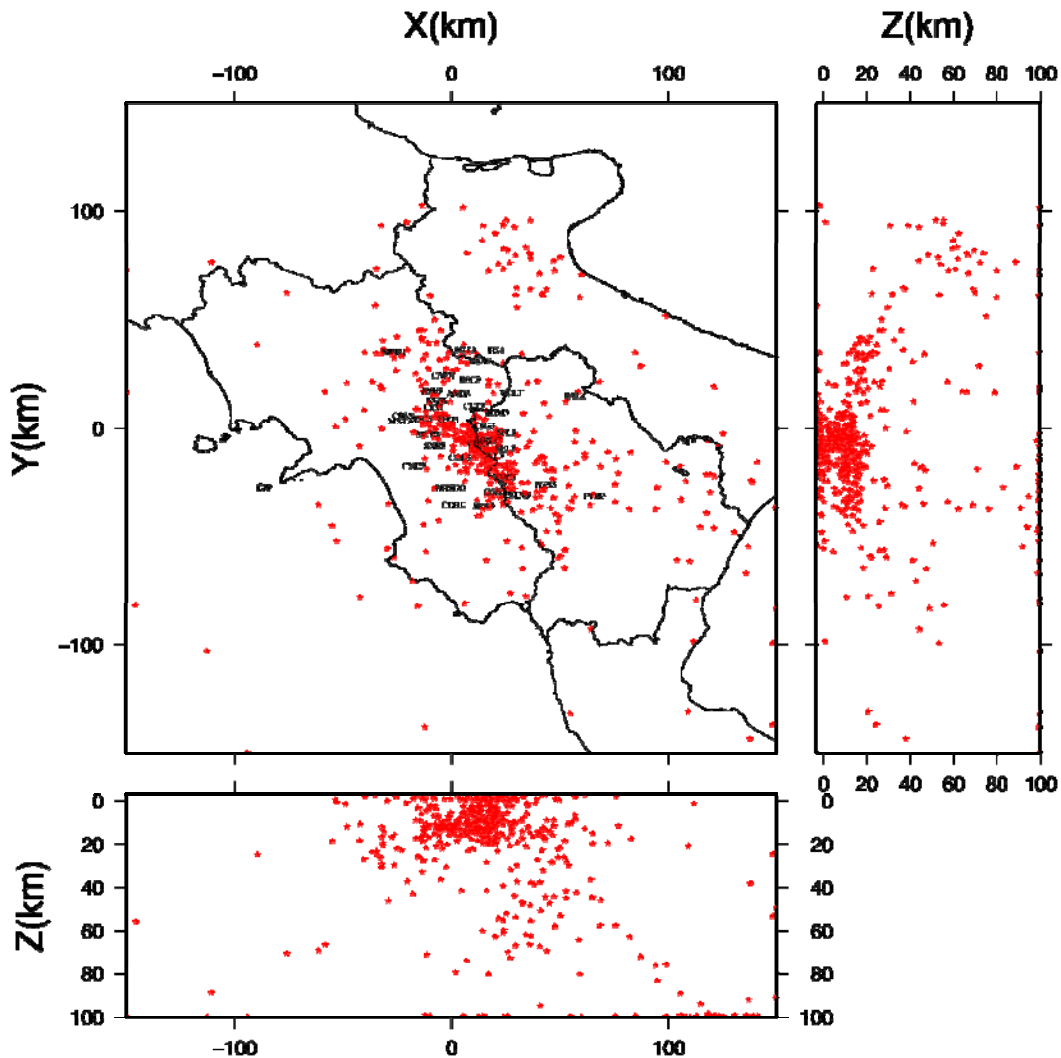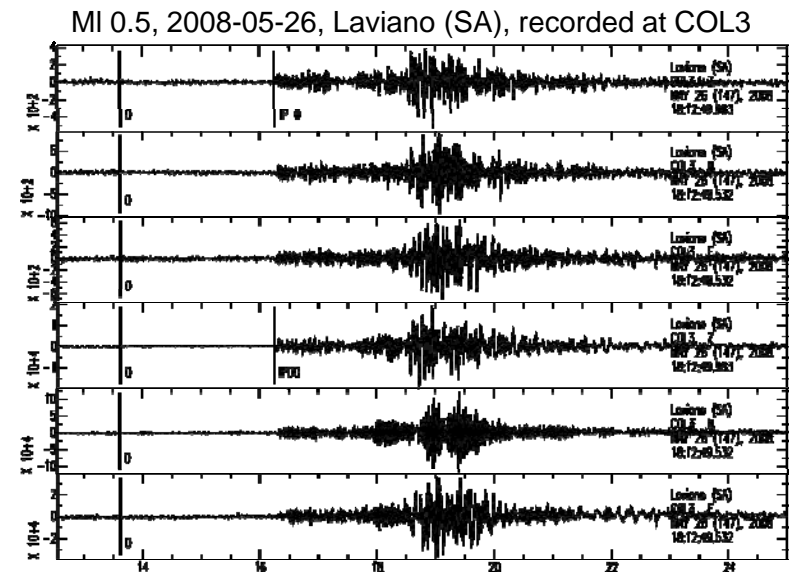# WP3.2 Refined estimates of micro-earthquake source parameters

