O2.4-437

Present and Future of Seismic Patrimony Preservation Tutorial

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Observatori Fabra old archive

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How to improve? Learn from other archives.

IGN Geophysical Data Archive,
Toledo, Spain

Tokio. Earthquake Research Institute
(a) Archives of original smoked paper records
(b) microfilm of the WWSSN data

From Satake et al. (2020)

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How to improve? Learn from other archives.

Almería (ALM)


Ebro (EBR)

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What did we learn in the process?

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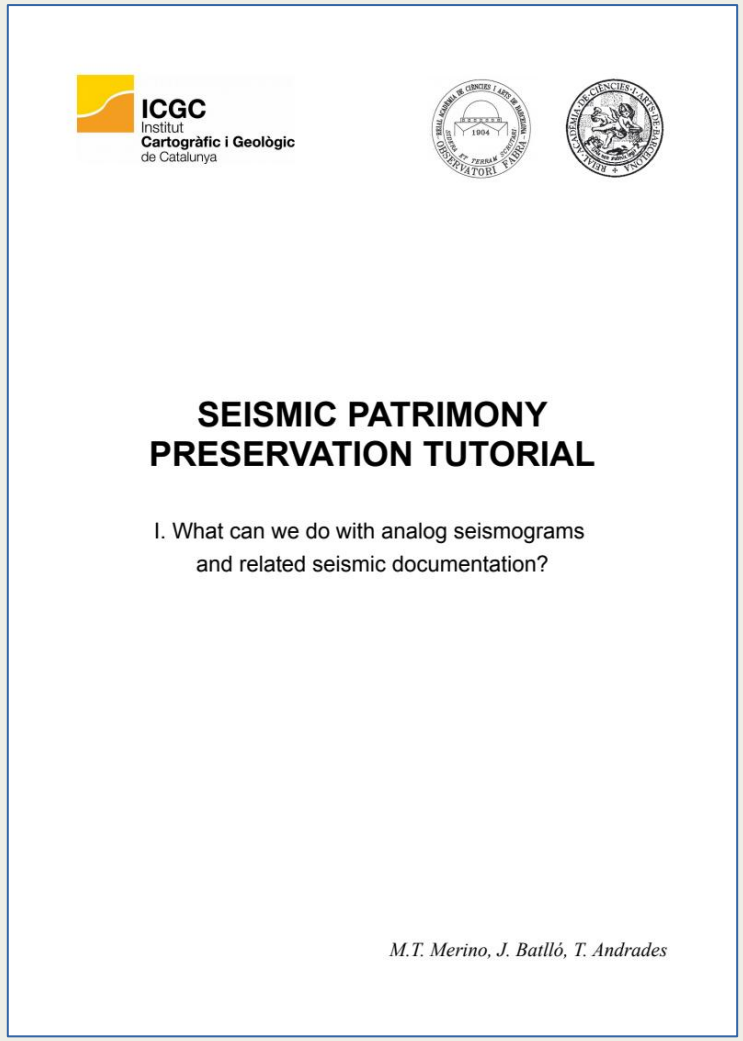
Seismic Patrimony Preservation Tutorial



The objective is:

- ✗ NOT to teach exact methodologies
- ✓ provide curators initial knowledge + tools to identify and manage the archive and problems

