



SPLASH AND WADING

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OVERVIEW

Background
Problem Approach
Results



BACKGROUND

What is splash and wading in car industry?

Why is this a problem?

How to study it?



WHAT IS SPLASH?



WHY IS SPLASH A PROBLEM?



Engine bay water contamination
High water loads on critical components
..."washing" pedestrians...



MODEL DESCRIPTION

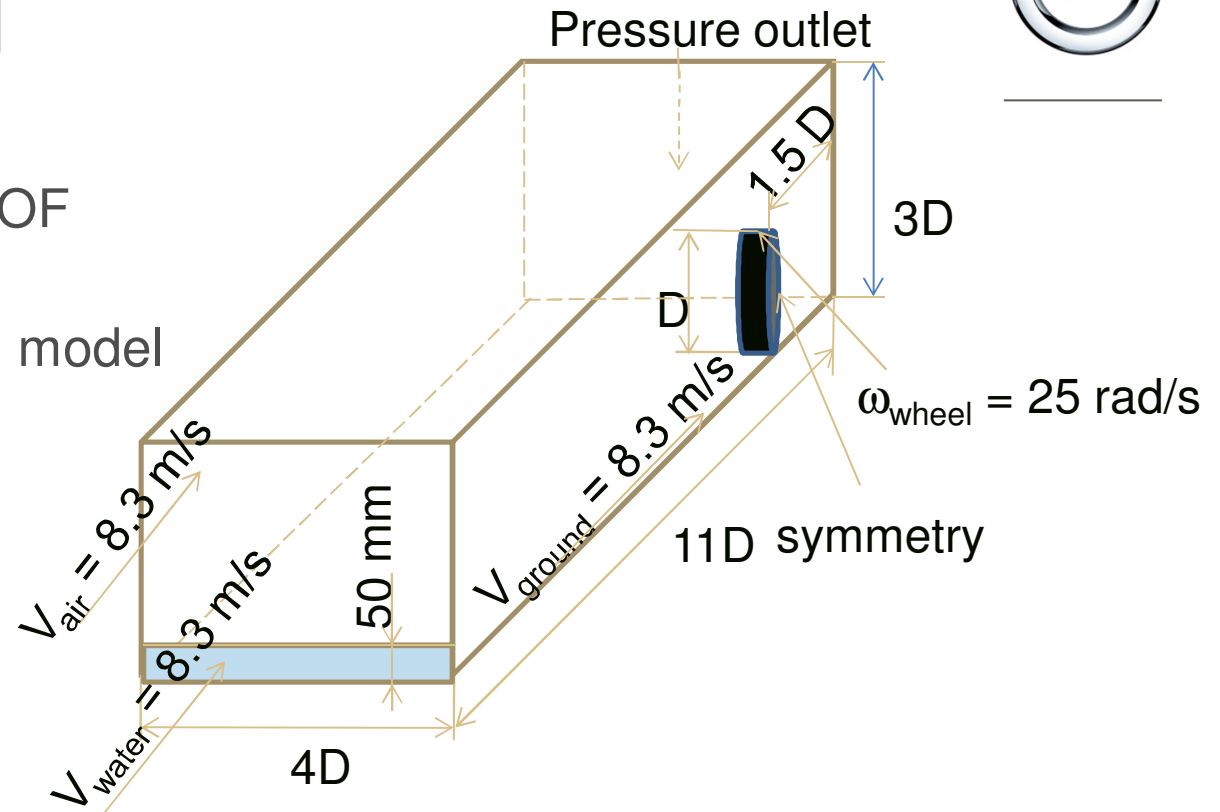
Incompressible flow

