

# Instruments @ datacite.org

Ted Habermann, Erin Robinson, Metadata Game Changers

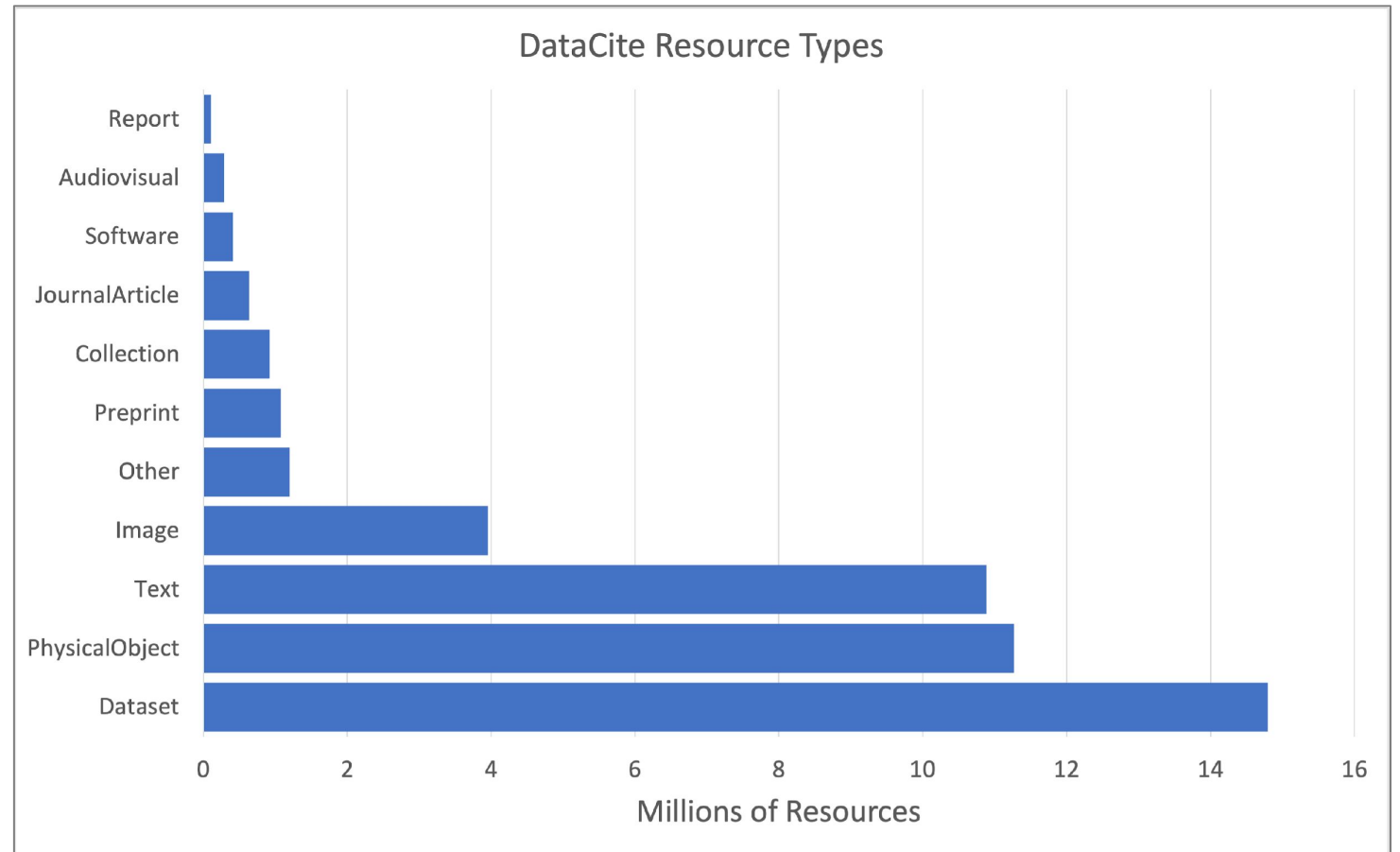


A DOI provider and repository encompassing ~3000 members.

DataCite includes ~46,000,000 resources with 28 different types.

This plot shows resource types that occur over 100,000 times.

