

Modeling with Madagascar

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Segundo Curso de Inverno do Observatório Sismológico - UnB

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Example 1: horizontally layered model. Constant density acoustic modeling.

Main new programs:

- sfawefd2d
- sfricker1

Secondary new programs:

- sfsmooth
- sfwindow
- sfpad
- sfscale

New features:

- Multiple inputs in Flow:
`${SOURCES[#]}`
- Multiple outputs in Flow:
`${TARGETS[#]}`

Example 2: Example 1 using dictionaries.

New features:

- Using dictionary `par` to withhold all the model and modeling parameters

Example 3: Example 2 using functions defined in module `fdmod.py`.

`fdmod.py` functions used:

- `param`: set non specified parameters to default value.
- `point`: creates a `rsf` file with x- and z-coordinates of a point.
- `horizontal`: creates a `rsf` file with x- and z-coordinates of an horizontal array of points.
- `cgrey`: returns the command and parameters to make a generic raster plot.
- `ssplot`: returns the command and parameters to plot source positions to be used in an "Overlay". Based in the `cgraph` function.
- `rrplot`: returns the command and parameters to plot receiver positions to be used in an "Overlay". Based in the `cgraph` function.

Example 3: Example 2 using functions defined in module `fdmod.py`.

`fdmod.py` functions used:

- `cgraph`: returns the command and parameters to plot generic point positions to be used in an "Overlay".
- `wavelet`: creates a `rsf` file with a ricker source signature.
- `awefd`: run the acoustic modeling yielding two `rsf` files: one with the recorded wavefield at the receivers and other with the snapshots of the modeled wavefield throughout the model
- `wgrey`: returns the command and parameters to make a wavefield raster plot.
- `dgrey`: returns the command and parameters to make a seismogram raster plot.

- Exercício 4: Generalize o SConstruct do exercício 3 usando variáveis.
- Exercício 5: Generalize o SConstruct do exercício 3 usando dicionários.