1. Let the seismic velocity wavefield be $v(x, t)$.
2. Suppose the wavefield is measured at receiver points, $x_i$.
3. The coherence condition is that the wavefield at two neighboring receiver points, $x_i$ and $x_{i+1}$, are stretched versions of one another.

$$v(x_i, t) \approx v(x_{i+1}, T(x_i, x_{i+1}, t'))$$

4. The mapping function $T(x_i, x_{i+1}, t)$ has the interpretation of travel time, in the sense that $T(o, x, t)$ is the travel time of a wave at $x$, where the wave is named by its travel time $t$, at zero offset.

5. The interpolant for $v(x, t)$, $x_i \leq x \leq x_{i+1}$, is

$$v(x, t) = \left(\frac{x_{i+1} - x}{x_{i+1} - x_i}\right) v(x, t'(t)) + \left(\frac{x - x_i}{x_{i+1} - x_i}\right) v(x_i, T(x_i, x_{i+1}, t'(t)))$$

The implicit equation

where $t'(t)$ solves

$$t'(t) - t = \left(\frac{x - x_i}{x_{i+1} - x_i}\right) [T(x_i, x_{i+1}, t'(t)) - t'(t)]$$

(See diagram)
6. The slowness \( P = \frac{d(\text{Travel time})}{d(\text{distance})} \)

is estimated at \( x \), \( x_i \leq x \leq x_{i+1} \) as

\[
p(x,t) = \frac{T(x_i, x_{i+1}, t'(t)) - t'(t)}{x_{i+1} - x_i}
\]

where \( t'(t) \) solves the implicit equation given in (15).

7. Tau is estimated at \( x \), \( x_i \leq x \leq x_{i+1} \) as

\[
t(x',t) = t - p(x,t)x \quad \text{where } p(x,t) \text{ is as given in (6)}
\]

8. These results can easily be used to produce a top stack of the data.