WHAT IS CLAIMED IS:

1. A method for controlling a delay of an air-gun in an aquatic seismic source during an aquatic seismic survey, the method comprising:

receiving an attribute of the air-gun during the aquatic seismic survey, wherein the attribute is indicative of an asynchronization time of the air-gun;

calculating, based on a first time-delay algorithm that uses the attribute, the asynchronization time of the air-gun, wherein the asynchronization time is a time difference between (i) a desired time when the air-gun is expected to fire and (ii) an actual time when the air-gun actually fires;

determining whether the asynchronization time is smaller than a given time threshold;

instructing a controller to (1) wait for a predetermined time before calculating again the asynchronization time of the air-gun if the asynchronization time is smaller than the given time threshold, or (2) calculate, using a second time-delay algorithm, an updated asynchronization time for the air-gun based on the attribute if the asynchronization time is larger than the given time threshold; and

sending the updated asynchronization time to a gun controller of the air-gun for adjusting a delay time for firing the air-gun.

2. The method of Claim 1, wherein the updated asynchronization time is set as $\Delta\tilde{T}_i = sign(\Delta T_i) * \Delta t$, where *sign* is the signum function and Δt is a gun controller time resolution.

~~3. The method of Claim 1, wherein the asynchronization time is calculated with a first time-delay algorithm and the updated asynchronization time is calculated with a second time-delay algorithm.~~

~~4~~3. The method of any one of Claims 1 and 2~~to 3~~, wherein the attribute is a near-field signature.

~~5~~4. The method of Claim ~~4~~3, wherein the attribute further includes information about a position of the air-gun and a depth of the air-gun under water.

~~6~~5. The method of any one of Claims 1 to ~~5~~4, wherein a delay time of each air-gun of the seismic source is dynamically adjusted during the seismic survey.

~~7~~6. The method of Claim ~~6~~5, wherein a first delay time of a first air-gun of the seismic source is dynamically adjusted with a different value than a second delay time of a second air-gun of the seismic source.

~~8~~7. The method of Claim 1, wherein sending the updated asynchronization time ~~has a fixed value and is~~ to the gun controller comprises sending a minimum adjustable time unit in the gun controller.

~~9~~8. A computing device for controlling a delay of an air-gun in an aquatic seismic source during an aquatic seismic survey, the computing device comprising:

an interface for receiving an attribute of the air-gun during the aquatic seismic survey, wherein the attribute is indicative of an asynchronization time of the air-gun; and

a processor connected to the interface and configured to,

calculate, based on a first time-delay algorithm that uses the attribute, the asynchronization time of the air-gun, wherein the asynchronization time is a time difference between (i) a desired time when the air-gun is expected to fire and (ii) an actual time when the air-gun actually fires;

determine whether the asynchronization time is smaller than a given time threshold;

instruct the computing device to (1) wait for a predetermined time before calculating again the asynchronization time of the air-gun if the asynchronization time is smaller than the given time threshold, or (2) calculate, using a second time-delay algorithm, an updated asynchronization time for the air-gun based on the attribute if the asynchronization time is larger than the given time threshold; and

send the updated asynchronization time to a gun controller of the air-gun for adjusting a delay time for firing the air-gun.

109. The computing device of Claim 98, wherein the updated asynchronization time is set as $\Delta\tilde{T}_i = sign(\Delta T_i) * \Delta t$, where *sign* is the signum function and Δt is a gun controller time resolution.

~~11. The computing device of Claim 9, wherein the asynchronization time is calculated with a first time-delay algorithm and the updated asynchronization time is calculated with a second time-delay algorithm.~~

~~12~~10. The computing device of any one of Claims ~~9 to 11~~8 and 9, wherein the attribute is a near-field signature.

~~13~~11. The computing device of Claim ~~12~~10, wherein the attribute further includes information about a position of the air-gun and a depth of the air-gun under water.

~~14~~12. The computing device of any one of Claims ~~9~~8 to ~~13~~11, wherein a delay time of each air-gun of the seismic source is dynamically adjusted during the seismic survey.

~~15~~13. The computing device of Claim ~~14~~12, wherein a first delay time of a first air-gun of the seismic source is dynamically adjusted with a different value than a second delay time of a second air-gun of the seismic source.

~~16~~14. The computing device of Claim ~~9~~8, wherein the processor is configured to ~~send the updated asynchronization time has a fixed value and is~~ a minimum adjustable time unit in the gun controller.

~~17~~15. A computer readable media non-transitorily storing executable codes which when executed on a computer make the computer perform a method for controlling a

delay of an air-gun in an aquatic seismic source during an aquatic seismic survey, the method comprising:

receiving an attribute of the air-gun during the aquatic seismic survey, wherein the attribute is indicative of an asynchronization time of the air-gun;

calculating, based on a first time-delay algorithm that uses the attribute, the asynchronization time of the air-gun, wherein the asynchronization time is a time difference between (i) a desired time when the air-gun is expected to fire and (ii) an actual time when the air-gun actually ~~fires~~;

determining whether the asynchronization time is smaller than a given time threshold;

instructing a controller to (1) wait for a predetermined time before calculating again the asynchronization time of the air-gun if the asynchronization time is smaller than the given time threshold, or (2) calculate, using a second time-delay algorithm, an updated asynchronization time for the air-gun based on the attribute if the asynchronization time is larger than the given time threshold; and

sending the updated asynchronization time to a gun controller of the air-gun for adjusting a delay time for firing the air-gun.

~~18~~16. The medium of Claim ~~17~~15, wherein the updated asynchronization time is set as $\Delta\tilde{T}_i = sign(\Delta T_i) * \Delta t$, where *sign* is the signum function and Δt is a gun controller time resolution.

~~19. The medium of Claim 17, wherein the asynchronization time is calculated with a first time-delay algorithm and the updated asynchronization time is calculated with a second time-delay algorithm.~~

~~20~~17. The medium of any one of Claims ~~17 to 19~~15 and 16, wherein the attribute is a near-field signature.