Product Sheet: Cultural Heritage



The data and information offered by the Copernicus programme can contribute to tangible and natural cultural heritage preservation and management. Earth Observation (EO) data is becoming increasingly instrumental, with numerous projects and applications aimed at providing products tailored to the needs of cultural heritage. Using the locations of the cultural heritage sites for mining could include developing an overview of the sites nearest to the mine pit or located within a radius to the mine pit, based on the regulations.

Known restrictions / limitations

Cultural heritage sites can be detected when they fit within the available spatial resolutions of existing products. Also, depending on the application different limitations occur (cloud cover, spatial/temporal resolution).

Lifecycle stage and demand					
Exploration	Environmental Assessment and Permitting	Design, Construction and Operations	Mine Closure and Aftercare		

General: The mine operator must demonstrate that no impact has been caused to cultural heritage sites by the mine's operations

Environmental Assessment & Permitting: The mine operator must demonstrate that no impact has been caused to cultural heritage sites by the mine's operations and the situation returns back to base line conditions.

Mine Closure & Aftercare: All Special Area of Conservation (SAC) sites will have been identified during the permitting process. The mine operator must demonstrate at closure that no impact has been caused to these sites by the mine's operations. The area will be dependent on the scale of the operation. The impact can extend beyond the mine's boundary. An area of more than 100km2 may need to be assessed, depending on the operation. In additional SAC's within 15km of the boundary of the site need to be specifically assessed with a resolution of 1 to 10m2 depending on the species. This is a once off exercise to be completed at the end of mine closure. Authorities may require follow up surveys during the aftercare period, this would be site specific and not expected to be more frequent than annual

Geographic coverage

Coverage is global

EARSC Thematic Domain

Domain	Land
Sub-domain	Land use
Product description	Monitor land cover and detect change

PRODUCT SPECIFICATIONS

Input data sources

Satellite	TerraSAR-X	SPOT 6/7	Sentinel
Status	Operational	Operational	Operational
Operator	DLR/Airbus	CNES/Airbus	ESA
Data availability	Commercial	Commercial	Public
Resolution (m)	1, 3, 16 m	1.5 m (panchromatic) 6 m (multispectral)	Depending on spectral band (10-60 m)
Coverage	Global	Global	Global
Frequency (days)	2.5-11 days	Twice daily	5 days
Launch year	2007	2012	2015
Website	link	link	link

Minimum Mapping Unit (MMU)

Based on the input data; down to a pixel.

Accuracy / constraints

Thematic accuracy: n/a

Spatial accuracy: see table above

Accuracy assessment approach & quality control measures

This is done by field validation using in-situ measurements.

Frequency / timeliness

Observation frequency:

Timeliness of deliverable:

Availability

Data is typically freely available for non-commercial use through the open data policy of the different space agencies. See for an overview of the used satellites the table above.

Delivery / output format

Typically, the datasets are delivered in HDF5, NetCDF, binary or in shapefiles.



InSAR has been used to detect changes in the Vatican in Rome. This way can be monitored whether movement of buildings is stable, or changes have occurred after time. For mining this can be useful, to see whether monuments or locations of cultural heritage remain stable/move at existing speed during and after construction.