The mathematical sciences and embargo periods

1. Embargo periods of shorter than 12 months represent a risk to the American Mathematical Society (AMS). 70% of AMS revenues come from publishing activities, including subscription revenues from books, journals, and the database MathSciNet®. AMS revenues are currently just over $30 million, and surplus funds go directly back into our programs. If subscription revenues were to evaporate, the ability of the AMS to provide services and programs that fortify the US mathematical sciences community would likely also evaporate.

2. The culture of mathematics is very different from other scientific fields.
   a. Approximately 25% of AMS authors receive research funding from a federal agency, with the result that there are limited funds available for Gold Open Access (article processing charge model) publishing.
   b. The intellectual property of a mathematics article lies in the article itself, rather than the article being a report of an experimental study, and these articles are as valid today as they will be in 30 and even 300 years.
   c. The article of record published in a journal of record is important for a mathematician's progress in the field, for example in securing tenure and further grant funding. The article of record coexists with preprints in progress hosted on arXiv¹, and mathematicians value the complete ecosystem of preprint-to-published-article-of-record.
   d. Advances in mathematics occur more slowly than in many other science fields. According to a recent study on journal usage², mathematics is at the extreme for the life of journal articles. Across all subject disciplines, journal half-lives peaked between two and four years³. However, 17% of all journals had usage half-lives that exceeded six years, with mathematics journals at the extreme — 36% of the mathematics journals examined had usage half-lives exceeding six years.

3. The AMS suggests a differentiated approach to embargo periods. Varied embargo periods that acknowledge the valuable activities of non-profit societies, as well as the diversity of cultures among fields, will best suit a range of communities and types of business.

¹ https://arxiv.org/help/general
² http://www.publishers.org/usagestudy/
³ Usage half-life is defined as the time taken for a group of articles to reach half of their total number of downloads.