

ION GEOPHYSICAL CORP

Form S-3ASR

November 14, 2008

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As filed with the Securities and Exchange Commission on November 14, 2008

Registration No. 333-_____

**UNITED STATES
SECURITIES AND EXCHANGE COMMISSION
Washington, D.C. 20549**

**Form S-3
REGISTRATION STATEMENT UNDER THE SECURITIES ACT OF 1933**

ION Geophysical Corporation

(Exact name of registrant as specified in its charter)

Delaware

*(State or other jurisdiction of
incorporation or organization)*

22-2286646

*(I.R.S. Employer
Identification No.)*

**2105 CityWest Blvd.
Suite 400
Houston, Texas 77042-2839
(281) 933-3339**

(Address, including zip code, and telephone number, including area code, of registrant's principal executive offices)

**David L. Roland, Esq.
Senior Vice President, General Counsel and Corporate Secretary
ION Geophysical Corporation**

**2105 CityWest Blvd.
Suite 400
Houston, Texas 77042-2839
(281) 933-3339**

(Name, address, including zip code, and telephone number, including area code, of agent for service)

Copy to:

**Marc H. Folladori
Mayer Brown LLP
700 Louisiana, Suite 3400
Houston, Texas 77002-2730
(713) 238-3000**

Approximate date of commencement of proposed sale to the public: From time to time after the effective date of this Registration Statement.

If the only securities being registered on this Form are being offered pursuant to dividend or interest reinvestment plans, please check the following box.

If any of the securities being registered on this Form are to be offered on a delayed or continuous basis pursuant to Rule 415 under the Securities Act of 1933, other than securities offered only in connection with dividend or interest reinvestment plans, check the following box.

If this Form is filed to register additional securities for an offering pursuant to Rule 462(b) under the Securities Act, please check the following box and list the Securities Act registration statement number of the earlier effective

registration statement for the same offering.

If this Form is a post-effective amendment filed pursuant to Rule 462(c) under the Securities Act, check the following box and list the Securities Act registration statement number of the earlier effective registration statement for the same offering.

If this Form is a registration statement pursuant to General Instruction I.D. or a post-effective amendment thereto that shall become effective upon filing with the Commission pursuant to Rule 462(e) under the Securities Act, check the following box.

If this Form is a post-effective amendment to a registration statement filed pursuant to General Instruction I.D. filed to register additional securities or additional classes of securities pursuant to Rule 413(b) under the Securities Act, check the following box.

Indicate by check mark whether the registrant is a large accelerated filer, an accelerated filer, a non-accelerated filer, or a smaller reporting company. See the definitions of large accelerated filer, accelerated filer and smaller reporting company in Rule 12b-2 of the Exchange Act. (Check one):

Large accelerated filer
 Accelerated filer
 Non-accelerated filer
 Smaller reporting company

(Do not check if a smaller reporting company)

CALCULATION OF REGISTRATION FEE

Title of Each Class of Securities to be Registered	Amount to be Registered(1)	Proposed Maximum Offering Price Per Unit(2)	Proposed Maximum Aggregate Offering Price(2)	Amount of Registration Fee
Common Stock, par value \$.01 per share	3,629,211 shares	\$4.10	\$14,879,765.10	\$584.77

- (1) Pursuant to Rule 416 under the Securities Act, this Registration Statement also covers an indeterminable number of shares of common stock issued or issuable by reason of stock splits, stock dividends and similar transactions contemplated by Rule 416 under the Securities Act.
- (2) Estimated pursuant to Rule 457(c) under the Securities Act, solely for the purpose of calculating the registration fee, based upon the average of the high and low sales prices of our common stock on November 12, 2008, as reported by the New York Stock Exchange.

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PROSPECTUS

**3,629,211 Shares
ION Geophysical Corporation
Common Stock**

This prospectus covers the potential resale of up to 3,629,211 shares of common stock, \$0.01 par value, of ION Geophysical Corporation, issued by us in connection with our acquisition of ARAM Systems Ltd. (ARAM Systems), and its affiliated company, Canadian Seismic Rentals Inc. (Canadian Seismic Rentals), from their shareholders. ARAM Systems and Canadian Seismic Rentals are sometimes referred to collectively in this prospectus as ARAM.

On September 18, 2008, we acquired all of the outstanding shares of ARAM from their shareholders. As part of the consideration for the acquisition of ARAM, we issued 3,629,211 shares of our common stock to one of the shareholders, 1236929 Alberta Ltd., and agreed to provide certain registration rights to that shareholder. Some or all of the common stock issued may be sold from time to time in market transactions or in other transactions by the selling stockholder. The selling stockholder may sell the shares of common stock described in this prospectus in various ways and at different times as described in this prospectus, but is not required to sell any of these shares. The price to the public for the shares and the proceeds to the selling stockholder at any time will depend upon the terms of such sale. We will not receive any of the proceeds from the sale of the common stock by the selling stockholder, but have agreed to bear the expense of registration of the shares. See Plan of Distribution .

Investing in our common stock involves risks. Please read carefully the section entitled Risk Factors beginning on page 7 of this prospectus, and the sections entitled Item 1A. Risk Factors beginning on page 14 of our Annual Report on Form 10-K for the fiscal year ended December 31, 2007 (as amended), Item 1A. Risk Factors beginning on page 22 of our Quarterly Report on Form 10-Q for the quarter ended June 30, 2008 and Item 1A. Risk Factors beginning on page 33 of our Quarterly Report on Form 10-Q for the quarter ended September 30, 2008, previously filed with the Securities and Exchange Commission and incorporated by reference into this prospectus.

Our common stock is listed on the New York Stock Exchange under the symbol IO. On November 12, 2008, the last reported sale price of our common stock on the New York Stock Exchange was \$3.79 per share.

