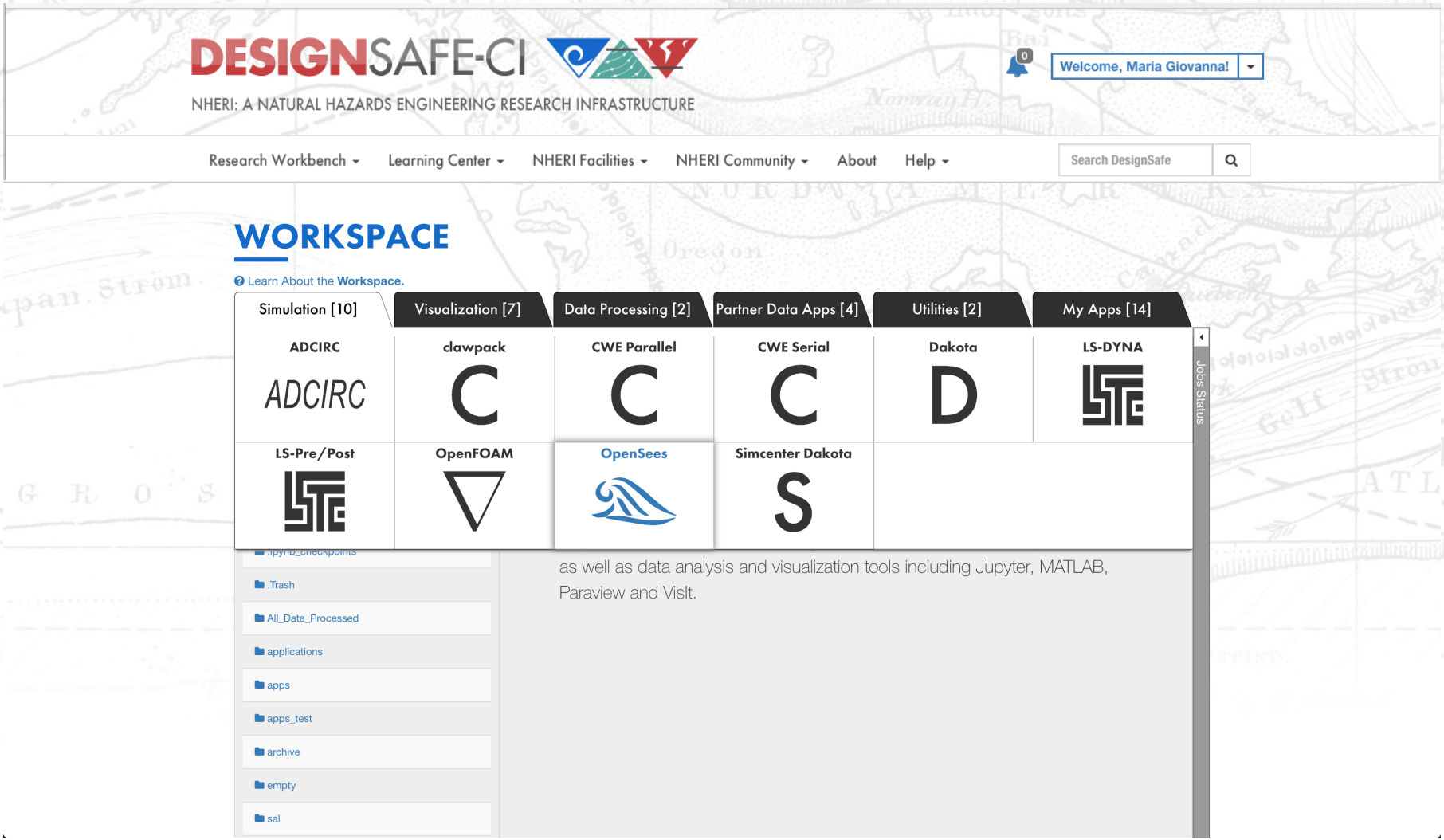
OpenSees & DesignSafe: OpenSeesSP

November 2018

Maria Giovanna Durante, Ph.D.
Postdoctoral Research Fellow
University of Texas at Austin
mgdurante@utexas.edu

