

Low-CO₂ Research Papers



<https://tcs4f.org>

Abstract

The ‘low-co2 research paper’ initiative has been launched in August 2025 by TCS4F. The current version is v1. The goal of the initiative is to advertise the low environmental impact of a research work. This document presents the initiative and explains how authors can join the initiative.

1 The initiative

Note: For immediate use, go to Sections 2 and 3.

Referring to the low-co2 research paper initiative (<https://tcs4f.org/low-co2>) means that one agrees with the following statement:

Low-co2 research paper statement (v1): In recognition of the climate crisis as one of the defining challenges of our time, the authors of this work affirm a fundamental ethical principle of environmentally responsible scholarship: the necessity to reduce the carbon footprint associated with academic research and its dissemination. In particular, no plane travel was used specifically to prepare or present this paper.

Everyone can refer to this initiative in a paper or in a presentation, subject to the following rules:

Low impact. The research and its dissemination required a significantly low carbon footprint compared to other similar works in the field.

Acknowledgment. In a paper, the low-co2 glyph (©) should be used followed with the sentence “*This is a low-co2 research paper: <https://tcs4f.org/low-co2-v1>.*” (with proper version number). In a presentation, the low-co2 logo with the text should be used.

Transparency. The acknowledgment should come with a *statement of impact*, which is a short description of how the research was conducted in terms of greenhouse gas emissions and other environmental impacts. The statement of impact can be omitted in presentations.

2 1-minute howto for L^AT_EX papers

Download the zip file (at <https://tcs4f.org/low-co2>) and decompress it where it can be found by L^AT_EX (the easiest way being in the directory of the tex sources), then load the package in the preamble of your document:

```
\usepackage{lowco2}
```

and insert the following in the proper part of your document (such as in the acknowledgments), and with the proper version number (see <https://tcs4f.org/low-co2> for the latest version, which is v1 as of this writing):

```
\lowcotwo\ This is a low-co2 research paper: \lowcotwourl[v1]. This research  
was developed, written, submitted and presented without the use of air travel.
```

which should display as:

Ⓢ This is a low-co2 research paper: <https://tcs4f.org/low-co2-v1>. This research
was developed, written, submitted and presented without the use of air travel.

The statement can be refined depending on the situation. See below.

3 1-minute howto for other documents

Download the zip file (at <https://tcs4f.org/low-co2>) and decompress it. Insert the following in the proper part of your document (such as in the acknowledgments), and with the proper version number (see <https://tcs4f.org/low-co2> for the latest version, which is v1 as of this writing):

Ⓢ This is a low-co2 research paper: <https://tcs4f.org/low-co2-v1>. This research
was developed, written, submitted and presented without the use of air travel.

To display the glyph, use one of the following files of the zip file: `glyph-low-co2.pdf`, `glyph-low-co2.svg` or `glyph-low-co2.png`. If possible, the url should be clickable and link to the proper address.

4 Resources

The graphical resources can be downloaded at the address <https://tcs4f.org/low-co2>.

- The directory `low-co2-resources` contains in PDF, SVG and PNG formats:



glyph-low-co2.pdf



glyph-low-co2-bold.pdf



logo-low-co2.pdf



logo-low-co2-research-paper.pdf



logo-low-co2-research-paper-blue.pdf



logo-low-co2-research-paper-colorful.pdf



logo-tcs4F.pdf



logo-tcs4F-short.pdf

In order to include them in a \LaTeX file, it is sufficient to load the `graphicx` package by putting in the preamble of the file `\usepackage{graphicx}`). Then, the images can be included by using `\includegraphics{name of the file.pdf}` at the proper place in the document. Use the optional parameters `scale`, `height` or `width` if necessary.

- The \LaTeX style file “lowco2.sty” (`\usepackage{lowco2}`) defines the macros

`\lowcotwo[optional scale]`

that displays the glyph, either in its thin form ($\text{\textcircled{CO2}}$) or in its bold form ($\text{\textcircled{CO2}}$) for size 2cm and above. The two variants can also be forced using `\lowcotwothin` and `\lowcotwobold`. Note that these macros are compatible with color change (as opposed to including the images above), and they only require the `lowco2.sty` file to be accessible.

The macro

`\lowcotwourl[optional version]`

provides the clickable url to the webpage. The latest version of the “low-co2” initiative as of this writing is v1. You can check what is the latest version at <https://tcs4f.org/low-co2>.

5 Frequently asked questions

What is a typical statement of impact? A minimal statement, in the context of theoretical computer science where the use of plane travel is the most impactful, would be: This research was developed, written, submitted and presented without the use of air travel. To give more details, one can add for instance: All research visits were done by train, and the other collaborations were conducted remotely using digital communication tools.

Does my work comply to the low impact rule? You are judge of it. The statement of impact should clarify it. Some special cases are developed below.

Only one of my coauthors did take the plane, does it still comply with the low impact rule? The general answer is no. As an exception, if the plane trip was for a long-term visit (at least one month seems a reasonable lower bound), this is up to your judgment. At any rate, the declaration of how the research was conducted should mention it nominatively, for instance: This research was conducted during a three months visit of X at Y. Other than that, plane travel was not used for its development, its writing, its submission or its presentation.

Should we mention the low-co2 research paper initiative when submitting a work for review? The low-co2 research paper statement is not related to the scientific quality of the contribution itself. Thus, it should not be used as an argument in a scientific evaluation process. For this reason, the recommendation is to not mention it when papers are submitted for reviewing.

In which research fields can low-co2 research paper be used? The initiative is from the TCS4F group (<https://www.tcs4f.org>) which covers the field of theoretical computer science. However, the initiative makes sense across all research communities, and can be used directly as such.

You are also welcome to create similar initiatives to this one but adapted to your research community. Feel free to use the name “low-co2 research paper” (or a variant thereof), but please use a different logo and different URL. (We would appreciate, however, if you would link back to this initiative, and keep us informed.) The description of the rules should also be updated to be consistent with the habits of your community.

Who enforces these criteria? The low-co2 research paper initiative is from the TCS4F group. No control is made in order to verify if the works mentioning the initiative actually comply with its requirements. This is a tool offered to the research community, and the authors are responsible of the correctness of what they declare.

Are there other related initiatives acknowledged via scientific papers? Examples of similar initiatives include:

- The use of badges to advertise the reproducibility of research, e.g., by ACM <https://www.acm.org/publications/policies/artifact-review-and-badging-current>
- The “Camille Noûs” initiative https://en.wikipedia.org/wiki/Camille_No%C3%BBs
- The practice of acknowledging shadow libraries; see, e.g., <https://academia.stackexchange.com/q/41946>