level RFC PR', 'Review GH projec board for November: Updated December and January ones', and 'Dev planning video call'. The second note lists: 'PR for access level with only metadata curator implemented: [inveniosoftware/invenio-records-permissions#29](#)' (with a sub-note 'if Metadata Curator makes sense, then other access levels can be implemented similarly'), 'Reviewed: [inveniosoftware/invenio-cli#63](#)', 'Addressed comments on [inveniosoftware/rfcs#13](#)', 'Some backlog grooming', 'Meeting with potential other university wanting to try out invenioRDM', and 'Dev planning for December'. Under 'Tomorrow', the notes list: 'Finish up backlog grooming pass for december', 'Frontpage UI', and 'Elasticsearch field hiding research'. A second 'Daily Notes' section for 'Today' lists: 'Review PR and RFC on Access Levels', 'Merged in Invenio-Cli logging PR', and 'Had a meeting about architecture aspects and how to support more large scale instances (around 15-20M documents + Files). Works on-going, it might be interesting for the future.' Under 'Later/Tomorrow', the note lists: 'Start Search page UI works.' On the right side, there is a 'PEOPLE' section showing a grid of user avatars and buttons for 'ADD' and 'SEE ALL'.

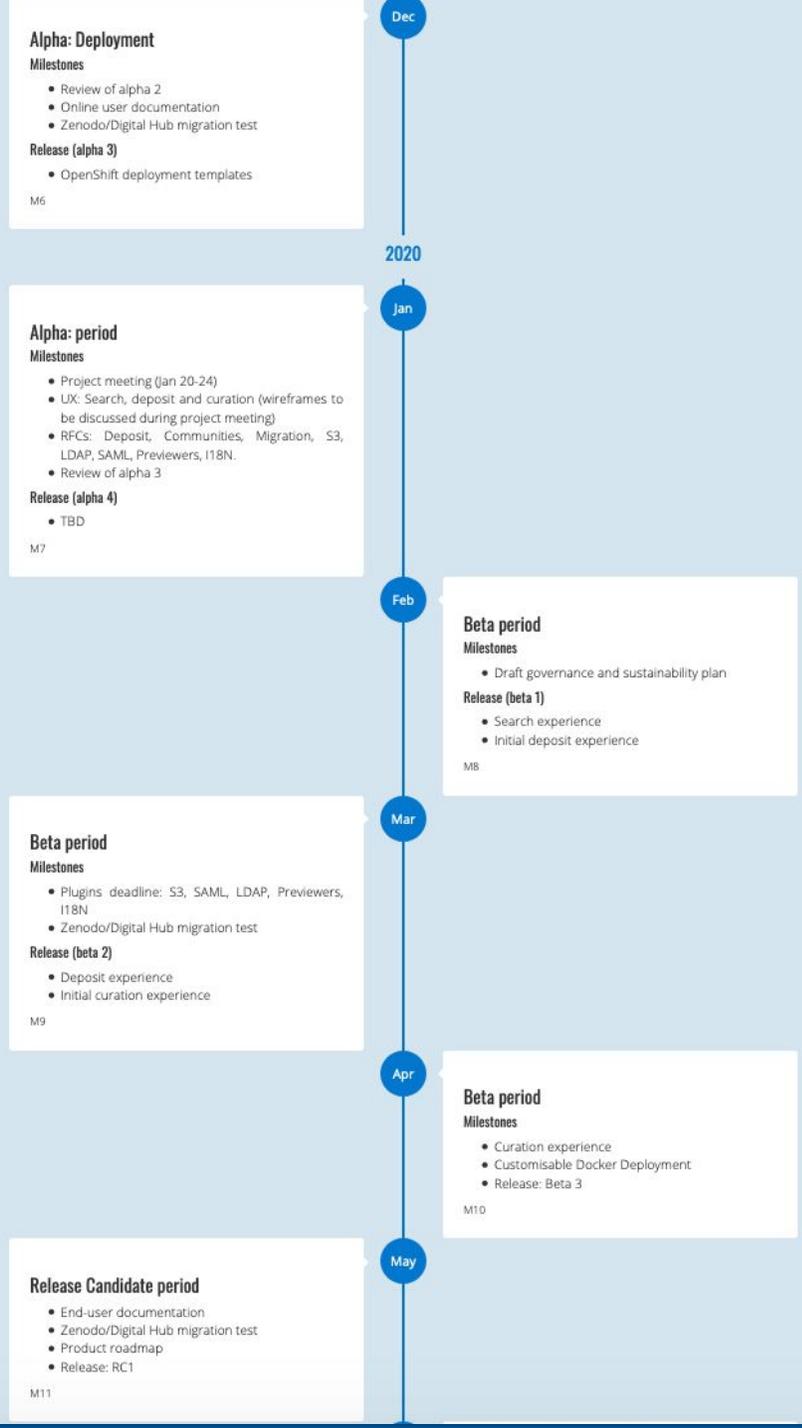
[invenio-talk.web.cern.ch](https://invenio-talk.web.cern.ch)