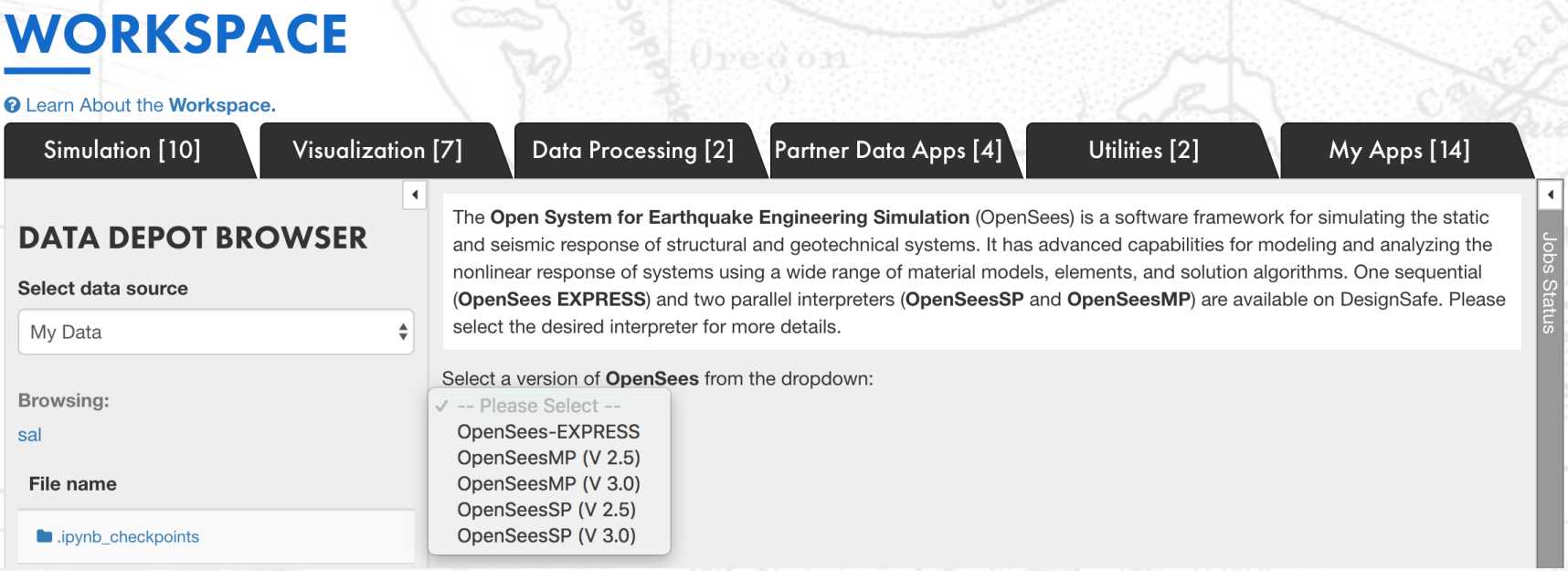
DESIGNSAFE-CI A NATURAL HAZARDS ENGINEERING COMMUNITY
TEXAS The University of Texas at Austin
TACC RICE Florida Tech