Multiphase (liquid/gas) - VOF

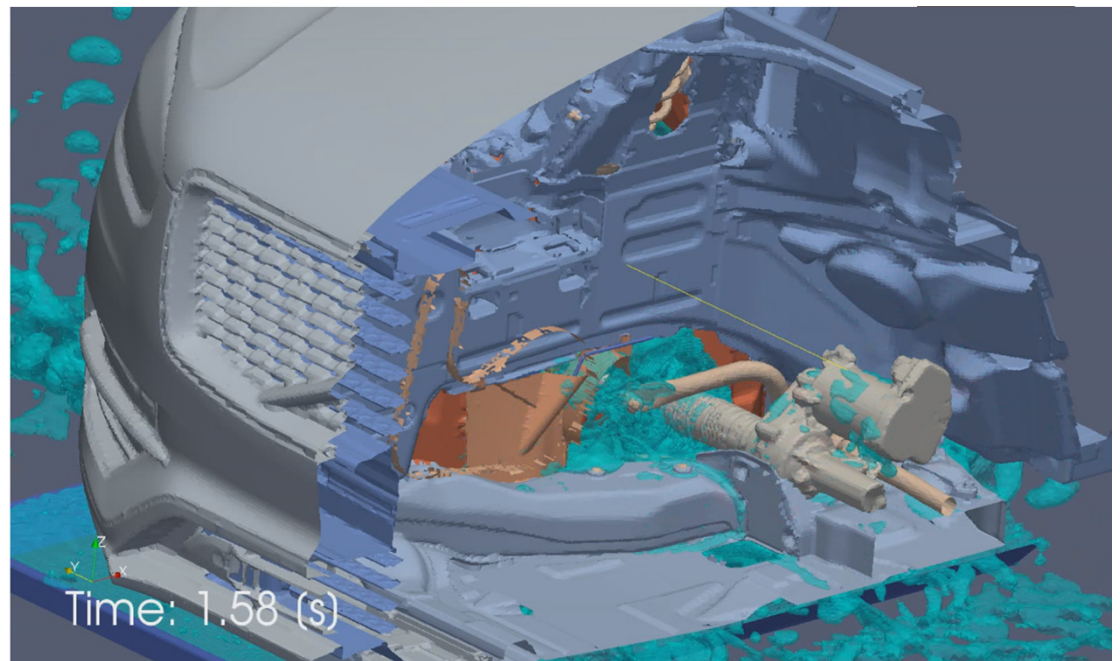
Large Eddy Simulation

Smagorinsky subgridscale model

Polyhedral mesh



SPLASH





WHAT IS WADING?

Webster dictionary: to step in or through a medium (as water) offering more resistance than air



WADING



Speed: up to 15 km/h
Depth: up to 450 mm



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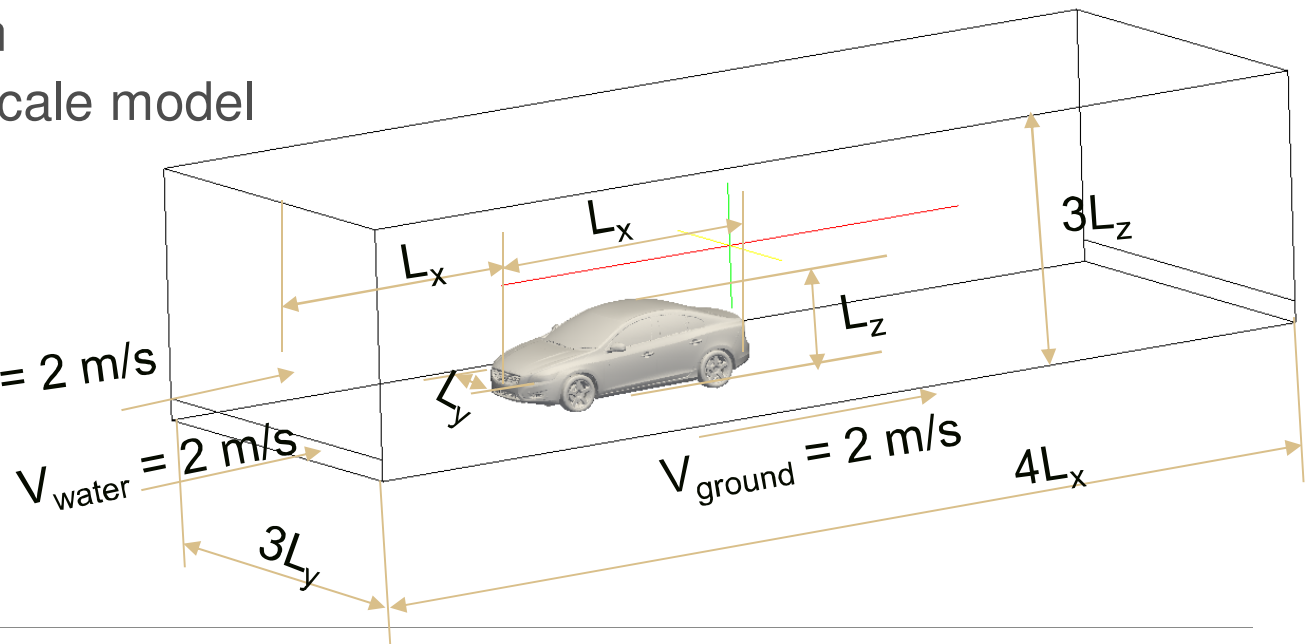
Polyhedral mesh