[gitter.im/inveniosoftware/InvenioRDM](https://gitter.im/inveniosoftware/InvenioRDM)

# How do we support open, collaborative work on geographically dispersed teams?

## Invenio RDM Roadmap:

[inveniosoftware.org/products/rdm/roadmap/](https://inveniosoftware.org/products/rdm/roadmap/)



# Ongoing support for the community



*Last Invenio v3 Bootcamp at CERN - Mar 2019*

## Events:

### Webinars coming soon

We will soon be providing webinars on Invenio products.

### Training bootcamp

We regularly hold bootcamps to show the nuts and bolts of Invenio. This year's materials are available at

[indico.cern.ch/event/773969](https://indico.cern.ch/event/773969)

We also have a nice set of tutorials:

[github.com/inveniosoftware/training](https://github.com/inveniosoftware/training)

### User Group Workshop

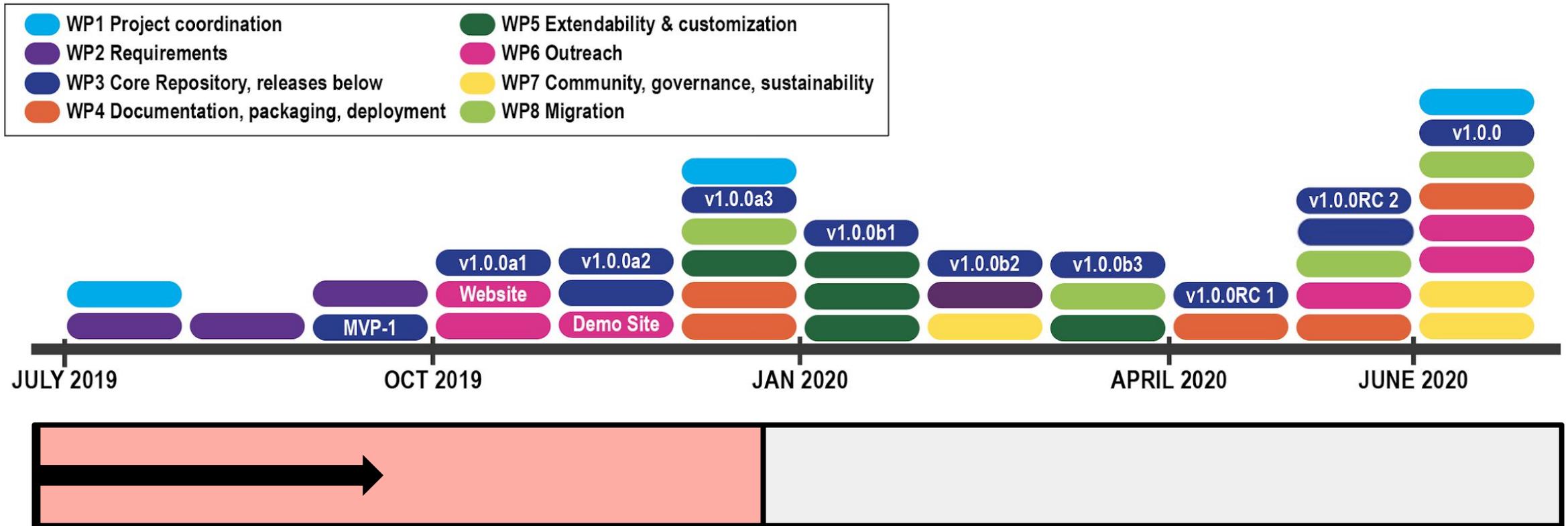
We run an Invenio User Group Workshop every year.

