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## Chromatin and epigenetic features of long-range gene regulation

**Nathan Harmston<sup>1,2</sup>** and **Boris Lenhard<sup>1,2,3,\*</sup>**

 Author Affiliations

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### Abstract

The precise regulation of gene transcription during metazoan development is controlled by a complex system of interactions between transcription factors, histone modifications and modifying enzymes and chromatin conformation. Developments in chromosome conformation capture technologies have revealed that interactions between regions of chromatin are pervasive and highly cell-type specific. The movement of enhancers and promoters in and out of higher-order chromatin structures within the nucleus are associated with changes in expression and histone modifications. However, the factors responsible for mediating these changes and determining enhancer:promoter specificity are still not completely known. In this review, we summarize what is known about the patterns of epigenetic and chromatin features characteristic of elements involved in long-range interactions. In addition, we review the insights into both local and global patterns of chromatin interactions that have been revealed by the latest experimental and computational methods.

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Published Online May 3 2007  
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Vol. 316 no. 5830 pp. 1488-1491  
DOI: 10.1126/science.1142447

REPORT

# A Common Allele on Chromosome 9 Associated with Coronary Heart Disease

Ruth McPherson<sup>1,2,3,4</sup>, Alexander Pertsemidis<sup>2,4</sup>, Nihan Kavaslar<sup>1</sup>, Alexandre Stewart<sup>1</sup>, Robert Roberts<sup>1</sup>, David R. Cox<sup>2</sup>, David A. Hinds<sup>3</sup>, Len A. Pennacchio<sup>4,5</sup>, Anne Tybjaerg-Hansen<sup>6</sup>, Aaron R. Folsom<sup>7</sup>, Eric Boerwinkle<sup>8</sup>, Helen H. Hobbs<sup>2,9</sup>, Jonathan C. Cohen<sup>2,10,11</sup>

± Author Affiliations

† To whom correspondence should be addressed. E-mail: [jonathan.cohen@utsouthwestern.edu](mailto:jonathan.cohen@utsouthwestern.edu) (J.C.C.); [rmcpherson@ottawaheart.ca](mailto:rmcpherson@ottawaheart.ca) (R.M.)

\* These authors contributed equally to this work.

## ABSTRACT

Coronary heart disease (CHD) is a major cause of death in Western countries. We used genome-wide association scanning to identify a 58-kilobase interval on chromosome 9p21 that was consistently associated with CHD in six independent samples (more than 23,000 participants) from four Caucasian populations. This interval, which is located near the *CDKN2A* and *CDKN2B* genes, contains no annotated genes and is not associated with established CHD risk factors such as plasma lipoproteins, hypertension, or diabetes. Homozygotes for the risk allele make up 20 to 25% of Caucasians and have a 30 to 40% increased risk of CHD.

Received for publication 12 March 2007.

Accepted for publication 24 April 2007.

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*J. Neurol. Neurosurg. Psychiatry* 1 September 2013: 1059-1062.

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NATURE GENETICS | LETTER

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tissue

Dalit May, Matthew J Blow, T Akiyama, Amy Holt, Ingrid Pla Simpson, Edward M Rubin, E

Affiliations | Contributions |

Nature Genetics 44, 89–93 (2012)

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# Cannabis macht verwundbar

## Marihuanakonsum in der Schwangerschaft: Das Wissen über die Folgen wächst

Bis zu fünf Prozent aller Mütter räumen bei Befragungen ein, während der Schwangerschaft Cannabis konsumiert zu haben. Damit gehört die Substanz zu den am häufigsten gebrauchten illegalen Drogen, mit denen werdende Mütter und ihre ungeborenen Kinder in Berührung kommen – so lautet die Bilanz eines australischen Wissenschaftlerteams, das jetzt mit einer Studie im „Journal of Perinatology“ angetreten ist, die vielen Mythen, die über Cannabiskonsum in der Schwangerschaft kursieren, ein für allemal aus der Welt zu schaffen (doi: 10.1038/jp.2013.180).

Etwa 180 Millionen Menschen weltweit konsumieren Cannabis. Dass es versehentlich auch am Anfang von Schwangerschaften konsumiert wird, verwundert deshalb nicht. Auch in deutschen Mütterforen findet man Beiträge, in denen Frauen sich die Besorgnis über den Konsum in den ersten Wochen der Schwangerschaft von der Seele schreiben. Aber es gibt auch Bekenntnisse wie: „Ich bin im siebten Monat schwanger, und es ist sehr traurig, dass ich es nicht



Marihuana

Foto Bloomberg

schrieben, wenn auch nicht anhand großer Gruppen untersucht, ist auch eine veränderte Reaktion auf routinemäßige Reflextests nach der Geburt und auf den Schlafzyklus der Babys.

Am häufigsten wurde versucht, die

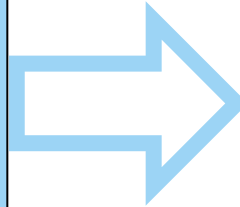
schätzen, weil die späteren kognitiven Fähigkeiten und das Verhalten auch von der Umwelt beeinflusst werden, der die Kinder nach der Geburt ausgesetzt sind. Die Australier nennen an dieser Stelle Stress, Armut und einen schlechten Ernährungsstatus, weisen aber auch darauf hin, dass der Konsum weiterer Drogen und von Alkohol in der Schwangerschaft die Entwicklung der Kinder zusätzlich beeinflussen kann, was es schwierig macht, die Auswirkungen von Cannabis für sich genommen zu erfassen.

Mehr über mögliche molekulare Mechanismen, die auf Cannabiskonsum in der Schwangerschaft folgen, hat derweil ein internationales Wissenschaftlerteam um Tibor Harkany von der Medizinischen Universität Wien herausgefunden. Die Forscher verabreichten die bedeutendste psychoaktive Komponente von Cannabis, Delta-9-Tetrahydrocannabinol, an trächtige Mäuse („The EMBO Journal“, doi: 10.1002/emboj.201386035). Bei den Föten sank der Gehalt des Proteins Stathmin-2 in der Gehirnrinde. Das

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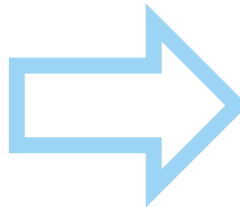
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## Digital Object Identifiers (DOI names) offer a solution

- Mostly widely used identifier for scientific articles
- Researchers, authors, publishers know how to use them
- Put datasets on the same playing field as articles



### Dataset

Yancheva et al (2007). Analyses on sediment of Lake Maar. PANGAEA.

[doi:10.1594/PANGAEA.587840](https://doi.org/10.1594/PANGAEA.587840)





#### Annex 1: Data Management Plan (DMP) template

The purpose of the Data Management Plan (DMP) is to provide an analysis of the main elements of the data management policy that will be used by the applicants with regard to all the datasets that will be generated by the project.

The DMP is not a fixed document, but evolves during the lifespan of the project.

The DMP should address the points below on a dataset by dataset basis and should reflect the current status of reflection within the consortium about the data that will be produced.

- **Data set reference and name**

Identifier for the data set to be produced.

- **Data set description**

Description of the data that will be generated or collected, its origin (in case it is collected), nature and scale and to whom it could be useful, and whether it underpins a scientific publication. Information on the existence (or not) of similar data and the possibilities for integration and reuse.

- **Standards and metadata**

Reference to existing suitable standards of the discipline. If these do not exist, an outline on how and what metadata will be created.

- **Data sharing**

Description of how data will be shared, including access procedures, embargo periods (if any), outlines of technical mechanisms for dissemination and necessary software and other tools for enabling re-use, and definition of whether access will be widely open or restricted to specific groups. Identification of the repository where data will be stored, if already existing and identified, indicating in particular the type of repository (institutional, standard repository for the discipline, etc.).

In case the dataset cannot be shared, the reasons for this should be mentioned (e.g. ethical, rules of personal data, intellectual property, commercial, privacy-related, security-related).

- **Archiving and preservation (including storage and backup)**

Description of the procedures that will be put in place for long-term preservation of the data. Indication of how long the data should be preserved, what is its approximated end volume, what the associated costs are and how these are planned to be covered.



## Proposal and Award Policies and Procedures Guide

### PAPP - Introduction

#### A. About the NSF

#### B. Foreword

#### C. Acronym List

#### D. Definitions

#### E. NSF Organizations

#### Exhibit 1 - NSF Organizational Chart

### NSF 13-1 J.

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#### C. List

### (b) Appointments

A list, in reverse chronological order, of all the individual's academic/professional appointments beginning with the current appointment.

### (c) Products

A list of: (i) up to five products most closely related to the proposed project, and (ii) up to five other significant products, whether or not related to the proposed project. Acceptable products must be citable and accessible including but not limited to publications, data sets, software, patents, and copyrights. Unacceptable products are unpublished documents not yet submitted for publication, invited lectures, and additional lists of products. Only the list of 10 will be used in the review of the proposal.

Each product must include full citation information including (where applicable and practicable) names of all authors, date of publication or release, title, title of enclosing work such as journal or book, volume, issue, pages, website and Uniform Resource Locator (URL) or other Persistent Identifier.