$\text{grad } p = 0$ everywhere

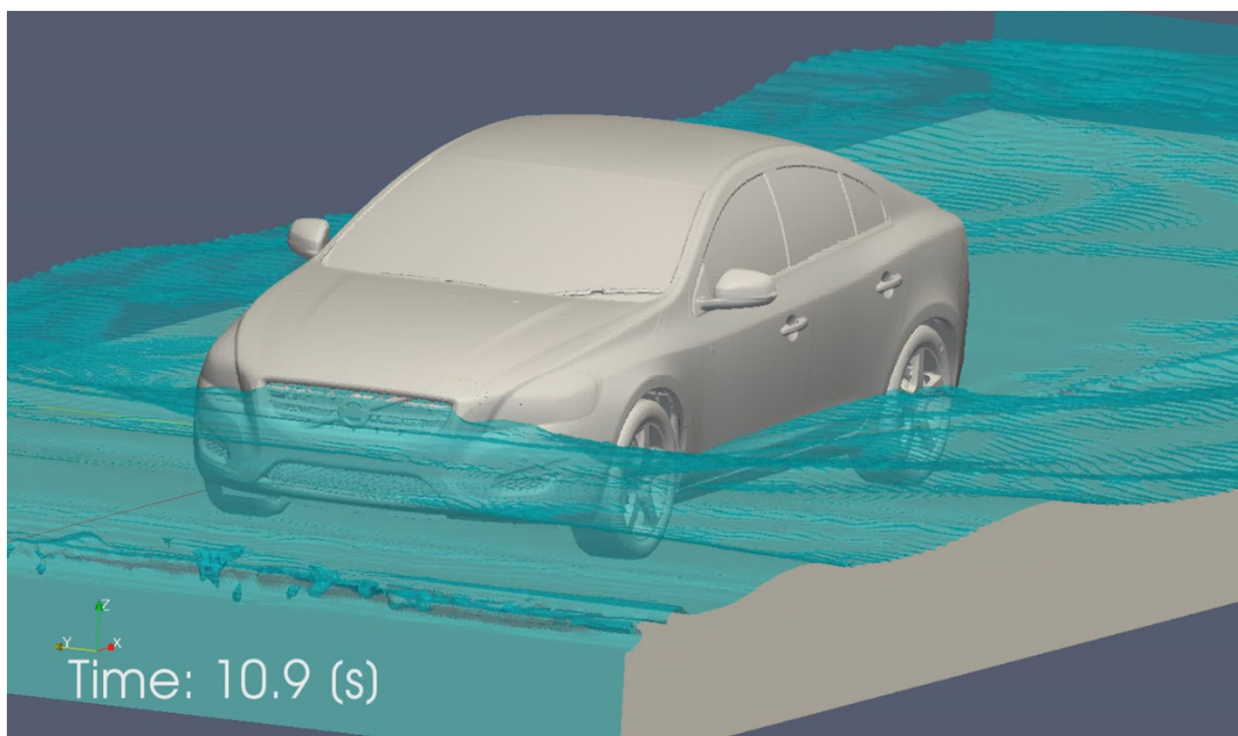
$\text{grad } U = 0$ outlet

Symmetry far field $V_{\text{air}} = 2 \text{ m/s}$