Neither the Securities and Exchange Commission nor any state securities commission has approved or disapproved of these securities or passed upon the accuracy or adequacy of this prospectus. Any representation to the contrary is a criminal offense.

The date of this prospectus is November 14, 2008.

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ABOUT THIS PROSPECTUS

This prospectus is part of a registration statement that we filed with the Securities and Exchange Commission (SEC) utilizing a shelf registration process or continuous offering process. Under this shelf registration process, the selling stockholder may, from time to time, sell the securities described in this prospectus in one or more offerings. This prospectus provides you with a general description of the securities that may be offered by the selling stockholder. Each time the selling stockholder sells securities, the selling stockholder is required to provide you with this prospectus and, in certain cases, a prospectus supplement containing specific information about the selling stockholder and the terms of the securities being offered. That prospectus supplement may include additional risk factors or other special considerations applicable to those securities. Any prospectus supplement may also add, update or change information in this prospectus. If there is any inconsistency between the information in this prospectus and any prospectus supplement, you should rely on the information in that prospectus supplement. You should read both this prospectus and any prospectus supplement together with additional information described under Incorporation of Certain Information by Reference.

The selling stockholder may offer and sell from time to time up to 3,629,211 outstanding shares of our common stock. The shares of common stock registered for resale in this prospectus have been issued in connection with our acquisition of ARAM. The shares of common stock registered for resale in this prospectus may also include additional shares of common stock that are issued (i) as any dividend or other distribution or as a result of a subdivision, combination or reclassification or (ii) in connection with any merger, consolidation or business combination.

This prospectus does not cover the issuance and sale of shares of common stock by us to the selling stockholder, and we will not receive any of the proceeds from any sale of shares by the selling stockholder. Except for any underwriting discounts and selling commissions that may be paid by the selling stockholder, we have agreed to pay the expenses incurred in connection with the registration of the shares of common stock covered by this prospectus.

Information about the selling stockholder may change over time. Any changed information given to us by the selling stockholder will be set forth in a prospectus supplement if and when necessary. Furthermore, in some cases, the selling stockholder will also be required to provide a prospectus supplement containing specific information about the terms on which it or its permitted assignees are offering and selling our common stock. If a prospectus supplement is provided and the description of the offering in the prospectus supplement varies from the information in this prospectus, you should rely on the information in the prospectus supplement.

We have not authorized the selling stockholder or any dealer, salesman or other person to give you any information or to make any representations other than the information contained in the documents that we incorporate by reference into this prospectus or provide in this prospectus or any prospectus supplement. You should not rely on any information that is not incorporated by reference into or provided in this prospectus or in any prospectus supplement.

This prospectus (and any prospectus supplement) should not be construed as an offer to sell, or a solicitation of an offer to buy, the securities offered hereby in any jurisdiction to any person to whom it is unlawful to make an offer or solicitation in that jurisdiction.

Delivery of this prospectus or any prospectus supplement at any time does not imply that the information contained herein is correct as of any time subsequent to its respective date.

As used in this prospectus, the terms ION, the company, we, our, ours and us refer to ION Geophysical Corporation and its consolidated subsidiaries, except where the context otherwise requires or as otherwise indicated.

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PROSPECTUS SUMMARY

This summary highlights selected information about us and this offering by the selling stockholder contained elsewhere in this prospectus and the documents incorporated by reference into this prospectus. This summary is not complete and may not contain all of the information that is important to you. We urge you to read carefully this prospectus, any accompanying prospectus supplement, and any documents we incorporate by reference in this prospectus and any accompanying prospectus supplement before you make your investment decision.

Our Company

We are a technology-focused seismic solutions company that provides advanced seismic data acquisition equipment, seismic software, and seismic planning, processing and interpretation services to the global energy industry. Our products, technologies and services are used by oil and gas exploration and production (E&P) companies and seismic contractors to generate high-resolution images of the earth's subsurface for exploration, exploitation and production operations. Our products are designed to create better analyses of the subsurface, which enables E&P companies to make improved drilling and production decisions. Our products and services include land and marine seismic data acquisition equipment, navigation and data management software products, survey design planning services, data processing interpretation services and seismic data libraries. We do not own any vessels or maintain any crews that are used to acquire seismic data, but instead we contract with third-party acquisition companies to acquire seismic data on our behalf. We are able to serve E&P customers in all major energy producing regions of the world from strategically located offices in 22 cities on five continents.

Seismic imaging plays a fundamental role in hydrocarbon exploration and reservoir development by delineating structures, rock types, and fluid locations in the subsurface. Geoscientists interpret seismic data to identify new sources of hydrocarbons and pinpoint drilling locations for wells, which can be costly and high risk. As oil and gas reservoirs have become harder to find and more expensive to develop and produce in recent years, the demand for advanced seismic imaging solutions has grown. In addition, seismic technologies are now being applied more broadly over the entire life cycle of a hydrocarbon reservoir to optimize production, such as time-lapse seismic images referred to as 4D or four-dimensional surveys, in which the fourth dimension is time.

We operate our company through four business segments. Three of our business segments Land Imaging Systems, Marine Imaging Systems and Data Management Solutions make up our ION Systems division, and the fourth business segment is our ION Solutions division.

Land Imaging Systems. Includes our cable-based, cableless and radio-controlled seismic data acquisition systems, digital and analog geophone sensors, vibroseis vehicles (i.e., vibrator trucks) and source controllers for detonator and vibrator energy sources.

Marine Imaging Systems. Consists of towed streamer and redeployable ocean bottom cable seismic data acquisition systems and shipboard recorders, streamer positioning and control system and energy sources (such as air guns and air gun controllers).

Data Management Solutions. Includes our software systems and related services for navigation and data management involving towed marine streamer and seabed operations.

ION Solutions. Combines our advanced seismic data processing services for marine and land environments, our marine seismic data libraries, and our Integrated Seismic Solutions services, which manage the entire seismic process from survey planning and design to data acquisition and management through pre-processing and final subsurface imaging.