### (d) Synergistic Activities

A list of up to five examples that demonstrate the broader impact of the individual's professional and scholarly activities that focuses on the integration and transfer of knowledge as well as its creation. Examples could include, among others: innovations in teaching and training (e.g., development of curricular materials and pedagogical methods); contributions to the science of learning; development and/or refinement of research tools; computation methodologies, and algorithms for problem-solving; development of databases to support research and education; broadening the participation of groups underrepresented in science, mathematics, engineering and technology; and service to the





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# DataCite



- Global consortium carried by local institutions
- Focused on improving the scholarly infrastructure around datasets and other non-textual information
- Focused on working with data centres and organisations that hold data
- Providing standards, workflows and best-practice
- Initially, but not exclusively based on the DOI system
- Memorandum of Understanding, Paris, February 2009
- Officially founded December 1st 2009 in London



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# DataCite Members

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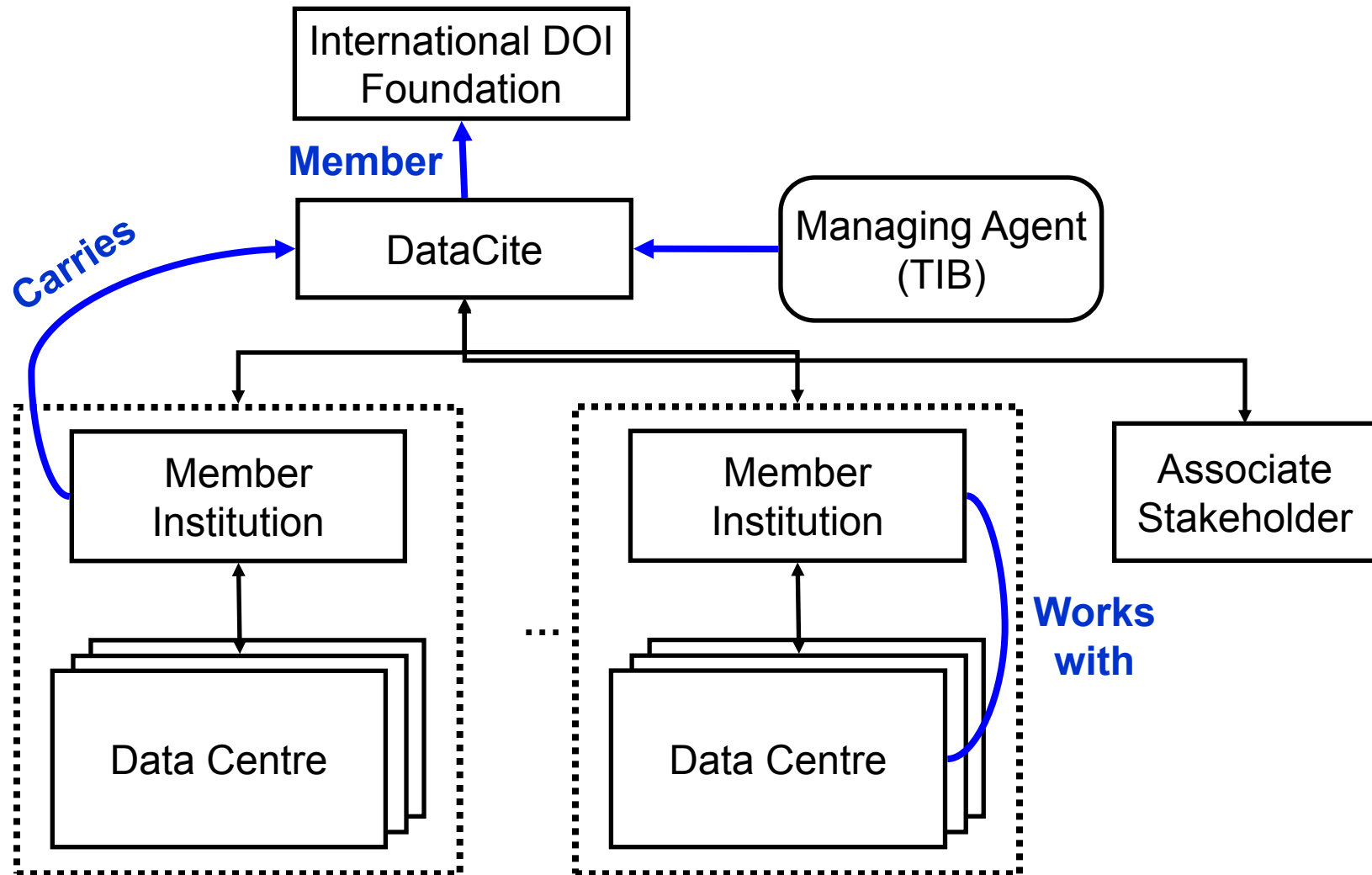
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- Harvard University Library, USA
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Currently 27 members  
including 9 affiliated members

# DataCite Structure





# DataCite – the different roles

## **The DataCite registration agency**

- Maintains the resolution infrastructure
- Maintains a searchable database of metadata
- Manages the identifiers over the long term
- Establishes and shares best practice

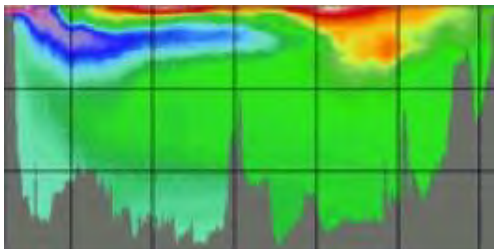
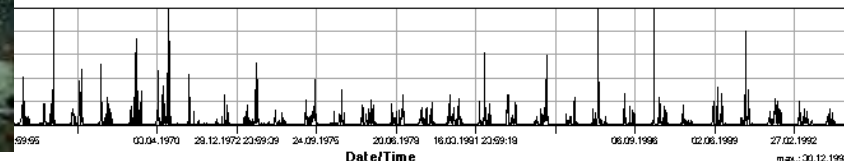
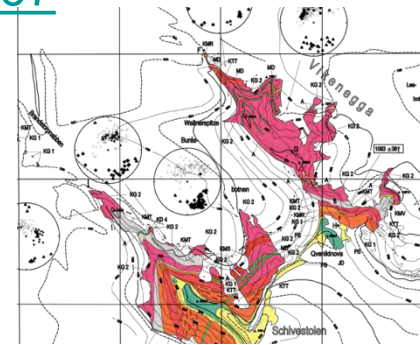
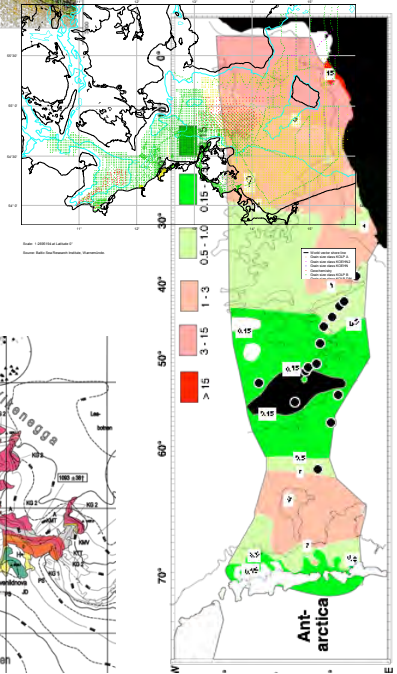
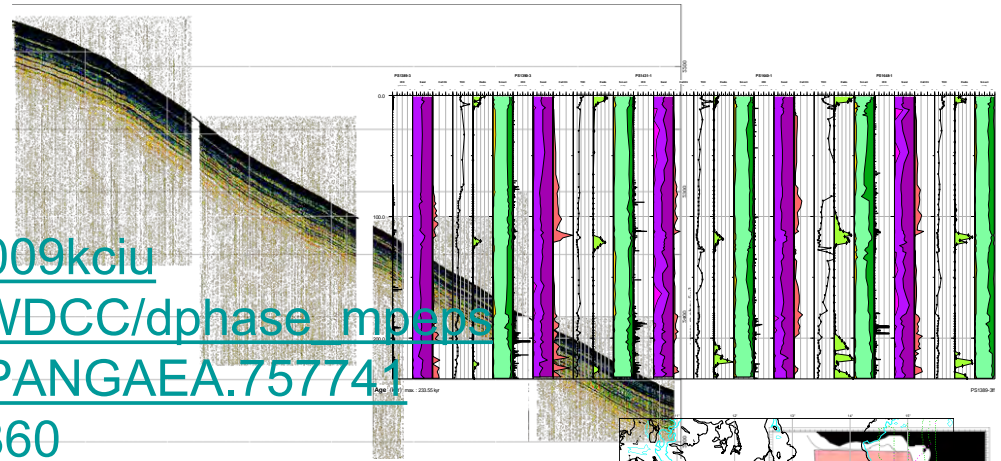
## **Publishing agents (data centres, research institutes, repositories, data publishers) are responsible for**

- Quality assurance
- Content storage and access
- Creating the identifiers
- Creating and updating metadata



# What type of data are we talking about?

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- Sea bed photos => [doi:10.1594/PANGAEA.757741](https://doi.org/10.1594/PANGAEA.757741)
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# DataCite resource types (*resourceTypeGeneral* property)

- Dataset
- Text
- Collection
- Event
- Audiovisual
- Image
- InteractiveResource
- Model
- PhysicalObject
- Service
- Software
- Sound
- Workflow
- Other

Anything that is the foundation  
of further research  
is research data

Data is evidence

Most frequent: Dataset (by far) > Text > Image > Collection,  
on the DataCite Metadata Store (MDS) platform

# Bridging the gap



## DOIs in Use: DataCite

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## Joint statement from STM and DataCite

Published by Jan Brase on 14 June 2012 - 1:02pm



During the DataCite symposium in Copenhagen, DataCite and the STM Association today signed a joint statement to encourage publishers and data centers to link their underlying data:

To improve the availability of research data, DataCite and STM encourage authors of

deposit researcher validated data in trustworthy and open Archives.

