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[54] **GEODETIC POSITION ESTIMATION FOR UNDERWATER ACOUSTIC SENSORS**

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[57] ABSTRACT

A system and survey method for estimating the geodetic position of acoustic sensors placed at fixed but unknown locations on the seafloor is disclosed. Bottom mounted sensors are surveyed using an extension of the well known trilateration survey technique, i.e., making ranging measurements from reference points to the point to be surveyed. For acoustic sensors, these ranging measurements are obtained by transmitting an acoustic signal from a near surface projector and making corresponding timing and/or position measurements, requiring calculation of the Effective Sound Velocity. Bias errors are precluded from propagating to the sensor coordinates by considering timing and sound velocity biases, in addition to the sensor coordinates, as parameters to be estimated.

6 Claims, 3 Drawing Sheets

