Atom
Passive Seismic System

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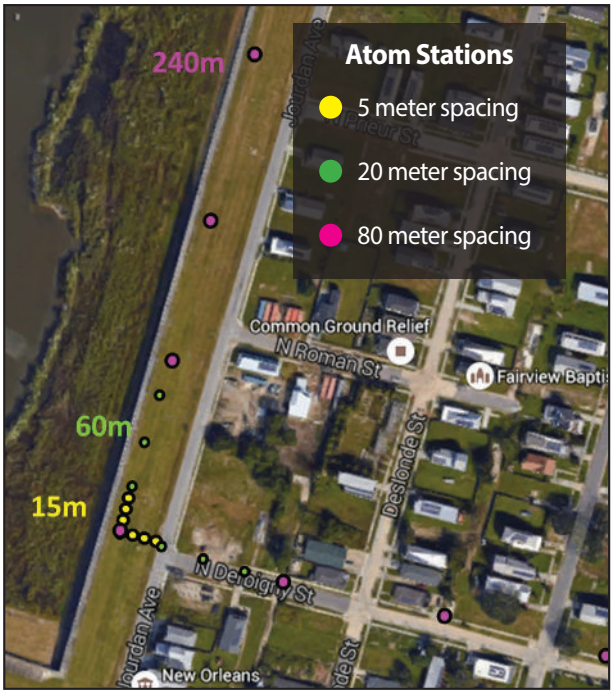
Geometrics is pleased to announce the new wireless Atom Passive Seismic System. The Atom is designed to obtain microtremor measurements for Vs determination to depths as great as ~1 km, while eliminating the need for spread cables. The system consists of multiple one-channel Atom Acquisition Units (AUs), 2 Hz vertical geophones, and SeisImager/AT data downloading software. Each AU features state-of-the-art 24-bit A/D conversion, GPS-controlled timing, and an internal battery pack, all in a lightweight and rugged waterproof box. The AUs are also equipped with WiFi for communications and data retrieval.

Operation in the field is simple – flip the boxes to turn them on, and after achieving GPS lock, the AUs automatically begin recording. LEDs inform the operator of GPS lock, geophone and battery status, and network state. Retrieving data is quick and easy using WiFi and a Windows PC loaded with SeisImager/AT. Data is downloaded from multiple boxes simultaneously, either in the field or office, for immediate processing.

With the standard 8GB internal storage and 4 ms sample interval, data can be recorded for up to 140 days at 8 hours per day. For extended recording, an optional 32GB of memory increases recording time to over a year.

FEATURES & BENEFITS

- **Passive microtremor data acquisition** - No hammers or weight drops.
- **Simple set-up and flexible geometries** - No PC controller or spread cables.
- **GPS synchronization** - No trigger switches or shot cables.
- **Built-in WiFi** - Wireless setting of acquisition parameters and data downloading.
- **Low-power consumption** - Internal battery pack lasts up to 70 hours between charges.



L-shaped array in the Lower 9th Ward, New Orleans, using the Atom Passive Seismic System.

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ATOM ACQUISITION UNIT (AU)

Configurations: one to 48 AUs; each AU is a self-contained, one-channel data acquisition unit that records geophone output. System includes SeisImager/AT data downloading software.

Channels: 1 channel per AU.

A/D: 32-bit (24-bit result).

Dynamic Range: 128 dB measured at 2 ms, 12 dB.

Bandwidth: 0.2 Hz to 1,650 Hz.

Distortion (THD): <0.001% at 2ms, 0.2 to 25 Hz.

Common Mode Rejection: >114 dB at 60 Hz.

Noise Floor: 0.11 µV, RFI at 2 ms, 12 dB.

Maximum Input Signal: 1.6 V, 12 dB; 100 mV, 36 dB.

Input Impedance: 20 kOhm, 0.01 µf.

Preamplifier Gains: 0, 12, 24, or 36 dB.

Sample Intervals: 0.25, 0.5, 1, 2, 4, and 10 ms.

Data Transmission: Standard 802.11g WiFi; each AU appears as a DHCP client.

Data Format: Common Time Blocks (CTBs) saved in proprietary ATM format, ASCII, or SEG-2; miniSEED, SAC, and SAF coming soon.

Data Storage: 8GB standard; expandable to 32GB.

Geophone Test: Tap test with LED indicator.

Ports: One 2-pin LCK connector for geophone input, one 10-pin connector for battery charger.

Power: Internal 10Ah NiMh battery pack.

Charger: Single cable for one AU or multi-port charger for 6 AUs; charging current of 1.5 Amps per AU, 9 hours for full charge.

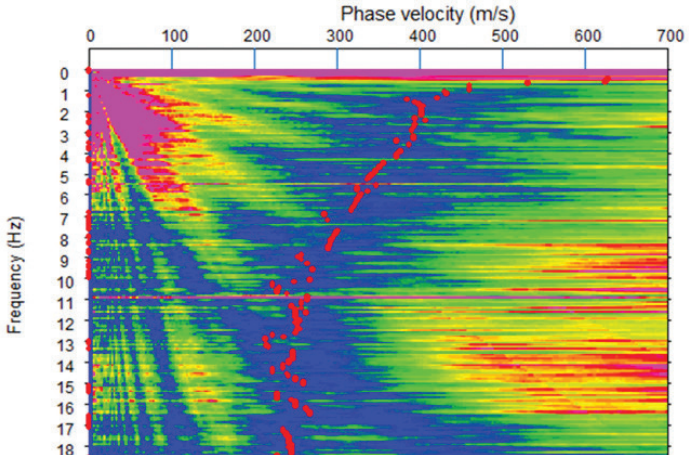
Environmental: Operates from -20°C to +55°C (-4°F to +131°F). Waterproof and dustproof. Passes MIL810E/F vibration test and 14-point drop test.

Physical: L: 142 mm; W: 140 mm; H: 102 mm (5.6 by 5.5 by 4.0 in). Weight: 1.6 kg (3.5 lbs).

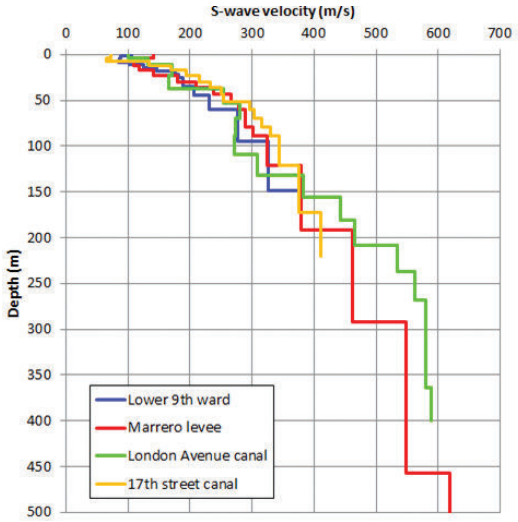
System Software: SeisImager/AT for setting acquisition parameters, downloading data, and creating CTBs.

Applications Software: SeisImager/SW Plus (supplied separately) for extended SPAC analysis.

Warranty: 12 months.



Dispersion curve for Atom array data acquired at the Lower 9th Ward site.



S-wave velocity curves calculated from dispersion curves for multiple sites in New Orleans.

Specifications subject to change without notice. AtomPS_v4(0123)

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