Seismic Modeling, Migration and Velocity Inversion
Tomography

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Outline
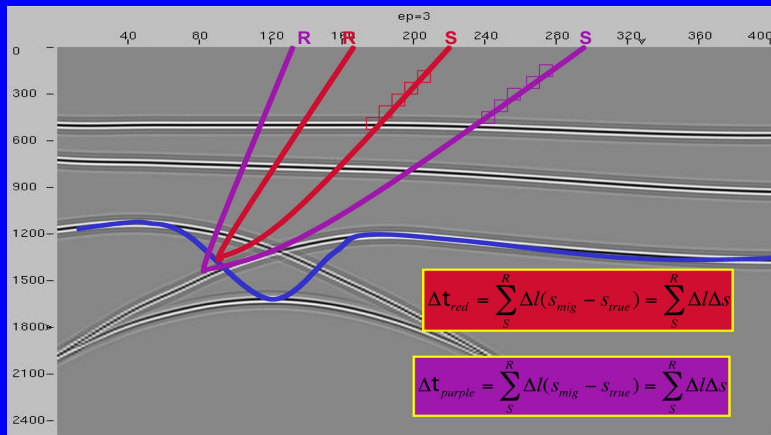
1. **Tomography**
   - Residual Tomography

Outline

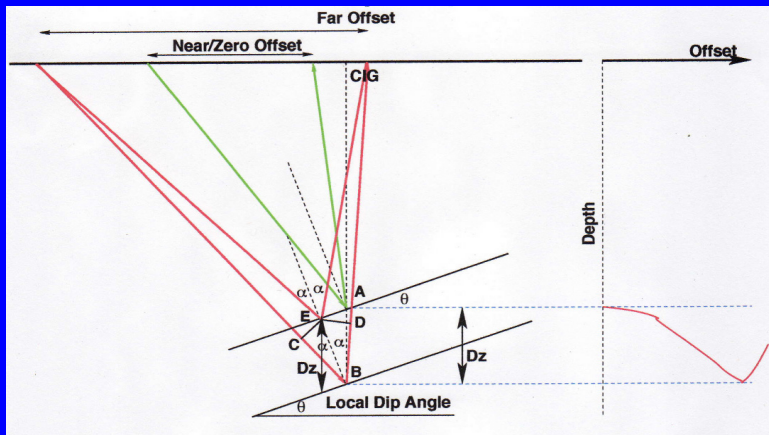# Tomography after Migration

- Residual tomography
  - Generally applied after iterative shot-spread analysis has run its course
  - Based on
    - Local "best" image dip
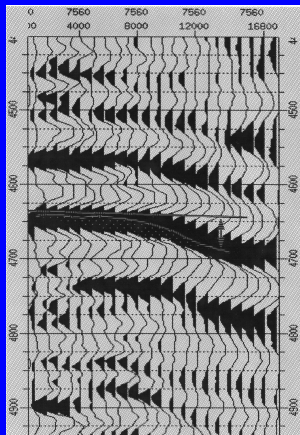   - Offset differences from gathers

Residual Tomography

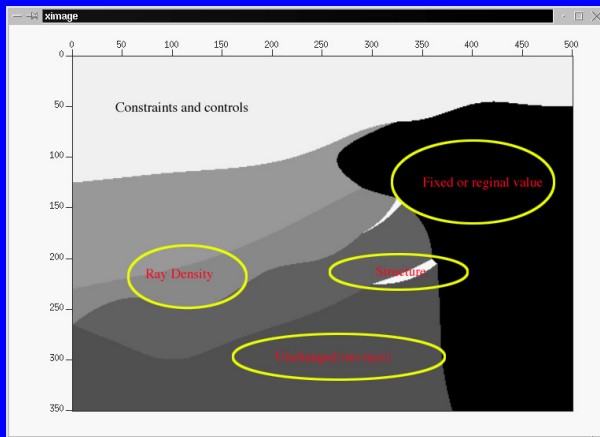Tomographic geometry.