See the full list at [indico.cern.ch/category/6240](https://indico.cern.ch/category/6240)



# Schedule

## InvenioRDM Work Package (WP) Timeline



# InvenioRDM as a foundation for local engagement

Northwestern Medicine  
Feinberg School of Medicine

Northwestern Medicine | Northwestern University | Faculty Profiles

InvenioRDM @ Northwestern University

kristi.holmes@northwestern.edu

Welcome! This is a temporary instance. Try things out and give us feedback as indicated below. Thanks!



Research Data Management (RDM) platforms make it possible to preserve and share, support reproducibility, and empower reuse of collaborative research activities and outputs.

**InvenioRDM** enables organizations to securely house research products and **make them discoverable, shareable, and citable** -- from publications and presentations to datasets, software, lay summaries, policy documents, and guidelines. **InvenioRDM** is being developed as part of a large, multi-organization collaboration in partnership with the **European Organization for Nuclear Research (CERN)**, birthplace of the World Wide Web and developers of the **Zenodo** RDM for the European community. Together we are working to build a wide range of features that can help power biomedical research and support data sharing, innovation, knowledge dissemination, and interdisciplinary collaboration.

Our work is driven by user needs and informed by best practices and standards, including those that help define **Next Generation Repositories** as a foundation for a distributed, globally-networked infrastructure for scholarly communication, discovery, and innovation.

**Contact us.** [Email us](#) to ask questions or if you would like a test username and password to create records of your own.

**Join us.** Get updates and test new releases on the [product site](#), [email us](#) to request a demonstration or chat, take a look at our [competitive landscape analysis](#), and get involved with collaboration and discussion through our [open source project](#).

InvenioRDM is powered by the [Galter Health Sciences Library & Learning Center](#) and supported in part by the Feinberg School of Medicine and the NIH National Center for Advancing Translational Sciences (NCATS) through grants U24TR002306 (CD2H) and UL1TR001422 (NUCATS).



Try out a prototype 1st minimum viable product with Northwestern theming: <http://bit.ly/inveniordm-at-nu>

Search public content now or log in to try a deposit:

Test Login: **gla3975**

Password: **InvenioRDM@NU\_2019**

# Live Demo

- We'll populate some demo records
- Then we'll start up the server



# CaltechDATA

- Institutional Repository for Data and Software
- Zenodo clone, launched in 2017
- Hosted service from TIND
- Easy to describe and upload files
- Library takes care of preserving and maintaining access to files



California Institute of Technology

Research Data Repository

[data.caltech.edu](https://data.caltech.edu)

# Institutional Repository as Infrastructure



Total Carbon Column Observing Network (TCCON)  
29 Data Collection Sites Around the World



Data files



Processed Data

Data Curation and Processing

# Institutional Repository as Infrastructure



[tcon.ornl.gov](http://tcon.ornl.gov)

TCCON Data Archive HOME GGG2014 GGG2012 GGG2009

Total Carbon Column Observing Network (TCCON)  
The TCCON Data Archive

TCCON is a network of ground-based Fourier Transform Spectrometers recording direct solar spectra in the near infrared spectral region. From these spectra, accurate and precise column-averaged abundances of CO<sub>2</sub>, CH<sub>4</sub>, N<sub>2</sub>O, HF, CO, H<sub>2</sub>O, and HDO are retrieved. The HF and HDO retrievals are uncalibrated and hence preliminary. Data are updated monthly on the first of the month. The data become publicly available no later than one year after the measurements are recorded, and many sites choose to release their data much sooner.

For the latest TCCON information, please visit the [TCCON Wiki](#). For citation information and our data policy, please see our [Data Use Policy](#). For site-specific information and data analysis descriptions, please read the [Data Description](#). Auxiliary data (column averaging kernels, a priori profiles) are included in the netCDF files provided below. Information on how to use our column averaging kernels and a priori profiles can be found on our [Auxiliary Data](#) page.

A technical report describing the GGG2014 TCCON data version can be found on the [documentation](#) page. Our telluric line list can be downloaded from the [slim](#) page. Our solar line list can be downloaded from the [solar](#) page. A program to generate our a priori profiles can be downloaded from the [a priori](#) page. Please note that the a priori profiles used in the TCCON retrievals are included in the data files below. If you need to produce TCCON a priori profiles for locations and times where there are no TCCON measurements, please use the program linked above.

