

## Numerical Prediction of Wall Eroded Area by Cavitation

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**Abstract :** This study presents a new method to predict cavitation area that may be eroded. It is based on the post-treatment of URANS simulations in cavitant flows. The most RANS calculations with incompressible consideration are based on cavitation model using mixture fluid with density ( $\rho_m$ ) calculated as a function of liquid density ( $\rho_{liq}$ ), vapour or gas density ( $\rho_{vap}$ ) and vapour or gas volume fraction  $\alpha$  ( $\rho_m = \alpha\rho_{vap} + (1-\alpha)\rho_{liq}$ ). The calculations are performed on hydrofoil geometries and compared with experimental works concerning flows characteristics (size of pocket, pressure, velocity). We present here the used cavitation model and the approach followed to evaluate the value of  $\alpha$  fixing the shape of pocket around wall before collapsing.

**Keywords :** flows, CFD, cavitation, erosion

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