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

Name/Title of the Good Practice *

Monitoring of Meadow Orchards

Name of the organisation *

Heidelberg University of Education - Research Group for Earth Observation

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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Organisation's details

Country *

Germany

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Information about the Good Practice

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

Neckarsulm, Germany

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

49°11'40.9"N 9°12'25.0"E

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

Please elaborate further.

No, it is well accessible and open to public

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

The land and the orchards growing there belong to the town of Neckarsulm

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.)

2025 - 2027

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)

The satellite data will be obtained from ESA's Copernicus Open Access Hub (Sentinel-2) and NASA's Earthdata platform (Landsat-8/9). They will support the classification of traditional orchards and tree vitality assessments by integrating spectral indices with UAV-based observations. This multi-scale approach is intended to enable accurate monitoring and validation across different spatial levels.

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

This approach ensures that satellite data are effectively utilized for cultural heritage by integrating multiple scales of observation. Traditional orchards are valuable cultural landscapes, and combining satellite imagery with UAV data will enhance their monitoring, preservation, and management. By using open-access data and scalable methods, the project promotes cost-effective and replicable practices, making remote sensing a practical tool for long-term heritage conservation.

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.

A combination of technical, technological and heritage skills is required to successfully implement this approach. Remote sensing expertise is essential for the processing and analysis of satellite and UAV data, including classification techniques and spectral index calculations. GIS skills are required for spatial data management and visualisation. Technological skills in UAV operation and machine learning improve data integration and accuracy. In addition, heritage knowledge is critical to understanding the cultural significance of traditional orchards and ensuring that monitoring efforts are aligned with conservation needs. Effective communication and interdisciplinary collaboration further support knowledge transfer and stakeholder engagement.

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)

As orchard meadows increase in ecological value over time, old and healthy meadows become increasingly valuable in terms of their contribution to ecological diversity. Our approach assists in identifying the necessity for targeted maintenance measures in orchard meadows, with the objective of ensuring the continued health and longevity of the tree population. These findings can then be conveyed to local authorities and the general public, with a view to initiating maintenance measures or the promotion of tree ownership.

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)

So far, there are only publications and media releases from our earlier programme, which is based exclusively on UAV data.

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

| DJI_2024070911... | DOM_square - Pa... | DJI_2025021110... |
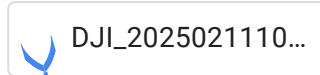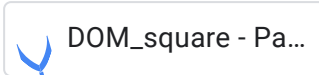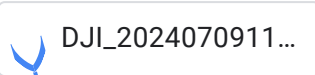
⬆ Προσθήκη αρχείου

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): *

Research Group for Earth Observation, Heidelberg University of Education

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.

Translating the findings into action is proving to be somewhat challenging, as is the uncertainty
surrounding our method.

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

Yes, it should be feasable to adapt an established workflow to other cultural heritage sites facing similar challenges related to neglect and maintenance issues.

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.

Αυτό το περιεχόμενο δεν έχει δημιουργηθεί και δεν έχει εγκριθεί από την Google.

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