SATCULT Project: Good Practice Documentation Template

The application of satellite data in cultural heritage (CH) protection is still in its early stages, predominantly utilised by archaeologists. However, the SATCULT consortium has begun exploring its potential future uses in the wider CH area.

As part of an upcoming vocational training programme for CH practitioners , the SATCULT initiative gathers examples of Good Practices which show how satellite data can be used for the protection of CH including the benefits of accessing and utilising this data, and required skills for effective use. We are specifically interested in Good Practices from CH beyond archaeology.

The primary focus will be on desk research, collecting examples from European and international contexts with the assistance of Geoinformation and CH protection experts and practitioners. These examples will be analysed to determine the training needs of professionals and practitioners in CH protection and compiled into a compendium.

Please note filling this template requires knowledge to address properly the fields described throughout the survey. Although it is not long, it might take around 15 – 20 minutes to complete it thoroughly and properly.

A selected number of Good Practices, representing the working areas in cultural heritage, will be published in a European brochure and all Good Practices will be published on the SATCULT homepage and presented in the SATCULT LinkedIn group.

SATCULT:

Closing a knowledge gap by vocational training about satellite-based services in cultural heritage preservation

Erasmus+

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Name/Title of the Good Practice *

Hazard exposure map for cultural heritage of Museums and Monuments of Portugal, EPE (MMP)

Name of the organisation *

Museums and Monuments of Portugal, EPE

Type of organisation in charge of the Good Practice *

- ○ Cultural Heritage organisation
- ○ Cultural Heritage site
- ◉ Cultural Heritage -related public entity (Ministry, Prefecture, Municipality)
- ○ University
- ○ Research Institute
- ○ Earth Observation -related organisation
- ○ Geo-Informatics (Geomatics) organisation/company
- ○ Private Company
- ○ Άλλο: .....

Domain of organisation's activities/expertise *

- ◉ Cultural Heritage
- ○ Archaeology
- ○ Earth Observation
- ○ Geo-Informatics
- ○ Άλλο: .....

Contact Information and Organisation's Logistics

Respondent's contact details

Full name of the contact person *

Esmeralda Paupério

Email address *

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Telephone number *

+351964078906

Organisation's details

Country *

Portugal

City *

Lisboa

Address *

Palácio Nacional da Ajuda, Ala Sul, Largo da Ajuda, 1349-021 Lisboa

Information about the Good Practice

Please name below the *Country*, *City* and *District* where the Good Practice took place *

Portugal, entire country

Please provide below a *Google Maps link* or *GPS coordinates* to the Good Practice's location *

https://maps.app.goo.gl/fzfEzAWZeo2nndQn9?g_st=iw

Is this considered a sensitive* area ? *

*(protected, fragile, has restricted access, or located within a conflict zone, etc.).

Please elaborate further.

No

Who owns the cultural asset (ministry, other public body, private institution, none), on which the Good Practice was applied ? *

MMP, EP under the supervision of the Ministry of Culture

Date(s) or period the Good Practice took place *

Please insert below the period when the good practice held. (eg. 2019-2020, March 2020 – June 2021, etc.)

2024-2025

Description of the Good Practice *

Please describe how the satellite data were collected (please mention the repositories or services where you acquired them); how they were used in your project; which were the aims of your study; and why these data were useful towards your research goals. (character limit: 1500)

In the context of cultural heritage risk management, satellite data offers applications in both underpinning hazard and risk models and enabling real-time risk response. This is especially valuable for protecting cultural heritage assets, as integrating hazard maps with cultural heritage location data facilitates rapid identification of at-risk landmarks and informs targeted interventions. In the present best practice, for instance, the precipitation hazard model uses the Global Precipitation EXtremes (GPEX) dataset, which harnesses high-resolution satellite-based estimates and merges them with reanalysis data and gauge observations via the MSWEP dataset, ensuring comprehensive spatial coverage and refined assessments of extreme events. Similarly, wind hazard modeling is supported by the Copernicus European Regional ReAnalysis (CERRA), where atmospheric reanalysis combines historical observations—including satellite data—with short-range forecasts to construct a physically consistent depiction of past weather. On the other hand, the Copernicus Emergency Management Service (CEMS) leverages high-resolution satellite imagery and geospatial data in real-time disaster management for perils such as floods and wildfires, enabling rapid evaluation of affected areas and coordinated emergency responses that protect both cultural heritage and broader communities.

