Atom
Passive Wave Seismograph

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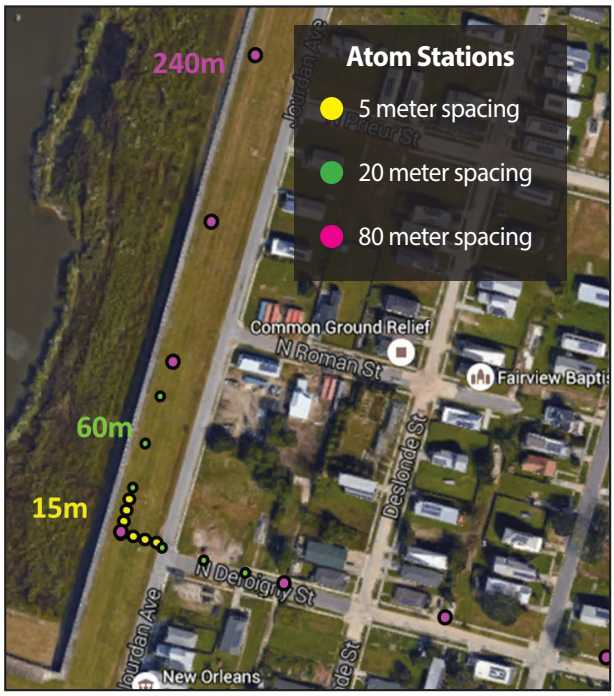
Geometrics is introducing the new Atom Passive Wave wireless seismic system. The Atom is designed to quickly obtain shear wave velocity measurements to depths of over 1km while eliminating the need for heavy and cumbersome cables. Our system is a complete solution, composed of multiple, single-channel Atom acquisition units (AU) and the SeisImager Surface Wave processing package. Each Atom unit features state-of-the-art 24-bit A/D conversion, GPS-controlled timing and 4GB of internal data storage, all in a small, lightweight, easy-to-use box. The AUs are equipped with WiFi for data download and NFC for convenient field setup.

Operation in the field couldn't be easier. Simply shake the box to turn it on, and after the unit achieves GPS lock, the unit will automatically begin recording. LEDs inform the operator of the battery status, network state, GPS time lock and geophone connection. Retrieving the data is fast and easy using WiFi and a laptop. Users can offload data from multiple boxes simultaneously and directly into SeisImager, either in the field or office, for immediate processing.

With the standard internal memory and a 4ms sample rate, data can be recorded for up to 70 days at 8 hours per day. For extended recording situations, an optional 32GB of memory will increase recording time to over a year.

FEATURES & BENEFITS

- **Internal power** - No big batteries to lug around.
- **Low energy consumption** - Operates up to 70 hours in the field between charges!
- **Simple acquisition** - No laptop required.
- **GPS time synchronization** – Cable free!
- **Wireless downloading** – Cable free!
- **Passive data acquisition** – No hammers or weight drops.



L-shaped array with non-uniform spacing in the Lower 9th Ward, New Orleans, using the Atom Passive Wave Wireless Seismic System.

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ACQUISITION UNIT (AU)

Each Atom AU is a self-contained, one channel data acquisition system that amplifies, digitizes and buffers the geophone output voltages.

Channels: 1 channel per box.

A/D Resolution: 24 bits.

Preamp Gain (PG): 0, 12, 24, or 36db.

Sample Intervals: .25, .5, 1, 2, 4, and 10 ms.

Bandwidth: 0.2 - 1650 Hz.

Dynamic Range: 128db @ 2ms PG=12db, 124db @ 2ms PG=24db (typ).

Distortion (THD): <.001% at 25Hz, 2ms (typ).

CMR: Greater than 90db @ 60Hz.

Max Input Signal: 1.6 V_{rms} @ 12db, 100 mV_{rms} @ 36db.

Input Noise: .12 mV_{rms} @ 2 ms PG=36db, .70 mV_{rms} @ 2 ms PG=12db (typ).

Input Resistance: 20 kOhm.

Internal Storage: 4 Gb standard; expandable to 32 Gb.

Data Upload: Standard 802.11g WiFi. Each Atom appears as a DHCP client.

Geophone Test: Tap the geophone and LEDs respond with a distinctive pattern.

Connectors: One 3-pin geophone input connector and one eight-pin external connector for external battery, charging, and USB.

Power: Powered by internal 10AH NiMh batteries and/or an external 6VDC battery.

Charging: Charging voltage is 5 volts at 1.5 Amps. Nine hours for full charge when charging through the 10-pin charge connector. 14 hours to charge using a wireless adapter.

Environmental: IP68, dustproof and waterproof to 1m.

Dimensions: L: 142 mm; W: 140 mm; H: 102 mm (5.6x5.5x4.0 in).

Weight: 1.6 kg (3.5 lb).

Operating Temp: -20°C to +55°C (-4°F to +131°F).

Application Software: SeisImager offloads data from AUs over WiFi and automatically creates phase velocity plots and coherence curves.

BC-12 12 STATION CHARGER

Number of Stations: Charges 12 AUs at a time.

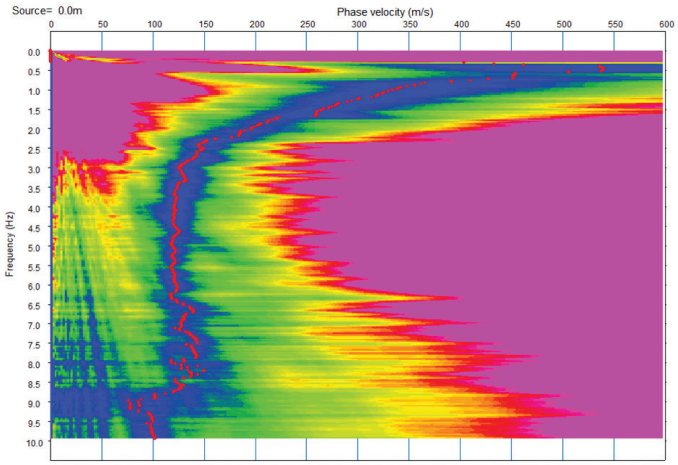
Charging Current: 1.5 Amps per station, reverse polarity protected.

Environmental: Waterproof with lid closed.

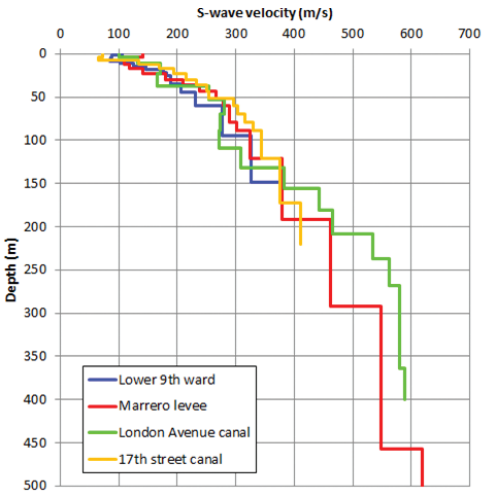
Physical: L: 340 mm; W: 297 mm; H: 152 mm; Weight: 5.4 kg (13.4x11.7x6 in; 12 lb).

Operating Temp: -10°C to +40°C.

Power: 110-220VAC, 50/60Hz, 100 watts when charging 12 AUs.



Surface wave dispersion curve



Shear wave velocity-depth plots

Specifications subject to change without notice. AtomPW_v1 (0617)

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