- DataCite and STM encourage Data Archives to enable linking between datasets and publications by using community endorsed unique persistent identifiers such as accession codes and DOI names.
- DataCite and STM encourage publishers to make visible the visibility of these links from publications to datasets
- DataCite and STM encourage Data Archives to make visible the visibility of these links from datasets to publications
- DataCite and STM support the principle of data re-use and encourage participants to participate actively in initiatives for best practice recommendation of datasets.



August 10, 2012

### CrossRef Joins STM-DataCite Statement

In June 2012, DataCite and the International Association of STM Publishers (STM) issued a joint statement on the Linkability and Citability of Research Data ([http://www.stm-assoc.org/2012\\_06\\_14\\_STM\\_DataCite\\_Joint\\_Statement.pdf](http://www.stm-assoc.org/2012_06_14_STM_DataCite_Joint_Statement.pdf)).

CrossRef is pleased to join and support this statement and the best practices for data it recommends.

CrossRef, a not-for-profit association of representing 4,000 scholarly publisher with 55 million content items (journal and conference proceeding articles and books and book chapters), is committed to the interoperability of CrossRef and DataCite's services which are based on the Digital Object Identifier (DOI) System, recently approved as an ISO Standard (**ISO 26324:2012, Information and documentation - Digital object identifier system**).

Specifically, CrossRef encourages publishers to use DataCite DOIs to link to data sets referenced in the published literature, and encourages authors of research papers to use CrossRef DOIs to link from data deposited in DataCite repositories to the published articles that draw on that data. CrossRef and DataCite are also collaborating on joint services, such as DOI Content Negotiation (<http://crosscite.org/cn/>), to enable publishers and data repositories to automatically interlink their content.



# Publishers' data policies ?

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## Brussels Declaration on STM Publishing

by the international scientific, technical and medical (STM) publishing community as represented by the individual publishing houses and publishing trade associations, who have indicated their assent below.  
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Many declarations have been made about the need for particular business models in the STM information community. STM publishers have largely remained silent on these matters as the majority are agnostic about business models: what works, works. However, despite very significant investment and a massive rise in access to scientific information, our community continues to be beset by propositions and manifestos on the practice of scholarly publishing. Unfortunately the measures proposed have largely not been investigated or tested in any evidence-based manner that would pass rigorous peer review. In the light of this, and based on over ten years experience in the economics of online publishing and our longstanding collaboration with researchers and librarians, we have decided to publish a declaration of principles which we believe to be self-evident.

- **The mission of publishers is to maximise the dissemination of knowledge through economically self-sustaining business models.** We are committed to change and innovation that will make science more effective. We support academic freedom: authors should be free to choose where they publish in a healthy, undistorted free market
- **Publishers organise, manage and financially support the peer review processes of STM journals.** The imprimatur that peer-reviewed journals give to accepted articles (registration, certification, dissemination and editorial improvement) is irreplaceable and fundamental to scholarship
- **Publishers launch, sustain, promote and develop journals for the benefit of the scholarly community**
- **Current publisher licensing models are delivering massive rises in scholarly access to research outputs.** Publishers have invested heavily to meet the challenges of digitisation and the annual 3% volume growth of the international scholarly literature, yet less than 1% of total R&D is spent on journals
- **Copyright protects the investment of both authors and publishers.** Respect for copyright encourages the flow of information and rewards creators and entrepreneurs
- **Publishers support the creation of rights-protected archives that preserve scholarship in perpetuity**
- **Raw research data should be made freely available to all researchers.** Publishers encourage the public posting of the raw data outputs of research. Sets or sub-sets of data that are submitted with a paper to a journal should wherever possible be made freely accessible to other scholars
- **Publishing in all media has associated costs.** Electronic publishing has costs not found in print publishing. The costs to deliver both are higher than print or electronic only. Publishing costs are the same whether funded by supply-side or demand-side models. If readers or their agents (libraries) don't fund publishing, then someone else (e.g. funding bodies, government) must

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sorts that use 'cocktails' of antibodies to exclude certain cell populations; for example, lineage-minus (Lin-), the antibodies and fluorochromes that are contained in the 'cocktail' need to be specified for the 'dump' channel.

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## Sharing data sets

A condition of publication in a Nature journal is that authors are required to make materials, data and associated protocols promptly available to others without preconditions.

Data sets must be made freely available to readers from the date of publication, and must be provided to editors and peer-reviewers at submission, for the purposes of evaluating the manuscript.

For the following types of data set, submission to a community-endorsed, public repository is mandatory. Accession numbers must be provided in the paper. Examples of appropriate public repositories are listed below.

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DNA and RNA sequences: [Genbank/EMBL/DDBJ](#), [Protein DataBank](#), [UniProt](#).

DNA sequencing data (traces for capillary electrophoresis and short reads for next-generation sequencing): [NCBI trace and short-read archive](#), [EBI Ensembl trace server](#)

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Authors of papers describing structures of biological macromolecules must provide atomic coordinates and related experimental data (structure factor amplitudes/intensities for crystal structures, or restraints for NMR structures) upon request of editors for the purposes of evaluating the manuscript, if they are not already freely accessible in a publicly available and recognized database (for example, [Protein DataBank](#), [Uniprot](#), [Nucleic Acids Database](#) or [Biological Magnetic Resonance Databank](#)).

## Publishers' data policies

in

*Nature Publishing Group, Editorial Policies, Availability of data and materials*

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## Open Data

This page provides information on BioMed Central's policy on Open Data, which came into effect on 3<sup>rd</sup> September 2013, as a result of our 2012 public consultation on Open Data, the outcome of which is reported in this [article](#) in *BMC Research Notes*.

Legal restrictions and uncertainties surrounding scientific data are a barrier to efficient data sharing and reuse, and ultimately the pace of research. Copyright in particular is problematic for data. It is often unclear if data are protected by copyright, and the law differs greatly internationally. All open access articles published by BioMed Central, unless otherwise stated, are published under the [Creative Commons Attribution License, CC-BY 4.0](#). But where copyright does not apply, neither does the Creative Commons Attribution License.

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# Data citation

*Connecting article and underlying data via DOI:*

## **The dataset:**

Storz, D et al. (2009):

*Planktic foraminiferal flux and faunal composition of sediment trap L1\_K276 in the northeastern Atlantic.*

<http://dx.doi.org/10.1594/PANGAEA.724325>

## **Is supplement to the article:**

Storz, David; Schulz, Hartmut; Waniek, Joanna J; Schulz-Bull, Detlef; Kucera, Michal (2009): *Seasonal and interannual variability of the planktic foraminiferal flux in the vicinity of the Azores Current.*

Deep-Sea Research Part I-Oceanographic Research Papers, **56(1)**, 107-124,

<http://dx.doi.org/10.1016/j.dsr.2008.08.009>

**Data Description**

RIS

**Citation:** Storz, D et al. (2009): Planktic foraminiferal flux and faunal composition of sediment trap L1\_K276 in the northeastern Atlantic. doi:10.1594/PANGAEA.724294  
*Supplement to: Storz, David; Schulz, Hartmut; Waniek, Joanna J; Schulz-Bull, Detlef; Kucera, Michal (2009): Seasonal and interannual variability of the planktic foraminiferal flux in the vicinity of the Azores Current. Deep-Sea Research I, 56(1), 107-124, doi:10.1016/j.dsr.2008.08.009*

**Abstract:** Planktic foraminiferal (PF) flux and faunal composition from three sediment trap time series of 2002-2004 in the northeastern Atlantic show pronounced year-to-year variation despite similar sea surface temperature (SST). The averaged fauna of the in 2002/2003 is dominated by the species *Globigerinita glutinata*, whereas in 2003/2004 the average fauna is dominated by *Globigerinoides ruber*. We show that PF species respond primarily to productivity, triggered by the seasonal dynamics of vertical stratification of the upper water column. Multivariate statistical analysis reveals three distinct species groups, linked to bulk particle flux, to chlorophyll concentrations and to summer/fall oligotrophy with SST and stratification. We speculate that the distinct nutrition strategies of strictly asymbiotic, facultatively symbiotic, and symbiotic species may play a key role in explaining their abundances and temporal succession. Advection of water masses within the Azores Current and species expatriation result in a highly diverse PF assemblage. The Azores Frontal Zone may have influenced the trap site in 2002, indicated by subsurface water cooling, by highest PF flux and high flux of the deep-dwelling species *Globorotalia scitula*. Similarity analyses with core top samples from the global ocean including 746 sites from the Atlantic suggest that the trap faunas have only poor analogs in the surface sediments. These differences have to be taken into account when estimating past oceanic properties from sediment PF data in the eastern subtropical North Atlantic.

