Index: 26
Area Measurement: 0.36m²

Index: 28
Area Measurement: 0.14m²

Index: 27
Area Measurement: 0.14m²

Index: 24
Area Measurement: 0.13m²

Index: 108
Area Measurement: 0.17m²

NEW: OPTION ADD-ON IN VERSION 4.0
COST CALCULATION

›› Cost calculation for activities, staff, materials and devices

›› Analysis by calculation variants from additional fees, modification of quantities, times, etc.

›› GAEB-interface for import/export of information for specifications of conservation projects (automated creation of related mapping classes)

TECHNICAL PREREQUISITES:

›› Digital camera or analogue camera and scanner for image recording

›› Tape measure, telescopic level gauge, or mobile laser measuring instrument for distance measuring

›› PC with Pentium compatible processor, min. 1 GB memory and Windows XP, Windows 7

›› 32-/64-Bit version, multi core support

STRUCTURE OF A MAPPING PROJECTS

›› Definition of mapping classes (layer, planes, shapes) of several types: area and line mapping, vector signatures and detail photos, annotations and measurements
›› Individual grouping of mapping classes (e.g. inventory, state, material, measure mapping, etc.)
›› Creation of legends from existing mapping classes and groups
›› Import of existing mapping projects as template for new projects
›› GAEB-interface for import/export of information for specifications of conservation projects (automated creation of related mapping classes)
›› Cross-project organization in an object hierarchy (navigation, adjustment of mapping projects, statistics of measurements, and analysis)

DRAWING TOOLS AND MAPPING SIGNATURES

›› Extensive range of drawing functions (polygon, free hand line, circular arc, spline, etc.)
›› Cutting function for processing contours of bordering areas and enclosures
›› CAD tools (elongation, clipping, displacement, reflection, rotation, etc.) and snapping modes
›› Extensive library with hatches, line types, vector signatures and colour tables for individual design of the mapping legend; signature editor for symbols

IMAGE RECTIFICATION AND MONTAGE

›› Geometry rectification with measured distances (rectangle, parallel lines, net of lines)
›› New in version 4.0: Automated image rectification of detail images to an existing image plan and of image sequences of thermographical images with image matching
›› Image rectification with coordinates (measurements of coordinates in existing CAD drawing or scaled plan, import of 3D coordinates with UCS management)

TRUE TO SCALE MAPPING BASIS

›› Rectified images, scanned plans (TIF, JPEG, BMP, etc.) and CAD drawings (DWG/DXF interface) are usable in combination
›› Import of 3D surface models (STL-, VRML-, SHP-Format) for 3D mapping (e.g. with scanner systems or by image matching with metigo3D)
›› Generation of different object views with true to scale orthogonal projection in the mapping project

Detail rectification with image matching
Church Creglingen (Germany), St. Christopher.
Image plan in scale 1:10