<https://datacite.org/>



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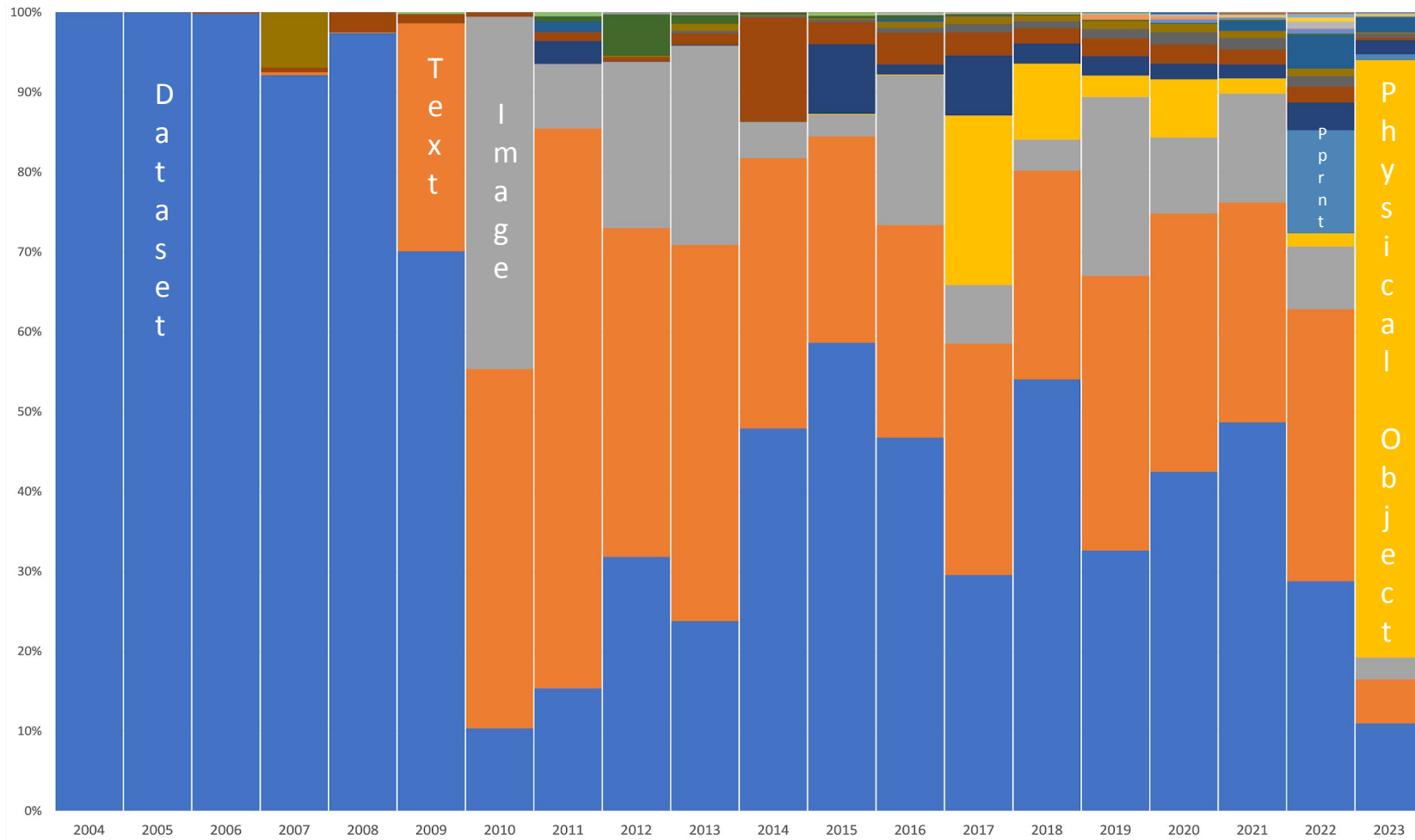
<https://orcid.org/0000-0003-3585-6733>  
<https://orcid.org/0000-0001-9998-0114>

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**METADATA**  
GAME CHANGERS

# resourceTypeGeneral@ datacite



resourceTypeGeneral is required DataCite metadata element from a shared vocabulary.

The diversity and distribution of DataCite resource types has evolved significantly over the last 20 years.

The introduction of over **10,000,000 samples** during 2023 is the most recent change.



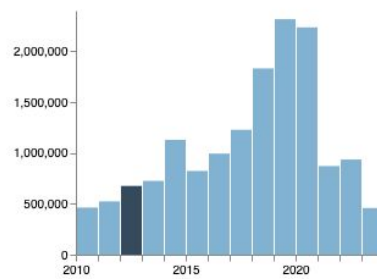
# commons.datacite.org

The DataCite Commons is the emerging interface to metadata in DataCite and other elements of the global research PIDGraph (Crossref, ORCID, ROR, Event Data)

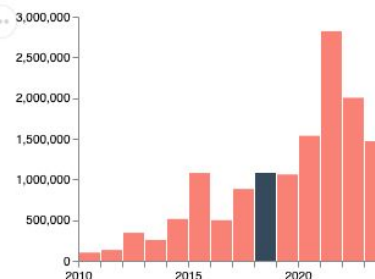
## Works

DataCite Commons currently includes 77,324,432 works, with identifiers and metadata provided by DataCite and Crossref. For the three major work types [publication](#), [dataset](#) and [software](#), the respective numbers by publication year are shown below.