**Project(s):** Paleoceanography at Tübingen University (GeoTü)

**Event(s):** L1\_K276 \*Latitude: 30.0000 \*Longitude: -22.0000 \*Elevation: -5300.0 m \*Date/Time: 2002-02-24T00:00:00 \*Date/Time 2: 2004-04-01T00:00:00 \*Location: NE Atlantic - Azores Front \*Device: Trap, sediment \*Comment: Station used since 1980

**Size:** 6 datasets

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**Datasets listed in this Collection**

- **Storz, D; Schulz, H; Waniek, JJ et al. (2009):** (Table A a) Relative contributions of planktic foraminiferal species in sediment trap series L1/K276-22 at 2000 m water depth. doi:10.1594/PANGAEA.724294
- **Storz, D; Schulz, H; Waniek, JJ et al. (2009):** (Table A b) Flux of planktic foraminiferal species in sediment trap series L1/K276-22 at 2000 m water depth. doi:10.1594/PANGAEA.724308
- **Storz, D; Schulz, H; Waniek, JJ et al. (2009):** (Table B a) Relative contributions of planktic foraminiferal species in sediment trap series L1/K276-22 at 3000 m water depth. doi:10.1594/PANGAEA.724301
- **Storz, D; Schulz, H; Waniek, JJ et al. (2009):** (Table B b) Flux of planktic foraminiferal species in sediment trap series L1/K276-22 at 3000 m water depth. doi:10.1594/PANGAEA.724309
- **Storz, D; Schulz, H; Waniek, JJ et al. (2009):** (Table C a) Relative contributions of planktic foraminiferal species in sediment trap series L1/K276-23 at 3000 m water depth. doi:10.1594/PANGAEA.724307
- **Storz, D; Schulz, H; Waniek, JJ et al. (2009):** (Table C b) Flux of planktic foraminiferal species in sediment trap series L1/K276-23 at 3000 m water depth. doi:10.1594/PANGAEA.724310





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doi:10.1594/PANGAEA.724325,

**Supplement to:** Storz, David; Schulz, Hartmut; Waniek, Joanna J; Schulz-Bull, Detlef; Kucera, Michal (2009): Seasonal and interannual variability of the planktic foraminiferal flux in the vicinity of the Azores Current. *Deep-Sea Research I*, **56**(1), 107-124, doi:10.1016/j.dsr.2008.08.009

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**Project(s):** **Paleoceanography at Tübingen University (GeoTü)**

**Coverage:** *West:* -22.0000 \* *East:* -22.0000 \* *South:* 30.0000 \* *North:* 30.0000

*Date/Time Start:* 2002-02-24T00:00:00 \* *Date/Time End:* 2004-03-16T00:00:00

**Event(s):** **L1\_K276** \* *Latitude:* 30.0000 \* *Longitude:* -22.0000 \* *Elevation:* -5300.0 m \* *Date/Time:* 2002-02-24T00:00:00 \* *Date/Time 2:* 2004-04-01T00:00:00 \* *Location:* NE Atlantic - Azores Front \* *Device:* Trap, sediment \* *Comment:* Station used since 1980

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**Keywords:** Eastern North Atlantic; Planktic foraminifers; Sediment trap; Azores Current; Particle flux; Species ecology

**Article Outline**

1. Introduction
2. Hydrography and ecology of the study area
  - 2.1. Oceanography

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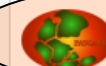
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# A genome-to-genome analysis of associations between human genetic variation, HIV-1 sequence diversity, and viral control

Istv n Bartha<sup>1,2,3,4</sup>, Jonathan M Carlson<sup>5†</sup>, Chanson J Brumme<sup>6†</sup>, Paul J McLaren<sup>1,2,4†</sup>, Zabrina L Brumme<sup>4,7</sup>, Mina John<sup>8</sup>, David W Haas<sup>9</sup>, Javier Martinez-Picado<sup>10,11</sup>, Judith Dalmi Concepci n Casado<sup>12</sup>, Andri Rauch<sup>13</sup>, Hu Pietro Vernazza<sup>14</sup>, Thomas Klimkait<sup>15</sup>, Sa Jennifer Listgarten<sup>2</sup>, Nico Pfeifer<sup>2†</sup>, Chri Zolt n Kutalik<sup>4,20</sup>, Todd M Allen<sup>21</sup>, Viktor David Heckerman<sup>4</sup>, Amalio Telenti<sup>2\*</sup>, Jac Genome-to-Genome Study and the Swis

<sup>1</sup>School of Life Sciences,  cole Polytechnique, Switzerland; <sup>2</sup>Institute of Microbiology, University of Lausanne, Lausanne, Switzerland; <sup>3</sup>Research Evolutionary Ecology,  bvt s Lor nd University, Budapest, Hungary; <sup>4</sup>Swiss Institute of Science, Switzerland; <sup>5</sup>Science Group, Microsoft Research, Redmond, Washington, United States; <sup>6</sup>BC Centre for Excellence in HIV/AIDS, Vancouver, British Columbia, Canada; <sup>7</sup>Simon Fraser University, Burnaby, British Columbia, Canada; <sup>8</sup>Department of Infectious Diseases, University of Tennessee Medical Center, Nashville, Tennessee, United States; <sup>9</sup>Investigaci n en Ci ncias de la Salut Gen mica, Barcelona, Spain; <sup>10</sup>Instituto de Ci ncias de la Salut Gen mica, Barcelona, Spain; <sup>11</sup>Centro Nacional Carlos III, Madrid, Spain; <sup>12</sup>Clinic of Infectious Diseases, University Hospital and University of Zurich, Zurich, Switzerland; <sup>13</sup>Division of Infectious Diseases, Regional Hospital, St. Gallen, Switzerland; <sup>14</sup>Department of Infectious Diseases, University Hospital and University of Zurich, Zurich, Switzerland; <sup>15</sup>Laboratory of Virology, University of Zurich, Zurich, Switzerland; <sup>16</sup>Theodosius Dobzhansky Center for the Study of Human Evolution, St. Petersburg State University, St. Petersburg, Russia; <sup>17</sup>Preventive Medicine, University Hospital of Zurich, Zurich, Switzerland; <sup>18</sup>Ragon Institute of MGH, MIT, and Harvard, Boston, Massachusetts, United States; <sup>19</sup>Faculty of Medicine, University of British Columbia, Vancouver, Canada

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Competing Interests: The authors declare that no competing interests exist.

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Abstract: Data, Analysis and Interpretation of Data, Drafting or revising the article, Data, Analysis and Interpretation of Data, Drafting or revising the article, Contributed unpublished essential data or reagents

## Ethics

Human subjects: Participating centers provided local Institutional Review Board approval for genetic analysis. Study participants provided informed consent for genetic testing, with the exception of a subset where a procedure approved by the relevant Research Ethics Board allowed the use of anonymized historical specimens in the absence of a specific informed consent.

## Additional files

### Major dataset

The following datasets were generated:

Author(s)	Year	Dataset title	Dataset ID and/or URL	Database, license, and accessibility information
Bartha I, Carlson JM, Brumme CJ, McLaren PJ, Brumme ZL, John M, et al.	2013	Interactive HIV-Host Genome-to-Genome Map	<a href="http://dx.doi.org/10.5281/zenodo.7138">http://dx.doi.org/10.5281/zenodo.7138</a>	Publicly available at Zenodo ( <a href="https://zenodo.org">https://zenodo.org</a> ).
Bartha I, Carlson JM, Brumme CJ, McLaren PJ, Brumme ZL, John M, et al.	2013	Online Supplementary Dataset of the HIV-Host Genome-to-Genome Study	<a href="http://dx.doi.org/10.5281/zenodo.7139">http://dx.doi.org/10.5281/zenodo.7139</a>	Publicly available at Zenodo ( <a href="https://zenodo.org">https://zenodo.org</a> ).

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# A Google-based alien detector

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### Mission Statement

The mission of the WETI Institute is to understand and explain the origin, nature and prevalence of intelligent life in the universe. The WETI Institute has chosen an entirely novel approach to achieve that goal. Instead of actively searching for extraterrestrial intelligence, the idea is to simply WAIT - until the others find us.

1

## A Google based detector for alien sightings on planet Earth

Aleks Scholz, Outridge Mewbourne, Kathrin Passig, Crapser Voegelé, Roderick Khan.  
WETI Institute, <http://weti-institute.org>

### 1 Introduction

Over the past 4.5 billion years, humans have emerged as the arguably technologically most advanced species on planet Earth. Whether intelligent life exists elsewhere in the Universe or not remains unknown. Possible ways of investigating this problem include a) exploring the conditions for the formation of life and the mechanisms for the evolution of life (a research branch often summarized as astrobiology), b) searching for other intelligent civilisations in the Universe (SETI - search for extraterrestrial intelligence), or c) attempting to communicate with alien civilisations (Active SETI or METI - Messaging to Extraterrestrial Intelligence). All these methods have their merits and limits. Discussing them in depth is beyond the scope of this paper. As of today, the results from these programs with regard to the initial question remain inconclusive.