Claudio Satriano, Università di Napoli Federico II
and AMRA scarl

Data set
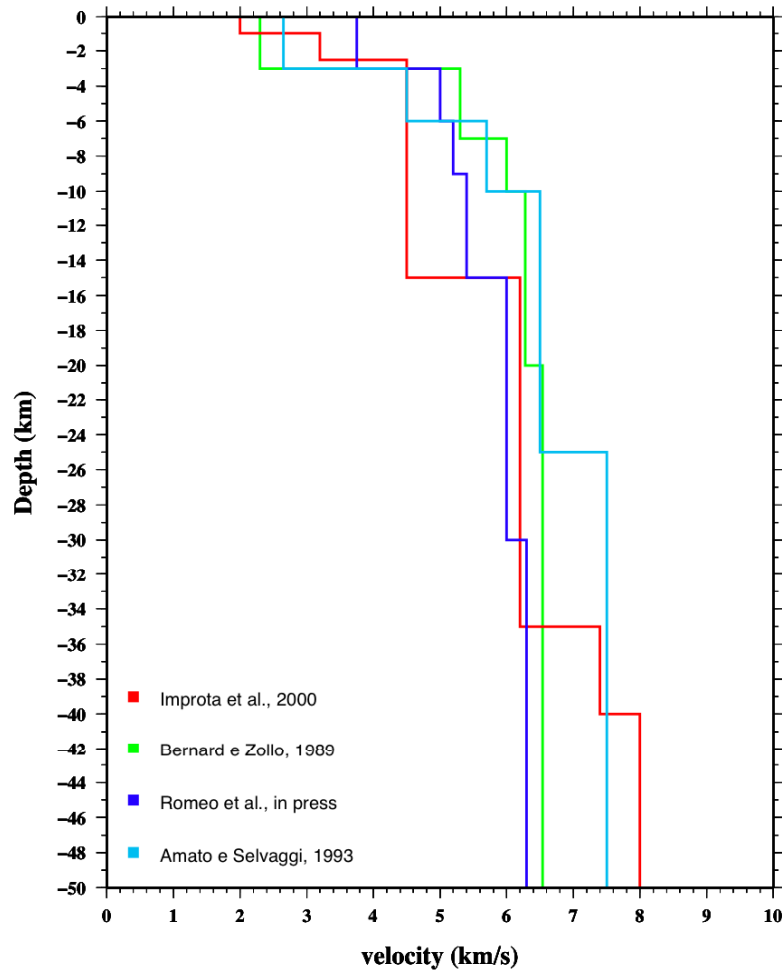

