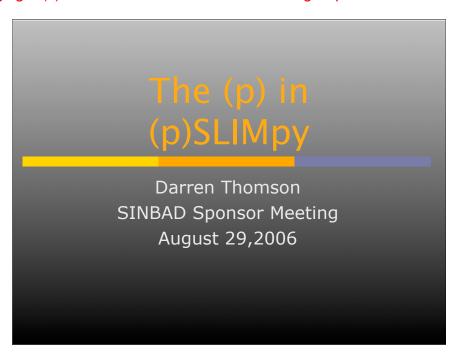
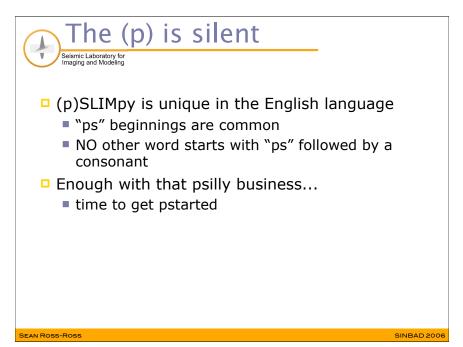
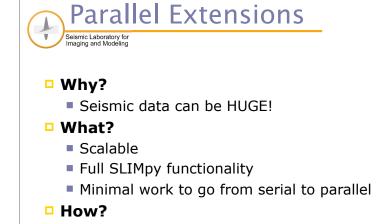
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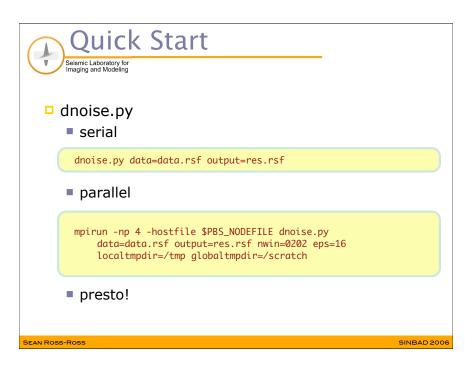




Automatic overlapping domain decomposition

MPI in Python

SEAN ROSS-ROSS





□ Launch (4) MPI process across your nodes

mpirun -np 4 -hostfile \$PBS_NODEFILE ...

Call dnoise.py as you would like

... dnoise.py data=data.rsf output=res.rsf ...

Provide parallel parameters to SLIMpy

... nwin=0202 eps=16 localtmpdir=/tmp globaltmpdir=/scratch

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nwin

- defines number of windows along each axis
- 2 digits per axis, no spaces

eps

- depth of overlap into neighbouring windows
- eps=0 performs non-overlapping windowing

localtmpdir, globaltmpdir

- locations to store temporary binaries
- ensures optimal performance in file I/O

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SLIMpy detects MPI

- splits data files
- parallel operators & vectors inherit from serial
 - minor refinements/tweaks
- rebuilds output files
- Hidden from user
 - NO changes to applications, algorithms



- MPI
 - i.e. MPICH, LAM, etc.
- PETSc
 - libraries for parallel numerical processing
- pypar
 - simple MPI wrapper for Python
- RSF
 - new seismic processing package

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Look Left!!!



- (non-) overlapping domain decomposition not always desired
 - that's ok!
- All manner of embarrassingly parallel problems are easily solved with SLIMpy
- pypar makes it straightforward

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