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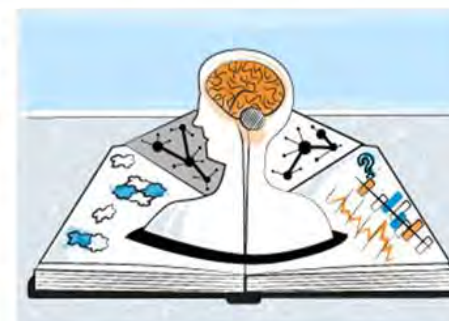
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Data released on July 06, 2011

## Genomic data from the Emperor penguin (*Aptenodytes forsteri*).

Zhang, G; Lambert, D; Wang, J (2011): Genomic data from the Emperor penguin (*Aptenodytes forsteri*). GigaScience. <http://dx.doi.org/10.5524/100005>

The Emperor penguin (*Aptenodytes forsteri*) is a large penguin, standing over 1 meter tall, with distinctive black, yellow and white markings. Like most penguins, the emperor penguins are indigenous to Antarctica and exist between the 66th and 78th parallels. Famous for its unique social and reproductive behavior, the emperor penguin also possesses a number of other notable evolutionary qualities: its stature, its feathers, its incubation process, and its swimming capabilities. The *Aptenodytes forsteri* genome offers new insights into this remarkable bird.

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Sample ID	Taxonomic ID	Common name	Genbank name	S
Aptenodytes_forsteri	9233	Emperor penguin	emperor penguin	

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<rdf:RDF xmlns:rdf="http://www.w3.org/1999/02/22-rdf-syntax-ns#"
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Durand, Pierre

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Descriptions	
Abstract	This dataset contains in-situ meteorological measurements made onboard SAFIRE'S Piper-Aztec. These measurements are corrected for any effect induced by the aircraft (adiabatic heating due to compression on temperature and humidity sensors, "static defect" on pressure measurements, aircraft attitude on wind).
Resource type	
Dataset	
Subjects	
Text	String
Rights	Common BLLAST data policy. EUFAR rules also apply on EUFAR-funded flights (BLLATE)
Size	
Language	en-us
Dates	
Submitted	2011-11-30
Version	String
Formats	NetCDF
Alternate identifiers	
Text	String
Related identifiers	
IsCitedBy	ark:String
Contributors	
ContactPerson	Piguet, Bruno String
DataManager	Sedoo / OMP String
Other formats	<a href="#">text/html</a> <a href="#">application/x-datacite+xml</a> <a href="#">application/vnd.datacite.datacite+xml</a> <a href="#">application/x-datacite+text</a>



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Piper-Aztec core meteorological in-situ measurements

Contact informations	
Organisation name	SAFIRE
Individual name	Bruno Piguet
E-mail	Bruno.Piguet@meteo.fr
Responsible party role	Point of contact
Identification	
DOI	10.6096/BLLAST.PiperAztec.Core
Resource title	Piper-Aztec core meteorological in-situ measurements
Resource abstract	This dataset contains in-situ meteorological measurements made onboard SAFIRE'S Piper-Aztec. These measurements are corrected for any effect induced by the aircraft (adiabatic heating due to compression on temperature and humidity sensors, "static defect" on pressure measurements, aircraft attitude on wind).
Geographic location	
Platform type	Aircraft
Platform name	Piper Aztec



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## Instrument

## Metadata

### DOI

doi:10.5291/ILL-DATA.6-01-314

### Authors

FALUS Peter, MATIC Alekxandar,  
MATTSSON JOHAN

### Publisher

Institut Laue-Langevin

### Publication year

2013

### Cycle(s)

20123

### Proposal number

6-01-314

### Date of experiment

04-12-2012

## Experiment parameters

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Door: Pieter Sabel - 04/07/12, 11:29



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# A giant leap for science



Finding the Higgs boson





# Observation of a new particle in the search for the Standard Model Higgs boson with the ATLAS detector at the LHC<sup>☆</sup>

## ATLAS Collaboration<sup>\*</sup>

This paper is dedicated to the memory of our ATLAS colleagues who did not live to see the full impact and significance of their contributions to the experiment.

### ARTICLE INFO

Article history:  
Received 31 July 2012  
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### ABSTRACT

A search for the Standard Model Higgs boson in proton–proton collisions with the ATLAS detector at the LHC is presented. The datasets used correspond to integrated luminosities of approximately  $4.8 \text{ fb}^{-1}$  collected at  $\sqrt{s}=7 \text{ TeV}$  in 2011 and  $5.8 \text{ fb}^{-1}$  at  $\sqrt{s}=8 \text{ TeV}$  in 2012. Individual searches in the channels  $H \rightarrow ZZ^{(*)} \rightarrow 4\ell$ ,  $H \rightarrow \gamma\gamma$  and  $H \rightarrow WW^{(*)} \rightarrow \ell\nu\ell\nu$  in the  $8 \text{ TeV}$  data are combined with previously published results of searches for  $H \rightarrow ZZ^{(*)} \rightarrow 4\ell$ ,  $H \rightarrow \gamma\gamma$  and  $H \rightarrow WW^{(*)} \rightarrow \ell\nu\ell\nu$  in the  $7 \text{ TeV}$  data and results from improved analyses of the  $H \rightarrow ZZ^{(*)} \rightarrow 4\ell$  and  $H \rightarrow \gamma\gamma$  channels in the  $7 \text{ TeV}$  data. Clear evidence for the production of a neutral boson with a measured mass of  $126.0 \pm 0.4 \text{ (stat)} \pm 0.4 \text{ (sys)} \text{ GeV}$  is presented. This observation, which has a significance of 5.9 standard deviations, corresponding to a background fluctuation probability of  $1.7 \times 10^{-9}$ , is compatible with the production and decay of the Standard Model Higgs boson.

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## 1. Introduction

The Standard Model (SM) of particle physics [1–4] has been tested by many experiments over the last four decades and has been shown to successfully describe high energy particle interactions. However, the mechanism that breaks electroweak symmetry in the SM has not been verified experimentally. This mechanism [5–10], which gives mass to massive elementary particles, implies the existence of a scalar particle, the SM Higgs boson. The search for the Higgs boson, the only elementary particle in the SM that has not yet been observed, is one of the highlights of the Large Hadron Collider [11] (LHC) physics programme.

Indirect limits on the SM Higgs boson mass of  $m_H < 158 \text{ GeV}$  at 95% confidence level (CL) have been set using global fits to precision electroweak results [12]. Direct searches at LEP [13], the Tevatron [14–16] and the LHC [17,18] have previously excluded, at 95% CL, a SM Higgs boson with mass below 800 GeV, apart from some mass regions between 116 GeV and 127 GeV.

Both the ATLAS and CMS Collaborations reported excesses of events in their 2011 datasets of proton–proton (pp) collisions at centre-of-mass energy  $\sqrt{s}=7 \text{ TeV}$  at the LHC, which were compatible with SM Higgs boson production and decay in the mass region 124–126 GeV, with significances of 2.9 and 3.1 standard deviations ( $\sigma$ ), respectively [17,18]. The CDF and DØ experiments at the Tevatron have also recently reported a broad excess in the mass region

120–135 GeV; using the existing LHC constraints, the observed local significances for  $m_H = 125 \text{ GeV}$  are  $2.7\sigma$  for CDF [14],  $1.1\sigma$  for DØ [15] and  $2.8\sigma$  for their combination [16].

The previous ATLAS searches in  $4.6\text{--}4.8 \text{ fb}^{-1}$  of data at  $\sqrt{s}=7 \text{ TeV}$  are combined here with new searches for  $H \rightarrow ZZ^{(*)} \rightarrow 4\ell$ ,  $H \rightarrow \gamma\gamma$  and  $H \rightarrow WW^{(*)} \rightarrow \ell\nu\ell\nu$  in the  $5.8\text{--}5.9 \text{ fb}^{-1}$  of pp collision data taken at  $\sqrt{s}=8 \text{ TeV}$  between April and June 2012.

The data were recorded with instantaneous luminosities up to  $6.8 \times 10^{33} \text{ cm}^{-2} \text{ s}^{-1}$ ; they are therefore affected by multiple pp collisions occurring in the same or neighbouring bunch crossings (pile-up). In the  $7 \text{ TeV}$  data, the average number of interactions per bunch crossing was approximately 10; the average increased to approximately 20 in the  $8 \text{ TeV}$  data. The reconstruction, identification and isolation criteria used for electrons and photons in the  $8 \text{ TeV}$  data are improved, making the  $H \rightarrow ZZ^{(*)} \rightarrow 4\ell$  and  $H \rightarrow \gamma\gamma$  searches more robust against the increased pile-up. These analyses were re-optimised with simulation and frozen before looking at the  $8 \text{ TeV}$  data.