Residual Tomography

Tomographic geometry.
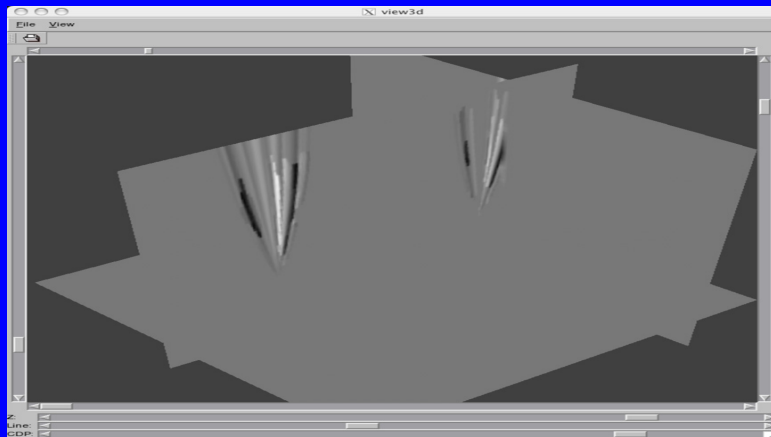
Tomographic Input Requirements

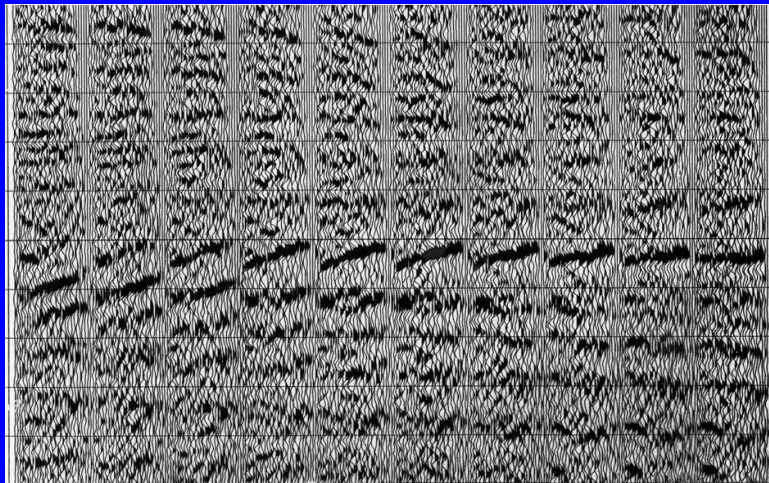Residual depths as input to tomography.

Constraining Tomography

Natural Tomographic Constraints
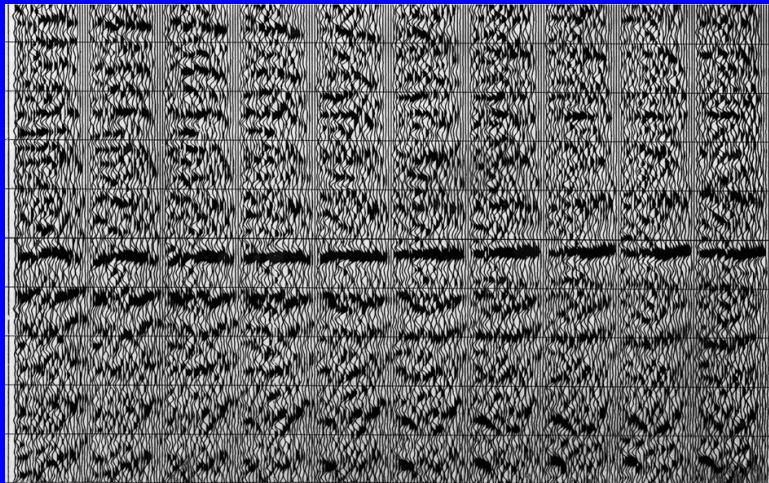
Residual Tomography

