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First steps to include gas loss in 2D magma flow models

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The amount of gas inside a volcanic conduit has a major impact on fundamental parameters of the magma flow such as viscosity and velocity. Therefore it controls the physical processes occurring in the conduit and the kind of eruptive dynamics. If we want to gain a better understanding of volcanic processes, it is crucial to model how gas propagates and eventually escapes the magma. This study proposes a possible way to take 2D gas loss in fluid flow numerical modeling into account, using anisotropic permeability for the magma dependant on the bubble shape.