SURVEY DOCUMENTATION ABOUT SOME REFECTORY IN CAPPADOCIA

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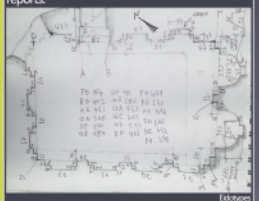
This poster shows the different methodology for processing data about three rupestrian historical buildings in Cappadocia:
1. the Basilica building, identified as refectory, in Allaçh Hospital Monastery in Ortahisar;
2.the refectory of Dove Monastery, one of the complexes Kılıçlar valley , Göreme;
3. the elaborate refectory in complex of Geyikli kilise in Soğanlı.
The refectories were considered particulars permitting identification Byzantine monasteries but today they are discussed and controversial subject of studies.

Some researchers say that they may have been used for christian ceremonies, to hosting secular events, commemorations of the Dead, in addition they could used as a tridinium, or dining room, they may well have had a similar function to the islamic Qa'a, that is, serving multiple purposes, such as for dining, leisure and business.
The object of these projects, specifically for the UR-DIDA, it is the documentation of the rupestrian cultural, fragile heritage and its dissolution process. At last the data collected are entered on our website. thise documentation has been produced with different digital techniques, especially with photogrammetry view 360 virtual tour, panoramic and laser-scanning views

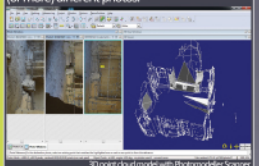
2010: Hallaç Monastery in Ortahisar (TR)

The survey of Hallaç complex in Cappadocia was made by a photographic and traditional metric reports.



Ediotypes

With to the software Photomodeler Scanner we have obtained a 3D point clouds reconstruction. These points had to be identified at least in three (or more) different photos.



3D point cloud model with Photomodeler Scanner

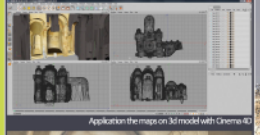
The 3D model elaborated with Photomodeler Scanner, it was imported into Rhinoceros, to create surfaces with its points. This model has allowed to carry out maps, elevations and sections of the monastery.

3D surface model with Rhinoceros

Using the RDF software, created by the IUAV of Venice, it was possible the photogrammetric processing, to create maps applied to the Rhinoceros 3d model, associating each map to its surface.

Photogrammetric processing with RDF

At this stage of the work it was possible construct a 3D realistic model where every object had its real texture. All this materials were allowed to represent the monastery in two and three dimension.

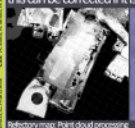


Application the maps on 3d model with Cinema 4D

3D Textured view

2014: Dove monastery in Kılıçlar valley, Göreme (TR) Prin

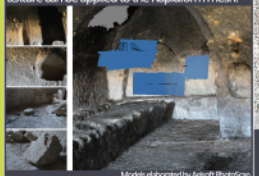
With Inus Rapidform the filtered point cloud (exported in .pbx) is transformed into a mesh, also this can be corrected if it is necessary.



Refectory map: Point cloud processing with LeicaCyclone

Mesh created with Inus Rapidform

The processing of the photographic survey with Agisoft PhotoScan, it build some models: point cloud, mesh and texture models. Before you build the mesh, the dense cloud is imported in Rapidform for proportioned and oriented like a model carry out the scanner laser survey. After that the dense clouds is reported in PhotoScan to build the mesh and the texture. In the end the texture can be applied to the Rapidform mesh.



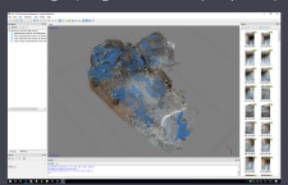
Models elaborated by Agisoft PhotoScan

The final model is elaborate with a 3d modelling software to carry out rendered views in addition to maps, elevations and sections.

Diffuse Map build with PhotoScan

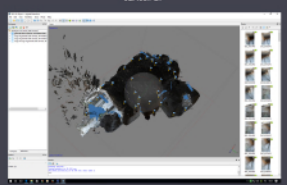
2015: complex of Geyikli kilise in Soğanlı (TR)

Photos must be proper selected and processed. After that, the photos loaded into PhotoScan are aligned, using manual reference point (markers).



PhotoScan: model built with aligned photos

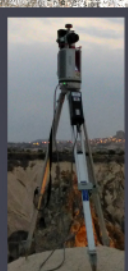
If the alignment is been processed, the next steps are the build of dense cloud, the mesh and in the end the texture.



PhotoScan: dense cloud model

Axonometry from PhotoScan: maps-Cutaway drawing

The environmental survey it has been used a scanner Riegl VZ400 with T.O.F. technology, that is capable of reaching and measure objects at a distance of 600 m from the instrument. To survey all area were made about 270 scans with different acquisition density due to distance.
The architectural survey and the external of the individual complexes



Survey 2014: Landscape surveys: C. Crescenzi and F. Tioli, C. Gustinicchi, G. Tarabella. Settlement researches surveys: G.Verdiani, A. Pasquali, T. Pizzigalli, A. Lorenzelli, settlement survey photogrammetric: C. Crescenzi. The data treatment and the post processing landscape: F. Tioli, Monastery: C. Crescenzi, C. Gustinicchi, A. Maugliani, L. Mieli, E. Vannacci.

Arte e habitat rupestre in Cappadocia (Turchia) e nell'Italia centromeridionale. Roccia, architettura scavata, pittura: fra conoscenza conservazione, valorizzazione.
LA RAPPRESENTAZIONE PER LA CONOSCENZA, CONSERVAZIONE E VALORIZZAZIONE DEL CONTESTO RUPESTRE ARCHITETTONICO
UNIVERSITÀ DEGLI STUDI DI FIRENZE - DIDA: C. Crescenzi (coord.), M. Andaloro, G. Verdiani, F. Tioli, C. Gustinicchi, G. Tarabella, E. Vannacci, A. Pasquali, T. Pizzigalli, A. Lorenzelli, A. Maugliani, L. Mieli, E. Vannacci, V. Fiorucci, C. Mandorli
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