In the  $H \rightarrow WW^{(*)} \rightarrow \ell\nu\ell\nu$  channel, the increased pile-up deteriorates the event missing transverse momentum,  $E_T^{\text{miss}}$ , resolution, which results in significantly larger Drell–Yan background in the same-flavour final states. Since the  $e\mu$  channel provides most of the sensitivity of the search, only this final state is used in the analysis of the  $8 \text{ TeV}$  data. The kinematic region in which a SM Higgs boson with a mass between 110 GeV and 140 GeV is

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<sup>†</sup> The symbol  $\ell$  stands for electron or muon.



# Observation of a new boson at a mass of 125 GeV with the CMS experiment at the LHC<sup>☆</sup>

## CMS Collaboration<sup>\*</sup>

CERN, Switzerland

This paper is dedicated to the memory of our colleagues who worked on CMS but have since passed away. In recognition of their many contributions to the achievement of this observation.

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### ABSTRACT

Results are presented from searches for the standard model Higgs boson in proton–proton collisions at  $\sqrt{s}=7$  and  $8 \text{ TeV}$  in the Compact Muon Solenoid experiment at the LHC, using data samples corresponding to integrated luminosities of up to  $5.1 \text{ fb}^{-1}$  at  $7 \text{ TeV}$  and  $5.3 \text{ fb}^{-1}$  at  $8 \text{ TeV}$ . The search is performed in five decay modes:  $\gamma\gamma$ ,  $ZZ$ ,  $WW$ ,  $\tau^+\tau^-$ , and  $b\bar{b}$ . An excess of events is observed above the expected background, with a local significance of 5.0 standard deviations, at a mass near 125 GeV, signalling the production of a new particle. The expected significance for a standard model Higgs boson of that mass is 5.8 standard deviations. The excess is most significant in the two decay modes with the best mass resolution,  $\gamma\gamma$  and  $ZZ$ ; a fit to these signals gives a mass of  $125.3 \pm 0.4 \text{ (stat.)} \pm 0.5 \text{ (syst.) GeV}$ . The decay to two photons indicates that the new particle is a boson with spin different from one.

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## 1. Introduction

The standard model (SM) of elementary particles provides a remarkably accurate description of results from many accelerator and non-accelerator based experiments. The SM comprises quarks and leptons as the building blocks of matter, and describes their interactions through the exchange of force carriers: the photon for electromagnetic interactions, the  $W$  and  $Z$  bosons for weak interactions, and the gluons for strong interactions. The electromagnetic and weak interactions are unified in the electroweak theory. Although the predictions of the SM have been extensively confirmed, the question of how the  $W$  and  $Z$  gauge bosons acquire mass whilst the photon remains massless is still open.

Nearly fifty years ago it was proposed [1–6] that spontaneous symmetry breaking in gauge theories could be achieved through the introduction of a scalar field. Applying this mechanism to the electroweak theory [7–9] through a complex scalar doublet field leads to the generation of the  $W$  and  $Z$  masses, and to the prediction of the existence of the SM Higgs boson ( $H$ ). The scalar field also gives mass to the fundamental fermions through the Yukawa interaction. The mass  $m_H$  of the SM Higgs boson is not predicted by theory. However, general considerations [10–13] suggest that

$m_H$  should be smaller than  $\sim 1 \text{ TeV}$ , while precision electroweak measurements imply that  $m_H < 152 \text{ GeV}$  at 95% confidence level (CL) [14]. Over the past twenty years, direct searches for the Higgs boson have been carried out at the LEP collider, leading to a lower bound of  $m_H > 114.4 \text{ GeV}$  at 95% CL [15], and at the Tevatron proton–antiproton collider, excluding the mass range 162–166 GeV at 95% CL [16] and detecting an excess of events, recently reported in [17–19], in the range 120–135 GeV.

The discovery or exclusion of the SM Higgs boson is one of the primary scientific goals of the Large Hadron Collider (LHC) [20]. Previous direct searches at the LHC were based on data from proton–proton collisions corresponding to an integrated luminosity of  $5 \text{ fb}^{-1}$  collected at a centre-of-mass energy  $\sqrt{s}=7 \text{ TeV}$ . The CMS experiment excluded at 95% CL a range of masses from 127 to 600 GeV [21]. The ATLAS experiment excluded at 95% CL the ranges 111.4–116.6, 119.4–122.1 and 129.2–541 GeV [22]. Within the remaining allowed mass region, an excess of events near 125 GeV was reported by both experiments. In 2012 the proton–proton centre-of-mass energy was increased to  $8 \text{ TeV}$  and by the end of June an additional integrated luminosity of more than  $5 \text{ fb}^{-1}$  had been recorded by each of these experiments, thereby enhancing significantly the sensitivity of the search for the Higgs boson.

This Letter reports the results of a search for the SM Higgs boson using samples collected by the CMS experiment, comprising data recorded at  $\sqrt{s}=7$  and  $8 \text{ TeV}$ . The search is performed in

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Measurements of Higgs boson production and couplings in diboson final states with the ATLAS detector at the LHC<sup>a</sup>ATLAS Collaboration<sup>a</sup>

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## ABSTRACT

Measurements are presented using the decays into boson pairs,  $H \rightarrow \gamma\gamma$ ,  $H \rightarrow ZZ^* \rightarrow 4\ell$ , and  $H \rightarrow WW^* \rightarrow \ell\nu\ell\nu$ . Spin studies are reported elsewhere [10]. Due to the outstanding performance of the LHC accelerator throughout 2012, the present data sample is a factor of  $\sim 2.5$  larger than that used in Ref. [2]. With these additional data, many aspects of the ATLAS studies have been improved: several experimental uncertainties have been reduced and new exclusive analyses have been included. In particular, event categories targeting specific production modes have been introduced, providing enhanced sensitivity to different Higgs boson couplings.

## 1. Introduction

The discovery of a new particle of mass about 125 GeV in the search for the Standard Model (SM) Higgs boson at the CERN Large Hadron Collider (LHC) [1], reported in July 2012 by the ATLAS [2] and CMS [3] Collaborations, is a milestone in the quest to understand the origin of electroweak symmetry breaking [4–6].

This Letter presents measurements of several properties of the newly observed particle, including its mass, production strengths and couplings to fermions and bosons, using diboson final states<sup>1</sup>:  $H \rightarrow \gamma\gamma$ ,  $H \rightarrow ZZ^* \rightarrow 4\ell$ , and  $H \rightarrow WW^* \rightarrow \ell\nu\ell\nu$ . Spin studies are reported elsewhere [10]. Due to the outstanding performance of the LHC accelerator throughout 2012, the present data sample is a factor of  $\sim 2.5$  larger than that used in Ref. [2]. With these additional data, many aspects of the ATLAS studies have been improved: several experimental uncertainties have been reduced and new exclusive analyses have been included. In particular, event categories targeting specific production modes have been introduced, providing enhanced sensitivity to different Higgs boson couplings.

The results reported here are based on the data samples recorded with the ATLAS detector [11] in 2011 ( $\sqrt{s} = 7$  TeV) and 2012 (at  $\sqrt{s} = 8$  TeV), corresponding to integrated luminosities of about  $4.7 \text{ fb}^{-1}$  and  $20.7 \text{ fb}^{-1}$ , respectively. Similar studies, including also fermionic decays, have been reported recently by the CMS Collaboration using a smaller dataset [12].

This Letter is organised as follows. Section 2 describes the data sample and the event reconstruction. Section 3 summarises the

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<sup>1</sup> Throughout this Letter, the symbol  $\ell$  stands for electron or muon.



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## Measurements of Higgs boson production and couplings in diboson final states with the ATLAS detector at the LHC

ATLAS Collaboration (Georges Aad (Freiburg U.) et al.) [Afficher les 2923 auteurs](#)

Jul 4, 2013 - 32 pages

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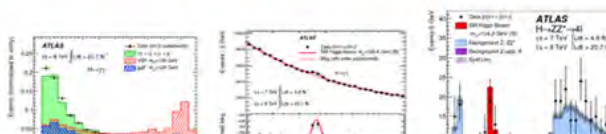
Experiment: CERN-LHC-ATLAS

## Abstract (arXiv)

Measurements are presented of production properties and couplings of the recently discovered Higgs boson using the decays into boson pairs,  $H \rightarrow \gamma\gamma$ ,  $H \rightarrow ZZ^* \rightarrow 4\ell$  and  $H \rightarrow WW^* \rightarrow 2\ell\nu 2\ell\nu$ . The results are based on the complete pp collision data sample recorded by the ATLAS experiment at the CERN Large Hadron Collider at centre-of-mass energies of 7 TeV and 8 TeV, corresponding to an integrated luminosity of about 25/fb. Evidence for Higgs boson production through vector-boson fusion is reported. Results of combined fits probing Higgs boson couplings to fermions and bosons, as well as anomalous contributions to loop-induced production and decay modes, are presented. All measurements are consistent with expectations for the Standard Model Higgs boson.