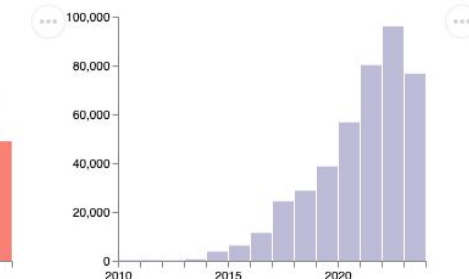
20,967,989 Publications



14,929,498 Datasets



425,519 Software



<https://commons.datacite.org/statistics>



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**METADATA**  
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# ucar.eol@commons.datacite.org

The image shows two overlapping browser windows from DataCite Commons. The left window is at [commons.datacite.org/repositories](https://commons.datacite.org/repositories) and displays the 'Earth Observing Laboratory' repository page. It includes a sidebar with 'Criteria Compliance', 'Certificates', and 'Software' sections. A blue arrow points to the 'Find Related Works' button. The right window is at [commons.datacite.org/doi.org?query=client.uid:ucar.eol](https://commons.datacite.org/doi.org?query=client.uid:ucar.eol) and shows search results for 'client.uid:ucar.eol'. It lists 8,570 works and highlights two specific datasets: 'HIPPO Merged 10-Second Meteorology, Atmospheric Chemistry, and Aerosol Data. Version 1.0' and 'HIPPO Pressure-Weighted Mean Total, 10-km, and 100-m Interval Column Concentrations. Version 1.0'. A red box highlights the 'Work Type' section for the first dataset, which lists 'Dataset' as the primary type.

Work Type	Count
<input type="checkbox"/> Dataset	8,531
<input type="checkbox"/> Physical Object	25
<input type="checkbox"/> Text	6
<input type="checkbox"/> Software	5
<input type="checkbox"/> Event	1
<input type="checkbox"/> Interactive Resource	1
<input type="checkbox"/> Other	1

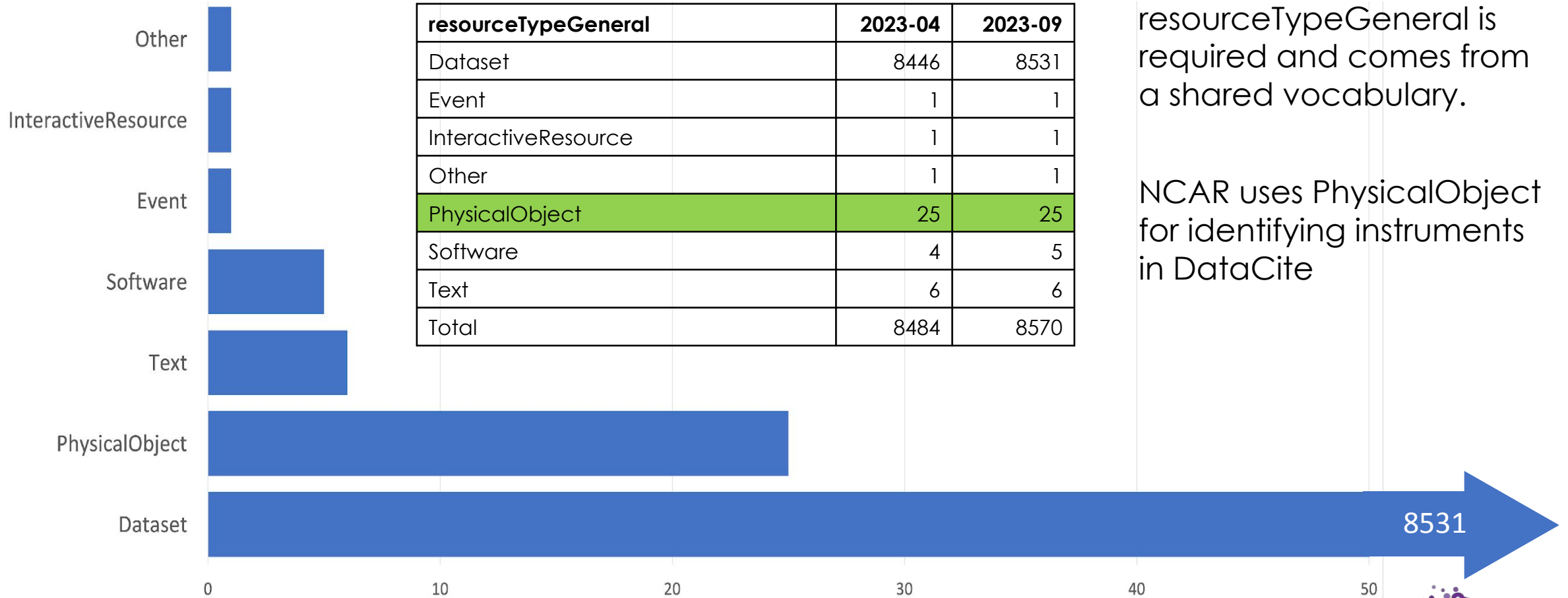
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# ucar.eol.resourceTypeGeneral



# ucar.eol@commons.datacite.org

The screenshot displays the DataCite Commons interface for the 'Earth Observing Laboratory' repository. It is divided into several panels:

- Left Panel:** Contains navigation and management options such as 'Criteria Compliance', 'Certificates', and 'Software'.
- Top Panel:** Shows the repository name 'Earth Observing Laboratory' and navigation links for 'Works', 'People', and 'Organizations'. It includes buttons for 'Go to Repository' and 'Find Related Works', with a blue arrow pointing to the latter.
- Center Panel:** Displays a list of 'Creators & Contributors' and a 'Publication Year' histogram. A blue arrow points to the 'Publication Year' histogram.
- Right Panel:** Shows a list of works with their citation counts. Two works are highlighted with red boxes:
  - NSF/NCAR GV HIAPER Aircraft:** 268 Citations
  - NSF/NCAR Hercules C130 Aircraft:** 142 Citations

