DIGITCHART – A SOFTWARE FOR DIGITIZING ANALOGUE DATA CHARTS FROM THERMO-HYGROGRAPHS

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Abstract: In the cultural heritage sector the traditional use of thermo-hygrographs continues, which can be observed in almost any museum. To enhance the evaluation of existing and also of historic climate data a special accessory for digitizing of analogue data charts was developed within CFC project. Digitizing procedure starts with scanning of charts. Scanned pictures can be stored using variety of bitmap formats (JPEG, TIFF, GIF, BMP). Then the bitmaps are loaded into DigitChart software. Sophisticated picture analyzing techniques is used for recognition and converting analogue data to digital form.

Great development effort was made to make digitizing of charts as simple as possible. User input is limited to minimum. The information about chart-types is stored in the software database. The type collection can be updated and supplemented at any time when needed. The program includes already most of typical stripe-types which were also used by some project partners.

After a bit map of chart is loaded and chart type defined, the program tries to locate axis and grid automatically. If automatically procedure fails manual locating is also possible. This can be done by moving of virtual grid to the proper position. Then the working area with temperature and humidity pattern is defined. It should be made as small as possible by setting boundary lines of surrounding grid. If working area is small, program needs less time to analyze charts.

The program chooses most different pixel colors as pattern of measured value. There are two track bars at the top of main window, which should be moved by the user accordingly, since best match of found pixels with the chart is established. Unwanted pixels (descriptions, dust etc.) can be marked and excluded from searching. Additional points can be added manually if the program finds too little values.

After temperature and relative humidity are satisfactorily covered the results are displayed. In the result dialog some additional information can be set (date, time and span of measured data, time step of digitized data etc.) The diagram of retrieved patterns is drawn. Digitized data can be exported to text file or directly to MS Excel© (if available on the computer) for further analysis.