WHAT IS CLAIMED IS:

1. A method for reconstructing seismic data, the method comprising:

receiving at a computing device an input seismic data set *d* related to plural shots emitted by one or more seismic sources (S), wherein the input seismic data set *d* is indicative of seismic wave paths from the one or more seismic source (S) to receivers;

receiving at the computing device a positional data set d_p relating to recording locations of the receivers that recorded the input seismic data set *d*;

receiving at the computing device a receiver target location;

calculating, with the computing device, an adjusted receiver location based on (i) the positional data set d_p and (ii) the receiver target location, wherein the adjusted receiver location substantially coincides with a receiver location from the positional data set d_p;

calculating, with the computing device, reconstructed seismic data d_r at the adjusted receiver location using the input seismic data set *d* and the positional data set d_p; and

correcting the seismic wave paths from the one or more seismic sources (S) to the receivers based on the reconstructed seismic data d_r.

2. The method of Claim 1, wherein the input seismic data set *d* is acquired with the receivers being located on streamers towed by a vessel, said streamers making a non-zero deviation angle with a pre-plot path of said vessel.

3. The method of Claim 1, wherein the step of correcting includes:

generating an image of the subsurface based on the corrected seismic wave paths.

4. The method of Claim 1, wherein the positional data set includes locations of the receivers distributed along streamers, at instants when the one or more seismic sources were fired.

5. The method of Claim 1, wherein the step of calculating the reconstructed seismic data comprises:

applying a domain transform to the input seismic data *d* to calculate a model *m* of the input seismic data *d*, where the model *m* is in a model domain different from a time-space domain in which the input seismic data *d* is recorded.

6. The method of Claim 5, wherein the domain transform is achieved with a linear operator *L* and the model domain *m* is a Radon domain.

7. The method of Claim 5, further comprising:

applying a reverse transform to the model *m*, to obtain the reconstructed seismic data in the time-space domain,

wherein the model is continuous in the model domain.

8. The method of Claim 1, wherein the reconstructed seismic data d_r at the adjusted receiver location combines all seismic wave paths from the input seismic data set.

9. The method of Claim 8, wherein the wave paths of the input seismic data set contribute with different weights to the reconstructed seismic data.

10. The method of Claim 1, wherein the one or more seismic sources and the receivers are towed in water.

11. The method of Claim 1, wherein the step of calculating the reconstructed seismic data comprises at least one of:

convolving an operator with the input seismic data *d*,

applying a Taylor expansion involving the input seismic data *d*, or

calculating a structural tensor which is a function of the input seismic data *d*.

12. A computing device for reconstructing seismic data, the computing device comprising:

an input/output interface for

receiving an input seismic data set *d* related to plural shots emitted by one or more seismic sources (S), wherein the input seismic data set *d* is indicative of seismic wave paths from the one or more seismic source (S) to receivers,

receiving a positional data set d_p relating to recording locations of the receivers that recorded the input seismic data set d, and

receiving a receiver target location; and

a processor connected to the input/output interface and configured to,

calculate an adjusted receiver location based on (i) the positional data set d_p and (ii) the receiver target location, wherein the adjusted receiver location substantially coincides with a receiver location from the positional data set d_p,

calculate reconstructed seismic data d_r at the adjusted receiver location using the input seismic data set d and the positional data set d_p, and

correct the seismic wave paths from the one or more seismic sources (S) to the receivers based on the reconstructed seismic data d_r.

13. The computing device of Claim 12, wherein the input seismic data set d is acquired with the receivers being located on streamers towed by a vessel, said steamers making a non-zero deviation angle with a pre-plot path of said vessel.

14. The computing device of Claim 12, wherein the processor is further configured to:

generate an image of the subsurface based on the corrected seismic wave paths.

15. The computing device of Claim 12, wherein the positional data set includes locations of the receivers distributed along streamers, at instants when the one or more seismic sources were fired.

16. The computing device of Claim 12, wherein the processor is further configured to:

apply a domain transform to the input seismic data *d* to calculate a model *m* of the input seismic data *d*, where the model *m* is in a model domain different from a time-space domain in which the input seismic data *d* is recorded.

17. The computing device of Claim 12, wherein the reconstructed seismic data d_r at the adjusted receiver location combines all seismic wave paths from the input seismic data set.

18. The computing device of Claim 12, wherein the processor is configured to execute at least one of:

convolving an operator with the input seismic data *d*,

applying a Taylor expansion involving the input seismic data *d*, or

calculating a structural tensor which is a function of the input seismic data *d*.

19. A non-transitory computer readable medium including computer executable instructions, wherein the instructions, when executed by a processor, implement a method for reconstructing seismic data, the method comprising:

receiving at a computing device an input seismic data set *d* related to plural shots emitted by one or more seismic sources (S), wherein the input seismic data set *d* is indicative of seismic wave paths from the one or more seismic source (S) to receivers;