

Case Study:

# Weather data from 1860 to 1970 digitalised for MeteoSwiss

Scanning offers an enormous potential when it comes to digitalising old knowledge treasures. The professional scanning service of Arcplace has brought about 350 large-size books containing historical handwritten weather and climate data into the digital age. The full service comprised the transport of the fragile original documents, scanning with a special book scanner, post-processing and indexing of the created PDFs and multi-stage quality assurance measures.



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Swiss Confederation

Federal Department of Home Affairs FDHA  
Federal Office of Meteorology and Climatology MeteoSwiss



## Federal Office of Meteorology and Climatology, MeteoSwiss – the Swiss weather and climate service

MeteoSwiss is the national weather and climate service for the Swiss public, for government, industry and science. Its public service ensures the basic supply of weather and climate information in Switzerland. Teams of experts analyse climate change and extreme weather events and develop scenarios for climate development in Switzerland.

As a center of competence for Alpine meteorology and climatology, MeteoSwiss takes part in national and international research projects and thereby contributes to the better understanding of weather and climate in the Alpine region.

**“We are very satisfied both with the scanning service and with the support provided by Arcplace.”**

Marlen Kube, Project manager at MeteoSwiss

## Century-old handwritten weather data

MeteoSwiss has systematically collected weather and climate data that go back to 1860. In several hundred weather stations throughout the country, weather observers collected the temperature, air pressure, precipitation, wind direction and force, along with other weather data, and entered the measured values into handwritten measurement logs. Every month, the completed forms were sent to the ‘Central Meteorological Institute’, as it was called back then, where they were bound into thick books. Especially in view of the debate about the climate change, historical weather data represent an invaluable scientific data source. To facilitate access to this source for employees and expert circles and to detach it from the irreplaceable books – which were to be sent to the Federal Archives in Bern as valuable historical documents – MeteoSwiss took on an extensive digitalisation project.

## Process Workflow



## Scanning process for the delicate old books

The approximately 1,000 volumes had already been archived on microfilm in the 1970s. However, the process was incomplete, and numerous microfilms, due to their age, have turned out to be damaged, soiled or blurred. The colour was another problem. The microfilms were black and white, and entries highlighted in colour by the observers could not be duly shown. Based on the intact microfilms, MeteoSwiss prepared PDFs with the help of a federal infrastructure. The remaining 350 large-format volumes had to be entirely re-scanned.

MeteoSwiss opted for Arcplace AG as the solution partner for this technically demanding task. In the internal scan

center at Arcplace, a special process was set up for the fragile, tightly bound books, using a professional book scanner and suitable image processing software.

By means of line scanning, the warp of the books could be almost fully compensated, enabling optimum legibility of the colour PDFs with a resolution of 200 dpi. One PDF was created for every year and manually indexed with the measuring station ID, measuring station name and year. Continually logged quality controls before, during and after the scanning and, where necessary, manual optimisation on screen ensured flawless quality of the PDFs.

Arcplace also organised the careful transport of the valuable original books from and to MeteoSwiss in special transport containers. The completed PDFs were delivered to MeteoSwiss on portable hard disks. In total, Arcplace scanned about 120,000 pages of old weather and climate data.

#### Historical weather and climate data immediately available

Thanks to the digitalisation, the team members of the three regional centers of MeteoSwiss in Zurich, Geneva and Locarno can now access the historical weather information faster and with greater ease over the intranet. The valuable original documents are currently kept safely in the Swiss Federal Archives.

Marlen Kube, project supervisor at MeteoSwiss, comments: "We are very satisfied both with the scanning service and with the support provided by Arcplace. We were under time pressure and Arcplace succeeded in rolling out the project in a timely and cost-efficient manner. As the Arcplace scan center is located close-by, the transport of the books was no problem. Thanks to Arcplace's professional scan service, we are now in a better position to fulfil our archiving obligations, while saving space and money. The valuable original documents are professionally and compliantly kept in the Federal Archives in Bern, where they are now effectively protected from harm. By transforming our entire archive to PDFs, we are enabling quicker and broader availability of the historical data. In this way, we have established an ideal basis for further digitalisation projects."

#### Arcplace AG

Arcplace AG, founded in 2006, optimises business processes by providing high quality solutions in the areas of document management and data backup, thus helping its customers to significantly increase operational efficiency and make cost savings. More than 700 national and international companies from the most diverse industries have placed their trust in the services of Arcplace. Through a combination of the latest technologies and innovative service models, Arcplace is able to provide companies of any size with solutions of the highest quality. All services are ISO 271001 certified.

### At a glance

Scanning of 350 large-format books containing handwritten weather and climate data.

The full service comprised of the following:

- + Transport of the books from and to the customer in special transport containers
- + Reception control and preparation
- + Scanning of the book pages with a professional book scanner (line scanning compensates for book warp)
- + One colour PDF file (PDF/A, 200 dpi resolution) for each year
- + Manual image optimisation by scan operator

+ Indexing and validation: Manual input of the measuring station ID, measuring station name and year to label the PDFs

+ Storage of the PDFs on hard disk and delivery to the customer

+ Multi-stage quality checks: Legibility, verification of the output files and of the index values, written result logs

#### Quantity and structure

+ 350 volumes

+ Format larger than A3, tightly bound, written on both sides

+ 22,000 monthly weather reports