

The Asclepias project

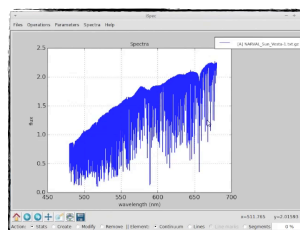
Sergi Blanco-Cuadrasma & the ADS Team

ADS Users Group Meeting - 11/2/2017



Research

To do research means to submit proposals, collect data by doing observations, develop software to analyze observations or run simulations, analyze the data and publish articles. Research is highly oriented towards publishing scientific articles, although they are not the only valuable outcome.

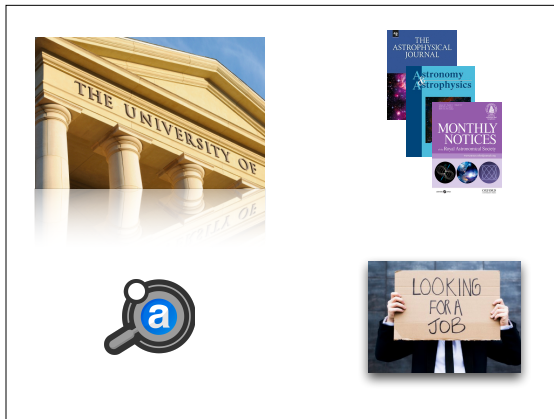


Determining stellar atmospheric parameters and chemical abundances of FGK stars with **iSpec** (Blanco-Cuadrasma et al. 2014a)

www.blancocuadrasma.com/s/

Software development

The software developed to do research has become a key aspect of the whole process. It's a time consuming effort that is required to derive scientific conclusions from our observations and hypothesis. Sharing the software makes our results reproducible and empower other teams and collaborators. Scientific software is a valuable outcome of the research process.





How is individual research evaluated?

When a researcher is looking for a new position, (s)he is going to be judged by different aspects but the number of articles and citations tends to be an important one (or even the most important). ADS is used as an authoritative source of information to build CVs or verify candidates' work. Unfortunately, released scientific software does not get the same level of attention and the time invested is not equally valued.




How is group research evaluated?

Institutions also have to justify how they have invested the money that the public administration, foundations or other sources have provided. ADS is used to prepare reports and to collect all the work done by a given team. Thus, again, released software tends to be undervalued although it can represent an important amount of effort, time and resources.

- Citation system is centered around articles
- Software papers
- Software records (e.g., ASCL)



The research cycle

The research cycle is more and more digital in nature. It produces a set of digital objects. Proposals, publications, datasets and software are examples of them. Scholarly currency focuses on citations and traditionally this is centered around scholarly publications. However, it is important to take the other digital objects into account as well, given the crucial role they play and the amount of effort that goes into creating them. In addition, in the case of software, so-called software papers are just a bad proxy for the actual software. These are just a few reasons why it is important to capture software citations. Of course it is also important for attribution. Give credit where credit is due. It is also important for reproducibility and to keep track of which software version is used the most, assuming that people cite correctly. Since capturing software citations is something new, identifying them accurately is a challenge.

There are essentially two ways to approach capturing software citations: adapt the system or change the system. Since changing the system is very hard to do, we focus on adapting the existing system.



ALFRED P. SLOAN
FOUNDATION

Asclepias

Enabling software citation and
discovery workflows, 2016



August Muench





Alberto Accomazzi
Edwin Henneken
Sergi Blanco-Cuadros



Lars Holm Nielsen
Krzysztof Nowak
Alexander Ioannidis

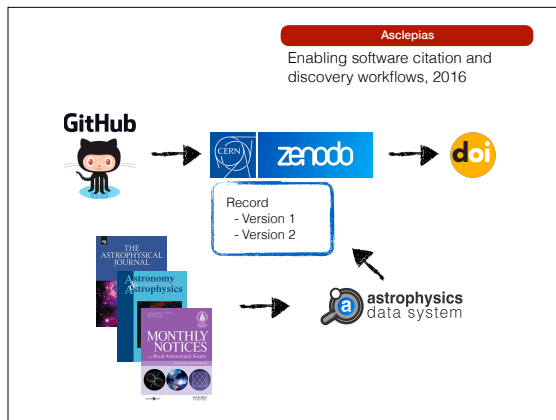




Thomas Robitaille

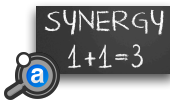
Asclepias Goals

Our goal is to promote scientific software into an identifiable, citable, and preservable object. We are focusing upon the needs of two of the most important roles researchers play in the scholarly ecosystem: authors of scholarly manuscripts and developers of scientific software. We are building a technical framework and promoting a set of social practices that will “fix” the problems associated with software citations.



Asclepias Expected Outcomes


- A. Implementation of versioned software citations in the literature following the Force 11 principles
- B. Addition of DOI based Software Citations to the SAO/NASA ADS index with versioning
- C. Expanded & improved Zenodo<=>repository links
- D. A system for the exchange of citation “event” data for reuse by other providers or indices
- E. Promoted Author/Journal, Developer, Reader, and Software User workflows to guide the citation and reuse of software used in the literature



Asclepias

Enabling software citation and
discovery workflows, 2016

- New tech and workflows
- Create a webhook service to emit events
- Adaptable to other sources (e.g., data)



Implications for ADS

Within the confines of Asclepias, the ADS will develop internal processes to capture and index software citations and an external process, the webhook service, that will emit events to which other services, in particular the software broker, can subscribe. As a nice piece of spin-off is that the webhook service can also be used internally, within the new ADS architecture.

ADS wants to continue being a leader in our discipline and an example for others. The Asclepias project was designed to be a model that can be easily applied to other research domain.