Note: "Temporary entry"; 23 pages plus author list (38 pages total), 13 figures, 10 tables, submitted to Physics Letters B. All figures including auxiliary figures are available at <http://atlas.web.cern.ch/Atlas/GROUPS/PHYSICS/PAPERS/HIGG-2013-02/>

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## Data from Figure 7 from: Measurements of Higgs boson production and couplings in diboson final states with the ATLAS detector at the LHC

ATLAS Collaboration (Aad, Georges (Freiburg U.) [...]) [Afficher les 2923 auteurs](#)

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**Description:** -2 log Likelihood for the  $H \rightarrow WW \rightarrow l\nu l\nu$  channel in the  $(\mu_{ggF+tH} \cdot B/BSM, \mu_{VBF+VH} \cdot B/BSM)$  plane for a Higgs boson mass  $m_H = 125.5$  GeV.

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1	Identifier (with type sub-property)	M
2	Creator (with name identifier sub-properties)	M
3	Title (with optional type sub-properties)	M
4	Publisher	M
5	PublicationYear	M

**Table 2: DataCite Recommended and Optional Properties**

<i>ID</i>	<i>Property</i>	<i>Obligation</i>
6	Subject (with scheme sub-property)	R
7	Contributor (with type and name identifier sub-properties)	R
8	Date (with type sub-property)	R
9	Language	O
10	ResourceType (with general type description sub-property)	R
11	AlternateIdentifier (with type sub-property)	O
12	RelatedIdentifier (with type and relation type sub-properties)	R
13	Size	O
14	Format	O
15	Version	O
16	Rights	O
17	Description (with type sub-property)	R
18	GeoLocation (with box and point sub-properties)	R







DataCite

Search

## Filter

allocator

datacentre

prefix

resourceType

contributor

creator

publicationYear

publisher

language

## Metadata Search beta

relatedIdentifier:\*

[Options](#) | [Advanced Search](#) | [About Us](#) | [Contact](#) | [Help](#)[Instant Search](#) is disabled | [Continuous Scrolling](#) is disabled | [Filter Preview](#) is disabled

No active filters. Use the sidebar to filter search results.

500082 documents found in 1748ms

Page 49997 of 50009

Data from: Molecular dating, evolutionary rates, and the age of the grasses

# 499961

doi:10.5061/DRYAD.T5V58 Dataset : DataPackage

Christin, Pascal-Antoine • Spriggs, Elizabeth • Osborne, Colin P. • Stromberg, Caroline A. E. • Salamin, Nicolas • (et. al.)

relatedIdentifier: [HasPart:DOI:10.5061/DRYAD.T5V58/1](#)Data from: Species delimitation using Bayes factors: simulations and application to the *Sceloporus scalaris* species group (Squamata: Phrynosomatidae)

# 499962

doi:10.5061/DRYAD.C7S77 Dataset : DataPackage

Grummer, Jared A. • Bryson Jr., Robert W. • Reeder, Tod W.

relatedIdentifier: [HasPart:DOI:10.5061/DRYAD.C7S77/1](#)Data from: Phylogeography of *Liquidambar styraciflua* (Altingiaceae) in Mesoamerica: survivors of a Neogene widespread temperate forest (or cloud forest) in North America?

# 499963

doi:10.5061/DRYAD.T36V1 Dataset : DataPackage

Ruiz-Sanchez, Eduardo • Omeñas, Juan Francisco

relatedIdentifier: [HasPart:DOI:10.5061/DRYAD.T36V1/1](#)

d18O and deuterium measurements during the GEOSECS Atlantic Ocean expeditions

# 499964

doi:10.1594/PANGAEA.824123 Dataset : Dataset

Östlund, H. Göte • GEOSECS

relatedIdentifier: [IsCitedBy:Handle:10013/epic.43023.d001](#)

d18O and deuterium measurements during the GEOSECS Pacific Ocean expeditions

# 499965

doi:10.1594/PANGAEA.824128 Dataset : Dataset

Östlund, H. Göte • GEOSECS

relatedIdentifier: [IsCitedBy:Handle:10013/epic.43023.d001](#)

Data\_upload

# 499966

doi:10.5061/DRYAD.44B50/1 Dataset : DataFile

Benton, Michael J. • Ruta, Marcello • Dunhill, Alexander M. • Sakamoto, Manabu

relatedIdentifier: [IsPartOf:DOI:10.5061/DRYAD.44B50](#)

Hydrochemistry measured on water bottle samples during the GEOSECS Atlantic Ocean expeditions

# 499967

doi:10.1594/PANGAEA.824122 Dataset : Dataset

Bainbridge, Arnold E. • GEOSECS

relatedIdentifier: [IsCitedBy:Handle:10013/epic.43035.d001](#)

Carbonate measurements during the GEOSECS Atlantic expeditions

# 499968

doi:10.1594/PANGAEA.824124 Dataset : Dataset

Bainbridge, Arnold E. • GEOSECS

relatedIdentifier: [IsCitedBy:URL:http://ingrid.idgo.columbia.edu/SOURCES/GEOSECS/index.html](#)

Physical oceanography during DISCOVERY cruise D203A

# 499969

doi:10.1594/PANGAEA.784764 Dataset : Dataset

Owens, Nick • Mantoura, RFC • MEDAR Group

relatedIdentifier: [IsDocumentedBy:Handle:10013/epic.26595.d001](#)

Hydrochemistry measured on water bottle samples during DISCOVERY cruise D179

# 499970



## Related initiatives

- Thomson-Reuters Data Citation Index
- European Persistent Identifier Consortium (EPIC)
- ODIN European project (ORCID and DataCite Interoperability Network)
- CODATA/ICSTI Working Group on Data Citation
- FORCE 11 / Data Citation Synthesis Group
- OpenAIREplus project
- Research Data Alliance



## DISTINGUISH YOURSELF IN THREE EASY STEPS

ORCID provides a persistent digital identifier that distinguishes you from every other researcher and, through integration in key research workflows such as manuscript and grant submission, supports automated linkages between you and your professional activities ensuring that your work is recognized. [Find out more.](#)

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3

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Password

••••••••

Sign in

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#### DON'T HAVE AN ID? REGISTER

First name

Last name

Email

Re-enter email





Connecting Research  
and Researchers

## CONNECTING DataCite Search And Link WITH YOUR ORCID RECORD

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has asked for the following access to your ORCID Record

Read limited info from your ORCID Record

Add a publication to your publications list

This application will not be able to see your ORCID password, or other private info in your ORCID Record

Deny

Authorize

ODIN

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## What is ODIN?

ODIN – *ORCID and DataCite Interoperability Network* - is a two-year project which started in September 2012, funded by the European Commission's 'Coordination and Support Action' under the FP7 programme.

Partners in ODIN are innovators in science, information science and the publishing industry: CERN, the British Library, ORCID, DataCite, Dryad, arXiv and the Australian National Data Service (see [Partners](#)).

## The ODIN mission

ODIN will build on the ORCID and DataCite initiatives to uniquely identify scientists and data sets and connect this information across multiple services and infrastructures for scholarly communication. It will address some of the critical open questions in the area:

- Referencing a data object
- Tracking of use and re-use
- Links between a data object, subsets, articles, rights statements and every person involved in its life-cycle.

Search the DataCite Metadata Store to find your research datasets, images and other works. Then claim them by adding them to your ORCID profile at the click of a button.



### Recent Posts

- [Reporting from the CERN codesprint and first year conference](#) December 19, 2013
- [Promoting and encouraging data citation](#) December 4, 2013
- [New batch of deliverables available](#) October 17, 2013
- [Update on Oct codesprint and 1st year conference](#) August 1, 2013
- [Data citation tracking and ORCID's in Europe PMC](#) July 31, 2013



RSS - Posts





## PRESS RELEASES

### PRESS RELEASES

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22 JUN 2012

### THOMSON REUTERS UNVEILS DATA CITATION INDEX FOR DISCOVERING GLOBAL DATA SETS

*First of Its Kind Data Citation Index Connects Researchers to Data Repositories around the World*

**Philadelphia, PA, June 22, 2012** — The Intellectual Property & Science division of Thomson Reuters announced today that it will preview at the American Library Association Conference (ALA) the *Data Citation Index*<sup>TM</sup>, an upcoming research resource within the *Web of Knowledge*<sup>SM</sup> to facilitate the discovery, use and attribution of data sets and data studies, and link those data to peer-reviewed literature.

This new research resource from Thomson Reuters creates a single source of discovery for scientific, social sciences and arts and humanities information by connecting foundational research within data repositories around the world to related peer-reviewed literature in journals, books, and conference proceedings already indexed in the *Web of Knowledge*.