On September 18, 2008, we completed the acquisition of ARAM. Headquartered in Calgary, Canada and founded in 1971, ARAM is one of the largest independent suppliers of land seismic equipment globally. ARAM manufactures analog seismic equipment and sells and rents the analog seismic equipment to seismic data acquisition contractors. ARAM's products can be fully integrated with a wide range of components and peripheral equipment to form complete analog seismic data acquisition systems for use onshore and in shallow-water transition zones, such

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as marshes and swamps. We believe that the acquisition of ARAM significantly enhances the cable-based land acquisition systems portion of our business. We expect that the combination of ARAM's products with our global distribution capabilities will enhance our competitive position in the land-based cable markets. We anticipate that our and ARAM's complementary product specialties will minimize product overlap and, coupled with ARAM's strong market position in the land cable-based seismic segment, will enable us to create cross-selling opportunities, including the marketing of our advanced digital and cableless systems to ARAM's current customer base. Since the majority of seismic surveys still employ traditional analog data acquisition equipment, we believe the ARAM acquisition will enable us to improve our margins and broaden our customer base in our land-based acquisition systems segment. In addition, we believe that ARAM's positive brand image, known for its durability and compelling price and performance, will strengthen our position and reputation as a leading, diversified seismic solutions provider.

Our executive headquarters are located at 2105 CityWest Boulevard, Suite 400, Houston, Texas 77042-2839. Our telephone number is (281) 933-3339. Our home page on the Internet is *www.iongeo.com*. We make our website content available for information purposes only. It should not be relied upon for investment purposes, nor is it incorporated by reference into this prospectus.

The Offering

Common stock offered by the selling stockholder	3,629,211 shares
Use of proceeds	All of the proceeds from the sale of common stock covered by this prospectus will be received by the selling stockholder. We will not receive any proceeds from the sale of the shares of common stock covered by this prospectus.
NYSE symbol	IO

Risk Factors

An investment in our common stock involves a high degree of risk. For a discussion of certain matters that should be considered by prospective purchasers of our common stock offered hereby, see "Risk Factors" beginning on page 7 of this prospectus, and the sections entitled "Risk Factors" contained in our Annual Report on Form 10-K for the fiscal year ended December 31, 2007 (as amended), our Quarterly Report on Form 10-Q for the quarter ended June 30, 2008 and our Quarterly Report on Form 10-Q for the quarter ended September 30, 2008, which have been previously filed with the SEC and are incorporated by reference into this prospectus.

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CAUTIONARY NOTE REGARDING FORWARD-LOOKING STATEMENTS

This prospectus contains or incorporates by reference statements concerning our future results and performance and other matters that are forward-looking statements within the meaning of Section 27A of the Securities Act and Section 21E of the Securities Exchange Act of 1934, as amended (the Exchange Act). These statements involve known and unknown risks, uncertainties and other factors that may cause our or our industry's results, levels of activity, performance or achievements to be materially different from any future results, levels of activity, performance or achievements expressed or implied by such forward-looking statements. In some cases, you can identify forward-looking statements by terminology such as may, will, would, should, intend, expect, plan, believe, estimate, predict, potential or continue or the negative of such terms or other comparable terminology. Examples of other forward-looking statements contained or incorporated by reference in this prospectus include statements regarding:

- our expectations for future financing and the refinancing of our existing indebtedness;
- the expected effects of current and future worldwide economic conditions and demand for oil and natural gas;
- future levels of spending by our customers;
- expected net revenues, income from operations and net income;
- expected gross margins for our products and services;
- future benefits to our customers to be derived from new products and services, such as Scorpion and FireFly;
- future growth rates for certain of our products and services;
- future sales to our significant customers;
- our ability to continue to leverage our costs by growing our revenues and earnings;
- expectations of oil and gas exploration and production companies and contractor end-users purchasing our more expensive, more technologically advanced products and services;
- the degree and rate of future market acceptance of our new products and services;
- expectations regarding future mix of business and future asset recoveries;
- the timing of anticipated sales;
- anticipated timing and success of commercialization and capabilities of products and services under development and start-up costs associated with their development;
- expected improved operational efficiencies from our full-wave digital products and services;
- potential future acquisitions;
- future levels of capital expenditures;
- future cash needs and future sources of cash, including availability under our revolving line of credit facility;

our ability to maintain our costs at consistent percentages of our revenues in the future;

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the outcome of pending or threatened disputes and other contingencies;

future demand for seismic equipment and services;

future seismic industry fundamentals;

the adequacy of our future liquidity and capital resources;

future oil and gas commodity prices;

future opportunities for new products and projected research and development expenses;

future worldwide economic conditions;

success in integrating our acquired businesses;

expectations regarding realization of deferred tax assets; and

anticipated results regarding accounting estimates we make.

These forward-looking statements reflect our best judgment about future events and trends based on the information currently available to us. Our results of operations can be affected by inaccurate assumptions we make or by risks and uncertainties known or unknown to us. Therefore, we cannot guarantee the accuracy of the forward-looking statements. Actual events and results of operations may vary materially from our current expectations and assumptions.

Information regarding some of the important factors that could cause actual results to differ, perhaps materially, from those in our forward-looking statements is contained in the section entitled **Risk Factors** below in this prospectus, and in the sections entitled **Risk Factors** contained in our Annual Report on Form 10-K for the fiscal year ended December 31, 2007 (as amended), our Quarterly Report on Form 10-Q for the quarter ended June 30, 2008 and our Quarterly Report on Form 10-Q for the quarter ended September 30, 2008, all of which are incorporated into this prospectus by reference.

We disclaim any obligation, other than as may be imposed by law, to publicly update or revise any forward-looking statement, whether as a result of new information, future events or otherwise.

