

Data Collecting and Opening “JAXA Tanpopo Mission 1” and Prototyping of recommendation function using DOI

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Tanpopo Mission 1 is the first Japanese astrobiology mission conducted outside the Japanese Experiment Module "Kibo" on the International Space Station (ISS), followed by sample retrieval and analyses on Earth. Tanpopo Project has series 1 through 4 at present, and Capture and Exposure experiments have been planned to be conducted in each series.

The capture experiment is an experiment in which small particles orbiting the ISS at high speed are captured using silica aerogel (ultra-low density glass) panels, and researchers in various fields analyze the retrieved small particles in the laboratories. In Tanpopo 1 (2015 - 2018), the aerogel panels were returned to Earth a total of four times, every one year, and analyses on the ground until 2021.

The capture experiment of Tanpopo 1 had been conducted on the ISS until 2018. In this experiment, a wide variety of “data” (captured samples, a lot of images taken in the laboratories, various data associated with each sample, and many products including academic papers) were generated. However, the various data produced have not been integrated and organized as of February 2022. Also, at the end of March of the same year, it is necessary to store the various data in DARTS (<https://darts.isas.jaxa.jp/index.html.ja>). In addition, astrobiology, the study of the origin of life on Earth and the search for life on other celestial bodies and moons, is a field in which researchers from all over the world are now attracting and participating, but there is still a demand to obtain much knowledge from researchers from various fields.

As one way to promote such cross-field activities, this study categorizes and organizes the DOIs of papers related to the Tanpopo Mission series by tags according to keywords.

Then, this study proposes the development of an application that will help researchers in other fields to connect to the field of astrobiology, and report on the results. Also, this study proposes a method to associate DOIs of theses with data to be stored in DARTS, and reports the results of the work to store the data.

As a preliminary step, this study will conduct data curation based on “Data Collecting and Opening “JAXA Tanpopo Mission 1,” which was acquired by ISAS” (Representative: Kyoko Okudaira), which was adopted in FY2021. The first task is to integrate the text data of all the samples into a single spreadsheet. The next step is to define the file structure and organize the image data.

In this conference, we will report on the results and present a prototype of a recommendation function using DOI.

Keywords: DOI, Tanpopo, Astrobiology, Curation