- 520 events (Aug. 2005 – Dec. 2007)
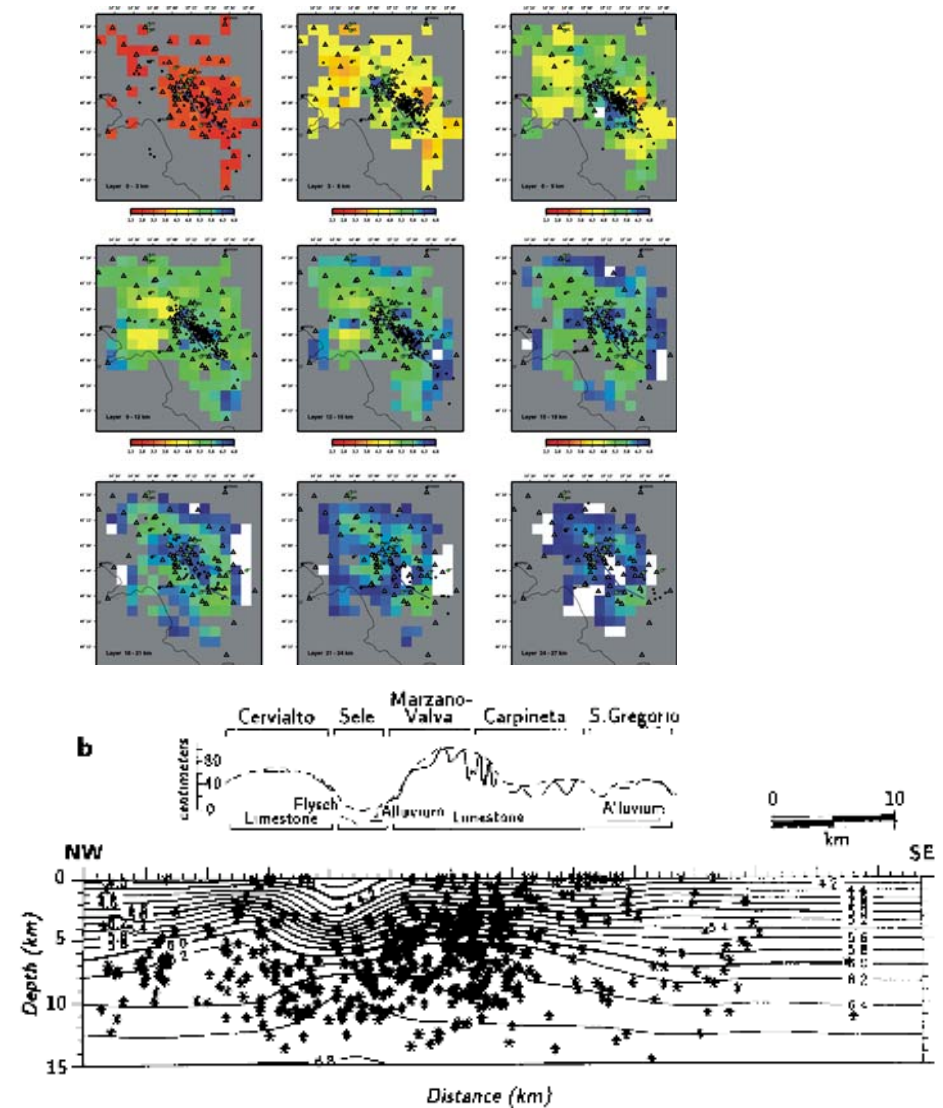 - Growing catalogue
- 0.5 < Mw < 3
- 4411 P phases, 2297 S phases