RISK FACTORS

In addition to the sections entitled **Risk Factors** contained in our Annual Report on Form 10-K for the fiscal year ended December 31, 2007 (as amended), our Quarterly Report on Form 10-Q for the quarter ended June 30, 2008 and our Quarterly Report on Form 10-Q for the quarter ended September 30, 2008, which have been previously filed with the SEC and are incorporated by reference into this prospectus, we believe the following risk factors that relate to this offering should be considered carefully.

Our stock price may fluctuate, and your investment in our stock could decline in value.

The trading volume of our common stock may contribute to its volatility, and an active trading market may not continue.

If substantial amounts of our common stock were to be sold in the public market, the market price of our common stock could decline. Some of the other factors that can affect our stock price are:

future demand for seismic equipment and services;

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the announcement of new products, services or technological innovations by us or our competitors;

the adequacy of our liquidity and capital resources;

consolidation among our significant customers;

continued variability in our revenues or earnings;

changes in quarterly revenue or earnings estimates for us made by the investment community;

speculation in the press or investment community about our strategic position, financial condition, results of operations, business or significant transactions; and

general perception of the energy or technology sectors of the economy.

The market price of our common stock may also fluctuate significantly in response to factors that are beyond our control. The stock market in general has recently experienced extreme price and volume fluctuations. These broad market fluctuations could result in extreme fluctuations in the price of our common stock, which could cause a decline in its market value.

Our certificate of incorporation and bylaws, Delaware law and contractual provisions under our agreement with Fletcher International, Ltd. contain provisions that could discourage another company from acquiring us.

Provisions of Delaware law, our certificate of incorporation, bylaws and our agreement dated February 15, 2005, as amended, with Fletcher International, Ltd. (Fletcher) may discourage, delay or prevent a merger or acquisition that our stockholders may consider favorable, including transactions in which you might otherwise receive a premium for shares of our common stock. These provisions include:

authorizing the issuance of blank check preferred stock without any need for action by stockholders;

providing for a classified board of directors with staggered terms;

requiring supermajority stockholder voting to effect certain amendments to our certificate of incorporation and by-laws;

eliminating the ability of stockholders to call special meetings of stockholders;

prohibiting stockholder action by written consent;

establishing advance notice requirements for nominations for election to the board of directors or for proposing matters that can be acted on by stockholders at stockholder meetings; and

requiring an acquiring party to assume all of our obligations under our agreement with Fletcher and the terms of the shares of Series D-1 Cumulative Convertible Preferred Stock, par value \$.01 per share, Series D-2 Cumulative Convertible Preferred Stock, par value \$.01 per share, and Series D-3 Cumulative Convertible Preferred Stock, par value \$.01 per share, set forth in our certificates of rights and designations for those shares, including the dividend, liquidation, conversion, redemption, voting and share registration provisions.

USE OF PROCEEDS

We will not receive any proceeds from the sale of the shares of common stock offered and sold by the selling stockholder pursuant to this prospectus.

Table of Contents**SELLING STOCKHOLDER**

This prospectus is part of a registration statement that we filed pursuant to certain registration rights that we granted to the selling stockholder under an agreement we entered into in connection with our acquisition of ARAM.

As part of the consideration we paid for that acquisition, the selling stockholder received 3,629,211 of our common shares, or approximately 3.65% of our issued and outstanding common shares as of October 31, 2008.

The following table sets forth certain information regarding the selling stockholder's beneficial ownership of our common stock before and after this offering, and number of shares of common stock to be sold by the selling stockholder in this offering. Beneficial ownership is determined in accordance with Rule 13d-3(d) promulgated by the SEC under the Exchange Act. Unless otherwise noted, the selling stockholder possesses sole voting and investment power with respect to the shares. The selling stockholder is not a director, officer or employee of us or an affiliate of such persons.

The selling stockholder was the former sole shareholder of ARAM Systems and received its shares of our common stock as part of the purchase price consideration that we paid in connection with our acquisition of the outstanding shares of ARAM. The selling stockholder is a corporation wholly owned by Donald G. Chamberlain, who was also a shareholder of Canadian Seismic Rentals. Mr. Chamberlain formerly served as an executive officer and a director of ARAM Systems and as a director of Canadian Seismic Rentals.

Name	Common Stock Deemed Beneficially Owned Prior to the Offering	Common Stock Offered Hereby	Common Stock to be Owned After Offering	Percentage of All Common Stock to be Owned After Offering
1236929 Alberta Ltd.	3,629,211 shares	3,629,211 shares		

PLAN OF DISTRIBUTION

The shares of common stock being offered by the selling stockholder have been or will be issued pursuant to an exemption from the registration provisions of the Securities Act. The shares may be sold or distributed from time to time by the selling stockholder, or by pledgees, donees, or transferees of, or other successors-in-interest to, the selling stockholder, directly to one or more purchasers (including pledgees) or through brokers, dealers or underwriters who may act solely as agents or who may acquire shares as principals and will act independently of us in making decisions with respect to the timing, manner and size of each sale.

These sales may be effected in transactions that may involve:

crosses or block transactions

§ on any national securities exchange or quotation service on which the securities may be listed or quoted at the time of sale;

§ in the over-the-counter market;

§ in transactions otherwise than on these exchanges or systems or in the over-the-counter market;

§ through the writing of options or other derivative securities, whether such options or other derivative securities are listed on an options exchange or otherwise;

ordinary brokerage transactions and transactions in which the broker-dealer solicits purchasers;

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block trades in which the broker-dealer will attempt to sell the shares as agent but may position and resell a portion of the block as principal to facilitate the transaction;

purchases by a broker-dealer as principal and resale by the broker-dealer for its account;

an exchange distribution in accordance with the rules of the applicable exchange;

privately negotiated transactions;

pledges to secure debts and other obligations;

the writing or settlement of options or other hedging transactions, whether through an options exchange or otherwise;

sales pursuant to Rule 144;

broker-dealers may agree with the selling shareholders to sell a specified number of such shares at a stipulated price per share;

a combination of any such methods of sale; and

any other method permitted pursuant to applicable law.

