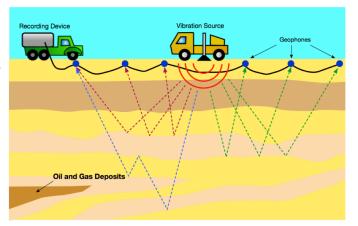


# Seismic Simulation, Survey, and Imaging (S3I) ver. 1.0

#### Purpose of 531

- Provides an easy MATLAB®-based library to simulate seismic imaging
- Produces synthesized data for any given velocity model
- Targets students as well as professionals in exploration geophysics
- Provides an efficient implementation of the processing pileline for seismic imaging
- Provides a platform to build other features such as interpretation and reservoir modeling



Seismic Survey

## Structure of S31 Library

#### Seismic Simulation, Survey, and Imaging Acoustic/Elastic Wave Full Waveform Pre-stack Depth Migration Least-squares RTM Inversion Finite Difference Finite Difference Quasi-Newton Gauss-Newton Time Domain Optimization Frequency Domain **Optimization** Forward/Reverse Staggered grid Finite Sparse Matrix Parallel Computing

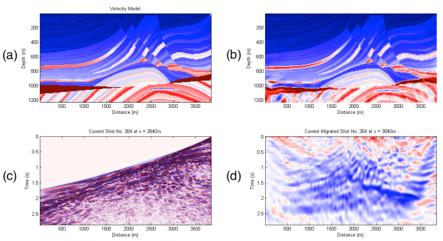
## Main functions of 531

- Acoustic/elastic wave simulation
- Pre-stack depth migration
- Least square RTM (LSRTM)
- Full waveform inversion

#### Other Features

- Open source
- Detailed user guide
- GUI for seismic survey
- C MEX-files enhanced
- Parallel computing

#### Imaging Example



#### Full Waveform Inversion

- (a) True velocity model
- (c) Seismic data for one shot
- (b) Final FWI result
- (d) Imaging result for one shot in one iteration

Download url: http://cegp.ece.gatech.edu/s3i/

