

Detection of Service Pipes and the Risk of Collapsing Sinkholes at the Lake of Constance in Switzerland Using Ground Penetrating Radar (GPR)

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SUMMARY

After a severe winter in Switzerland, two sinkholes opened suddenly on the much used water front of the harbour promenade in Arbon (Lake of Constance), following a time span with intensive wind that brought big waves to the shore. The public building authority is responsible for the safety of the boardwalk. They decided not only to search for further sinkholes but also to document the present underground condition. This will be used for the forthcoming restoration work. In order to get a precise underground documentation of the area a Ground Penetrating Radar (GPR) survey was executed. This nondestructive method gives as a result images of the subsurface structures as well as of installations like service pipes. The underground structure of the port facilities is clearly shown in the radar images (reflectograms).

For the city council of Arbon this radar documentation is a helpful tool for the emergency decisions as well as for the planning of the future lakeshore constructions.

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