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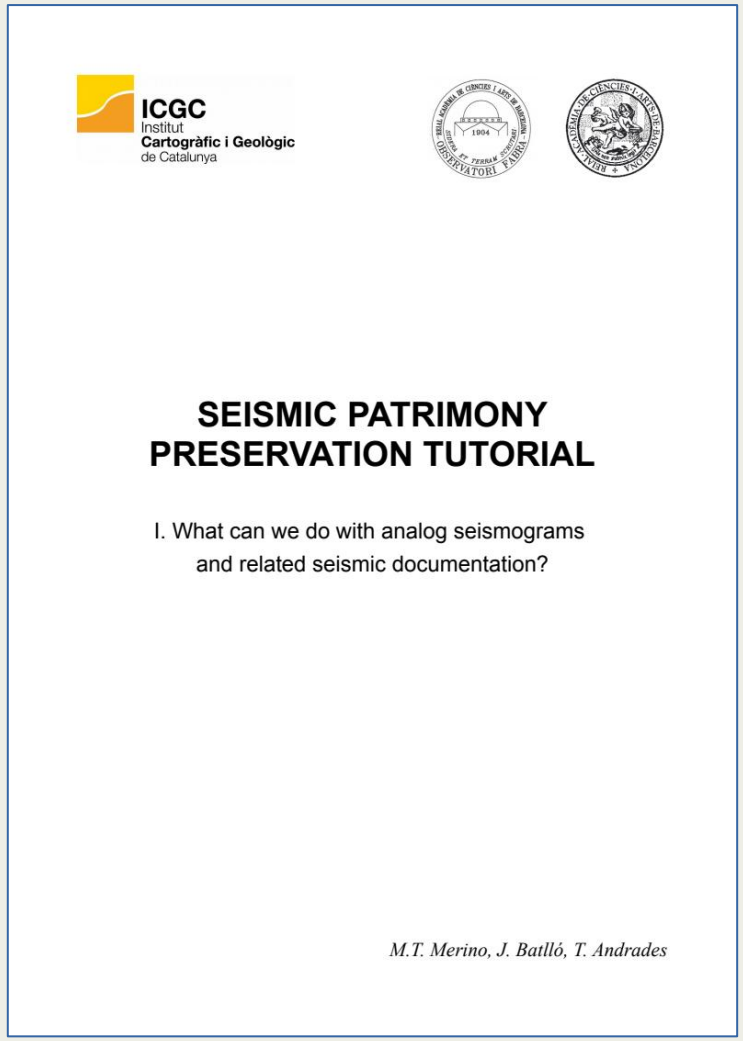
O2.4-437

Main constraints



- focused on analog seismograms in smoked, photographic or ink paper and their complementary documentation
- as simple and easy to start with as possible
- aimed at an audience without previous knowledge
- only basic commonly accepted questions to consider with some hints and suggestions
- in digital PDF to be easily available to as many institutions as possible
- with limited paper edition to interested audience with active bibliographic interchange with RACAB or ICGC.
- extension aprox. 50 pages

