

Soildynamics Tutorials for PSD - Soildynamics in 3D with PSD

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Abstract

This document details some tutorials of soildynamics module of PSD. These tutorials are not verbose, but does instead give a kick start to users/developers for using PSD's soildynamics module.

The problem of interest is a single Dirichlet condition problem of soildynamics in 3D. For this problem we use Newmark- β time discretization. Additionally postprocessing is demanded for displacement, acceleration, and velocity (u, a, v).

```
1 PSD_PreProcess -dimension 3 -problem soildynamics -dirichletconditions 1 -timediscretization newmark_beta \  
2 -postprocess uav
```

Once the step above has been performed, we solve the problem using three MPI processes, with the given mesh file [soil.msh](#).

```
1 PSD_Solve -np 3 Main.edp -mesh ../../Meshes/3D/soil.msh -v 0
```

Using ParaView for postprocessing the results that are provided in the [VTUs...](#) folder, results such as those shown in figure~1 can be extracted.

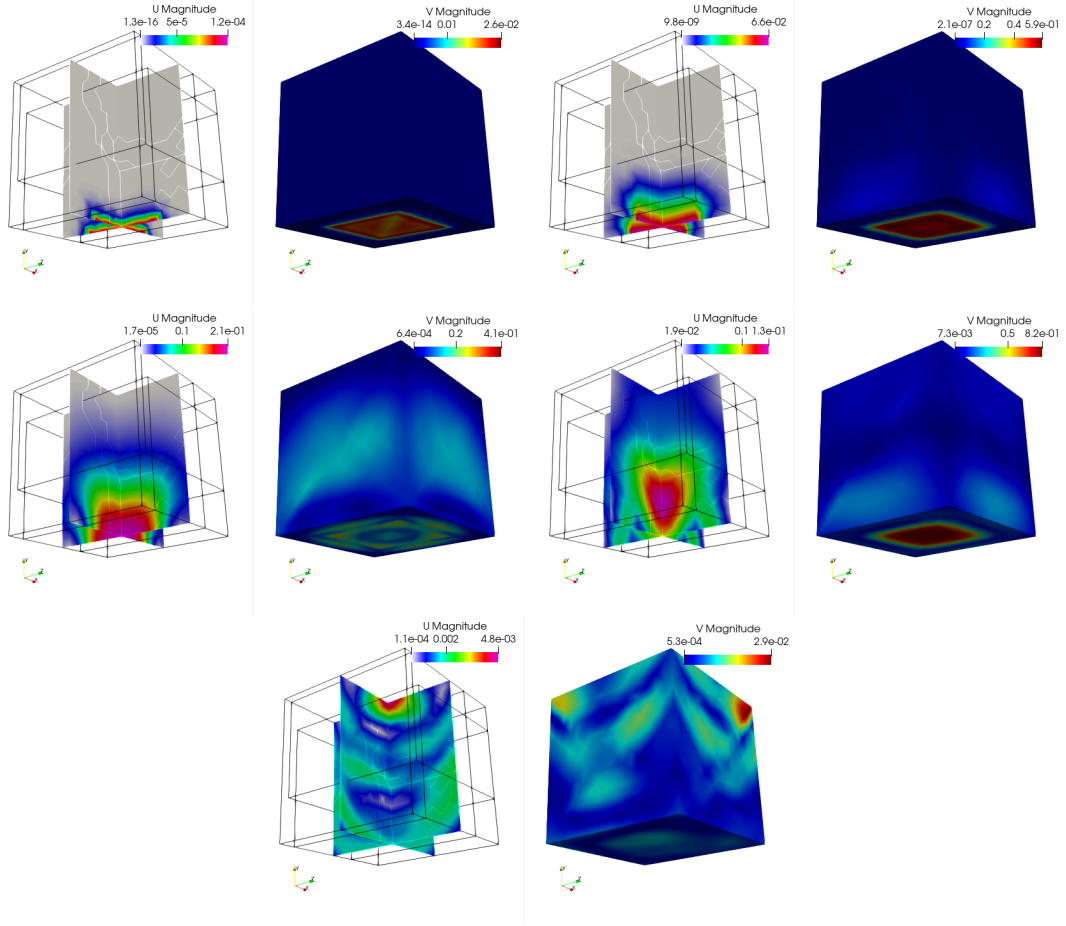


Figure 1: Finite element displacement and velocity fields visualized for the 3D problem with ParaView at different timesteps.