The TCCON is closely affiliated with the Network for the Detection of Atmospheric Composition Change Infrared Working Group (NDACC-IRWG). In contrast with TCCON, which produces column-averaged dry-air mole fractions, the NDACC produces vertical profiles of the concentrations of many of the same gases and several others. The NDACC website and links to their database can be found at [www.acd.ucar.edu/irwg](http://www.acd.ucar.edu/irwg).

Sign up to the TCCON Users email list to get email updates on TCCON data releases.  
Note that the website is self-signed; you can safely add an exception.

[Login for TCCON Partners](#)

## Private data files

| Sites                                   |
|---|
| Ascension Island                        |
| <a href="#">@ae20120522_20120831.nc</a> |
| <a href="#">@ae20130317_20130618.nc</a> |
| <a href="#">@ae20130911_20131229.nc</a> |
| <a href="#">@ae20140108_20140716.nc</a> |
| <a href="#">@ae20140717_20141019.nc</a> |
| <a href="#">@ae20141021_20141231.nc</a> |
| <a href="#">@ae20150101_20150310.nc</a> |
| <a href="#">@ae20150311_20150409.nc</a> |
| <a href="#">@ae20150410_20150630.nc</a> |
| <a href="#">@ae20150701_20150926.nc</a> |
| <a href="#">@ae20151005_20151218.nc</a> |

Departmental Server at Caltech

## Migration

## Public data files

### Index of /2014Public/ascension01

| Name  | Size    | Date Modified        |
|---|---------|----------------------|
| <a href="#">[parent directory]</a>            |         |                      |
| <a href="#">README.txt</a>                    | 11.8 kB | 10/20/14, 5:00:00 PM |
| <a href="#">ae20120522_20161221_public.nc</a> | 10.1 MB | 5/31/17, 5:25:00 PM  |

Automatically released 1x/month

Login for TCCON Partners TCCON Data Archive GGG2014 GGG2012 GGG2009

### Total Carbon Column Observing Network (TCCON)

TCCON is a network of ground-based Fourier Transform Spectrometers recording direct solar spectra in the near infrared spectral region. From these spectra, accurate and precise column-averaged abundances of CO<sub>2</sub>, CH<sub>4</sub>, N<sub>2</sub>O, HF, CO, H<sub>2</sub>O, and HDO are retrieved and reported here. A technical report describing the retrievals is found here: [solar and telluric spectral line lists used in the retrievals are publicly available](#).

Data in netCDF format are publicly available no later than one year after the spectra are recorded; many sites release their data earlier. Citation and data use requirements are included in the license associated with each record. Column averaging kernels and a priori profiles are included in the files. Information on how to use these can be found [here](#). To produce TCCON a priori profiles for locations and times where there are no TCCON measurements, a stand-alone program can be downloaded.

[Sign up to the TCCON Users email list to get email updates on TCCON data releases.](#)

[tcondata.org](http://tcondata.org)

TCCON data from Park Falls (US), Release GGG2014.R1

Dataset 2017-09-27 CaltechDATA

Download Edit

**Details**

**Authors**  
Wernberg, P. G. California Institute of Technology, Pasadena, CA (US) 0000-0002-6726-2854 ORCID  
Roehl, C. M. California Institute of Technology, Pasadena, CA (US) 0000-0001-5383-8462 ORCID  
Wunch, D. California Institute of Technology, Pasadena, CA (US) 0000-0002-4924-0377 ORCID  
Toth, G. C. Jet Propulsion Laboratory, Pasadena, CA (US)  
Blavier, J.-F. Jet Propulsion Laboratory, Pasadena, CA (US) 0000-0002-1800-9316 ORCID  
Washenfelder, R. University of Colorado / NOAA, Boulder, CO (US) 0000-0002-8156-3702 ORCID  
Koppel-Alexis, G. University of Michigan, Ann Arbor, MI (US) 0000-0003-2213-0504 ORCID  
Allen, N. T. Harvard University, Cambridge, MA (US) 0000-0002-7528-8606 ORCID  
Ayers, J. Wisconsin Educational Communications Board, Park Falls, WI (US)