QUANTITY STATISTICS AND DATA ANALYSIS

›› Automated calculation of area, extent, length, and quantity for every mapping entry
›› Display of measurement statistics, percentage evaluation of distribution, and area ratio within the legend
›› Individually assignable data fields for every mapping class (e.g. for condition, technological information for measurements, personalized content)
›› Input and evaluation of measurements taken by hand on site for calculation of costs
›› Object-related or sectional analysis of damages or measurements from existing maps
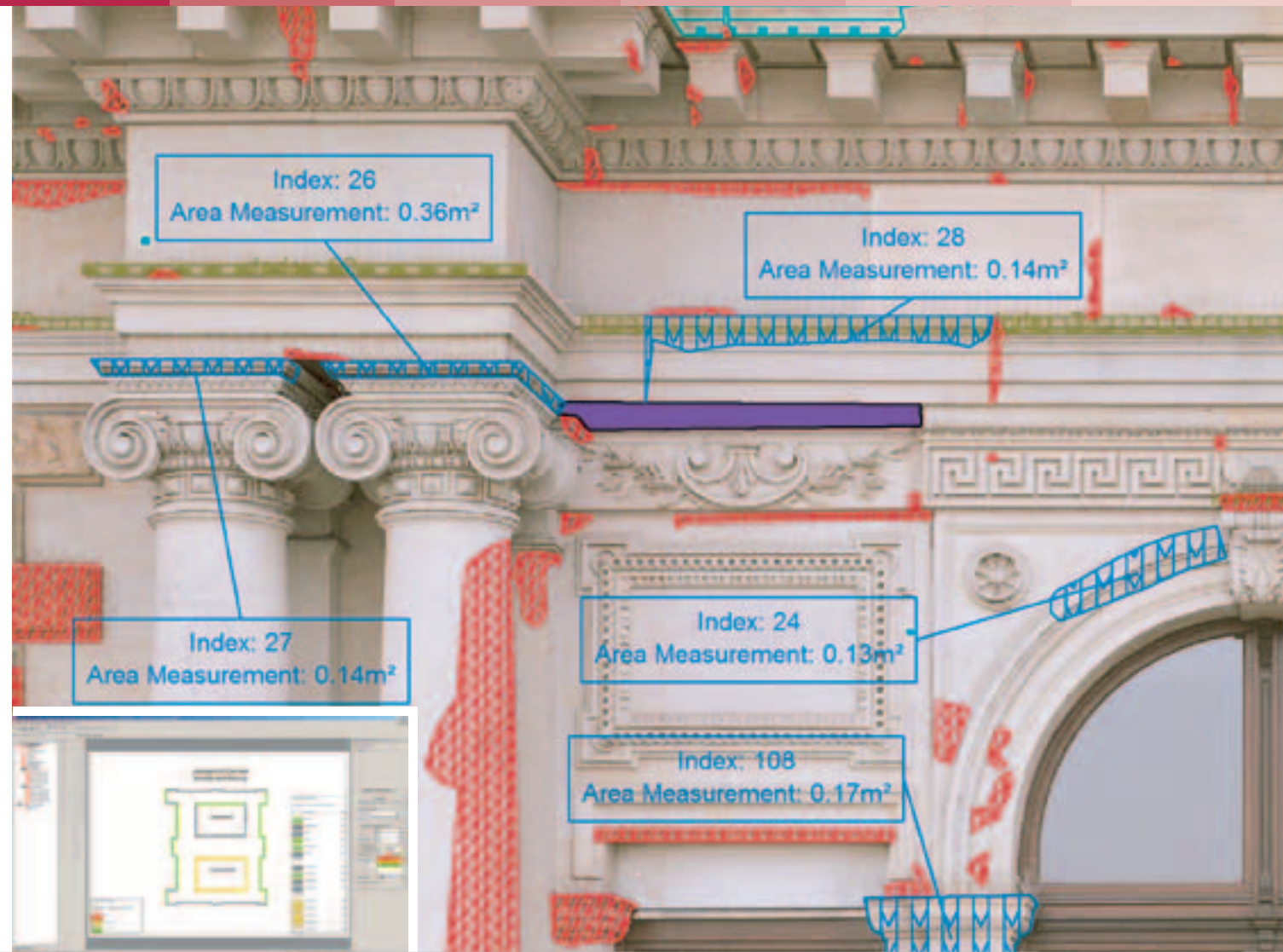
fokus
GmbH Leipzig

MEASUREMENTS IN DIGITAL IMAGES.

metigo®MAP

DIGITAL MAPPING FOR BUILDING RESEARCH AND RESTORATION

District court Zwickau: façade restoration

The district court in Zwickau (Germany, Saxony), built between 1876 and 1879 in Neo-Renaissance style, together with the former Imperial post and telegraph office (1882–84) and the High School "Gerhart-Hauptmann" (c. 1886) is one of the most important architectural compositions in Zwickau of that time. It is of high architectural and urban quality.

The restoration of the exterior facades required extensive preparations because of the multifaceted damage phenomena. In metigo MAP, damage and action plans were digitally mapped in 1:25 scale and combined with a quantity survey and cost estimate.

At intervals of a year, two 3D scans of the facades were conducted and analyzed with metigo3D deformation analysis to capture the building deformation and subsidence, and measurements for the restoration were derived.

A restoration plan with all necessary operations was developed from the results of preliminary investigations and damage mapping. On the basis of a cost estimate and specifications created from the preliminary investigation, the necessary work was implemented.

Mapping:
Restauratorische Bauplanung
Jens Kaminsky
Ziegelstraße 35
08523 Plauen (Germany)
www.restaurierungsplanung.de

MAPPING EXPORT

›› Export maps or an image montage as an image file (multi layered TIFF)
›› Export maps for use in CAD (DWG/DXF interface)
›› Export of quantity survey and data fields for processing in spreadsheet or database
›› True to scale printout (in PDF via external PDF printer)

European Union
European regional development fund

Europe funds Saxony!