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O2.4-437

Table of contents

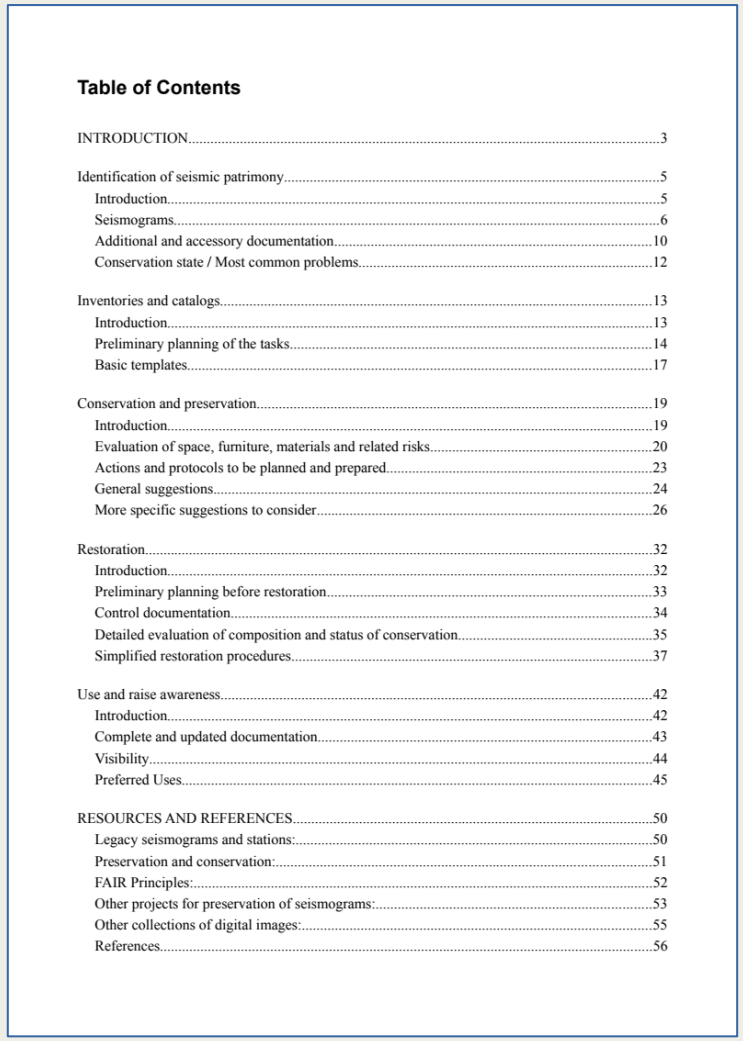

Table of Contents

- PROLOGUE
- INTRODUCTION
- 5 chapters:

1. **Identification of seismic patrimony**
   How to get started: What do we have and what condition is it in?
2. **Inventories and catalogs**
   What lists of items and related data do we need and how to get them.
3. **Conservation and preservation**
   How to and not to do best preservation with available resources.
4. **Restoration**
   Realize when, what and how it should/could or not be done.
5. **Use and raise awarness**
   How to best use it to avoid damage and risk of loss.

- RESOURCES AND REFERENCES

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M.T. Merino, J. Batlló, T. Andrades

O2.4-437

CHAPTER 3

CONSERVATION AND PRESERVATION

How to and not to do to best preservation with available resources.

Introduction

Preventive conservation is a discipline that is based on preventing deterioration through the relationship of heritage with its environment. The first essential step is to evaluate the space and the initial state of materials (seismograms, station books, etc.). Then consider and plan in detail the urgent minimum changes to solve the most serious problems detected. The rest of the changes or improvements that do not relate to problems that involve a risk to heritage will be considered, studied and subsequently valued more calmly and with much more planning according to the possibilities of each institution in a way that also fulfills the purpose and goals of its use and final visibility.

IMPORTANT

- Do not assume that all changes are for better. Studying how to maintain and/ or preserve optimally does not necessarily imply making significant changes or expenses. Sometimes it only involves basically assessing, recognizing and properly documenting protocols that have long existed with very small or practically non-existent changes.
- Possibilities and purposes for each archive and institution are very different. Not only in terms of its economic resources and planned activities, but also in similar previous experiences and interrelationships with other projects.
- Many difficult or impossible to recover losses and degradation could have been avoided with proper exploration, evaluation and planning, without great resources or costly interventions.

Actions and protocols to be planned and prepared

Before introducing any change, it is necessary to explore, consider, plan and explicitly document the current state and the reasonably expected objectives for each of most common conservation and preservation actions:

1. Environmental control.
2. Infestation Control.
3. Ordinary cleaning of spaces, furniture and storage.
4. Cleaning of seismic heritage, if necessary.
5. Access control and security.
6. Control of the planned activities/visits/uses.
7. Direct manipulation of seismic heritage.
8. Transport and/or temporary exposure.
9. Regular monitoring of deterioration.
10. Specific actions and urgent decisions in the event of incidents.

It is strongly advised to document at least ***when***, ***who*** and ***how*** for each of those topics. Also to revise them with a previously decided periodicity.