OpenSees applications on DesignSafe

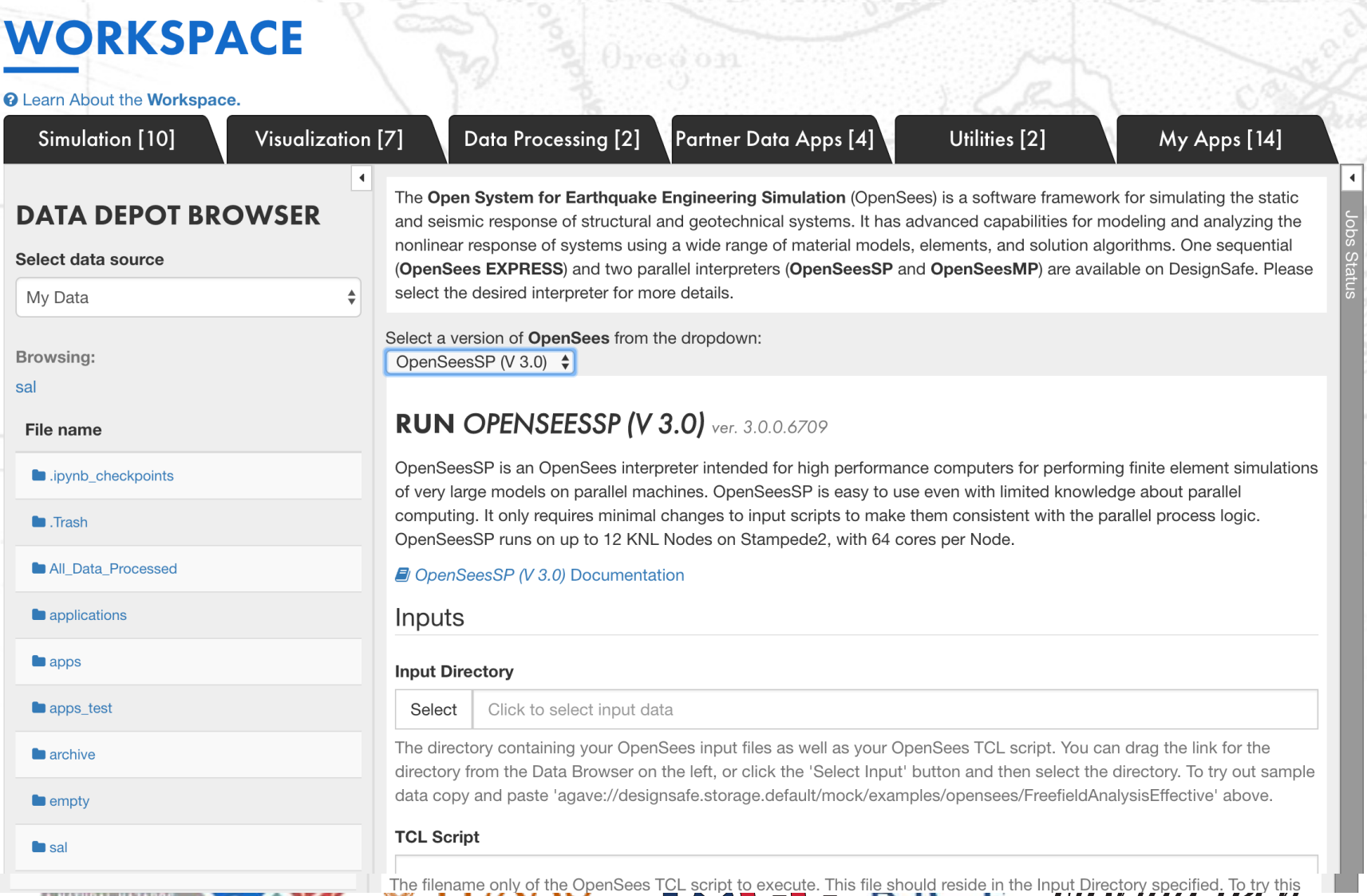


DESIGNSAFE-CI A NATURAL HAZARDS ENGINEERING COMMUNITY · TEXAS The University of Texas at Austin · TACC · RICE · Florida Tech

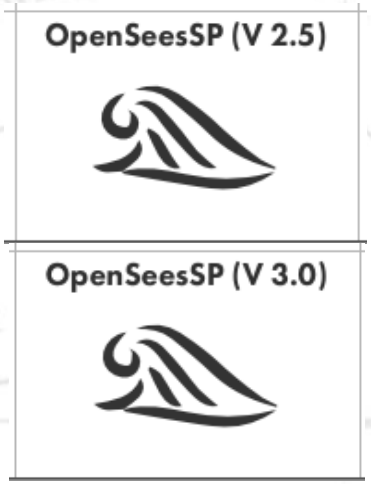
OpenSees applications on DesignSafe



OpenSees applications on DesignSafe



Why OpenSeesSP?