MI 0.5, 2008-05-26, Laviano (SA), recorded at COL3
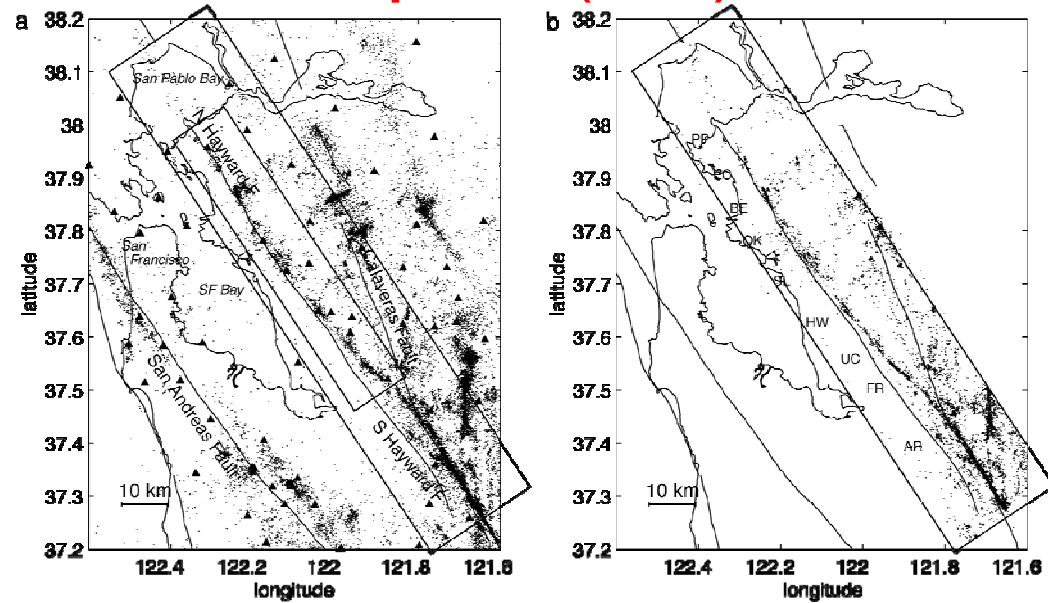
Velocity models

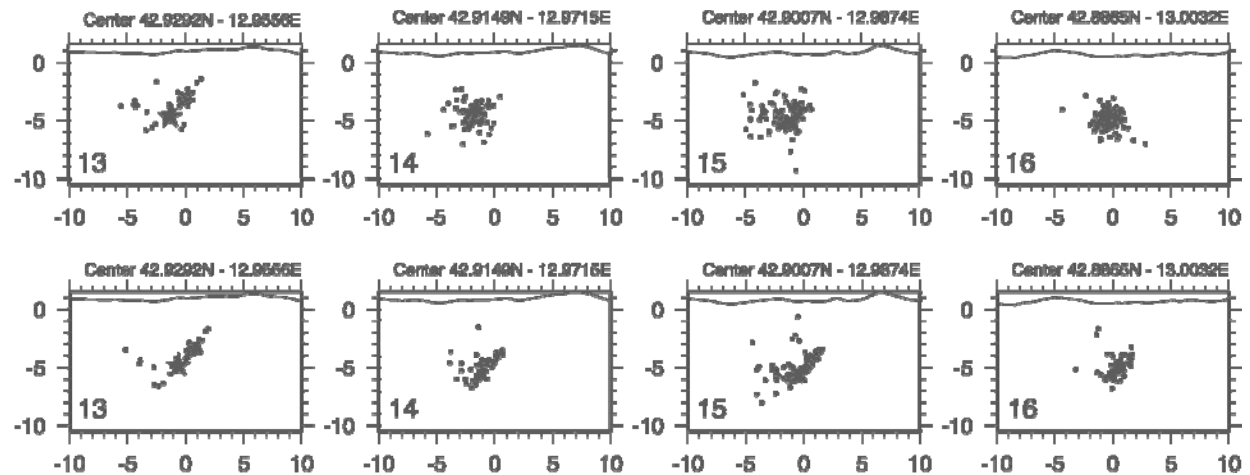3D –Romeo et al., in press

3D – Amato et al., 1992

Objectives and Techniques (1/2)

High resolution images of the Irpinia active fault system:

- Pick refinement through waveform cross-correlation

- Optimal 1D velocity model

- 3D velocity structure through double-difference tomography

- Double-difference location


Hayward Fault - Waldhauser and Ellsworth, 2002

Colfiorito - Chiaraluce et al., 2003

Objectives and Techniques (2/2)

Source parameter estimation:

- Focal mechanism (moment tensor)
  - P polarity
  - S polarization
  - Waveform (moment tensor)?