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met_map_12 eng

Wadi Sura II, Egypt (Gilf Kebir): Prehistoric rock painting

The "Cave of the Beasts" in Wadi Sura ("The Valley of Pictures") is one of the largest rock painting monuments of the whole Sahara Desert. More than 8000 single figures – gazelles, giraffes, mythical creatures like headless monsters, and humans in action poses – were made by hunters and gatherers between 6.500 and 4.500 B.C.

The aim of the project is the documentation of wall paintings and rock surfaces by 3D laser scanning and high resolution photography, to make a detailed map of the location of paintings and condition of the site, as well as a database-driven archaeological survey of the figures.

Graphic mapping supports visualization of damage phenomena, analysis of painting techniques, classification of colours and pigments and the survey of different surface encrustations. The encrustations formed during moister conditions, by covering the paintings, protected them in part but also limited their visibility.

With the gained knowledge, a concept for protection and conservation of the rock paintings under extremely dry climate conditions should be created.

Mapping:
Prof. Dr. Hans Leisen, Dipl. Rest.
Sabine B. Krause M.A., FH Köln, Institut für Restaurierungs- und Konservierungswissenschaft, Fakultät für Kulturwissenschaften
Project: "Wadi Sura – Eine Felskunststation und ihr landschaftsarchäologischer Kontext im Gilf Kebir" (Förderung: DFG)
Project partners:
Dr. Rudolph Kuper,
Heinrich Barth Institut e.V

