
Nearly 120 Years of Science History in Danger: The Collections in the National Astronomical Observatory of Japan, Mizusawa

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The National Astronomical Observatory of Japan (NAOJ), Mizusawa holds one of Japan's largest collections of historical scientific documents and instruments from the late 19th and 20th centuries. However, the absence of curators in NAOJ Mizusawa is now endangering the collections with deterioration, dispersion, and possibly permanent loss.

1. Introduction

The National Astronomical Observatory of Japan (NAOJ), Mizusawa possesses one of Japan's largest collections of historical scientific documents and instruments from the late 19th and 20th centuries in the fields of Astronomy, Seismology, Meteorology, and Timekeeping.

However, the collections are now endangered due to the absence of curators in NAOJ Mizusawa. Some items have severely deteriorated as a consequence of poor environment control. Some have been dispersed or misplaced due to lack of appropriate containers and shelves. Some have been lost without a trace since it was not uncommon in NAOJ Mizusawa to relocate some items to other places or institutions or discard them without keeping records of such acts.

By viewing the example of NAOJ Mizusawa and its collections, this paper aims to alert any astronomical observatories, which may sometimes become too unconscious of their privilege and responsibility to keep their historical heritage in good condition in order to make it accessible to the public and pass them on to future generations.

2. Historical Background of NAOJ Mizusawa

The history of the National Astronomical Observatory of Japan (NAOJ), Mizusawa dates from 1899, nearly 120 years ago, when the International Association of Geodesy (IAG) inaugurated the International Latitude Service (ILS) to investigate the polar motion of the Earth.

In order to execute this project, IAG located 6 observatories on the approximate latitude of 39°08' north, and the small town of Mizusawa in Iwate, Japan was selected as one of them. Thus, since 1899, the International Latitude Observatory of Mizusawa, which later became NAOJ Mizusawa in 1988, has been one of the international centers of Astronomy, Seismology, Meteorology, and Timekeeping to date [1] [2].

3. The Collections in NAOJ Mizusawa

With the abovementioned historical background, NAOJ Mizusawa holds an immense amount of the observational records produced not only in Mizusawa but also in other ILS observatories and a variety of observational instruments as well.

The collections include historical documents such as field notes, soot paper seismograms, weather records, maps, dry plates, albums, audio tapes, films, account books, official and personal correspondences, etc. Amongst them are some treasures of modern science history, such as the field notes taken in April 1899 in Potsdam, Germany, by Hisashi Kimura, the soot paper seismogram showing the seismic waves of the Great Kanto Earthquake in September 1923, and the astronomical dry plate photographed using the Floating Zenith Telescope in August 1939.

The collections also incorporate various historical observational instruments, including the Gautier-Prin Transit (before 1907), the Bamberg Visual Zenith Telescope (c.1926), the Floating Zenith Telescope (1938), the Danjon Astrolabe (c.1963), the Omori Seismograph (date unknown), the Riefler Pendulum Clock (1926), the Toyo Sidereal Clock (date unknown), and the Hewlett Packard Cesium Clock (c.1966–1973) [3].

These collections have irreplaceable value for those who study modern science history and the local history of Mizusawa.

4. Damage to the Collections

Despite the historical value of these documents and instruments, unfortunately, NAOJ Mizusawa has been too occupied with the latest astronomical research and has been unable to hire a museum curator to take care of the collections. The absence of curators in NAOJ Mizusawa has resulted in serious damage to some historical objects.

4.1. *Deterioration*

The absence of curators has left the storage rooms of NAOJ Mizusawa environmentally uncontrolled.

Spider webs, cocoons, dead insects and their excrements were prevalent in the storage rooms. High humidity and temperature in the spring and the summer fostered mold to grow on the surface of book covers (Fig. 1), dry plates, glass covers of observational instruments, etc. High humidity also induced so-called "silver mirroring" of dry plates, in which the silver ions migrate to the upper



Fig. 1 Some publications in the NAOJ Mizusawa's storage rooms are heavily covered with mold. The storage room photographed here has no air conditioner.



Fig. 2 The image of this astronomical dry plate in 1955 is completely damaged by silver mirroring. The storage room of the astronomical dry plates has no air conditioner, either.



Fig. 3 The important photographs of the former directors of the International Latitude Observatory of Mizusawa were found in an unlabeled cardboard box.

layer, leaving a mirror-like quality on the surface. The image of the astronomical dry plate photographed in 1955 is completely damaged by silver mirroring (Fig. 2).

This damage has degenerated some of the historical objects in NAOJ Mizusawa severely and irreversibly. Yet it could have been prevented by proper environment control.

4.2. *Dispersion and Permanent Loss*

Dispersion of the collections is another significant problem in NAOJ Mizusawa. Most items of the collections have neither appropriate containers nor shelves to be placed in or on. Therefore, relatively light and movable items, such as documents and photographs, are easily dispersed. They are often found in the least expected places (Fig. 3).

Permanent loss of historical objects is worse than their deterioration and dispersion, but is already happening. In 2007 and 2008, when the former Main Building was remodeled into Oshu Astronomy and Space Museum, some historical records

and instruments were discarded, but no list was made of those items that were disposed of. Now, we will never know what and how many items have been discarded. Some objects used to be relocated or discarded by the staff of NAOJ Mizusawa without keeping proper records of them.

Such dispersion and permanent loss could also have been prevented if proper storage management and cataloging had been done by a curator.

5. Summary

The NAOJ Mizusawa's collections reflect nearly 120 years of modern Astronomy, Seismology, Meteorology and Timekeeping. However, because of the absence of museum curators in NAOJ Mizusawa, they are in danger of deterioration, dispersion and possibly permanent loss.

To protect historical scientific documents and instruments of the collections from such perils, proper environment control, storage management, and cataloging should be done by professional museum curators.

References

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