Plant Functional Traits Courses
Data Sharing, Usage, and Authorship Agreement

This Data Sharing Agreement regulates data management, availability, usage, and ownership of (i) data collected during the Plant Functional Traits Courses (PFTC) and (ii) other data that will be used during these courses. Note that each PFTC builds on and adds to datasets collected by previous PFTCs and local research projects, with additional data right holders and associated agreements.

Each PFTC is part of the PFTC course series (https://plantfunctionaltraitscourses.w.uib.no) which has been running since 2015, funded by various Norwegian Research Council and Norwegian Directorate for Higher Education and Skills programs. The PFTCs are led by PIs Vigdis Vandvik and Brian J. Enquist, supported by the core team Aud H. Halbritter, Marc Macias-Fauria, Brian S. Maitner, Sean T. Michaletz, and Richard J. Telford. These are collectively referred to as the 'course leadership' below.

Each PFTC has a set of group leaders who provide expertise in and have responsibility for specific methods used by the different student groups in the course, and local scientists who provide expertise in and have responsibility for the study system and/or any experiments the course collaborates with. These make up 5-10 individuals per course and are referred to as the 'group leaders' and 'local scientists' below. The course leadership, group leaders, and local scientists are collectively referred to as 'instructors' below .

The goals of the PFTCs are fourfold: (i) offer training in state-of-the-art plant functional trait-based research methods, (ii) collect, curate, and openly share high-quality plant functional trait and associated data through data papers, (iii) collaborate with local scientists to build on and augment existing research in the study systems or experiments, and (iv) analyze course and associated data for collaborative research and publications. The data sharing agreement ensures course and local staff and students' rights and integrity towards all four goals.

All PFTCs collect the following core datasets:

      I.   Leaf functional trait data
    II.   Leaf photosynthesis data
   III.   Ecosystem CO_2 flux data
   IV.   Additional site, climate and vegetation characteristics

In addition, each PFTC collects data related to specific course projects (e.g., remote sensing, below-ground traits, leaf or vegetation reflectance, etc.) and leverages exiting data from the sites and study systems (typically local climate, vegetation, and experimental setups and associated data).

I. Data collection, sharing, management, and usage agreement

- All PFTC students and instructors agree to follow the data gathering protocols approved for each subproject and to collect, record, and report high-quality research data.

- Relevant existing data and code from previous PFTCs is or will be made available to the PFTC students and instructors for exploratory analyses and for use in approved manuscripts (see below).

- Relevant existing data and code from the local scientists' previous research or educational projects in the field sites used by a PFTC will be made available to the PFTC students and instructors for exploratory analyses and for use in approved manuscripts upon case-by-case agreements with the local scientists (see below).

- All data and code generated during a course- can be freely used in the course work and in reports and publications from the course.

- No PFTC or other data and other information made available to the participants from the PFTCs during their pre-course, course and post-course work can be used, shared or presented outside that PFTC, unless this has been explicitly agreed with the course leadership (such agreements are made on a case-by-case basis with the PFTC PIs).

- No local site data or other information made available to the course by local scientists should be shared or presented outside that PFTC, unless this has been explicitly agreed with the local scientists (such agreements are made on a case-by-case basis).

- The PFTC PIs, on behalf of the course instructors, regulate the usage of course data in downstream and cross-PFTC research publications.

- Course groups, students, instructors and other collaborators are encouraged to propose research using the data collected in their course (see [Proposing a manuscript](#) on the Alumni pages on https://plantfunctionaltraitscourses.w.uib.no). Participants should aim to minimize overlap with ongoing publications, but in the event of disagreements over publications, PFTC PIs will make a final decision.

II. Authorship rights to reports and downstream publications
- Authorship based on PFTC data follows an "opt-out" policy. All course participants who have contributed to two or more of the authorship criteria detailed below for any specific downstream publication or product qualify as co-authors. This will be considered in a case-by-case manner.
    - All PFTC instructors and students have co-author rights to the course data paper from their course
    - PFTC students have co-author rights to the data collected as part of their PFTC project
    - PFTC instructors have co-author rights according to their contributions to the overall course and group projects
- Any usage of PFTC data downstream must be explicitly cleared with the course leadership (on a case-by-case basis with the PFTC PIs).
- PFTC instructors' and students' authorship rights to reports and downstream publications based fully or in part from the PFTC data are regulated by international research ethics standards (cf. the [Vancouver Protocol](#), the [Norwegian National Research Ethics Committees](#), and the [CRediT – Contributor Roles](#) [Taxonomy](#)).
- In particular, contribution to at least two of the following CRediT contributors' roles to be included as an author of a report or publication based on the PFTC data:
    - (i) Funding acquisition, Project administration, Resources, Supervision,
    - (ii) Conceptualization (both course and project), Methodology, Software
    - (iii) Investigation (i.e., data collection)
    - (iv) Data curation, Validation,
    - (v) Formal Analysis, Visualization,
    - (vi) Writing – original draft, Writing – review & editing.
- Additionally, all authors must critically review the text and approve submission of final drafts of papers.
- All authors shall understand and be able to defend the central arguments, methodology, and conclusions of the paper.
- Authorship order will be based on the amount of contribution, alphabetically within groups, and with group leaders last for group projects and PFTCourses PIs last for course-wide or cross-course projects.
- Corresponding authors should be the main author(s) of the papers along with one of the PFTCourses course leadership (for cross-paper and -course consistency).

III. Proposing a manuscript:

- If you have an idea for a manuscript, you should fill out a manuscript template (available at the [PFTC website internal pages](#)) to document your idea and "reserve" this research idea. An example file is available [here](#). Note that it is important to fill this out as completely as possible, and it is especially important to identify and minimize potential conflicts or overlaps with pre-existing manuscripts. Be sure to read through other manuscript files to identify possible conflicts. Existing manuscripts take priority, but participants should be accommodating where possible.
- Proposed manuscripts will be assessed by the PFTC PIs and core team, and when they are approved the work can move forward.
- **Dead manuscripts:** Manuscripts which have not been worked on for 12 months or more (as recorded by Github or Google Docs changes) may be taken over by another lead author, as it is in everyone's interest to progress. If you are leading a manuscript and see that you will not be able to progress within a reasonable timeframe, please inform the PIs and suggest a way forward. The PIs can also relegate to a new lead author, in communication with the author(s). Exceptions will be considered on a case-by-case basis. A valid exception is if you are waiting for data that is being processed.

Modifications to this agreement:

This agreement may be modified or updated if needed. Any such modifications or updates must be made in agreement between the PFTC PIs and will not infringe on the data ownership or publication rights of any participants. All participants must be notified of any such changes via email. The participants have a responsibility to ensure that the PIs have access to a valid email address.

A course-specific version of this Agreement is signed by all course participants of each PFTC iteration. These Agreements expire three years after the end of each PFTC. The data from that PFTC will then be made openly available, usually under a CC-BY license.

We note that making data openly available does not invalidate authorship rights, which will continue to be based on the individual contributions to the research, as outlined by the criteria above. However, general downstream usage of the data as part of large, consolidated efforts beyond the PFTCs will generally not require all PFTC participants to be included as co-authors. As a rule of thumb, when PFTC data makes up >10% of the data for a research project, we expect to be contacted by the authors for collaboration.

By signing this document, I agree with the Plant Functional Traits Course Data Sharing, Usage and Authorship Agreement.

PFTC nr: …
Location: …
Date: …

Signature   …………………………………………………….

Printed Name   …………………………………………………….

Date and place   …………………………………………………….