

PRACTICE 2 Exercise 1  
**COMPUTATIONAL STRUCTURAL MECHANICS AND DYNAMICS**  
Marcos Boniquet Aparicio

It's chosen a problem type: *Rev\_Solids*

Material, self weight condition, and constraints are settled.

The material chosen for the unique surface defined by the four sides has the following properties:

$$E=3*10^{10} \text{ Pa}$$

$$\nu=0,2$$

$$\gamma=25000 \text{ N/m}^3$$

$$\text{Load coefficient}=50 \text{ N/cm}^3$$

*A quadrilateral element mesh is calculated:*

*Num. of Quadrilateral elements=1759*

*Num. of nodes=2100*

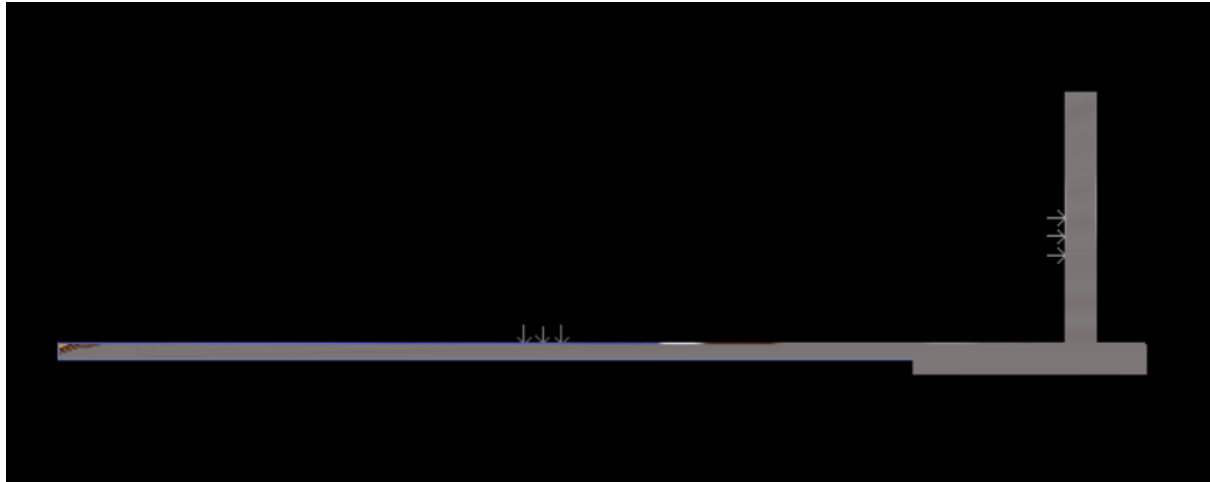


*Elastic constraints are settled:*



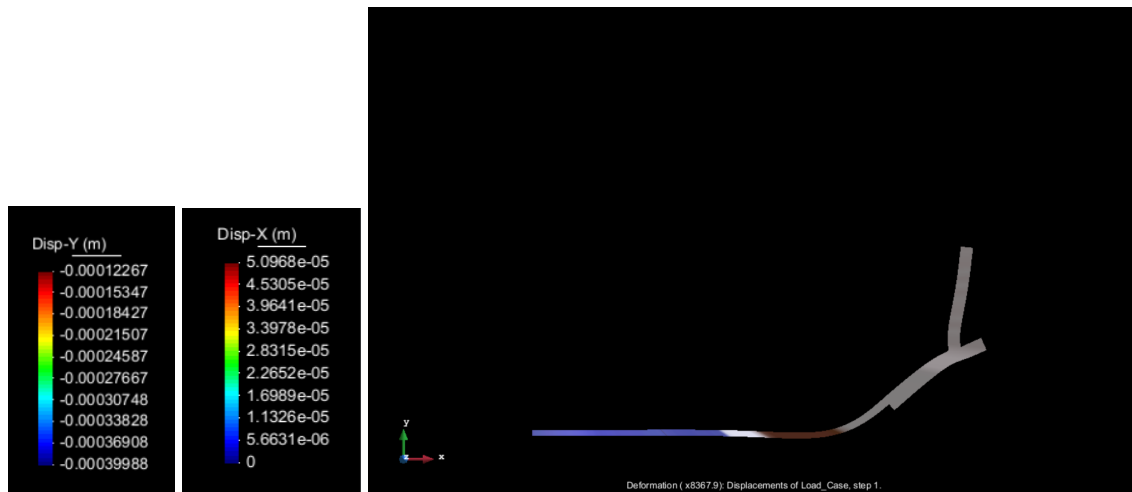
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*Linear load is applied for hydrostatic pressure of water, from 0 to 24500 N/m<sup>2</sup>. At bottom this pressure remains constant.*



*In order to maintain symmetry axis, left side is constrained with zero displacement in x axis.*

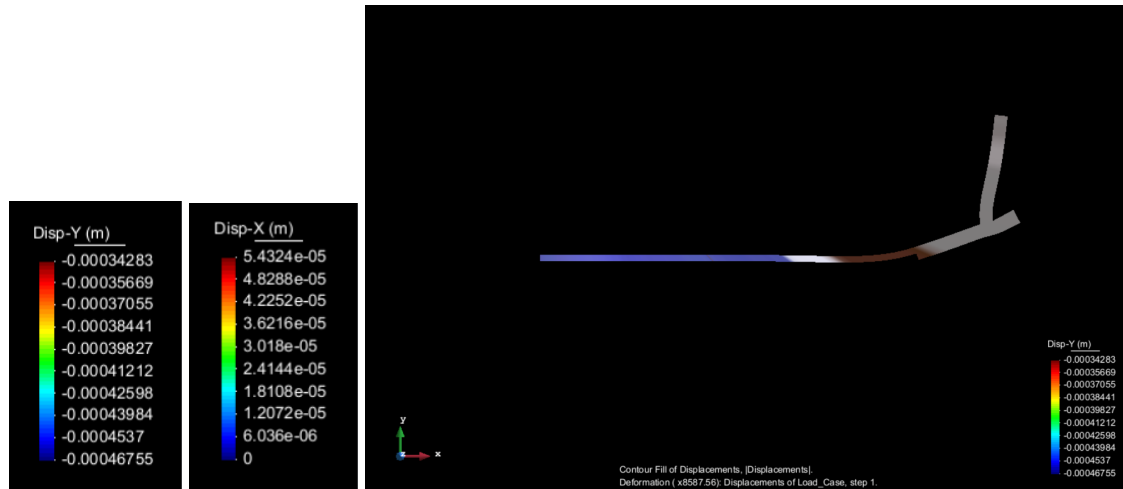
**Without self weight**



*(Deformation x8367)*

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**With self weight**



*(Deformation x8587)*

Seems that in this particular case, the ballast coefficient of the ground is not high enough compared to the dam, meaning that the dam seems to be enough robust in terms of deformation.