The resulting documentation of the initial state, the desired objectives and any revision of them should be kept along with the additional reports or documentation of any related incident that might arise. Not only to keep track of the progresses but also as useful data for example to detect recurrent problems or for be able to perform any possible future estimation of best resources distribution

Figure 9. Is prefereable to clean only the protective containers instead of the heritage itself. Only when it is really needed and simple/easy, mechanical cleaning could be applied to the heritage avoiding at all costs to damage or scratch surfaces or pieces using the softer option available. Using dry air (to avoid moisture when applied) gently applied from a reasonable distance (to avoid too much pressure or sudden change of temperature) could be used only if the material is not too fragile. Be aware that using any further instruments, liquids or other chemicals is not considered cleaning for preservation/conservation, but restoration instead (see next chapter).

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O2.4-437

They can be very **different in their physical constitution**.

Particular attention should be paid to identify as many of the following details as possible:

✓ **The type of media on which the registration was made.** The most common is to find one of the following:

- paper with inscription in ink (Figures 1a and 1b),
- smoked paper (Figure 1c),
- photographic paper (Figure 1d),
- thermal paper (Figure 1e),
- smoked glass (Figure 1f),
- glass or celluloid photography (Figures 1g and 1i),
- microfilm (Figure 1i),
- digital support (tapes, diskettes, cassettes) (Figures 1j and 1k)

✓ **The system with which the registration has been made on the physical support:**

- inscription by typographic ink (Figures 1a and 1b),
- alteration of the substrate by friction and subsequent fixation (Figures 1c and 1f),
- revealed or veiled (either positively or negatively) (Figures 1d, 1g and 1h),
- alteration of the substrate by a thermal needle (Figure 1e),
- analogue electromagnetic register (Figures 1d, 1i and 1j),
- digitized (whether from original analog or digital data) (Figures 1j and 1k)

✓ **Annotations and other additional marks**

➔ Places where its presence is detected with respect to the registration:
- above, next to, or behind the instrumental record (Figures 1a to 1e),
- on stickers or other glued substrates (Figure 2a),
- on additional papers, wrappers, filing cabinets or other preserved substrates attached to the seismogram (Figures 1i, 1j, 2b and 2c),
- on the creation and/or storage structure (whether analog or digital) (Figures 1k, 2e and 2f),
- on the same digital file via metadata, headers, order, or properties determined by the chosen format (Figures 1j and 1k),
- on another digital file or attached analog information (Figure 1k).

➔ Materials with which they have been made:
- pad/prints in ink (Figures 1b, 2e and 2g),
- manuscripts (Figures 1a and 2a),
- graphite (pencil) (Figure 2b),
- colored pencils (Figure 2g),
- ink (Figure 2f),
- marks or mechanical friction (Figure 2d),
- digitization or computerized automation (Figures 1j and 1k).

➔ Type of content and meaning (texts, drawings, etc.).

➔ Whether or not there is a risk of losing the connection between the mark and the record and/or content to which it refers in order to alter the order or form of the original file or archive.

