



LEAP Ethics Plan

As climate modeling is a global effort, and improved climate projections will assist all people to better plan their adaptation to a changing world, LEAP will adopt an open model for all Intellectual Property. Appealingly, **LEAP's open-source commitments** (described below) **and utilization of observational data means that its deployment poses minimal ethical risk**. Rather, LEAP's primary ethical concern is responsible conduct of research (collaboration, authorship, mentorship). To ensure effective communication, LEAP will develop consistent training and a LEAP ethics handbook to communicate expectations and procedures, developed with input from across the multi-institutional team.

Annual Research Ethics Workshop. To supplement the extensive RCR and ethics trainings provided by its partner academic institutions, LEAP will hire an adjunct professor trained in bioethics and the responsible conduct of research to design and execute an annual day-long *Research Ethics Workshop* addressing the complex issues arising in climate data science research. This workshop will focus upon the ethical issues confronting climate scientists today and into the future.

LEAP Ethics Handbook. LEAP will ensure a safe, welcoming, and harassment free-environment for all of its faculty, trainees, partners, and administrators. Recognizing that challenges can arise with respect to the nuances of responsible conduct of research (collaboration, authorship, mentorship) when working on a transdisciplinary and multi-institutional team, in Year 1, faculty, trainees, and administrators will develop a handbook that specifies authorship rules, expectations for collaboration, and mentorship plans. A clear procedure for asking confidential questions and receiving guidance in the case of concerns will be presented. Formal procedures and specific leadership contacts for conflict resolution will be detailed.

Intellectual Property: An Open-Source Model. LEAP will make its innovations freely available and widely disseminated at no cost, to the maximum extent possible. Accordingly, LEAP does not intend to seek legal protection (filing patents, copyrights) on any intellectual property developed. All project innovations will be publicly disclosed and published as soon as possible, with all underlying code made available for free. LEAP faculty will determine the most appropriate version of open-source licensing for each innovation, so that further use or development of project innovations by other parties will also be made freely available thereafter to the maximum extent possible. This is consistent with **NCAR's** long-standing model of open-source development of CESM, and with Pangeo's open-source model.

If LEAP leadership later requires a more nuanced approach to intellectual property management in order to ensure maximum potential social impact, LEAP's partner institutions will collaboratively adapt the existing intellectual property management plan. If and when this happens, LEAP is fortunate to span institutions with significant success and experience in managing intellectual property for the benefit of society. To accomplish this, LEAP will lean on **Columbia** Technology Ventures (CTV), which has a strong history of IP collaborations globally with top research universities. CTV holds title to intellectual property resulting from the use of **Columbia** resources, typically from the grant-funded research taking place in **Columbia** laboratories, and as such co-manages dozens of intellectual property portfolios every year. The University fully endorses the NSF's goals of sharing unique research resources arising from NSF-funded research within the scientific community. Each year, CTV manages more than 350 invention disclosures, 100 license deals, and 20 new intellectual property-backed start-ups, involving over 750 inventors across **Columbia's** campuses. CTV currently has over 1,200 patent assets available for licensing, across research fields such as biology, IT, clean technology, devices, big data, nanotechnology, materials science, and more. 45 full time staff and an additional 30+ graduate student interns provide broad support to the **Columbia** community and other stakeholders with marketing, legal (patents, contracts, etc.), business start-up help, and administrative tasks.