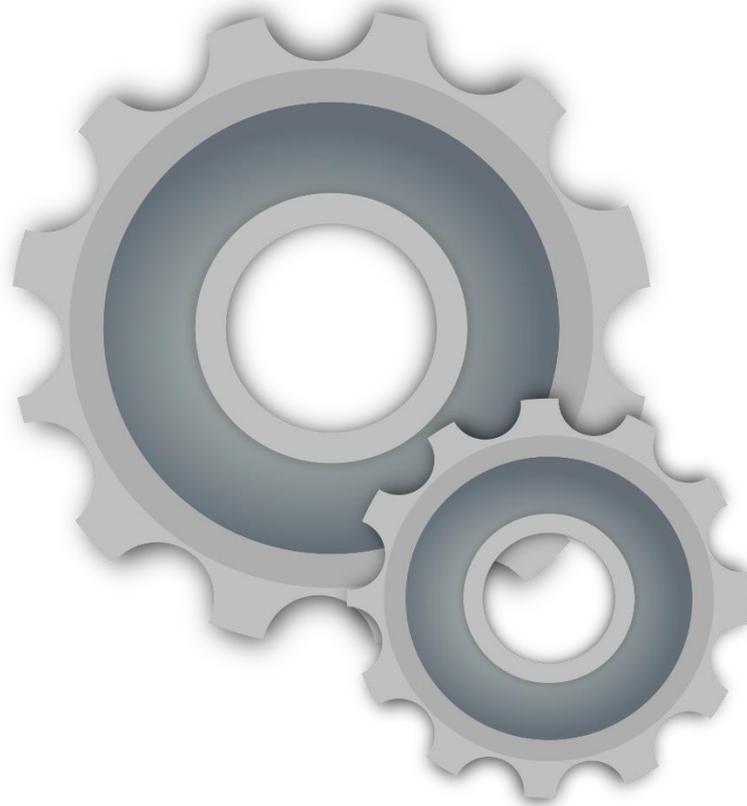


Meeting funder expectations on data sharing
in Science and Engineering

Data Access Statements

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University of Bristol

Research Data Service

Image: CogWheel, Pixabay, Public Domain

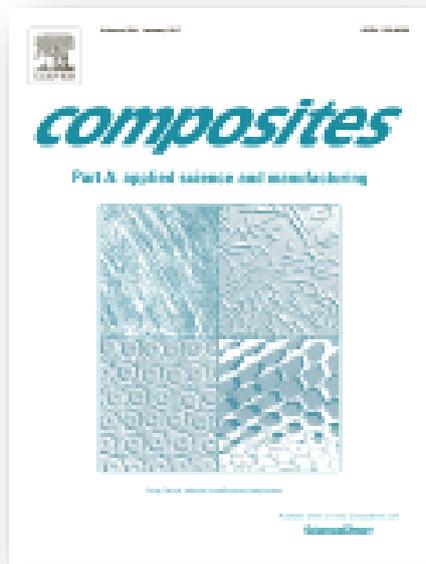
DATA ACCESS STATEMENTS

UKRI (formerly RCUK) and other national and international funding bodies now require grant holders to provide a 'Data Access Statement' in each of their published articles. These should tell readers how they can access sufficient underlying data to evidence the published claims (or alternatively, why readers cannot access evidence). The nature of these statements will vary depending on where your data is. Please note a simple direction to interested parties to 'contact the author' is no longer considered sufficient. The remainder of this document provides examples of acceptable Data Access Statements for the following situations:

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UNDERLYING DATA INCLUDED IN PAPER



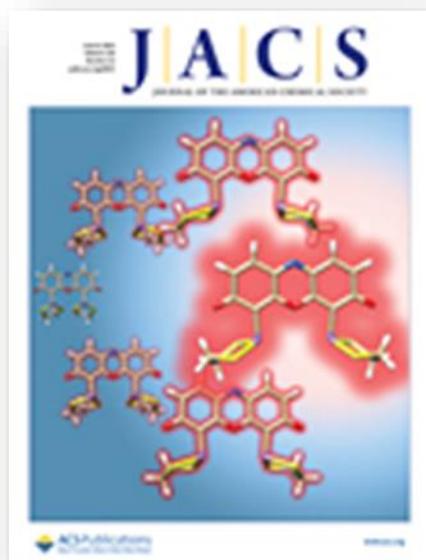
Underlying data can be published in a variety of ways depending on the conventions of your field and the journal in which you are publishing your article. One of the most common methods is to include your data in the text of your paper, most commonly in the methods and/or results sections.