Tomographic back projection.
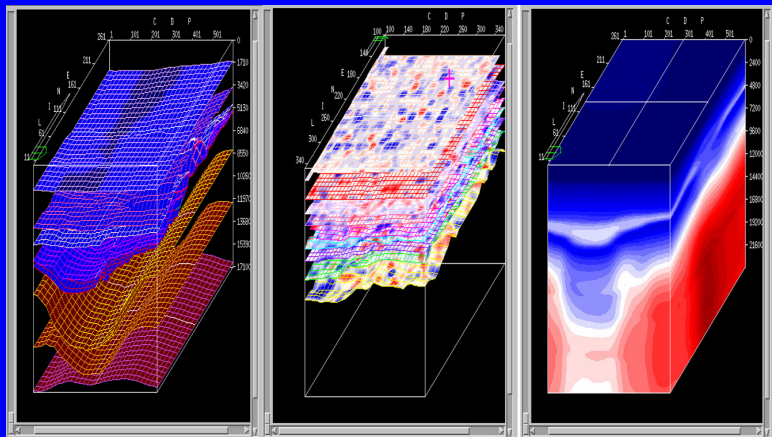
Non-Flat Gathers Before

Non flat gathers.
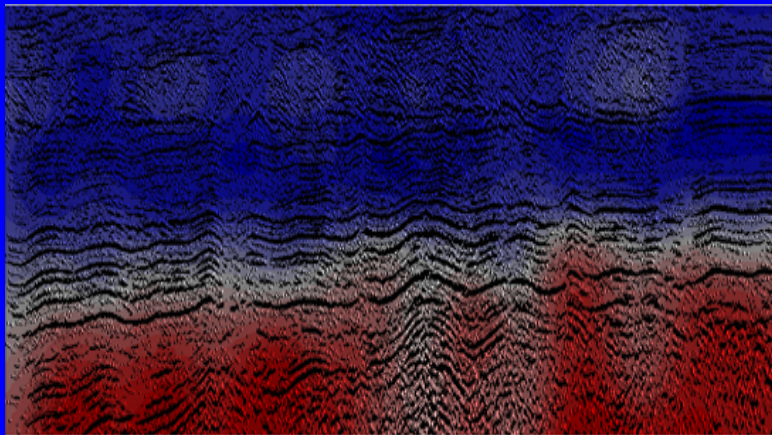
Flat Gathers After

Flat gathers.

