



## **2D unstructured grid finite volume methods for the Richards equation**

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Many numerical codes are nowadays available for the Richards equation. However the real world cases are often involving non-regular geometry of soil surface, layering, sink terms, boundary and initial conditions etc. The finite volumes are shown to be capable in providing mass conservative and second order accurate solutions of unstructured grids test cases. The implemented approximation is based on a vertex-centered Least Squares linear reconstruction of the solution gradients at mesh edges. Some test cases are shown, confirming the performances of the method also in the case of both partly saturated domains and abrupt wetting fronts. The method is well suited to its coupling to finite volume transport equation solutions, in order to contribute in the future to solve pollution problems.