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# Automatic Giant Nuclei Impactor

The screenshot shows the DataCite Commons interface for a record. A 'Download' modal is open, displaying two columns of options: 'Full Metadata' and 'Citation Metadata'. Under 'Full Metadata', 'DataCite JSON' is highlighted with a red box. Other options include DataCite XML, Schema.org, and JSON-LD. Under 'Citation Metadata', options include Citeproc JSON, BibTeX, and RIS. A blue arrow points from the 'DataCite JSON' option to the 'Download Metadata' button on the left side of the page. The background shows the record title 'Automatic Giant Nuclei Impactor' and a DOI link: <https://doi.org/10.26023/R267-M386>.

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**METADATA**  
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# Automatic Giant Nuclei Impactor

The screenshot shows the DataCite Commons interface for the dataset 'Automatic Giant Nuclei Impactor'. The page includes a search bar, navigation tabs for Works, People, Organizations, and Repositories, and a 'Sign In' button. The main content area features a 'Description' tab, a 'Cite as' section (highlighted with a red box), and a 'Share' section. The 'Cite as' section contains the following text: Jensen, J., Schwenz, K., Carnes, J., Spowart, M., & Munnerlyn, J. Automatic Giant Nuclei Impactor. UCAR/NCAR - Earth Observing Laboratory. <https://doi.org/10.26023/R267-M386>. The 'Share' section includes options for Email, Twitter, and Facebook. The 'Description' tab is active, showing a detailed description of the sampling process. A 'Physical Object' button is also visible.

The Auto-GNI sampling is done using free-stream impaction (i.e., no inlet losses). The exposed polycarbonate slides are stored and subsequently analyzed in EOL / RAF's GNI Microscope, an optical automated microscope with humidified air that allows for size determination using Kohler theory. When flying in marine boundary layers, typically 50000 giant aerosol particles are sampled within a 10-s exposure time; this gives excellent size distributions over the measurement range in bins of 0.2 micron dry radius. Longer sample times are possible for flight at higher altitude or otherwise in air with lower aerosol concentration.

Airborne Sensor published

Physical Object

doi: <https://doi.org/10.26023/R267-M386>

```
"descriptions": [
  {
    "lang": "en",
    "description": "The Auto-GNI sampling is done using free-stream impaction (i.e., no inlet losses). The exposed polycarbonate slides are stored and subsequently analyzed in EOL / RAF's GNI Microscope, an optical automated microscope with humidified air that allows for size determination using Kohler theory. When flying in marine boundary layers, typically 50000 giant aerosol particles are sampled within a 10-s exposure time; this gives excellent size distributions over the measurement range in bins of 0.2 micron dry radius. Longer sample times are possible for flight at higher altitude or otherwise in air with lower aerosol concentration.",
    "descriptionType": "Abstract"
  }
],
```

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# Automatic Giant Nuclei Impactor

DataCite Commons

Type to search...

Works People Organizations Repositories

Automatic Giant Nuclei Impactor <https://doi.org/10.26023/r267-m386>

Add to ORCID Record

Download Metadata

Cite as

Jensen, J., Schwenz, K., Carnes, J., Spowart, M., & Munnerlyn, J. *Automatic Giant Nuclei Impactor*. UCAR/NCAR - Earth Observing Laboratory. <https://doi.org/10.26023/R267-M386>

APA

Share

Email Twitter Facebook

Description **Creators** Contributors Funders Register

Jorgen Jensen
Karl Schwenz
Joshua Carnes
Michael Spowart
John Munnerlyn

Airborne Sensor published 2008 in Earth Observing Laboratory

Physical Object

<https://doi.org/10.26023/r267-m386>

```
"creators": [
  {
    "name": "Jensen, Jorgen",
    "nameType": "Personal",
    "givenName": "Jorgen",
    "familyName": "Jensen",
    "affiliation": [],
    "nameIdentifiers": [
      {
        "schemeUri": "https://orcid.org",
        "nameIdentifier": "https://orcid.org/0000-0002-2504-1277",
        "nameIdentifierScheme": "ORCID"
      }
    ]
  },
  {
    "name": "Schwenz, Karl",
    "nameType": null,
    "givenName": "Karl",
    "familyName": "Schwenz",
    "affiliation": [],
    "nameIdentifiers": []
  }
],
```



# Automatic Giant Nuclei Impactor

DataCite Commons

Type to search...

