

A Public Digital Platform for the Inventory and Cataloguing of Handmade Relief Models

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Abstract:

This work introduces a platform for the inventory of relief models that were created manually and possess artistic value. The platform aims to establish a worldwide inventory by cataloguing and bibliographically listing relief models. Publicly accessible at terrainmodels.com, the inventory currently features approximately 700 entries. Each entry includes details such as the model's title, the depicted geographic area, the author(s), the production date, photographs, the scale and other attributes of interests, including materials used, the method and duration of production, and the current location.

The inventory draws inspiration from publications like the “Schweizer Reliefkatalog” (Kreisel, 1947) and “Das Landschaftsrelief: Symbiose von Wissenschaft und Kunsthandwerk” (Mair and Grieder, 2006), which list and describe numerous relief models. We invite interested individuals to contribute by uploading information and images of relief models not yet included. Through collective efforts, this platform seeks to become an internationally significant source for cartographers and map historians.

But what exactly is a relief model? A relief model is a scaled-down, sculpted, three-dimensional section of a landscape (Räber, 2006). Also referred to as terrain model, landscape model, topographical model, embossed map, or raised-relief map, these models are widely used to provide geographic context for educational purposes. They offer a vivid and engaging way to depict landscapes, particularly mountainous regions, and are often found in visitor centres, tourist offices, museums, schools, town halls and other publicly accessible locations.

Handmade relief model can be created using various techniques and materials. Historically, frequently used materials include wood and metal, while plaster casting can result in exceptionally beautiful and realistic relief landscapes. In this method, a negative mould of a staircase model made of wooden boards serves as a casting mould for a three- to five-centimetre-thick layer of plaster. Once cast, the plaster is processed by precise carving using knives and potter's tools (Imhof, 1981). Carving the plaster model requires advanced craftsmanship and artistic skill acquired over years of practice. Some carved models are left in their raw, unpainted state, while others are painted to depict landcover, geology or another theme. Relief modellers rely on terrestrial and aerial photographs and manual sketches to guide the carving and painting process.

Relief sculpting has a rich tradition in Central Europe, particularly in Switzerland. Notable pioneers and masters of alpine relief sculpture include Franz Ludwig Pfyffer, Xaver Imfeld, Fridolin Becker, Simon Simon, Carl Meili, Joseph Reichlin and Eduard Imhof. The golden age of relief model creation in Switzerland occurred between 1870 and 1914, after the country had been mapped completely (Räber, 2006). After the passing of relief sculptor Toni Mair in 2015, the commercial production of traditional landscape models in Switzerland ceased. Today, only a few sculptors, such as Wolfgang Pusch in Bavaria (bergmodelle.de), continue to preserve the craft of relief making with plaster casting and carving.

Today, CNC (Computerized Numerical Control) machines and 3D printers, using digital elevation models (DEMs), produce relief models at a fraction of the costs. However, these modern methods do not always yield realistic results, as the quality depends on the available geodata and the production process used, especially as true-to-nature painting is often omitted for financial and technical constraints. While modern production techniques have made relief models

more commonplace, our inventory is intentionally limited to handmade terrain models, emphasizing their craftsmanship, artistic value, and historical significance.

The inventory is integrated in the terrainmodels.com website, which has proven to be an effective platform for this purpose. The site covers various topics related to relief models, including their characteristics, history, types, techniques, notable artists, applications and related literature (Figure 1). The website is maintained by the Institute of Cartography and Geoinformation and hosted by ETH Zurich.

The catalogue content has been compiled from existing literature and additional information obtained through extensive research from public institutions, such as museums and private institutions, companies, and individuals. More than 700 handmade relief models created by nearly 130 relief artists are included in the catalogue at the time of writing. The electronic submission form, available in English, French and German, allows users to contribute information about relief models. The authors aim to expand the inventory further, and encourage anyone with relevant knowledge to share and upload information.

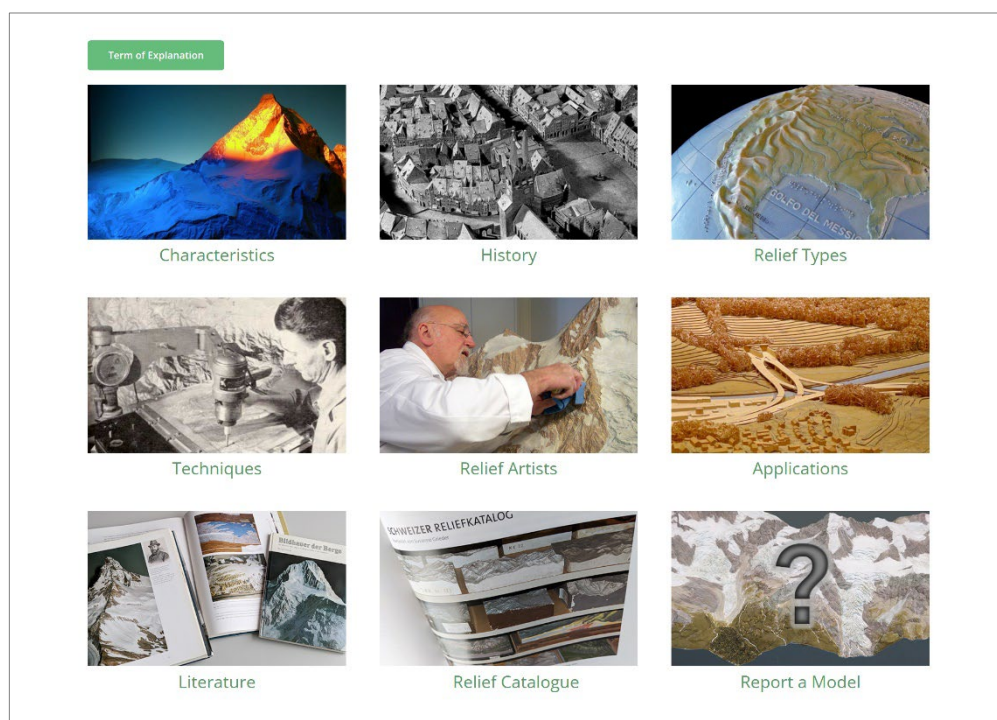


Figure 1. Catalogue page and reporting portal integrated in the terrainmodels.com website.

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