If required, this prospectus may be amended or supplemented on a continual basis to describe a specific plan of distribution. In making sales, broker-dealers engaged by the selling stockholder may arrange for other broker-dealers to participate in the resales.

In connection with the sale of shares, the selling stockholder may (1) enter into transactions with brokers, dealers or others, who in turn may engage in sales, including short sales, of the shares in the course of hedging the positions they assume, (2) deliver shares to close out positions entered into with brokers, dealers or others or (3) loan shares to brokers, dealers or others that may in turn sell such shares. The brokers, dealers or others referred to in (1) above may engage in those transactions referred to in (1), (2) or (3) above through this prospectus. The selling stockholder may enter into option, swap or other transactions with broker-dealers, other financial institutions or others that require the delivery to the broker-dealers, financial institutions or others of the shares. The broker-dealers or other financial institutions or others may then resell or transfer these shares through this prospectus. The selling stockholder may also loan or pledge its shares to a broker-dealer or other financial institution. The broker-dealer or financial institution may sell the shares which are loaned or pursuant to a right to rehypothecate while pledged or, upon a default, the broker-dealer or other financial institution may sell the pledged shares by use of this prospectus. The broker-dealer or other financial institution may use shares pledged by the selling stockholder or borrowed from the selling stockholder or others to settle those sales or to close out any related open borrowings of shares, and may use securities received from the selling stockholder in settlement of those derivatives to close out any related open borrowings of shares. Some or all of the shares offered in this prospectus may also be sold to or through an underwriter or underwriters. Any shares sold in that manner will be acquired by the underwriters for their own accounts and may be resold at different times in one or more transactions, including negotiated transactions, at a fixed public offering price or at varying prices determined at the time of sale. These shares may be offered to the public through underwriting syndicates represented by one or more managing underwriters or may be offered to the public directly by one or more underwriters. Any public offering price and any discounts or concessions allowed or disallowed to be paid to dealers may be changed at different times.

The selling stockholder may pay usual and customary or specifically negotiated underwriting discounts and concessions or brokerage fees or commissions in connection with their sales.

The selling stockholder and any dealers or agents that participate in the distribution of the shares may be deemed to be underwriters within the meaning of the Securities Act, and any profit on the sale of shares by them and any commissions received by any such dealers or agents might be deemed to be underwriting discounts and

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commissions under the Securities Act. Because the selling stockholder may be deemed to be an underwriter within the meaning of the Securities Act, the selling stockholder will be subject to the prospectus delivery requirements of the Securities Act. Neither the delivery of any prospectus, or any prospectus supplement, nor any other action taken by the selling stockholder or any purchaser relating to the purchase or sale of shares under this prospectus shall be treated as an admission that any of them is an underwriter within the meaning of the Securities Act relating to the sale of any shares.

To the extent required by the Securities Act, a prospectus supplement will be filed and disclose the specific number of shares of common stock to be sold, the name of the selling stockholder, the purchase price, the public offering price, the names of any agent, dealer or underwriter and any applicable commissions paid or discounts or concessions allowed with respect to a particular offering and other facts material to the transaction. Compensation for or to a particular underwriter or broker-dealer might be in excess of customary commissions and will be in amounts to be negotiated at the time of the sale. We have agreed to bear certain expenses of registration of the common stock under federal and state securities laws and of any offering and sale hereunder but not certain other expenses, such as commissions of dealers or agents, and fees attributable to the sale of the shares. The aggregate proceeds to the selling stockholder from the sale of the shares will be the purchase price of the common stock sold less the aggregate agents commissions, if any, and other expenses of issuance and distribution not borne by us. We will not receive any of the proceeds from the sale of the shares of common stock offered by this prospectus.

In the registration rights agreement, we also have agreed to indemnify the selling stockholder, and the selling stockholder may agree to indemnify any broker-dealer or agent that participates in transactions involving sales of the shares, from certain damages or liabilities arising out of or based upon any untrue or alleged untrue statement of a material fact contained in, or material omission or alleged omission from, the Registration Statement of which this prospectus is a part, except to the extent the untrue or alleged untrue statement or omission or alleged omission was caused by or contained in any written information furnished for inclusion herein by such selling stockholder.

We have agreed to file this Registration Statement with the SEC for the benefit of the selling stockholder and to use our best efforts to keep it effective until the earlier of: (i) the date after which all of the shares registered hereby have been distributed by the selling stockholder and (ii) the date that is the first anniversary of the effective date of this Registration Statement.

Any securities covered by this prospectus that qualify for sale pursuant to Rule 144 under the Securities Act may be sold under that rule rather than pursuant to this prospectus.

The shares may be sold through registered or licensed brokers or dealers if required under applicable state securities laws. Additionally, in some states the shares may not be sold unless they have been registered or qualified for sale in the applicable state or an exemption from the registration or qualification requirement is available and is complied with. We cannot assure you that the selling stockholder will sell any or all of the common stock offered hereunder.

LEGAL MATTERS

Mayer Brown LLP, Houston, Texas, has passed on certain legal matters with respect to the shares of common stock offered hereunder.

EXPERTS

The consolidated financial statements of ION Geophysical Corporation appearing in ION Geophysical Corporation's Annual Report on Form 10-K for the year ended December 31, 2007 (as amended by Form 10-K/A filed with the SEC on March 4, 2008), including the schedule appearing therein, and the effectiveness of ION Geophysical Corporation's internal control over financial reporting as of December 31, 2007 included therein, have been audited by Ernst & Young LLP, independent registered public accounting firm, as set forth in its reports, included therein, and incorporated herein by reference. Such consolidated financial statements and assessment are

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incorporated herein by reference in reliance upon such reports given on the authority of such firm as an expert in accounting and auditing.

