TOWARD COMMUNITY STANDARDS FOR SOFTWARE DATA MANAGEMENT IN PLANETARY SCIENCE.

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Introduction: Members of the Planetary Science community are being asked to consider new questions of software availability in the contexts of "open science" and "reproducible research." NASA's 2014 Research Opportunities in Space and Earth Science (ROSES) call contained at least one program that *required* dissemination of software products [1], and the 2015 call—in response to "NASA Plan: Increasing Access to the Results of Scientific Research" [2]—adds a new requirement for Data Management Plans which *may* include software [3]. Clear community standards for software sharing do not yet exist within Planetary Science, however, and it is time for software users and creators to start having open dialogues toward defining those standards.

Summary: Software is increasingly recognized in all scientific communities as both a first-order research product and, for many classes of investigation, nigh indistinguishable from methodology. Not only is publication of source code or otherwise making software and source code available important for modern research to be auditable and reproducible, but it serves as a way for future researchers to build on the work of their colleagues, potentially improving efficiency and the rate of scientific progress. It is also fast becoming a requirement of grants and publications. For historical, political, or structural reasons, other research communities have been openly and actively considering questions about software availability for years or decades, and we can learn from their decisions.

As a starting point for further discussion, we present trends in community standards for software sharing in other fields, particularly Astronomy, and responses to very common questions by scientists faced with the prospect of sharing their software. We also make suggestions for how historical approaches to data and knowledge sharing in Planetary Science can inform a community standard for software data management in light of these new requirements.

References: [1] NASA SMD, Solicitation: NNH14ZDA001N-PDART (2014). [2] NASA (2014). [3] http://science.nasa.gov/researchers/sara/faqs/dmp-faq-roses/ (Mar. 3, 2015).