The Thomson Reuters *Data Citation Index*, scheduled for release later this year, makes research within the digital universe discoverable, citable and seamlessly linked to the article detailing the outputs from the original investigation. Thomson Reuters has partnered with data repositories such as the Inter-University

### NEXT STEPS

- [Print](#)
- [Email](#)

# DATA CITATION INDEX AIMS

Enable the discovery of data repositories, data studies and data sets in the context of traditional literature

Link data to research publications

Help researchers find data sets and studies and track the full impact of their research output

Provide expanded measurement of researcher and institutional research output and assessment

Facilitate more accurate and comprehensive bibliometric analyses



## TYPES OF DATA BY DISCIPLINE

### ART & HUMANITIES

CULTURAL HERITAGE  
LANGUAGE CORPUS  
IMAGE COLLECTIONS  
RECORDINGS

### SOCIAL SCIENCES

POLL DATA  
ECONOMIC STATISTICS  
LONGITUDINAL DATA  
NATIONAL CENSUS  
PUBLIC OPINION SURVEYS

### SCIENCE & TECHNOLOGY

MAPS  
ALGORITHMS  
GENOMICS  
SKY SURVEYS  
ASTROPHYSICS  
REMOTE SENSING  
MUSEUM SPECIMENS



Saturday, October 20, 2012

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International Council for Science : Committee on Data for Science and Technology



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# CODATA

## Data Citation Standards and Practices

*Approved by the CODATA 27th General Assembly in Cape Town 2010*

### The need for robust data citation capabilities

As the growth of electronic publishing of literature has created new challenges years into the future, the growth in online datasets (as distinguished from literature) provides the basis for increased incentives, recognition, and rewards for scientific data. Online digital data holds the promise of allowing peer-examination and review by subsequent users to make new and unforeseen uses and analyses of the data.

This promise, however, depends upon the ability to reliably identify, locate, and access online data. This is complicated by the lack of established practices for referring to portions of a document, typically there is no such hard-copy of a database. Even if it is possible to refer to portions of a database, analogous to the volume and page numbers in publications.

As funding sources for scientific research have begun to require data management incentives, and conventions to support data citation, preservation, and access disciplines already underway. One important group is DataCite. Others remain to be formed. ICSTI, together with representatives from several other organizations, would like to develop common practices and standards in the scientific community.

### Issues Requiring Attention

There are many issues that need to be addressed in establishing standards. The Task Group would consider, prioritize, and address as appropriate.

#### A. Technical

1. Interoperability and Facilitation of Re-use. There is already considerable work on data citation. There is every reason to expect that new modalities and formats will emerge.
2. Citation Formats. What data citation conventions have been developed already?
3. Metadata. How do metadata conventions or standards affect citation formats?
4. Database Versioning. Datasets are more dynamic than documents, and the need for a specific, time-fixed version be cited? What changes to the data constitute a new version and labelled?

Data Science Journal, Volume 12, 13 September 2013

## OUT OF CITE, OUT OF MIND:

### THE CURRENT STATE OF PRACTICE, POLICY, AND TECHNOLOGY FOR THE CITATION OF DATA

**CODATA-ICSTI Task Group on Data Citation Standards and Practices**

*Edited by Yvonne M. Socha*

<http://dx.doi.org/10.2481/dsj.OSOM13-043>



[Publications >](#)

## Amsterdam Manifesto

Endorse

Comment

### The Amsterdam Manifesto on Data Citation Principles

#### Preface:

We wish to promote best practices in data citation to facilitate access to data sets and to enable attribution and reward for those who publish data. Through formal data citation, the contributions to science by those that share their data will be recognized and potentially rewarded. To that end, we propose that:

1. Data should be considered citable products of research.
2. Such data should be held in persistent public repositories.
3. If a publication is based on data not included with the article, those data should be cited in the publication.
4. A data citation in a publication should resemble a bibliographic citation and be located in the publication's reference list.
5. Such a data citation should include a unique persistent identifier (a DataCite DOI recommended, or other persistent identifiers already in use within the community).
6. The identifier should resolve to a page that either provides direct access to the data or information concerning its accessibility. Ideally, that landing page should be machine-actionable to promote interoperability of the data.
7. If the data are available in different versions, the identifier should provide a method to access the previous or related versions.
8. Data citation should facilitate attribution of credit to all contributors

#### About

This Manifesto was created during the [Beyond the PDF 2 Conference](#) in Amsterdam, 20 March 2013.

Original authors are Mercè Crosas, Todd Carpenter, David Shotton and Christine Borgman.

Original document with comments from BTPDF2

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Groups >

## Data Citation Synthesis Group\*\*

\*\*This group was formerly known as: Data Citation Workgroup and The Amsterdam Manifesto

### Discussion Forum

#### Mission Statement

The data citation synthesis group is a cross-team committee leveraging the perspectives from the various existing initiatives working on data citation to produce a consolidated set of data citation principles (based on the Amsterdam Manifesto, the CODATA and other sets of principles provided by others) in order to encourage broad adoption of a consistent policy for data citation across disciplines and venues. The synthesis group will review existing efforts and make a set of recommendations that will be put up for endorsement by the organizations represented by this synthesis group.

The synthesis group will produce a set of principles, illustrated with working examples, and a plan for dissemination and distribution. This group will not be producing detailed specifications for implementation, nor focus on technologies or tools

#### History

This working group started as the Amsterdam Manifesto working group, winner of the \$1K challenge, is working to facilitate distribution of and endorsement of the [Amsterdam Manifesto](#) crafted during the Force 11 Beyond the PDF2 conference in The Netherlands. The document is meant to promote best practices in data citation to facilitate access to data sets and to enable attribution and reward for those who publish data. Through formal data citation, the contributions to science by those that share their data will be recognized and potentially rewarded.

Since this time, 25+ organizations have gathered together to create the Data Citation Synthesis Group to create a set of principles on DataCitation across disciplines.

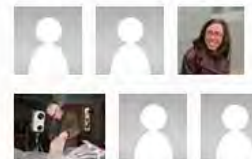
July 5, 2013: The FORCE11 Data Citation Synthesis Group has been formed through the cooperation of individuals across several projects that are working on the problem of data citation. This group will review recommendations from existing groups and work to create a consensus set of principles. A smaller working group of individuals representing these projects will meet via teleconference over the next few months in preparation for a workshop at the Research Data Alliance conference. See below information and [Synthesis Group Wiki page](#) for further actions and progress.

[Synthesis Group Wiki](#)

Group events:

Group Leader: [Merce Crosas](#)

Members: 38



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#### Project Groups

[Resource Identification in the Neuroscience Literature](#)  
[Textbook Hackathon](#)  
[Starting at Ground Zero](#)  
[Open Scholar Foundation](#)  
[Academic Authoring/Workflows](#)  
[Data Citation Synthesis Group\\*\\*](#)

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TOOL + RESOURCES

# DECLARATION OF DATA CITATION PRINCIPLES ~~AMSTERDAM MANIFESTO~~




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**Research Data Sharing  
without barriers**  
RESEARCH DATA ALLIANCE

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Home About Organisation Working and Interest Groups

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Home About Organisation Working and Interest Groups News & Events Plenary Meetings RDA in the Press

Home » Working Groups » Data Citation WG

## About

### Research Data Alliance

The Research Data Alliance implements the technology, practice, and connections to overcome barriers.

## Data Citation WG

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**Research Data Sharing  
without barriers**  
RESEARCH DATA ALLIANCE

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Home » Interest Groups » RDA/WDS Publishing Data IG

## RDA/WDS Publishing Data IG



Status: Recognised & Endorsed Joint RDA/WDS IG

The Publishing Data Interest Group brings together all stakeholders involved in publishing research data including researchers, discipline specific and institutional data repositories, academic publishers, funders and service providers. Every effort will be made to get a good representation from related international programmes, their working groups and other private or institutional activities involved in this area. We will build on existing resources, reports and other shared experiences from the different stakeholders and will nurture more specific and targeted working groups addressing practical aspects in publishing research data. As such, the Publishing Data Interest Group can be regarded as a broad and inclusive forum for interested individuals to contribute to and test, validate and promote the findings of the Working Groups. In particular we

plan to address the implementation of workflows for publishing data and therefore help establish appropriate supporting infrastructure.

[Download the Publishing Data Interest Group Charter](#)

See [Publishing Data Interest Group Overview Poster for 2nd Plenary Meeting \(jpg\)](#)

January 2014: see [RDA-WDS submitted Case Statements](#) for 4 proposed Working Groups covering Publishing Data Workflows, Bibliometrics, Costs and Publishing Services. Comments and contributions welcome.

#### Status:

Recognized & endorsed

#### Case Statement:

<https://www.rd-alliance.org/filedepot?fid=129>

REGISTER LOGIN RDA INTRANET AREA



- Group Wiki
- Forum
- File Repository
- RDA Mailing lists

### Web Conference Details

- Publishing Data IG

ion (WG-DC) aims to bring together users, requirements, advantages and efficiently citing subsets of data. The e we can contribute significantly and entations.

### Group menu

- Group News Archive
- Group Wiki
- Old forum (Read-only)
- Public File Repository
- Public Discussion Area
- RDA Mailing lists

### Web Conference Details

- Webconference Data Citation WG

### Group visibility

Public - accessible to all site users

### Latest Discussion Topic

Case Statement: Data Citation - Making Research Data Citable

February						
S	M	T	W	T	F	S
						1



*Vielen Dank für Ihre Aufmerksamkeit !*



Inist



SND Swedish National Data Service



Eidgenössische Technische Hochschule Zürich  
Swiss Federal Institute of Technology Zurich



Conferenza dei Rettori  
delle Università Italiane