7. The method of claim 2, wherein the step of deriving the other data further comprises the steps of:

supporting the receiver on a freely-drifting buoy; and

determining the position of the buoy at the measured arrival time.

8. The method of claim 2, further comprising the steps of:

transitioning the receiver from a low power sleep mode to a signal reception mode at a time related to the estimated time of arrival; and

transmitting the source data and the other data in real-time from the receiver to a remote terrestrial station.

9. The method of claim 2, further comprising the step of:

positioning the acoustic source and the receiver within an ocean sound channel.

10. The method of claim 2, wherein the other data is spatially averaged water temperature between the source and the receiver.

11. The method of claim 2, further comprising the steps of:

determining a plurality of measured arrival times at which the acoustic signal is received at a plurality of receivers, the travel time of the acoustic signal between the source and each of the plurality of receivers being distinguishably larger than the offset time interval; and

deriving the source data from the measured arrival times.

12. The method of claim 11 further comprising the steps of:

determining a plurality of offset intervals from a difference between an estimated time of arrival of the acoustic signal at each of the plurality of receivers, based on a transmission at the standard time of transmission, and the measured arrival times; and

determining Other data from the actual travel times by subtracting the offset interval from the measured arrival times.

13. The method of claim 12, further comprising the steps of:

supporting the receiver on a freely-drifting buoy; and determining the position of the buoy at the measured arrival time.

14. A method for collecting ocean data, comprising the steps of:

determining a three dimensional position offset between a tethered acoustic source and an anchor point for the source;

deriving an offset time interval related to the three dimensional position offset;

transmitting an acoustic signal from an acoustic source, the time of transmission of the acoustic signal being delayed from a preselected transmission time by the offset time interval;

determining a measured arrival time of the acoustic signal at a free-floating buoy, the travel time of the acoustic signal between the tethered acoustic source and the free-floating buoy being distinguishably smaller than the offset time interval; and

deriving data from the measured arrival time.

15. The method of claim 14, wherein the step of deriving data from the measured arrival time further comprises the steps of:

determining a difference between an estimated time of arrival of the acoustic signal at the free-floating buoy based on a transmission at the standard time of transmission and the measured arrival time.

16. The method of claim 15, wherein the step of deriving data from the measured arrival time further comprises the step of:

determining actual travel time of the acoustic signal between the source and the buoy by subtracting the offset interval from the measured arrival-time.

17. The method of claim 16, further comprising the steps of:

transitioning the receiver from a low power sleep mode to a signal reception mode at a time related to the estimated time of arrival; and

transmitting the data in real-time from the receiver to a remote terrestrial station for collection.

18. The method of claim 16, further comprising the step of:

positioning the-acoustic source and the receiver within an ocean sound channel.

19. The method of claim 16, wherein the data includes spatially averaged water temperature between the source and the receiver and the three dimensional position offset.

20. The method of claim 16, further comprising the steps of:

determining a plurality of measured arrival times at which the acoustic signal is received at a plurality of free-floating buoys, the travel time of the acoustic signal between the source and each of the plurality of free-floating buoys being distinguishably larger than the offset time interval; and

deriving the measured arrival times.

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