Hohlstelle
Entfestigte Zone
Unterliegende Mauerwerksstruktur
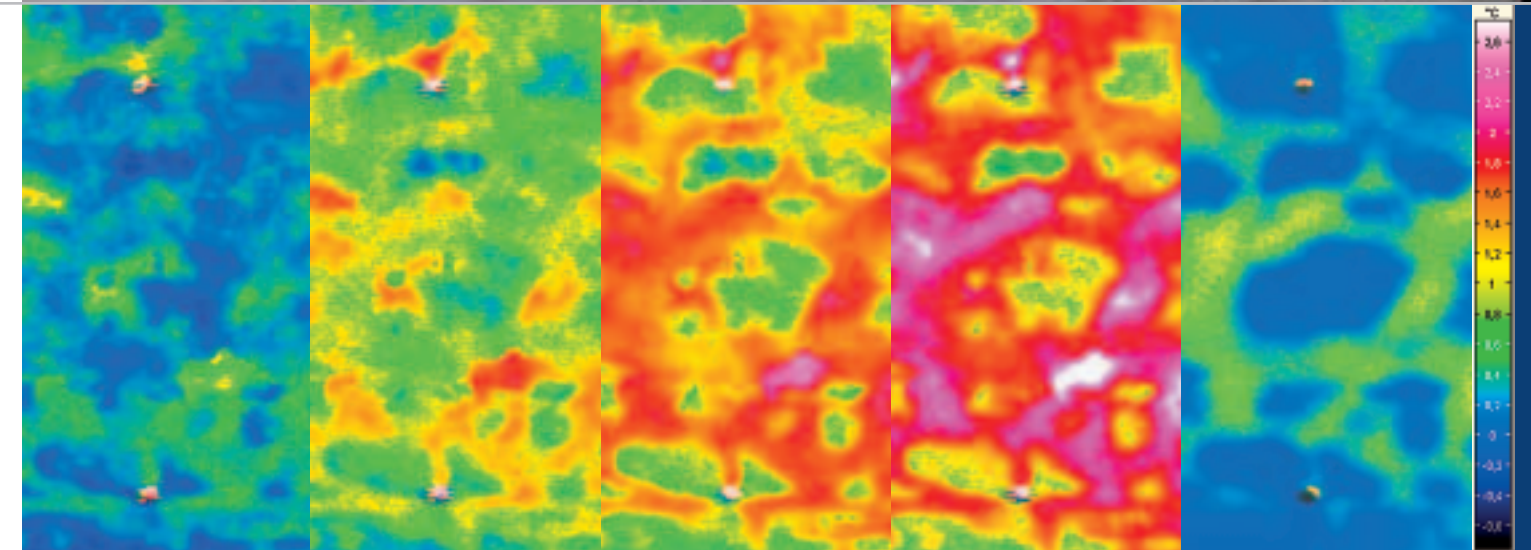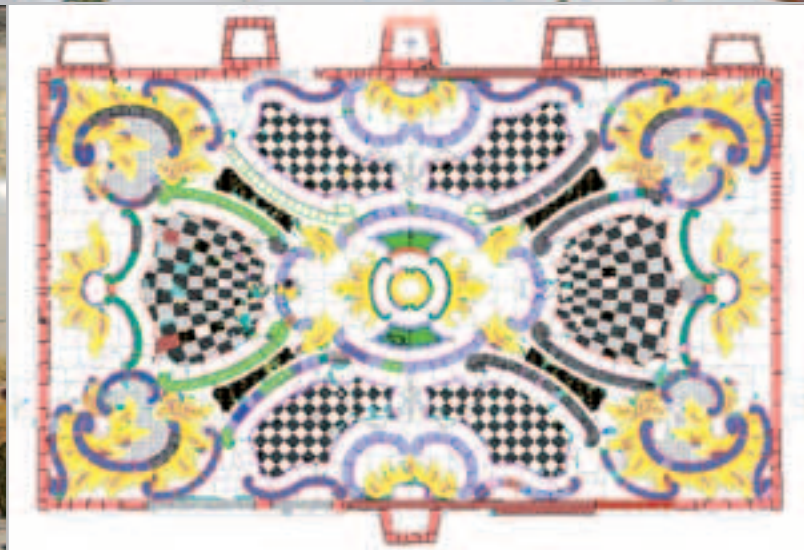