Pages ▾ Support

## Automatic Giant Nuclei Impactor <https://doi.org/10.26023/r267-m386>

Cite as

Jensen, J., Schwenz, K., Carnes, J., Spowart, M., & Munnerlyn, J. *Automatic Giant Nuclei Impactor*. UCAR/NCAR - Earth Observing Laboratory. <https://doi.org/10.26023/R267-M386>

APA ▾ Airborne Sensor published 2008 in Earth Observing Laboratory

Share

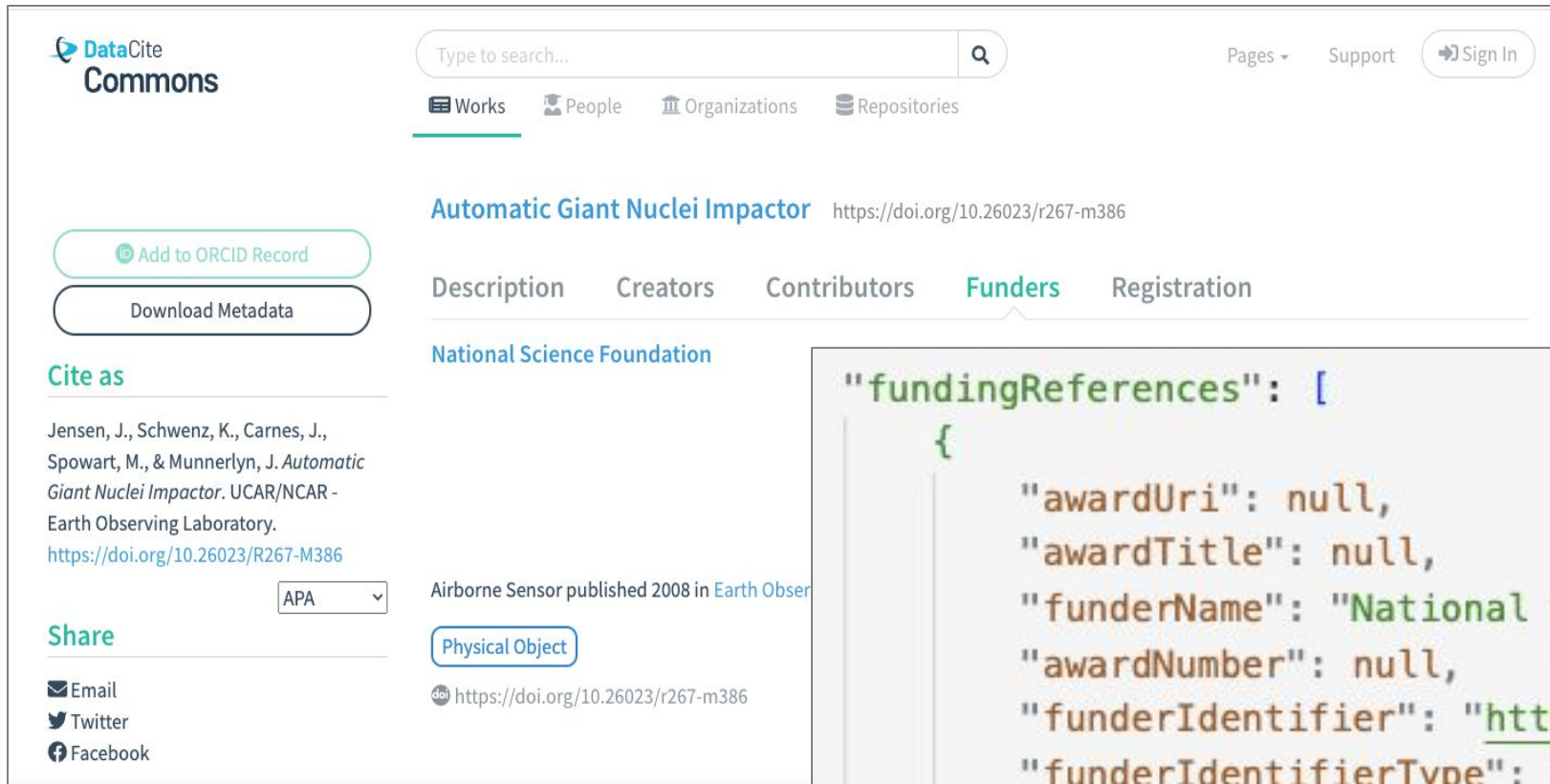
NCAR/EOL Research Aviation Facility	Research Group
-------------------------------------	----------------

<https://doi.org/10.26023/r267-m386>

```
"contributors": [
  {
    "name": "NCAR/EOL Research Aviation Facility",
    "nameType": "Organizational",
    "givenName": null,
    "familyName": null,
    "affiliation": [],
    "contributorType": "ResearchGroup",
    "nameIdentifiers": [
      {
        "schemeUri": null,
        "nameIdentifier": null,
        "nameIdentifierScheme": null
      }
    ]
  }
],
```