OpenSeesSP is specifically developed for high performance computers (HPC).

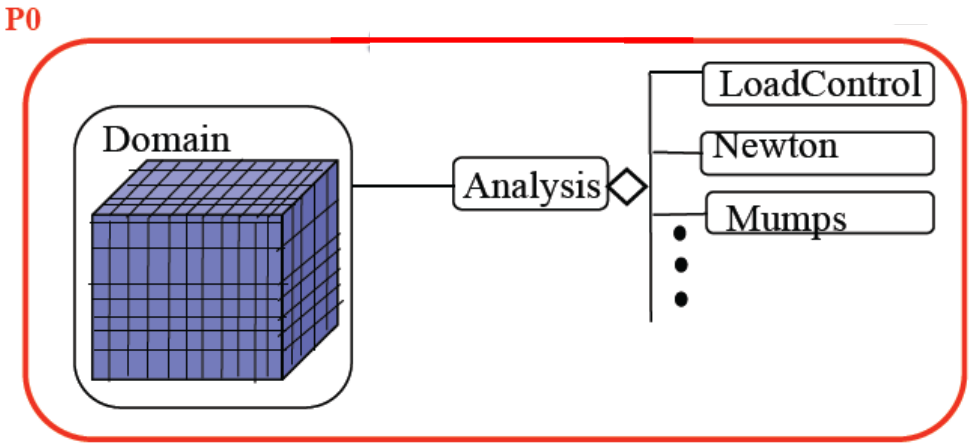
Pros:

- Ideal for very large models;
- Minor changes to the script.

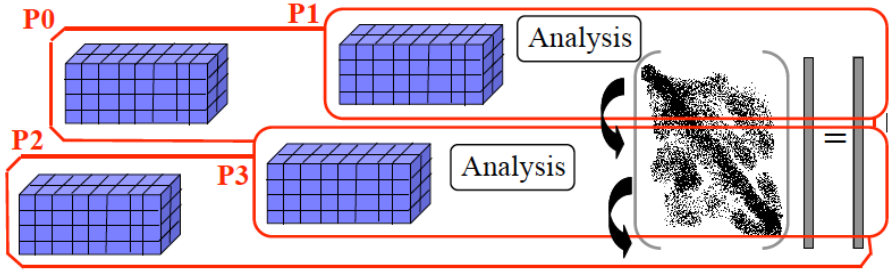
Cons:

- It goes into the queue.

OpenSeesSP: The **S**ingle **P**arallel OpenSees Interpreter



The main Processor (P0) interprets the script to build the model and to construct the analysis.



Other processors (P1, P2, P3) are running sub-domains of the model.

Graphics by McKenna

OpenSeesSP: How to modify the script

The *minimum changes* to the script include:

- Change the System of Equation and the Solver (***System Command***) to one of the following:
  - System Mumps;
  - System Diagonal.

- Change the Output Command for the Recorder substituting the *-file* flag with *–xml:*

recorder Element ~~-file~~ **-xml** Gstress.out -time -eleRange 1 $nElemT stress

OpenSees & DesignSafe: OpenSeesSP

…Questions?

Maria Giovanna Durante, Ph.D.
Postdoctoral Research Fellow
University of Texas at Austin
mgdurante@utexas.edu

DESIGNSAFE-CI A NATURAL HAZARDS ENGINEERING COMMUNITY · TEXAS The University of Texas at Austin · TACC · RICE · Florida Tech