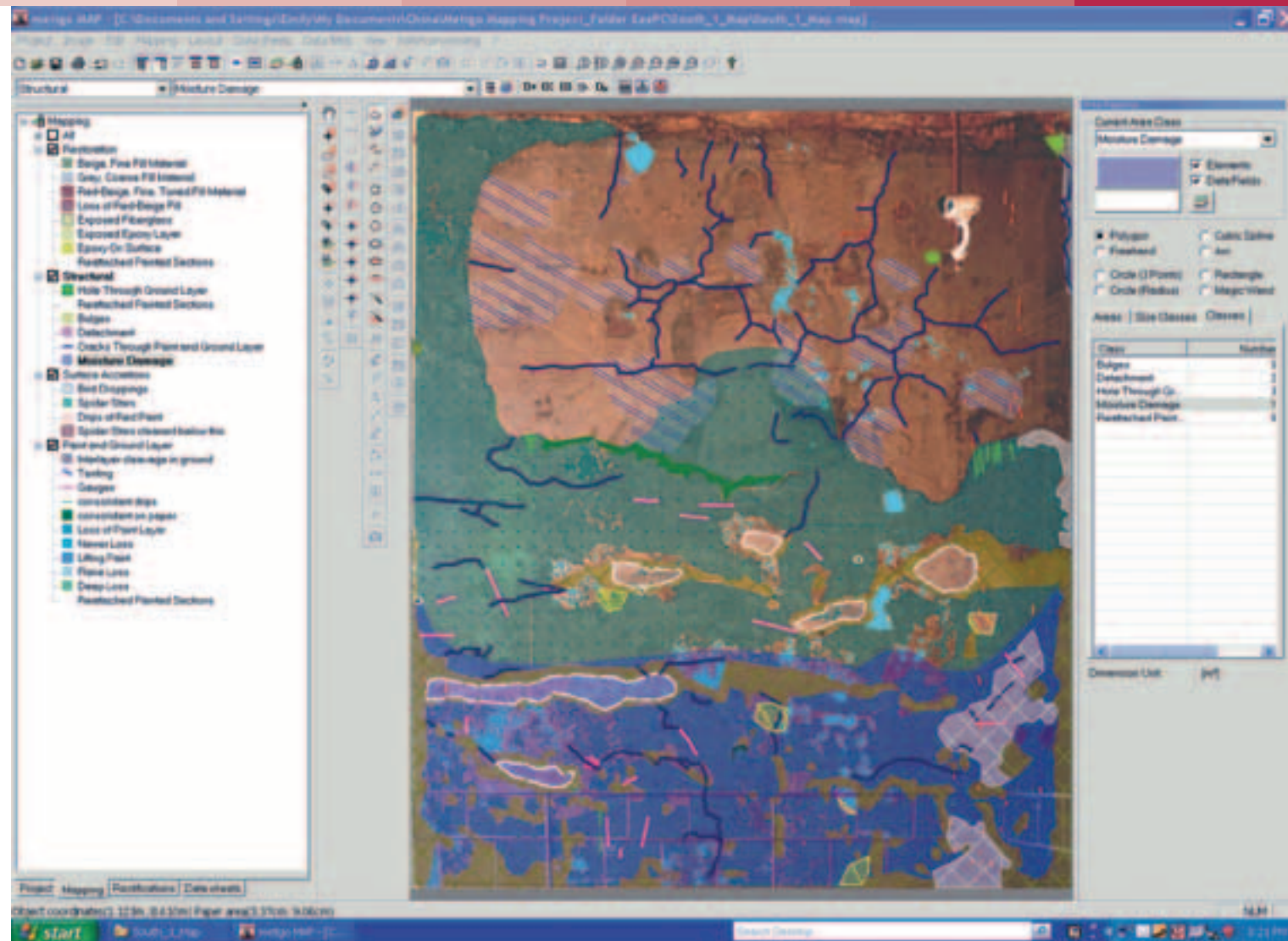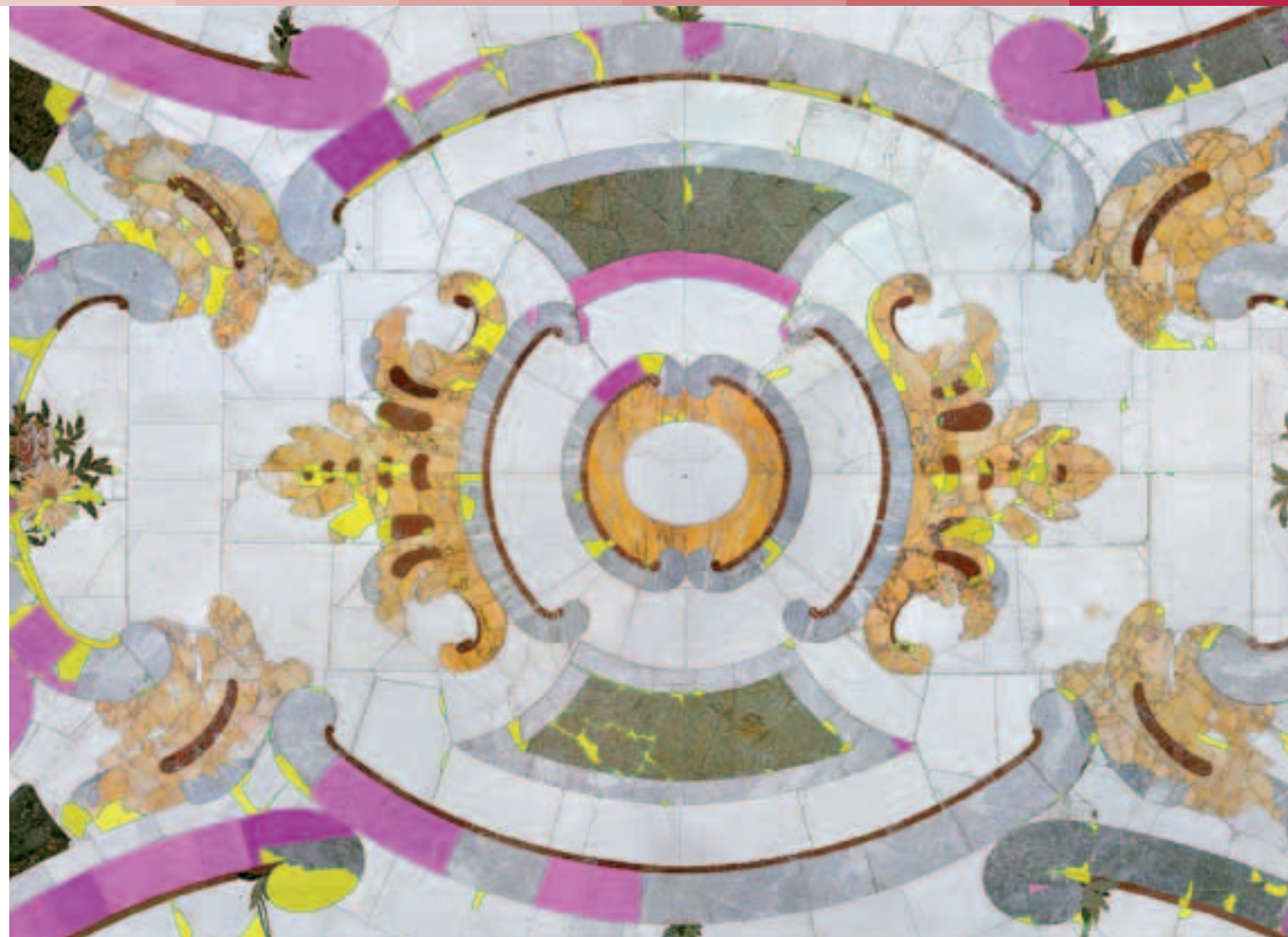
Neues Palais, Potsdam: Marble hall "Marmorsaal", Conservation of floor