# Automatic Giant Nuclei Impactor

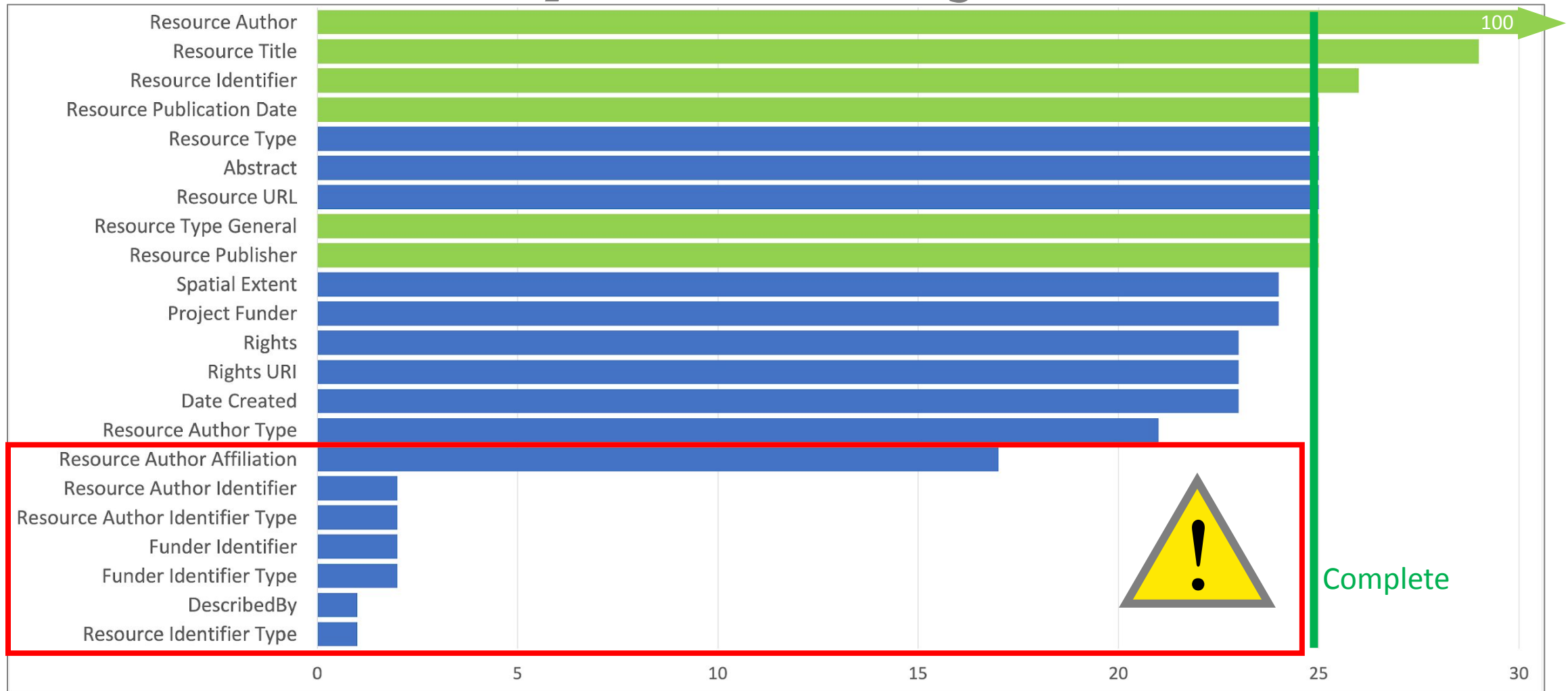


The screenshot shows the DataCite Commons record for the work "Automatic Giant Nuclei Impactor". The record is associated with the DOI <https://doi.org/10.26023/r267-m386>. The record is categorized under "Works" and is associated with the "National Science Foundation". The record is also associated with the "Physical Object" type. The record is published in 2008 in the journal "Earth Observing Laboratory". The record is also associated with the "Automatic Giant Nuclei Impactor" project. The record is also associated with the "Automatic Giant Nuclei Impactor" project. The record is also associated with the "Automatic Giant Nuclei Impactor" project.

```
"fundingReferences": [
  {
    "awardUri": null,
    "awardTitle": null,
    "funderName": "National Science Foundation",
    "awardNumber": null,
    "funderIdentifier": "https://doi.org/10.13039/100000001",
    "funderIdentifierType": "Crossref Funder ID"
  }
],
```



# ucar.eol.PhysicalObject.Content



<https://api.datacite.org/dois?client-id=ucar.eol&query=types.resourceTypeGeneral:PhysicalObject>

