Why Publish? and the Editorial Process

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Abstract This paper summarizes the reasons why publishing astronomical observations is valuable for the observer and the community, and provides a description of the publication process from the submission of a paper to a journal, through its acceptance, and the final journey through the publication process to produce final electronic and paper versions.

1. Reasons to publish

Most people have heard the mantra of the academic world "publish or perish." This may be true for professionals at major research universities, but amateur astronomers and professionals at small teaching colleges are not so compelled to publish their work. While the accumulation of publications does not normally make an astronomer rich and/or famous, there are a few exceptions, like George Abell, who wrote the first widely used astronomy textbook, and Carl Sagan, who wrote many popular as well as scientific books. From my personal viewpoint, the main reasons for any astronomer to publish are the following:

First, publishing allows information to reach a large audience. Instead of just sharing observations with family, friends, or local club, publishing makes an individual's results available to hundreds to thousands of readers. The major astronomical journals have 500–1000 institutional subscribers and several hundred more individual subscribers.

Second, publication creates a permanent record for future users. Instead of having data stuck in a drawer, or on a personal CD, a journal ensures a lasting archive, with data transferred to the latest archival medium as technology advances. Thus, data can be used far into the future, which is especially valuable for variable star research, where long term records of behavior of peculiar stars are sorely needed.

Third, publication often leads to additional useful contacts with the astronomical community. When a reader finds an article about a star of particular interest, they can contact the observer for more information or future observing campaigns.

Finally, the publication process enables objectivity (an essential part of science) that comes from checking each other's work in a public forum.

2. Where to publish

Once the decision is made to publish, the next question to consider is the best place for the particular research accomplished. For AAVSO members, the *JAAVSO* is an obvious journal to consider; it has no page charges (except for unsolicited papers submitted by non-members), and there are no specific text formats to learn. Another alternative with no page charges is a publication from a conference, but in that case, the meeting must be attended with a presentation of a poster or talk. Popular astronomical magazines such as *Sky & Telescope* or *Astronomy* take articles but they are usually by invitation. The *Information Bulletin on Variable Stars* (IBVS) is a good possibility for short reports. The main U.S. astronomy journals (*Astrophysical Journal*, *Astronomical Journal*, *Publications of the Astronomical Society of the Pacific*) all have page charges of about $100 per page. The European journals (*Astronomy and Astrophysics*, *Monthly Notices of the Royal Astronomical Society*) provide journals without page charges (for Europeans only in AAp, for everyone in MNRAS).

3. The editorial process

Small journals such as *JAAVSO* and *IBVS* generally have fewer technical requirements. Here, the requirements and process for the three main U.S. journals that are all handled by the University of Chicago Press (UCP) will be described.

The first part of the publication process is having the paper accepted. To insure that this is the case, the following points should be met.

The first rule is to take good data so that there is no question about the quality of the observations and the associated error bars. These data must lead to a scientifically new result in order to be publishable. This means that the current data cannot duplicate or merely confirm an existing result—the data must reveal a new finding or conclusion. Once this is clear, the paper can be written in an acceptable format. The U.S. journals accept both LATEX and WORD documents, although the page charges are higher for WORD, as that format is not as easily transformed into the format required by the publishers. The LATEX used by the journals is a specific package called AASTEX which can be downloaded from the home pages of each journal. Each journal contains links to author information pages specific for that journal which provide detailed instructions on how to format the paper, do the tables and figures, and references. The figures need to be in the format of encapsulated postscript.

Once the paper is complete, it is submitted to the Web Peer Review (WPR). This is a web-based common system for all three journals, although the upload is to a specific journal. UCP is the publisher of all three U.S. journals. The address to access WPR is: http://mss.uchicago.edu/journal/ where journal is ApJ, AJ, or PASP, respectively, for each of the three journals. WPR will ask for title, author, correspondent address, name of individual responsible for page charges, abstract, and then ask for the file name of a *tar* file that includes the LATEX file and all figures or the individual

files from the author's computer. WPR converts the uploaded manuscript and figure files to *ps* and *pdf* versions of the complete paper and posts the results on the web so they can be accessed by the journal editor and the reviewer. If the paper is in the optimum LATEX format and the files upload correctly, the paper immediately passes the manuscript check and is available. If there are problems, the author is contacted by the UCP staff.

After the Editor is notified that a new paper has arrived and was processed correctly, (s)he chooses a reviewer, and sends out an email request through WPR. If a "yes" answer is returned, the access is sent to the reviewer via a password. In an ideal world, the review arrives in about two to three weeks. The reviewer comments are then sent to the author and the author revises the paper (generally taking one to two months). The author is also asked to respond to each of the comments made by the reviewer in terms of what changes were or were not made. The revised paper and comments are then uploaded through WPR and the reviewer is given access to both. This starts the review loop again. Many papers are finished after one revision but some can take two or three passes through revision. Once the reviewer agrees the paper is acceptable for publication, the editor accepts it and notifies the author, who can then post it on ASTRO-PH. Although authors can post to ASTRO-PH at any time, the proper etiquette is to wait until all errors are found and corrected during the review process and the paper is accepted for publication. This minimizes the downloading of incorrect information by readers.

It may be helpful to know some of the typical questions for reviewers: Does the article contain significant new results/analysis? Is the paper written with maximum conciseness? Could the order of presentation or English be improved? Are there any comments or criticisms that would help the authors to improve the paper?

Once the paper is accepted by the Editor, all the publishing is handled by UCP. They convert the AASTEX to *sgml*, which is the data format for the electronic archive. The figures are prepared (checked for size, rotation) and the *ps* is turned into *eps*. The copyeditors check the style, spelling, grammar, references, and insert links. The files are sent to a vendor and are made into proofs and the pages are posted on the web. The author is notified the proofs are ready and can be downloaded. If the copy editor had questions for the author, they are listed on the proofs as well. The author has forty-eight hours to note changes on the proofs and to send in the changes by email or fax. After the proofs are accepted as is, or changes are noted, the final *sgml* is translated into *html*, *ps,* and *pdf* for the electronic edition and the proofs are sent off to the printer. The electronic version of the paper is posted as soon as the journal issue for that month is ready and the paper version is mailed out several weeks later to subscribers.

4. Recommendations

From my experience as one of the scientific editors of ApJ and the primary Editor of PASP, I can provide some general recommendations to insure a happy

outcome for a submitted paper. The first is to be familiar with the literature and what has been done in the past in the field. The most common reason for rejection of a paper is insufficient new science. In order to do new science, the author must know what has been produced already and put the new result into the context of existing data. The second suggestion is to work in a collaborative effort to maximize talents. Professional astronomers often work in groups, with observers taking the data and theorists running models. It is good to be part of a group like this in order to make the best use of data obtained. Third, to catch any and all errors, including both scientific and grammar errors, have several people read the paper prior to submission. It makes it easier on the reviewer and the authors if the paper is as perfect as possible when submitted. Keep in mind that the vast majority of reviewers are taking time out of their own busy schedules to help in improving a paper to the best of their knowledge. It is important not to give or take reviews personally. Authors are asked on submission if there are any people that should not review the paper due to conflicts of interest or personal grudges. These requests are honored and reviewers will also identify any conflict if one is missed by the editor. Differences of opinion can exist and a second opinion can usually be obtained upon request. But if two people find similar problems, it is usually a real problem. Reviewers can be very helpful in improving papers and insuring good science comes out in the journal. Finally, enjoy the collaboration with other observers, theorists, and publishers on the path from observations at the telescope to final printed paper in a journal—the journey can be as much fun as the final outcome.