

# Open Science and Its Implementation: Publishing January 11, 2025

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AMERICAN ASTRONOMICAL SOCIETY



## January 2022 - The AAS Journals adopted a Gold Open Access Model

- Why did we do it?
- How did it affect our journals?
- What are the drawbacks?
- To what extent can we apply our experience outside the astronomical community?



# Why did we do it?

Context:

- The AAS Journals (ApJ, ApJ Letters, ApJ Supplements, AJ and PSJ) are a small publishing group operated on a non-profit basis by the AAS. They do not subsidize society operations.
- 2. The business model was a hybrid subscription/author publication charge (except for the PSJ which was APC and Gold Open Access).
- 3. We have only a few peer journals. The largest are MNRAS which at the time was subscription only & Astronomy and Astrophysics – which was a combination of subscription fees and institutional support. Neither of these are for profit publishing operations. Nature Astronomy was, and is, a for-profit operation relying on subscription fees as part of a large large publishing package.



#### Why did we do it?

Aspirational:

Dropping subscriptions and operating under a CCBY license means that our content is freely available to scientists everywhere. Granting access to people without institutional affiliation or affiliation with institutions without the resources to pay for a subscription, enables broader participation in, and appreciation of, astronomical research. It is consistent with the goals of our society, which include the mission to spread the knowledge of the universe to everyone.

Reactionary:

The widespread use of Sci-Hub and the ArXiv means that pay walls do not exist in any meaningful sense. In astronomy the latter is more important, but surveys suggest that in other fields Sci-Hub is used even in preference to library access, because the user interface is better.

We are a small publisher and financially pressed libraries find it easier to cancel the AAS journals than other journals that are part of a large package deal.

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# How did it affect our journals?

- The existence of ADS (which tends to conceal the existence of subscriptions) and the ArXiv (which is where most astronomers first encounter a paper) the astronomical research community did not change their reading habits appreciably. *Downloads from the journals have increased by a factor of ~5.*
- The existence of high publication fees discouraged submissions at first. Our 2022 submissions were level and submissions fell by a several percent in the first half of 2023.
- At that point MNRAS went to a similar business model, imposing APCs for the first time.
- Our submissions are currently running about 40% above the 2021/2022 rate.

### What are the drawbacks?

- Access! If we charge for every manuscript then entire countries will be shut out of our journals, and by extension all high impact international journals. This model requires a generous publication support budget – essentially requiring the haves to subsidize the have-nots. We currently budget about 15% of our total revenues to publication support.
- Money! This switch means that funds that used to flow through libraries now has to flow through researchers. These are not fungible sources of money. We do not have the staff to negotiate institution-level agreements. We have a few countrywide agreements coming into effect.



#### Broader lessons?

- Astronomy was more open before this transition than most fields, so impacts in other fields are likely to be more dramatic.
- The funding agencies (internationally) are in the position of reacting to this transition and doing so slowly. The longterm funding picture for publishing is still not clear. Ideally it would be better for individual researchers to be more removed from the mechanics of funding publications, but that's not where we are.
- Consequently, the transition to Gold Open Access has driven even greater consolidation in scientific publishing as societies have decided that the only way to manage the risks of open access is to turn the problem over to large publishers. Not true, so far, in astronomy.



Why did we do it?