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 *

Open-Access Remote Sensing Datasets for Monitoring Threats

Name of the organisation *

Cyprus University of Technology

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 *

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Telephone number *

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Organisation's details

Country *

Cyprus

City *

Limassol

Address *

Saripolou 2-8, 3036

Information about the Good Practice

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

Spain, Baltanás, Province of Palencia, Autonomous Community of Castile and León

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

https://maps.app.goo.gl/XJqqnwvL4jcCWWnd9

Is this considered a sensitive* area ? *
*(protected, fragile, has restricted access, or located within a conflict zone, etc.).

Please elaborate further.

Yes, Baltanás is considered a culturally sensitive area due to its historic underground wine cellars and rural landscape, which are fragile and vulnerable to environmental degradation.

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

None

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.)

November 2024 - April 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)

This good practice applied a unified methodology to assess and visualize soil erosion risk in area lacking ground-based monitoring. Open-access satellite remote sensing products were integrated with the Revised Universal Soil Loss Equation (RUSLE) within a GIS environment (ArcGIS Pro 3.4.1), enabling the development of a spatially consistent erosion risk model using visual programming techniques.

All RUSLE factors were derived from standardized European datasets to ensure consistency and accuracy. Rainfall erosivity (R) was obtained from GloREDa (ESDAC), soil erodibility (K) from SoilGrids (ISRIC), land cover and management (C) from CORINE Land Cover 2018 (Copernicus), slope length and steepness (LS) from ESDAC LS-factor data, and support practices (P) from ESDAC's mean P-factor dataset. Each dataset was accessed in January 2025.

Data were processed at a high spatial resolution (up to 5 m) using a standardized grid. The coordinate reference system was set according the study area UTM zone, ensuring geospatial accuracy. This approach proved effective in producing reliable, scalable, and comparable soil erosion assessments across different regions using only publicly available data.

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

This is considered a Good Practice because it demonstrates how open-access satellite data can be effectively used to assess environmental risks specifically soil erosion that directly threaten Cultural Heritage sites. By applying a standardized, replicable methodology using remote sensing and GIS, the project enables proactive monitoring and protection of heritage landscapes, especially in rural or unmonitored areas where cultural assets are vulnerable to gradual degradation. The integration of RUSLE with high-resolution spatial datasets provides valuable insight into erosion dynamics, helping decision-makers prioritize conservation efforts. This approach not only reduces reliance on costly ground surveys but also ensures that satellite data is translated into actionable knowledge for heritage preservation.

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.

Technical skills, technological expertise, GIS proficiency, remote sensing knowledge, cultural heritage awareness, spatial analysis

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.”) *

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)

Satellite data and GIS-based methodologies provide significant benefits for cultural heritage protection. By integrating remote sensing with erosion modeling (RUSLE), risks such as soil erosion, flooding, and land degradation can be identified early, allowing for targeted conservation efforts and reducing the need for reactive measures. These technologies also enable remote monitoring and documentation, allowing for the tracking of changes over time and fostering international cooperation through shared data. Digital mapping platforms raise awareness and make conservation efforts more accessible to local communities and global stakeholders. Ultimately, these approaches help safeguard cultural heritage sites by providing data-driven solutions for their preservation and management.

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)

None

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

cellar-town-pf-ba...

chimney-cellar-to...

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): *

Courtesy of the ARGUS Project – “A journey to Baltanás: Exploring Spain’s unique underground cellar complex”
Source: www.argus-project.eu

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. *

No major technical or technological issues were encountered. However, unlike other well-documented cases, Baltanás lacked specific references or prior studies, which made it challenging to compare or validate the approach. Additionally, the limited availability of localized datasets required reliance on broader regional sources.

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

Yes, this Good Practice has strong potential for transfer to other cultural heritage organizations. The methodology based on open-access satellite data, GIS, and the RUSLE model is replicable, cost-effective, and adaptable to various geographic and cultural contexts. It can support preventive conservation strategies, especially in rural or under-monitored heritage sites facing environmental threats like erosion or land degradation.

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

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.