Why is this considered a Good Practice for making satellite data beneficial for Cultural Heritage ? (character limit: 1500) *

Using satellite data for disaster risk management in Cultural Heritage is highly beneficial due to its ability to provide consistent, wide-scale, and high-resolution observations. In particular it supports the development of risk maps and vulnerability assessments, offering critical input for preparedness and response planning. Importantly, it facilitates the documentation and monitoring of cultural heritage sites, contributing to their long-term protection and informed decision-making for disaster risk management.

Required skills section

Skills required to conduct the Good Practice *

Please reflect here which skills – e.g. technical, technological, social, heritage-related – are/were needed for the successful implementation of this Good Practice.

Successful implementation of this Good Practice requires a combination of technical, technological, and domain-specific skills. GIS expertise is essential for accurately overlapping and analyzing various spatial data layers. Equally important is a deep understanding of the natural phenomena that drive hazards, ensuring that risk assessments and hazard maps are accurate and relevant. Additionally, integrating heritage-related insights ensures that cultural values are safeguarded by aligning technical analyses with the specific needs of heritage protection.

Are/were there any technical skills required for this Good Practice that were not initially available within your organisation and had to be acquired or outsourced? *

- (●) Yes
- ( ) No

Please list the specific skills acquired or outsourced and describe their purpose (e.g. “I learned Python to automate the downloading and preprocessing of collected satellite data.”) *

GIS expertise, natural hazard risk modelling

Evidence of success *

Please describe the benefits they provide to the cultural heritage asset (e.g. a site can be protected from a hailstorm, looters can be deterred from illegal excavation, damage can be recorded online through international cooperation, etc.). (character limit: 1500)

It is beneficial to support the development of risk maps and vulnerability assessments, contributing to long-term protection and informed decision-making for disaster risk management in cultural heritage sites.

Available references for the Good Practice *

Please mention below if there are any derived publications, media reports or any other content that refers to the described Good Practice. Please include also a web link if available.

(character limit: 1500)

there is no reference

Please upload 2-3 images that concern the Good Practice. *
(each image cannot exceed the size limit of the 100 MB)

exposição_pluvio...
exposição_vento...
perigo_pluviosid...
perigo_vento - Es...
Προσθήκη αρχείου

Do you own the copyrights for these images ? *

- (•) Yes
- ( ) No

Should any form of media or outreach material will be created in the future, can we use them to advertise your organization and the CH asset with proper acknowledgement? *

- (•) Yes
- ( ) No

Please provide below the credits for the picture(s): *

MMP, EPE

Did you encounter any technical and/or technological challenges or issues associated with the implementation of this Good Practice? E.g. missing knowledge, doubts of colleagues, financial issues. *

To carry out this work, there was limited funding available to contract external expertise

Is there any potential for transferring this Good Practice to other cultural heritage organisations ? If so, please share more details. *

Yes, as long as hazard maps are available for a given region and cultural heritage is geolocated

Additional Information. Please include below any other information or experience you wish to share.

This work was carried out in cooperation with researchers of the Interdisciplinary Centre of Marine and Environmental Research and of the Faculty of Engineering, both from the University of Porto

The information provided will be used exclusively for the activities of the SATCULT project and within the rules and obligations defined by the GDPR rules. The EU General Data Protection Regulation (GDPR) regulates how personal data of individuals in the EU may be processed and transferred. *

- (●) I have taken note of this information and agree to the use of my responses within the SATCULT project.