INPUT

Waveform Data

Permanent seismic networks

Passive seismic experiments

Time period selection

Processing area selection

PHASE 1

Rayleigh Wave Group Velocity Dispersion Curves (Station-Pair Processing)

Preprocessing of daily records

Cross-correlations and stacks

Frequency-time analysis (FTAN)

Automated velocity-frequency picking

Quality Control

Visual inspection of dispersion curves

Intermediate Product

Dispersion curves per station pair

PHASE 2

2-D(xy) Travel Time Tomography (Frequency Band Processing)

Travel times of all station pairs

Initial velocity model

Forward computation of eikonal equation

Difference computed vs. measured travel times

Update 2-D velocity slice

Quality Control

RMS of the travel time residuals

Checkerboard test

Intermediate Product

Rayleigh wave group velocity slices per frequency band

PHASE 3

1-D(z) Stochastic Inversion (Geographic Grid Processing)

Dispersion curves at regular grid

Depth-velocity model constraints

Neighbourhood Algorithm (NA) direct model search method

Layer stripping

Quality Control

Sensitivity kernels

Uncertainty

Skewness

Misfit

Intermediate Product

1-D(z) Vs velocity models per geographic location

OUTPUT

Final Product

3-D v_s velocity model