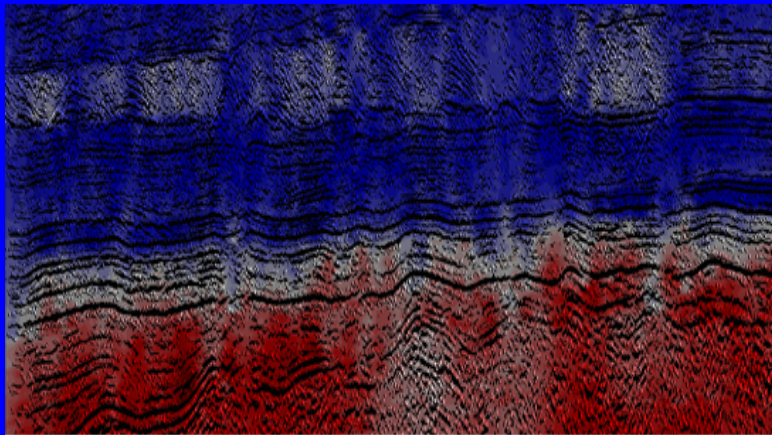# Tomographic Updating

Horizon Based Tomography
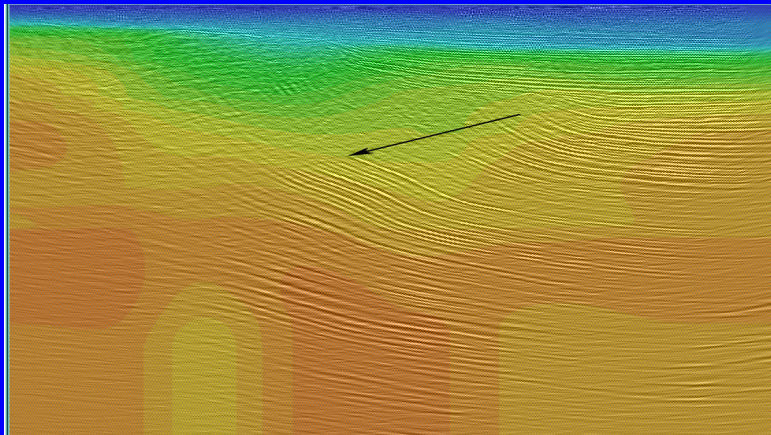
Tomographic Example from Alaska

Alaska land data image without tomography
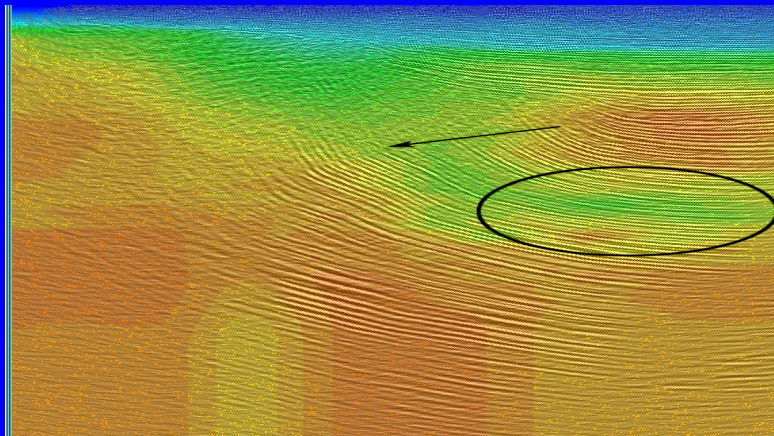
Tomographic Example from Alaska

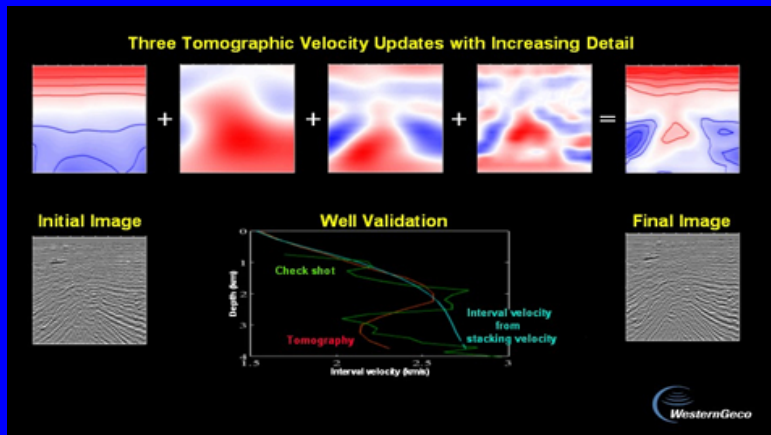Alaska land data image with tomography

Tomographic Example from Wyoming

Wyoming land data image without tomography

Tomographic Example from Wyoming

Wyoming land data image with tomography

Tomographic Example from the Gulf of Mexico

Gulf of Mexico tomographic example. After Marta Jo Woodward. Courtesy WesternGeco

Tomographic Input Requirements

- Required input to residual tomography
    - A good migration velocity field
    - A current set of horizons or
    - Local dip everywhere
    - As many horizons as possible.
    - Picked set of residual depths for each common offset or angle gather

Questions?