In this example, the authors have described their experimental procedures and results in sufficient detail to allow their conclusions to be verified. They have stated this clearly in their data access statement and therefore fully satisfied their funder's requirements.

Data access statement

"All underlying data to support the conclusions are provided within this paper."¹

UNDERLYING DATA PUBLISHED AS SUPPLEMENTARY MATERIAL



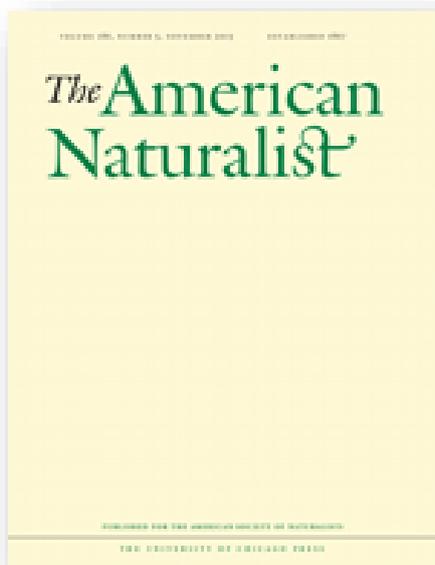
In some cases, supporting data may not be suitable for inclusion in the body of a paper. In this example, the authors have included a number of graphs and structural formulae within the text of the paper, but the full experimental details required to validate the study's findings are too long to be included in this way.

As the publisher allows for extensive supplementary information to accompany an article (and this is common within the discipline), the authors have therefore deposited this supporting data as a supplement to their article. In this case the same DOI applies to both the article and the supplementary information and the authors have cited this in their data access statement, thus fulfilling funder expectations.

Data access statement

"The Supporting Information is available free of charge on the ACS Publications website at DOI: 10.1021/jacs.5b03732."ii

UNDERLYING DATA PUBLISHED IN AN EXTERNAL DATA REPOSITORY



If your publisher is unable to host your data, there may be a suitable external repository which could provide this service; these are usually discipline-specific and free of charge. In this example, the authors have included some data as a supplement to the paper (videos and a PDF describing technical methods in more detail), but the underlying movement data required to validate their findings is not suitable for sharing in this manner and has been deposited in the Dryad Digital Repository instead. This is an online repository for scientific data, typically in the life sciences. Dryad have provided the authors with a DOI for their data which has been cited in the body of their paper in order to satisfy funder expectations.

Data access statement

“Our data are available in the Dryad Digital Repository, <http://dx.doi.org/10.5061/dryad.5dn48>”ⁱⁱⁱ

UNDERLYING DATA PUBLISHED IN THE DATA.BRIS REPOSITORY



If there are no suitable external repositories, you can deposit your data in the University of Bristol's data repository, data.bris. In the following example, the authors have included some CT scan images within the text of the article, but the full set of CT scans underpinning their conclusions is too long to be included in this way.

The authors have therefore deposited the full set of images in the data.bris repository and have been issued with a DOI, which they have cited in the body of their article in order to meet funder expectations.

