

Open Source Code and Intellectual Property

submitted by:

Stanley C. Solomon

Geospace Frontiers Section Head
High Altitude Observatory
National Center for Atmospheric Research
Boulder, Colorado, USA
stans@ucar.edu
303-497-2179

Summary:

Open source code is a good idea, but it cannot be mandated by government agencies at this time.

Disclaimer:

This is a personal opinion, not an institutional position.

- Open source works for some people, but not for everyone. It may work for research groups at government labs, federally-funded research and development centers, or large university programs, but not necessarily for independent researchers or small businesses. Our group provides open source community models, but that does not mean that everyone must follow suit.
- Open source does not imply support of the code, but sometimes it is implicitly expected. Again, this may work for large groups with stable funding, but not for an individual. Sometimes codes get passed around, hacked, and misused, and then people come back to the author with questions or blame. How is the individual researcher supposed to deal with this?
- Open source only works in an environment that respects intellectual property. For many of us, that simply means authorship, attribution, citation, acknowledgment, etc., but for some it may involve commercial considerations. It is possible to assert intellectual property rights in an open-source license, but difficult to enforce. In addition, limitations on use may be construed to imply that the code is not entirely unrestricted, which may cause problems with respect to the International Traffic in Arms Regulations (ITAR).
- In the current environment, it is simply not possible for a federal agency to mandate open source policies until ITAR restrictions are clarified. Some codes have no military application, which avoids many problems, but there are additional restrictions on *any* collaboration with five specific nations. Items that are openly available without restriction, and have no military application, are regarded as exempt from ITAR. However, restrictions on usage that protect intellectual property may interfere with that exemption. Large organizations can, in principle, implement mechanisms to prevent ITAR violations, but this may be beyond the scope of what an individual researcher or small business can support. Also, large organizations have access to attorneys who have specific responsibility for interpreting ITAR, but this may be beyond the means of an individual. Our attorneys currently have submitted enquiries to the State Department concerning interpretations that pertain to code and data repositories, but have not yet received definitive responses. Also, some codes, that would otherwise be open, have proprietary elements legitimately procured. How would an open source requirement deal with those? Until these issues are clarified, federal agencies cannot mandate that individual scientists assume legal risk.
- What about the design of scientific instruments? Does NASA intend to require publication of instrument design codes? Or is it implicit in the committee's charge that it applies only to model developers and data analysts? The current open *data* policy is analogous to an open *model output* policy. Open *source code* is analogous to open *instrument blueprints*. Since blueprints have been replaced by computer programs, instrument builders should follow the same rules as model builders.
- Given all of the issues, any open source mandate would have to make many exceptions, and hence would be applied unevenly, which would be unfair to researchers genuinely supportive of a collaborative approach to scientific development.
- By requesting white papers with a three-week deadline, over the winter holidays, the committee signals that it is not really interested in community input.