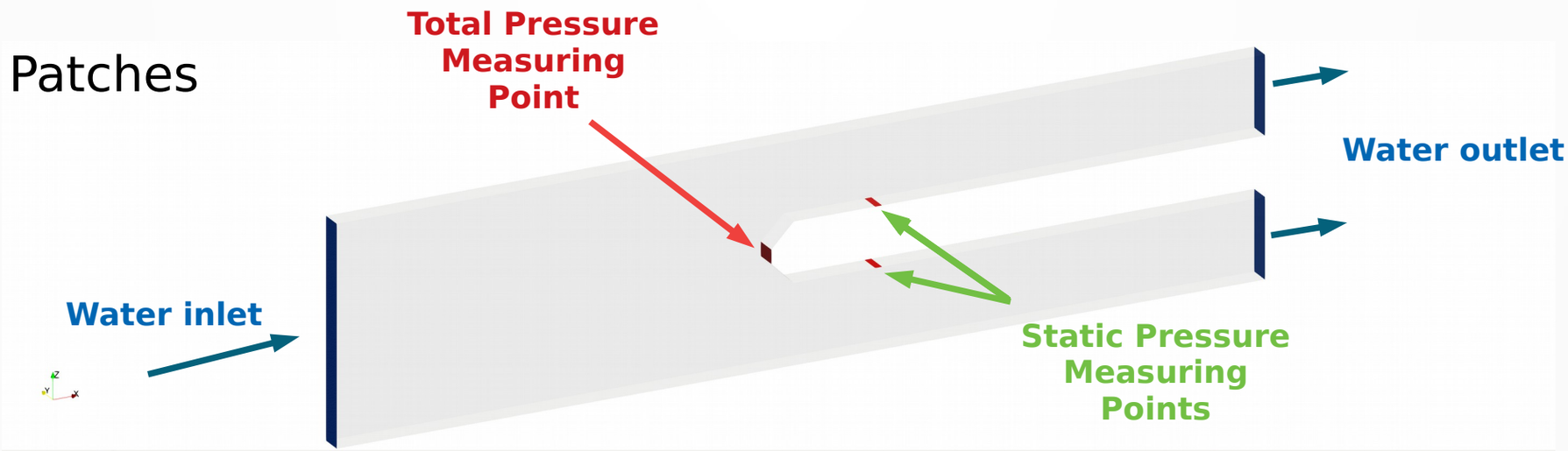
2019 Community Christmas Competition III

Study of Pitot Tube by CFD Simulation

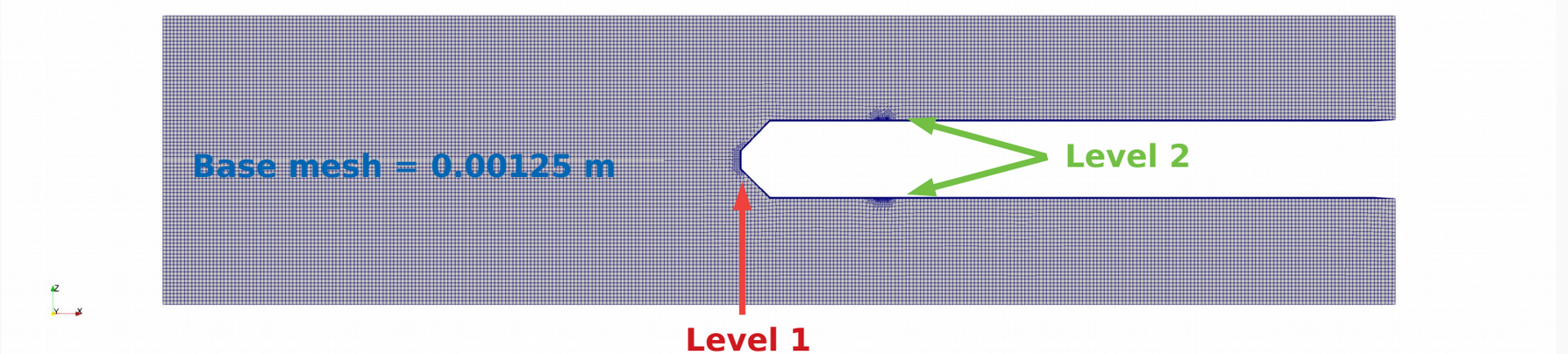
Presented by Bowen

Geometry – 2D model

Patches



Mesh



Conditions

- Patches:
  - Water Inlet & Water Outlet
- Slip walls:
  - Other places
- Fluid material: water
  - Kinematic viscosity : 1.004e-6 m^2/s (at 20°C)
- Tested flow velocities (m/s):
  - 0.1, 1, 67, 100 and 240
- Turbulence model:
  - Standard k-epsilon model

Given Velocity vs. Measured Velocity

Tested Velocity (m/s)	Measured velocity (m/s)	Difference (%)
0.10	0.09	12.33%
1.00	0.88	12.32%
67.00	58.74	12.33%
100.00	87.68	12.32%
240.00	210.42	12.33%

Observation:

The measured velocity is less than the tested velocity. The difference stays at around 12.32% for all five (5) velocity conditions.

Download the model

- You can download the model at:
  - https://drive.google.com/open?id=1D4cmg3w2AEWxW1wTPIciviUM0-uUl8k9