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Demonstrating the advantages of novel exploration strategies for sustainable managed aquifer recharge operation

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Water scarcity and drought have led to a strong decline of water availability in many semiarid regions with resulting ecological and economic impacts. Managed aquifer recharge (MAR) represents a promising technique to replenish water resources, and in combination with awareness raising, is an important step towards sustainable water management. However, choice of type and positioning large scale MAR infrastructure, e.g. water infiltration basins and trenches, is challenging as it requires a detailed understanding of the subsurface. In addition, clogging effects can lead to a strong decrease of MAR efficiency. Hence, MAR site maintenance is in many cases time intensive and costly. In our work we demonstrate the successful application of novel strategies for enhanced MAR site characterization at the Schiavon Forested Infiltration Site, Italy.