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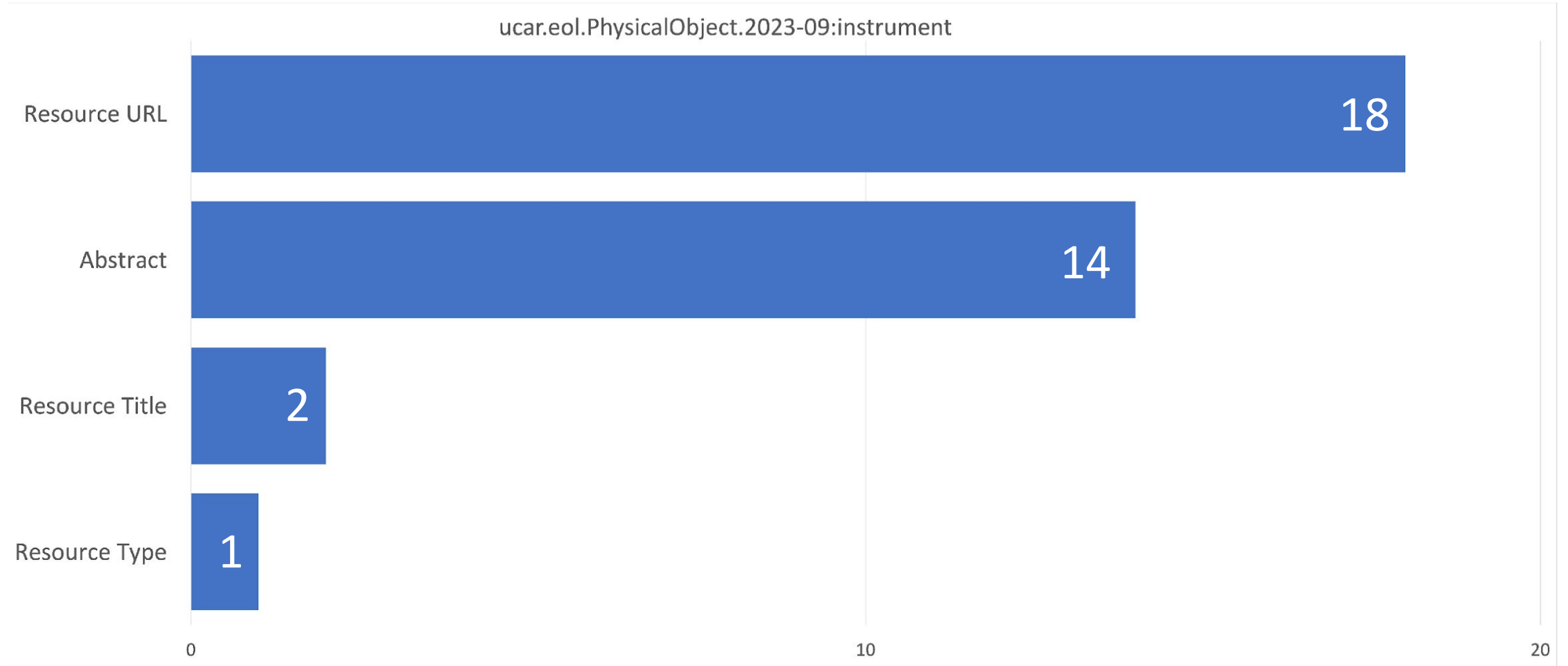
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**METADATA**  
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# Where is “instrument”?



# resourceURL = Landing Page

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## Vertical Cavity Surface-Emitting Laser (VCSEL) Hygrometer

**Short Name or Variable Name**  
VCSEL

The VCSEL hygrometer employs tunable diode laser absorption spectroscopy to determine the water vapor point range of -90 to +30° C. It reports the water vapor number density at 25 samples per second. From humidity-related parameters such as dew/frost point, mixing ratio, etc. are derived. It is mounted on a rack and draws less than 20W from 120 VAC, 60 Hz.

The hygrometer operates in two absorption modes on two wavelengths near 1853 nm: wavelength modulation used for high mixing ratio conditions, direct absorption on a strong line for moderately low mixing ratios, the same strong line for low mixing ratios. The sample volume is an open-path Herriott cell, giving an absorption path length approximately 15 cm long and 2 cm diameter.

**Measurements Provided:** Water vapor concentration from which related values (mixing ratio, dew point) are derived.

**Typical Sampling Rates:** 25 samples per second

**Measurement Characteristics:** 5% uncertainty from lower troposphere to lower stratosphere. 25 samples per second. External open-path cell there is no delay or carryover between samples.

**History of Significant Changes:** 8/2010: Replaced gold mirrors with more rugged dielectric mirrors. 2013: Significant repair. Recalibration required.

**Example(s) of Measurement:**

Data shown below is the one second housekeeping data (beginning with SWS) and the 25 samples per second data. Not shown is the spectrum which is generated every 5 minutes for QC check. Data lines are terminated at the end of the record.

The 25 s/s data record consists of the number density (#/cc), laser intensity, approximate dew point (°C), and mixing ratio, normally 60.

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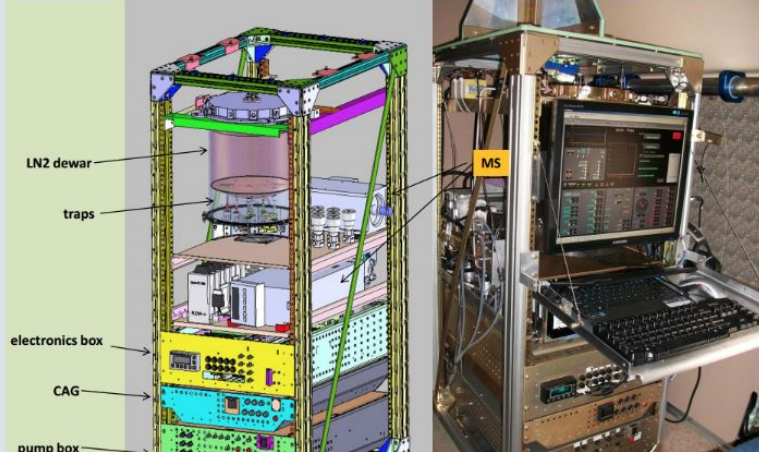
[Home](#)

## Trace Organic Gas Analyzer

**Short Name or Variable Name**  
TOGA

**Website:** <https://www2.acom.ucar.edu/voc-measurements/measurement-instrumentation>

TOGA is a fast gas chromatograph combined with a mass spectrometer (MS). Its main components are: Pump box, clean air generator/calibrator (CAG), electronics box, MS electronics/flow controllers, MS chamber and high vacuum pumps, and LN2 dewar assembly. These are shown below in the rack schematic and photograph:



The image shows a rack schematic on the left and a photograph on the right. The rack schematic labels the following components from top to bottom: LN2 dewar, traps, electronics box, CAG, and pump box. The photograph shows the physical hardware in a rack, with a yellow label 'MS' pointing to the mass spectrometer section.