Data access statement

"The full comparison of damage in all the interfaces is available for download from the Research Data Repository of University of Bristol at data.bris.ac.uk/data/dataset/12gx6827n337u1dxy6iilf3t1f."^{iv}

UNDERLYING DATA PUBLISHED AS A RESTRICTED ACCESS DATASET



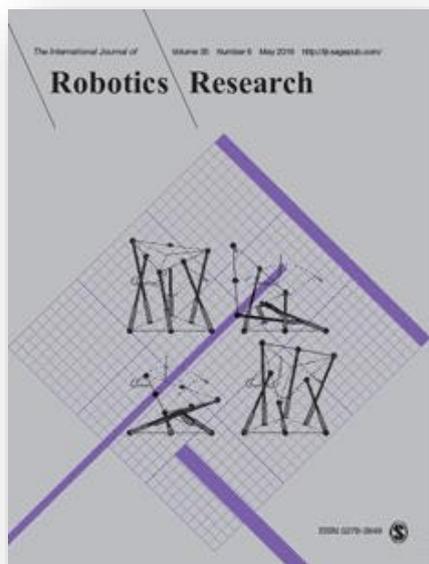
If your dataset contains information that cannot be shared openly for ethical or commercial reasons, you can still deposit it in a repository – you can apply restrictions on who can access the data and for what purpose. An embargo can also be applied if temporary access restrictions are required.

In the following example, the authors have not obtained consent to openly share data from the research participants, so have deposited their data in data.bris as a restricted dataset. The authors have chosen to give a full explanation of what this entails in their data access statement, but this level of detail is not required to satisfy funder expectations – a simple statement that the data is available to bona fide researchers subject to a data access agreement will suffice.

Data access statement

“At the time this study was performed, participants consented to the data of this study being used to promote scientific knowledge and for no other purpose than research. Therefore, completely open access of the data would contravene consent and ethics approval. However, for bona fide researchers, the fully anonymized dataset (as tab separated value files (.tsv files) for the 3D-motion capture QTM data, and as Matlab (.mat) files for the corresponding floor projection parameters) has been deposited at the University of Bristol Research Data Repository (<http://data.bris.ac.uk/data/dataset/7zl3gh7ipvm51hbg4zdndqrv>). A metadata record is openly available by the repository, with a link (email) to the Research Data team at Bristol who provide information how data can be accessed by bona fide researchers, and who will assess the motives of potential data reusers before granting access to the data. No authentic request for access will be refused and reusers will not be charged for any part of this process.”^v

UNDERLYING DATA PUBLISHED AS A SEPARATE ‘DATA PAPER’



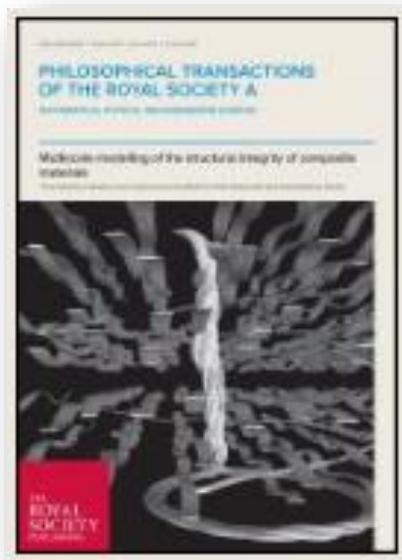
As well as publishing your data in a repository you may choose to write a separate paper describing the deposit in detail, known as a data paper. You should consider publishing a data paper if your dataset has high potential for re-use. You can find more information on writing a data paper at <https://data.bris.ac.uk/sharingdata/>.

If you choose to do this, you can then cite your data paper rather than your data deposit when writing up your findings for publication. The following example is from an article published in 2009, but still meets the latest funder expectations on research data management. The authors have cited their data paper within a specific section of their publication that summarises their datasets. The full reference to the data paper is given in the bibliography.