The audited combined balance sheets of ARAM as at December 31, 2007 and 2006 and the related audited combined statements of net income, comprehensive income and retained earnings and cash flows for the years ended December 31, 2007, 2006 and 2005, included as Exhibit 99.2 of ION Geophysical Corporation's Form 8-K/A dated November 3, 2008 have been so incorporated in reliance on the report of PricewaterhouseCoopers LLP, independent auditors, given on the authority of such firm as experts in auditing and accounting.

WHERE YOU CAN FIND MORE INFORMATION

We have filed with the SEC a Registration Statement on Form S-3 under the Securities Act with respect to the shares. This prospectus, which is included in the Registration Statement, does not contain all of the information in the Registration Statement.

In portions of this Form S-3, we incorporate by reference information from parts of other documents filed with the SEC. The SEC allows us to disclose important information by referring to it in this manner, and you should review this information. We make our annual reports on Form 10-K, quarterly reports on Form 10-Q, current reports on Form 8-K, annual reports and proxy statements for our stockholders' meetings, as well as any amendments to those reports, available free of charge through our website as soon as reasonably practicable after we electronically file those materials with, or furnish them to, the SEC. You may inspect and copy these reports, proxy statements and other information at the public reference facilities maintained by the SEC in Washington, D.C. (100 F Street N.E., Washington, D.C. 20549). Copies of such materials can be obtained from the SEC's public reference section at prescribed rates. You may obtain information on the operation of the public reference rooms by calling the SEC at (800) SEC-0330.

You can also learn more about us by reviewing our SEC filings on our website. Our SEC reports can be accessed through the investor relations page of our website located at www.iongeo.com. The SEC also maintains a website at www.sec.gov that contains reports, proxy statements, and other information regarding SEC registrants, including our company.

We furnish holders of our common stock with annual reports containing financial statements audited by our independent registered public accounting firm in accordance with generally accepted accounting principles following the end of each fiscal year. We file reports and other information with the SEC pursuant to the reporting requirements of the Exchange Act.

Our common stock is listed on the New York Stock Exchange (NYSE) and we are required to file reports, proxy statements and other information with the NYSE. You may obtain information on any document we file with the NYSE at the offices of The New York Stock Exchange, Inc. which is located at 20 Broad Street, New York, New York.

Descriptions in this prospectus of documents are intended to be summaries of the material, relevant portions of those documents, but may not be complete descriptions of those documents. For complete copies of those documents, please refer to the exhibits to the Registration Statement and other documents filed by us with the SEC.

INCORPORATION OF CERTAIN INFORMATION BY REFERENCE

The following that we have filed with the SEC are incorporated herein by reference:

Our Annual Report on Form 10-K for our fiscal year ended December 31, 2007 (as amended by Form 10-K/A filed with the SEC on March 4, 2008).

Our Quarterly Reports on Form 10-Q filed with the SEC on May 7, 2008, August 7, 2008 and November 7, 2008.

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Our Current Reports on Form 8-K filed with the SEC on February 15, 2008, February 22, 2008, February 28, 2008, March 3, 2008, July 8, 2008, July 9, 2008 (as amended by Form 8-K/A filed with the SEC on July 10, 2008), August 18, 2008, August 22, 2008 and September 23, 2008 (as amended by Form 8-K/A filed with the SEC on November 3, 2008), to the extent filed and not furnished pursuant to Section 13(a) of the Exchange Act.

The description of our common stock, \$0.01 par value per share, contained in our Registration Statement on Form 8-A filed with the SEC in October 1994, as amended by our Current Report on Form 8-K filed with the SEC on March 8, 2002, our Current Report on Form 8-K filed with the SEC on December 20, 2007 and our Current Report on Form 8-K filed with the SEC on February 28, 2008.

All documents we file with the SEC pursuant to Section 13(a), 13(c), 14 or 15(d) of the Exchange Act after the date of this prospectus but before the termination of the offering by this prospectus shall be deemed to be incorporated herein by reference and to be a part hereof from the date of the filing of those documents. See the section of this prospectus entitled *Where You Can Find More Information* for information concerning how to read and obtain copies of materials that we file with the SEC at the SEC's Public Reference Room.

Any statement contained in a document incorporated by reference herein shall be deemed to be modified or superseded for all purposes to the extent that a statement contained in this prospectus, or in any other subsequently filed document which is also incorporated or deemed to be incorporated by reference, modifies or supersedes such statement. Any statement so modified or superseded shall not be deemed, except as so modified or superseded, to constitute a part of this prospectus.

We will provide, without charge, to each person to whom a copy of this prospectus has been delivered, upon written or oral request of such person, a copy of any or all of the documents incorporated by reference herein (other than certain exhibits to such documents not specifically incorporated by reference). Requests for such copies should be directed to:

ION Geophysical Corporation
2105 CityWest Blvd.
Suite 400
Houston, Texas 77042-2839
Tel: (281) 933-3339
Attention: Senior Vice President,
General Counsel and Corporate Secretary
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PART II
INFORMATION NOT REQUIRED IN PROSPECTUS

Item 14. Other Expenses of Issuance and Distribution.

An estimate (other than the SEC registration fee) of the fees and expenses of issuance and distribution of the securities offered hereby (all of which will be paid by ION) is as follows:

SEC registration fee	\$ 584.77
Legal fees and expenses	\$ 20,000.00
Accounting fees and expenses	\$ 15,000.00
Printing expenses	\$ 4,500.00
 Total	 \$40,084.77

Item 15. Indemnification of Directors and Officers.