The marble hall, the main ballroom of New Palace, is the width of the median risalit and two storeys high. It was designed by Carl von Gontard following the example of the marble hall of the city castle in Potsdam and appointed with polished rocks of contrasting colours.

The floor was designed and created by Melchior Kambly. The significance lies in the uniqueness of the baroque ceiling and the encrusted floor inlaid therein. It is a work of art of international standing.

In conjunction with the exhibition to the 300th Birthday of Friedrich II, the hall was opened for visitors.

To protect the valuable surfaces, the visitors walked on acrylic gangplanks.

As a prerequisite, the marble flooring in these areas has been restored.

In preparation of the restoration work, the photogrammetric documentation was made in 2009 by fokus GmbH Leipzig; and from this, the condition and measurement map was created.

The evaluation of the encrustations on historical gypsum, concrete, wood, and natural stone was particularly important. In some cases, the encrustations significantly distorted the original design.

Mapping:
Melior & Partner GmbH, Steinrestaurierung
Frank Gansky, Steinmetz
Bahnhofstraße 1
14532 Stahnsdorf (Germany)
Image plan:
fokus GmbH Leipzig

Buddhist Temple, Liaoning Province, China: Yuan dynasty murals, 12th cent.

The Winterthur/University of Delaware Program in Art Conservation used **metigo***MAP* to document the condition of murals at a Buddhist temple located in Liaoning Province, China. The temple was built between the 11th and 12th centuries during the Liao dynasty and features Buddhist murals most likely dating from the Yuan dynasty during the 12th century. The murals were in poor condition; there was extensive loss in the paint and ground layers, cracking, and water damage, among other condition issues. The team used flashlights, handheld magnification tools, and ultraviolet light to examine the murals and identify the condition phenomena, and **metigo***MAP* to record the condition information. Classes with visual representation for each condition issue were created in **metigo***MAP*, and then mapped in two-person teams; one person examined the mural at close range and outlined condition issues using a pointing device (e.g. a laser pointer), and the other team member operated the software and created the maps. Maps made at the temple show condition phenomena plainly, because visual representations of classes are brightly colored compared to the base map. In conjunction with the total area and total length data output features in **metigo***MAP*, these condition differences can be described with an actual number in addition to a graphic representation and will aid in future conservation treatment proposals.

Mapping: Emily MacDonald-Korth,
Winterthur/University of Delaware
Program in Art Conservation, USA

Evangelical church, Kuhren (Germany): mural 1430–40

The early medieval figurative and decorative wall paintings preserved in the Romanesque choir of the church were uncovered in Kuhren 1952.

The wall paintings were made using the fresco technique (pigments bound in lime plaster) and span the entire choir and triumphal arch. The illustrations on the north wall show 14 figures in the upper region, below there are 2 rows of quadrate fields with scenes from a passion cycle.

The investigated scenes show two representations of the crucifixion of Christ. The historical component is threatened by extensive detachment of the painting from the walls.

The distribution of voids could be detected without physical contact using infrared thermography.

Areas of the wall were heated incrementally and the resultant thermographical image sequences show both the heating and cooling of the surface.

Thermally active reference points allow automated matching of images, and an image stack rectification for this was implemented in **metigo***MAP*. This function enables the entire integration of infrared images into the mapping project.

Mapping:
Institut für Diagnostik und Konservierung an Denkmalen in Sachsen und Sachsen-Anhalt e.V.
Project:
Automatisierte IR-Thermografie und -Deformationsanalyse,
Sächsische Aufbaubank (SAB)