**Contributors**  
Hosting Institution California Institute of Technology, Pasadena, CA (US)  
Data Curator Roehl, C. M. California Institute of Technology, Pasadena, CA (US) 0000-0001-5383-8462 ORCID  
Contact Person Paul Wernberg [wernberg@jpl.caltech.edu](mailto:wernberg@jpl.caltech.edu)

**Description**  
Abstract:  
The Total Carbon Column Observing Network (TCCON) is a network of ground-based Fourier Transform Spectrometers that record direct solar absorption spectra of the atmosphere in the near-infrared. From these spectra, accurate and precise column-averaged abundances of atmospheric constituents including CO<sub>2</sub>, CH<sub>4</sub>, N<sub>2</sub>O, HF, CO, H<sub>2</sub>O, and HDO, are retrieved. This data set contains observations from the TCCON station at Park Falls, USA.

**Publication Date**  
2017-09-27

**Subjects**  
atmospheric trace gases, CO<sub>2</sub>, CH<sub>4</sub>, CO, N<sub>2</sub>O, column-averaged dry-air mole fractions, remote sensing, FTIR spectroscopy, TCCON

**DOI**  
10.14291/tcon.ggg2014.parkfalls01.R1

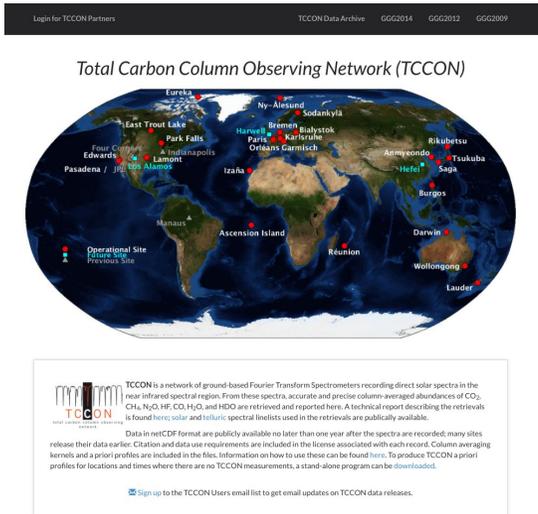
**Version**  
GGG2014.R1

**Format**  
application/x-netcdf

<https://doi.org/10.14291/tcon.ggg2014.parkfalls01.R1>

# API-based innovation

## Departmental Server at Caltech



Monthly automatic updates, new data version or new site



California Institute of Technology  
Research Data Repository

Data Files

Metadata

**Update metadata**  
Dates  
Version Information  
Usage Information  
**Update files**  
Netcdf data  
README

caltechdata\_api



# API-based innovation

- Binder provides web-based access to Jupyter notebooks, RStudio, and other computing environments
- Pulls content from GitHub, Zenodo, and other repositories
- Researchers can test at [mybinder.org](https://mybinder.org)
- Then get a badge in CaltechDATA: <https://doi.org/10.22002/D1.1259>



## Details

Authors

[Morrell, Thomas E Caltech Library 0000-0001-9266-5146](#) ORCID

Description

Abstract:

This release includes a new notebook that determines the usage of CaltechDATA and also updates all notebooks to use the latest version of ames and

Other:

Jupyter notebooks highlighting usage of CaltechDATA

Other:

Click to run this software: [launch binder](#)

# Live Demo

- A full data repository is running on my laptop
- Let's get records using the API
- Let's make a record using the API
- Then let's search for is using the API
- We can look at the web interface, and customize it



# With sincere thanks...

## Teams

- Lars Holm-Nielsen & Jose Benito Gonzalez Lopez
- The Invenio team, & RDM collaborators ([here](#))
- Caltech Library
- Galter Health Sciences Library & Learning Center
- TIND
- Northwestern University Clinical and Translational Sciences Institute (NUCATS)
- CTSA Program Center for Data to Health (CD2H) team
- The NU Institute for Innovations in Developmental Sciences (DevSci)
- Confederation of OA Repositories (COAR) & Kathleen Shearer

## Support

*Work presented here is supported in part by:*  
CERN Knowledge Transfer Fund  
CD2H: U24TR002306 (NCATS)

★ all of the InvenioRDM project partners!



NATIONAL CENTER  
FOR DATA TO HEALTH

Come pick up your InvenioRDM stickers!