- Automated, non-linear inversion of P- and S-wave spectra
  - low frequency spectral level
  - Seismic moment
  - Radiated energy
  - corner frequency
  - Stress release
  - attenuation quality factor

- Investigation of attenuation and site amplification effects
  - to correct for path/site effects the spectral shapes

2008
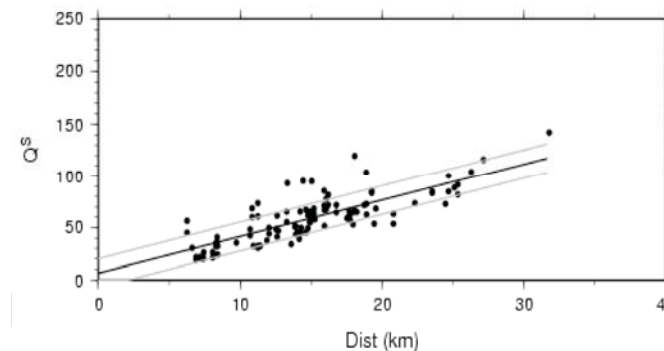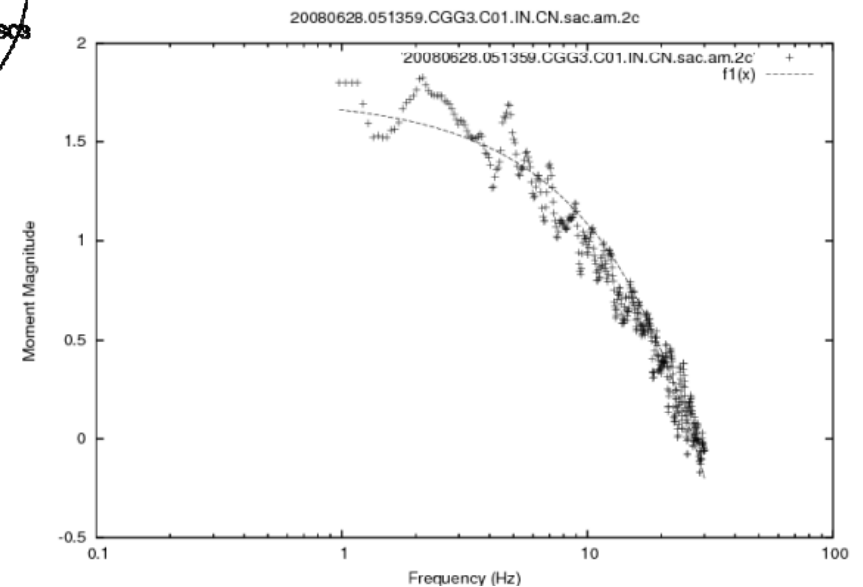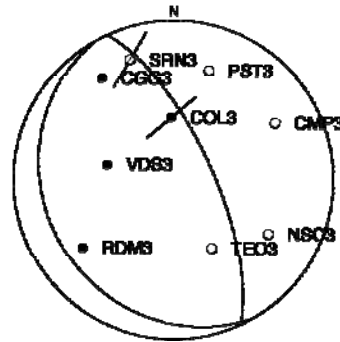
Deliverables

- Catalog of refined phase arrivals

- Parametric catalog of earthquakes
  - Location
  - Focal mechanism
  - Moment/magnitude
  - Source radius
  - Radiated energy
  - Stress release

- 3D velocity model
  - P and S model
  - Including interfaces (WP 3.3)