Modeling with Madagascar

Prof. Daniel Leal Macedo

Faculdade de Geofísica - UFPa

18 a 22 de setembro de 2017

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-cordinates of a point.
- `horizontal`: creates a rsf file with x- and z-cordinates 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.

Exercícios.

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