The General Corporation Law of the State of Delaware (the "DGCL") permits ION and its stockholders to limit directors' exposure to liability for certain breaches of the directors' fiduciary duty, either in a lawsuit on behalf of ION or in an action by stockholders of ION. The Restated Certificate of Incorporation of ION provides that a director of ION shall not be personally liable to ION or its stockholders for monetary damages for breach of fiduciary duty as a director, except for liability (i) for any breach of the director's duty of loyalty to ION or its stockholders, (ii) for acts or omissions not in good faith or which involve intentional misconduct or a knowing violation of law, (iii) under Section 174 of the DGCL or (iv) for any transaction from which the director derived an improper personal benefit.

The Amended and Restated Bylaws (the "Bylaws") of ION provide that ION shall, to the full extent permitted by applicable laws (including the DGCL), indemnify its directors, officers, employees and agents with respect to expenses (including counsel fees), judgments, fines, penalties, other liabilities and amounts incurred by any such person in connection with any threatened, pending or completed action, suit or proceeding to which such person is or was a party, or is or was threatened to be made a party, by reason of the fact that such person is or was serving as a director, officer, employee or agent of ION or any of its subsidiaries, or is or was serving at the request of ION or any of its subsidiaries as a director, officer, employee, agent or trustee of another corporation, partnership, joint venture, trust, employee benefit plan or other enterprise. The Bylaws provide that the indemnification provided pursuant to the Bylaws is not exclusive of any other rights to which those seeking indemnification may be entitled under any provision of law, certificate of incorporation, bylaws, governing documents, agreement, vote of stockholders or disinterested directors or otherwise. ION has entered into indemnification agreements with certain of its officers and directors, under which ION has agreed to indemnify its officers and directors against certain liabilities.

ION maintains a standard form of officers' and directors' liability insurance policy which provides coverage to the officers and directors of ION for certain liabilities, including certain liabilities which may arise out of this Registration Statement.

Item 16. Exhibits.

The exhibits listed in the Exhibit Index are filed as part of this Registration Statement.

**Exhibit
Number**

Description

2.1	Amended and Restated Share Purchase Agreement, dated as of September 17, 2008, by and among ION Geophysical Corporation, ARAM Systems Ltd., Canadian Seismic Rentals Inc. and the Sellers party thereto filed as Exhibit 2.1 of the company's Current Report on Form 8-K filed with the Securities and Exchange Commission on September 23, 2008, and incorporated herein by reference.
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Exhibit Number	Description
4.1	Specimen Certificate for shares of common stock filed as Exhibit 4.1 of the company's Registration Statement on Form S-3 filed with the Securities and Exchange Commission on December 21, 2007, and incorporated herein by reference.
4.2	Restated Certificate of Incorporation filed as Exhibit 3.4 of the company's Current Report on Form 8-K filed with the Securities and Exchange Commission on September 24, 2007, and incorporated herein by reference.
4.3	Amended and Restated Bylaws of the company filed as Exhibit 3.5 of the company's Current Report on Form 8-K filed with the Securities and Exchange Commission on September 24, 2007, and incorporated herein by reference.
4.4	Registration Rights Agreement dated as of September 18, 2008 between ION Geophysical Corporation and 1236929 Alberta Ltd. filed as Exhibit 10.1 of the Company's Quarterly Report on Form 10-Q filed with the Securities and Exchange Commission on November 7, 2008, and incorporated herein by reference.
*5.1	Opinion of Mayer Brown LLP.
*23.1	Consent of Ernst & Young LLP.
*23.2	Consent of PricewaterhouseCoopers LLP.
*23.3	Consent of Mayer Brown LLP (incorporated by reference to Exhibit 5.1).
24.1	Power of Attorney (included on the signature page hereto).

* Filed herewith

Item 17. Undertakings.

The undersigned Registrant hereby undertakes:

(1) To file, during any period in which offers or sales are being made, a post-effective amendment to this Registration Statement: (i) to include any prospectus required by Section 10(a)(3) of the Securities Act; (ii) to reflect in the prospectus any facts or events arising after the effective date of the Registration Statement (or the most recent post-effective amendment thereof) which, individually or in the aggregate, represent a fundamental change in the information set forth in the Registration Statement. Notwithstanding the foregoing, any increase or decrease in volume of securities offered (if the total dollar value of securities offered would not exceed that which was registered) and any deviation from the low or high end of the estimated maximum offering range may be reflected in the form of prospectus filed with the Commission pursuant to Rule 424(b) if, in the aggregate, the changes in volume and price represent no more than a 20 percent change in the maximum aggregate offering price set forth in the Calculation of Registration Fee table in the effective Registration Statement; and (iii) to include any material information with respect to the plan of distribution not previously disclosed in the Registration Statement or any material change to such information in the Registration Statement; provided, however, that (i) and (ii) above do not apply if the Registration Statement is on Form S-3 or Form S-8, and the information required to be included in a post-effective amendment by (i) and (ii) is contained in periodic reports filed with or furnished to the Commission by the Registrant pursuant to Section 13 or Section 15(d) of the Exchange Act that are incorporated by reference in the Registration Statement, or is contained in a form of prospectus filed pursuant to Rule 424(b) that is part of the Registration Statement.

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(2) That, for the purpose of determining any liability under the Securities Act, each such post-effective amendment shall be deemed to be a new registration statement relating to the securities offered therein, and the offering of such securities at that time shall be deemed to be the initial bona fide offering thereof.

(3) To remove from registration by means of a post-effective amendment any of the securities being registered which remain unsold at the termination of the offering.