**Deployments**

- ACCLIP
- T13GER

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# ORCIDs for People

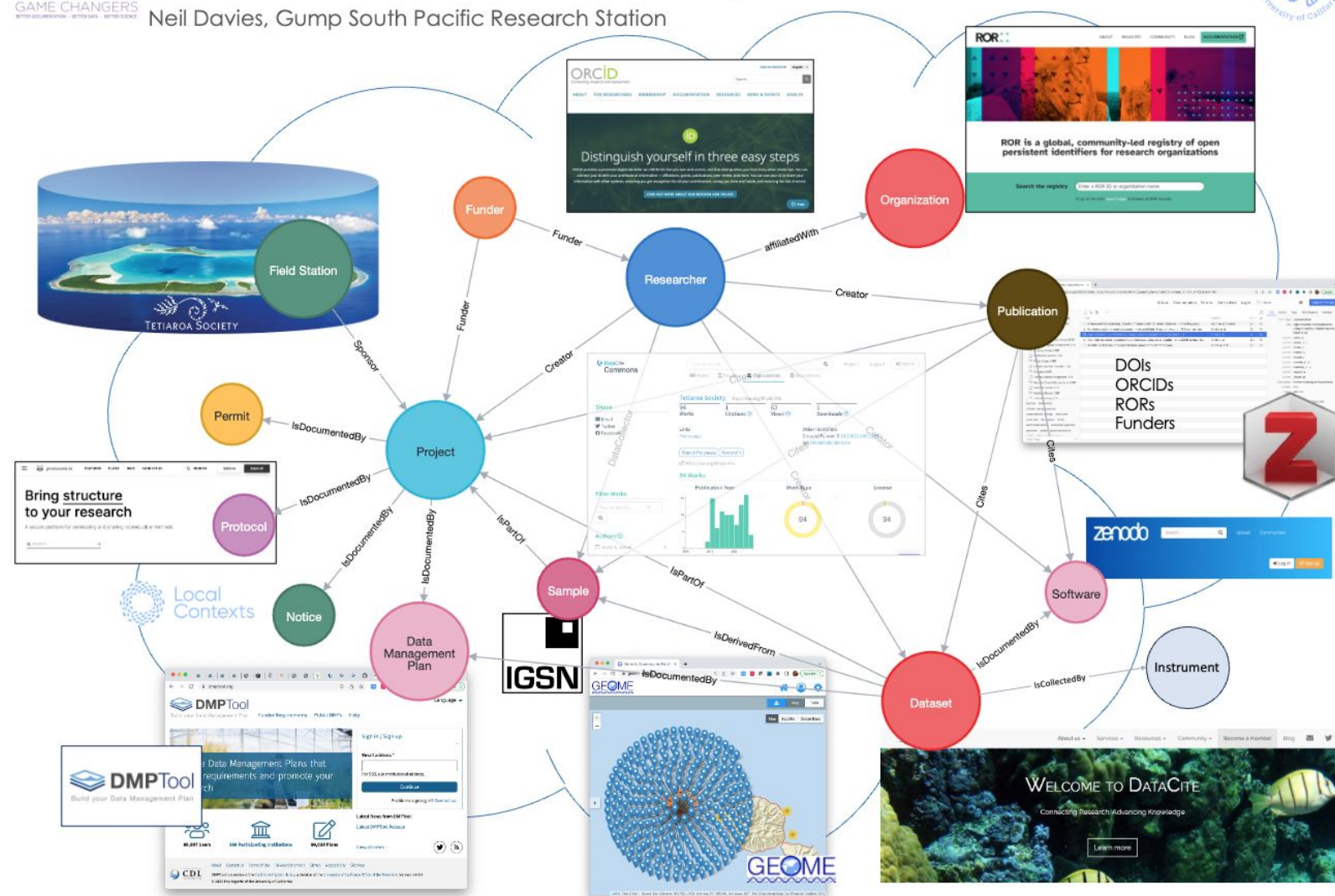


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**METADATA**  
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habermann: 0000-0003-3585-6733, Neil Davies: 0000-0001-8085-5014, Metadata Game Changers: 05bp8ka05, Gump South Pacific Research Station: 04sk0t52

<https://doi.org/10.6084/m9.figshare.23671917.v1>

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# Questions?

Work with us on:

- Repository Re-curation
- Repository and Journal Connectivity
- Metadata evaluation and improvement (FAIR metadata)
- Community building strategy
- International Metadata Standards (ISO, DataCite, schema.org)
- Workshop design and facilitation
- Community conventions / profiles
- Leadership coaching

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# PhysicalObject.resourceType