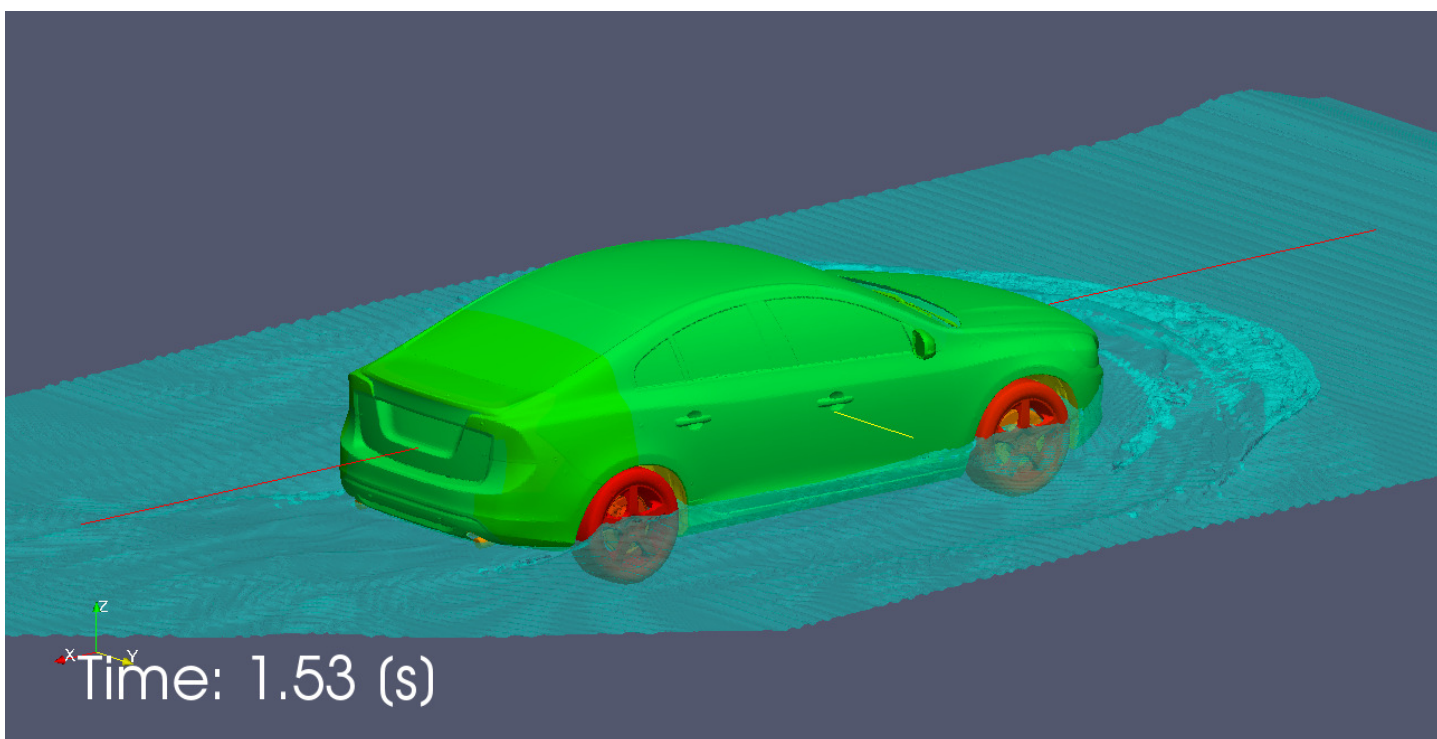
$U = 0$ on walls



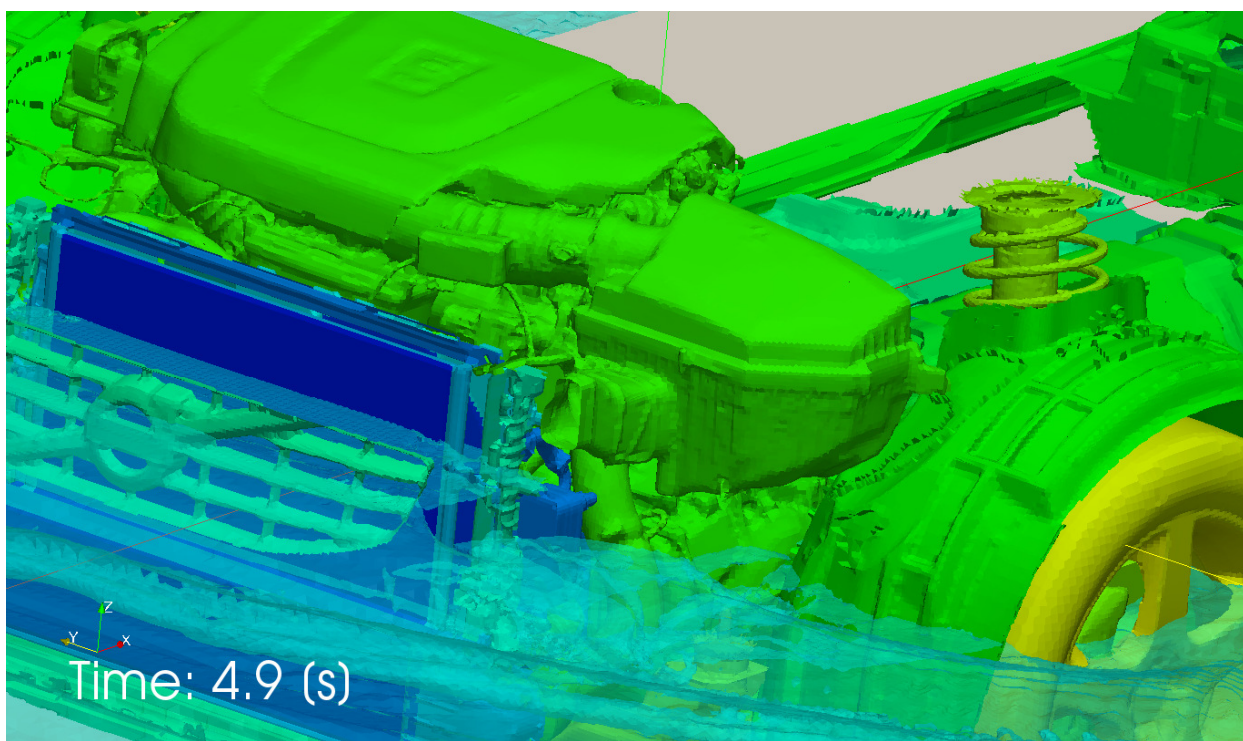
WADING



WADING



WADING



QUESTIONS?