(4) That, for the purpose of determining liability under the Securities Act to any purchaser:

(i) Each prospectus filed by the registrant pursuant to Rule 424(b)(3) shall be deemed to be part of the registration statement as of the date the filed prospectus was deemed part of and included in the registration statement; and

(ii) Each prospectus required to be filed pursuant to Rule 424(b)(2), (b)(5) or (b)(7) as part of a registration statement in reliance on Rule 430B relating to an offering made pursuant to Rule 415(a)(1)(i), (vii) or (x) for the purpose of providing the information required by Section 10(a) of the Securities Act shall be deemed to be part of and included in the registration statement as of the earlier of the date such form of prospectus is first used after effectiveness and the date of the first contract of sale of securities in the offering described in the prospectus. As provided in Rule 430B, for liability purposes of the issuer and any person that is at that date an underwriter, such date shall be deemed to be a new effective date of the registration statement relating to the securities in the registration statement to which that prospectus relates, and the offering of such securities at that time shall be deemed to be the initial bona fide offering thereof; provided, however, that no statement made in a registration statement or prospectus that is part of the registration statement or made in a document incorporated or deemed incorporated by reference into the registration statement or prospectus that is part of the registration statement will, as to a purchaser with a time of contract of sale prior to such effective date, supersede or modify any statement that was made in the registration statement or prospectus that was part of the registration statement or made in any such document immediately prior to such effective date.

(5) That, for the purpose of determining liability of the registrant under the Securities Act to any purchaser in the initial distribution of the securities, in a primary offering of securities of the undersigned registrant pursuant to this Registration Statement, regardless of the underwriting method used to sell the securities to the purchaser, if the securities are offered or sold to such purchaser by means of any of the following communications, the undersigned registrant will be a seller to the purchaser and will be considered to offer or sell such securities to such purchaser:

(i) Any preliminary prospectus or prospectus of the undersigned registrant relating to the offering required to be filed pursuant to Rule 424;

(ii) Any free writing prospectus relating to the offering prepared by or on behalf of the undersigned registrant or used or referred to by the undersigned registrant;

(iii) The portion of any other free writing prospectus relating to the offering containing material information about the undersigned registrant or its securities provided by or on behalf of an undersigned registrant; and

(iv) Any other communication that is an offer in the offering made by the undersigned registrant to the purchaser.

Insofar as indemnification for liabilities arising under the Securities Act may be permitted to directors, officers and controlling persons of the Registrant pursuant to the foregoing provisions, or otherwise, the Registrant has been advised that in the opinion of the Securities and Exchange Commission such indemnification is against public policy as expressed in the Act and is, therefore, unenforceable. In the event that a claim for indemnification

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against such liabilities (other than the payment by the Registrant of expenses incurred or paid by a director, officer or controlling person of the Registrant in the successful defense of any action, suit or proceeding) is asserted by such director, officer or controlling person in connection with the securities being registered, the Registrant will, unless in the opinion of its counsel the matter has been settled by controlling precedent, submit to a court of appropriate jurisdiction the question whether such indemnification by it is against public policy as expressed in the Securities Act and will be governed by the final adjudication of such issue.

The undersigned Registrant hereby undertakes that, for purposes of determining any liability under the Securities Act, each filing of the Registrant's annual report pursuant to Section 13(a) or Section 15(d) of the Exchange Act that is incorporated by reference in the registration statement shall be deemed to be a new registration statement relating to the securities offered therein, and the offering of such securities at that time shall be deemed to be the initial bona fide offering thereof.

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Table of Contents**SIGNATURES AND POWER OF ATTORNEY**

Pursuant to the requirements of the Securities Act, the Registrant certifies that it has reasonable grounds to believe that it meets all of the requirements for filing on Form S-3 and has duly caused this Registration Statement to be signed on its behalf by the undersigned, thereunto duly authorized, in the City of Houston, State of Texas, on November 14, 2008.

ION GEOPHYSICAL CORPORATION

By: /s/ Robert P. Peebler
 Robert P. Peebler
*President, Chief Executive Officer and
 Director*

KNOW ALL MEN BY THESE PRESENTS, that each person whose signature appears below constitutes and appoints Robert P. Peebler, R. Brian Hanson and David L. Roland, and each of them, as his true and lawful attorneys-in-fact and agents, with full power of substitution and resubstitution for him and in his name, place and stead, in any and all capacities, to sign any and all amendments (including any and all post-effective amendments) to this Registration Statement on Form S-3 and any registration statement for the same offering filed pursuant to Rule 462 under the Securities Act, as amended, and to file the same, with all exhibits thereto, and other documents in connection therewith, with the Securities and Exchange Commission, granting unto said attorneys-in-fact and agents, and each of them, full power and authority to do and perform each and every act and thing requisite and necessary to be done, as fully to all intents and purposes as he might or could do in person, hereby ratifying and confirming all that said attorneys-in-fact and agents or any of them, or their or his substitute or substitutes, may lawfully do or cause to be done by virtue thereof.

Pursuant to the requirements of the Securities Act, this Registration Statement has been signed by the following persons in the capacities and on the dates indicated:

Name	Title	Date
/s/ Robert P. Peebler	President, Chief Executive Officer and Director	November 14, 2008
Robert P. Peebler	(Principal Executive Officer)	
/s/ R. Brian Hanson	Executive Vice President and Chief Financial Officer	November 14, 2008
R. Brian Hanson	(Principal Financial Officer)	
/s/ Michael L. Morrison	Vice President and Corporate Controller	November 14, 2008
Michael L. Morrison	(Principal Accounting Officer)	
/s/ James M. Lapeyre, Jr.	Chairman of the Board of Directors and Director	November 14, 2008
James M. Lapeyre, Jr.		
/s/ Bruce S. Appelbaum	Director	November 14, 2008

Bruce S. Appelbaum

/s/ Theodore H. Elliott, Jr.

Director

November 14, 2008

Theodore H. Elliott, Jr.

/s/ Franklin Myers

Director

November 14, 2008

Franklin Myers

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Name	Title	Date
/s/ S. James Nelson, Jr.	Director	November 14, 2008
S. James Nelson, Jr.		
/s/ John N. Seitz	Director	November 14, 2008
John N. Seitz		
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INDEX TO EXHIBITS

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24.1	Power of Attorney (included on the signature page hereto).
*	Filed herewith