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The unique 1432–2013 flood marks from the Děčín Castle Rock, Czech Republic, are scanned in 3D and utilized

Libor Elleder, Tomáš Kabelka, and Jolana Šírová

Czech Hydrometeorological Institute, Prague, Czechia (libor.elleder@chmi.cz)

Our contribution presents an example of archiving of an invaluable collection of flood marks. With respect to the height of the object carrying these flood marks exceeding 12 metres it is not possible to explore all flood marks in detail in situ. 3D scan, however, offers an excellent possibility how to solve this task. We have analysed the Děčín Castle Rock (further DCR) flood marks in context of their importance, history, recent scanning, reliability check and utilization. The DCR ranks amongst the most important epigraphic hydrological objects in Europe. Three major reasons for that can be listed as follows: (i) the Děčín town geographical position represents the outflow of the whole Bohemia concentrating the water volume from the upper part of the Elbe river catchment, (ii) the presence of ancient flood marks (the oldest one representing the 1432 flood event) engraved in the sandstone Castle Rock, (iii) the striking relation between the DCR flood marks and the Děčín Hungerstone drought marks situated in its close vicinity (only some 200 metres apart). It is not the number of flood marks but joint placement of both the flood and drought (low) marks which makes Děčín truly a unique place in European context. The whole flood and drought mark system served as a tool for ancient safe navigation for boats and rafts, and later ships and steamers. We place all these Děčín flood and drought marks in context of other important records in Prague, Litoměřice, and German Pirna, Dresden and Meissen. Furthermore, the oldest water level gauge – estimated to be at least 200 years old - is situated in the same place allowing for direct and easy reading of flood mark heights. Altogether, the Hungerstone drought marks and DCR flood marks with the old water level gauge in the Czech town of Děčín represent an unparalleled complementary system of centennial information for extremely low and extremely high water levels. Our Map of Extreme Floods (MEF, 2024) application currently offers selected floods the culmination water levels of which are engraved on the DCR, such as July 1432, August 1501, February 1595, February 1682, August 2002 and June 2013, the other will be available sooner (1824, 1890) or later (1771, 1784, 1799, 1830, 1845 and 1862).

Reference:

MEF, 2024. Available at:

<https://chmi.maps.arcgis.com/apps/MapSeries/index.html?appid=dc50b65b4483465cb98c50d4b55df75d>.