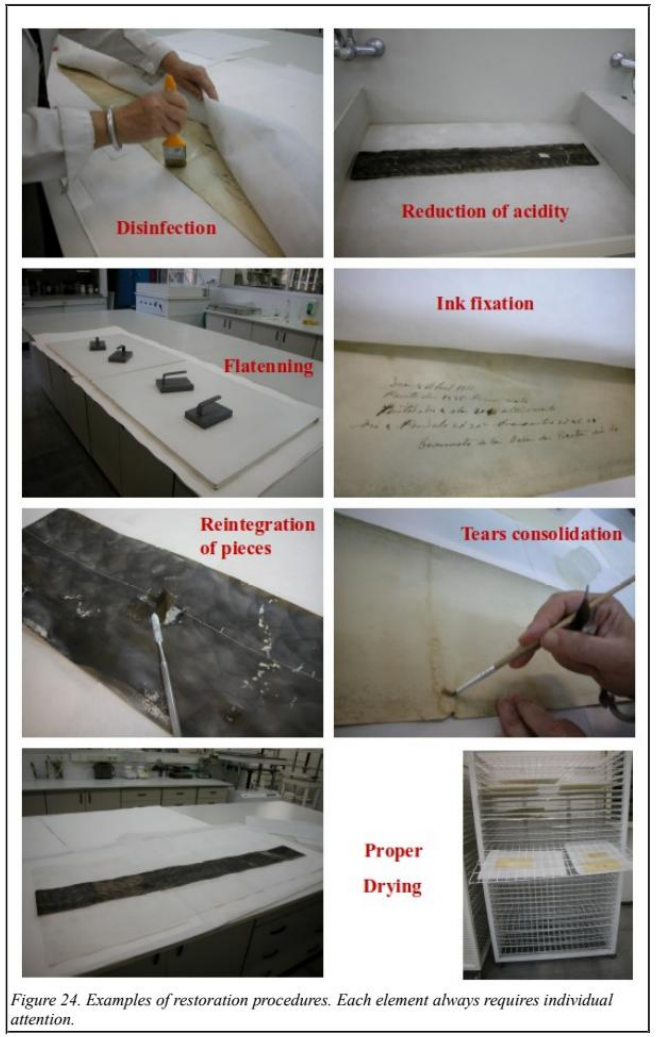

Figure 24. Examples of restoration procedures. Each element always requires individual attention.

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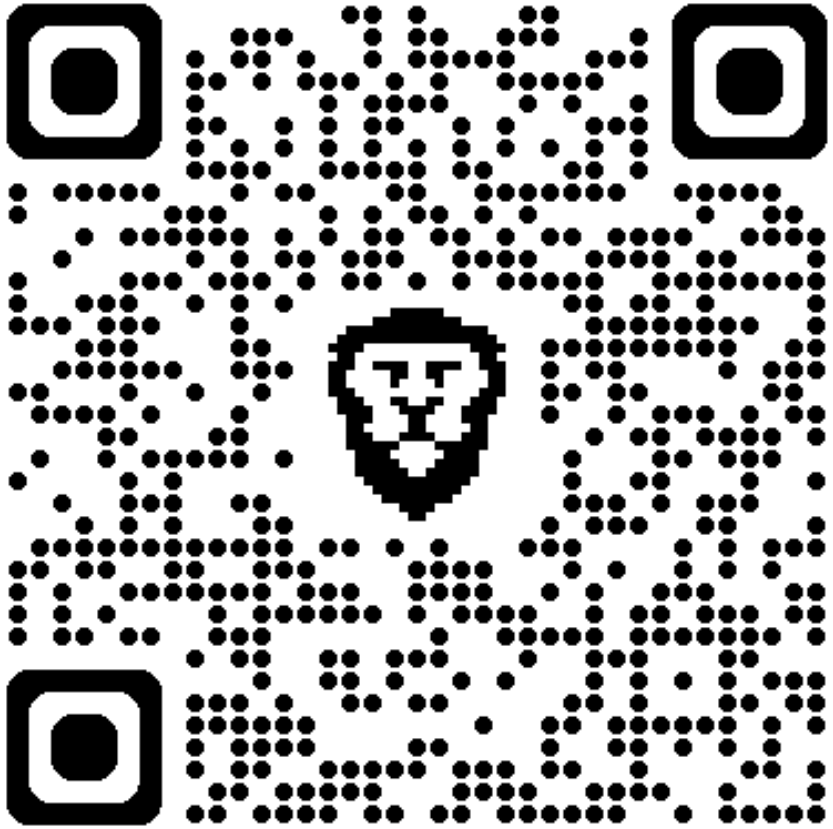
Freely available online

Last version available at:



Please send corrections/suggestions to:

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Next steps and decisions

Dissemination strategies:

- Limited paper edition
- Digital edition

- **Additional topics** in new chapters or tutorials:
  - Non-paper based records:
    - Microfilms
    - Records on glass
    - Magnetic tapes
    - Digital data
  - Old instruments and accessories

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O2.4-437

Thank you very much for your attention!