Data access statement

“Much of the New College data has been published as part of an IJRR Data Paper and can be downloaded and used by interested readers (Smith et al. 2009)” followed by a full reference in the bibliography: “Smith, M., Baldwin, I., Churchill, W., Paul, R. and Newman, P. (2009). The new college vision and laser data set. The International Journal of Robotics Research, 28(5): 595–599.”^{vi}

REVIEW PAPER WITH NO PRIMARY DATA

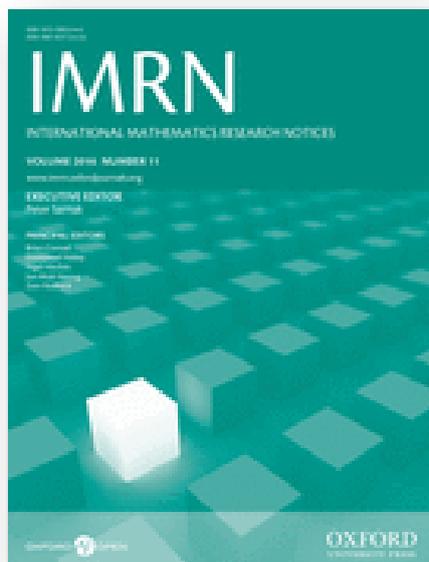


Data accessibility statements can be difficult to structure for review papers, as whilst they are clearly based on data, the data have not been generated during the course of the work underpinning the review. Instead, the supporting data are contained within the papers cited in the body of the review, and it would be pointless to include references to these in both the reference list and in data access statement. Instead, the authors have simply stated that no new data were created, which fully satisfies funder and publisher expectations regarding data availability.

Data access statement

“No new data were created during this study.”^{vii}

A STUDY WITH NO UNDERLYING DATA



Finally, some papers will not have any underlying data at all; in this example, the authors describe a series of mathematical theorems and proofs. All the information required to verify their findings is included within the paper, and therefore there is no underlying ‘data’ as such.

The authors have simply stated this in the acknowledgements section and fully satisfied the funding body’s expectation on research data management

Data access statement

“No data were created during this study.”^{viii}

FURTHER INFORMATION

For help structuring your data access statement, or if your data does not fit into any of these categories (for example if you have used data from a third party, or are otherwise unable to share your data) please contact the Research Data Service (data-bris@bristol.ac.uk).

ⁱ Example taken from: C. Osmiani et al. Exploring the influence of micro-structure on the mechanical properties and crack bridging mechanisms of fibrous tufts. *Composites: Part A* (2016). doi: 10.1016/j.compositesa.2016.08.008

ⁱⁱ Example taken from: A. Faulkner et al. “An Umpolung Approach to Alkene Carboamination: Palladium Catalyzed 1,2-Amino-Acylation, -Carboxylation, -Arylation, -Vinylolation, and -Alkynylation”. *J Am Chem Soc*, 2015, 137 (22), pp 7224–7230. doi:10.1021/jacs.5b03732

ⁱⁱⁱ Example taken from: J. R. Potts et al. "Quantifying Behavioral Changes in Territorial Animals Caused by Sudden Population Declines.," *The American Naturalist*, 2013, 182 (3), pp E73-E82. doi:10.1086/671260

^{iv} Example taken from: E. Abisset et al. Interaction of inter- and intralaminar damage in scaled quasi-static indentation tests: Part 1 – Experiments. *Composite Structures*. 2016, 136, pp 712–726. doi:10.1016/j.compstruct.2015.09.061

^v Example taken from: J. Fennell et al. “How visual perceptual grouping influences foot placement”. *Royal Society Open Science*. 2015;2(7):150151. doi:10.1098/rsos.150151

^{vi} Example taken from: P. Newman et al. *The International Journal of Robotics Research*, 2009, 28 (11-12): pp 1406-1433. doi: 10.1177/0278364909341483

^{vii} Example taken from: Ivana K. Partridge, Stephen R. Hallett. “Use of microfasteners to produce damage tolerant composite structures” *Phil. Trans. R. Soc. A* 2016 374 20150277; doi: 10.1098/rsta.2015.0277.

^{viii} Example taken from: M. R. Atkin et al. “Random Matrix Ensembles with Singularities and a Hierarchy of Painleve III Equations”. *International Mathematics Research Notices*, 2016, 2016 (8), pp 2320–2375. doi:10.1093/imrn/rnv195