



## TECHICAL SPECIFICATIONS

- SmartSolo available in **1C** and **3Components**.
- Sensor 5 Hz with **high sensitivity** (DT-SOLO®).
- **Huge autonomy:** 20 days (continuous recording) up to 50 days (12h on/off).
- **Quick charging** in 3h15min.
- Data transfer at  $\approx$  20 Mo/s.
- Self-diagnostic.
- GPS logging.
- Pre-amp gain: 0 to 24 dB.
- Time synchronization: < 20  $\mu$ s.
- Operating temperature: -40 to 70°C.
- Waterproof : norme IP67.
- Internal memory : 8 Go (flash).
- **Small dimensions:** 95x100 mm (without spike).
- **Light weight:** < 1.1 kg (with spike).

**SmartSolo HR** are multi-skilled seismic nodes with high sensitivity (**76.7 V/m/s**). These nodes are produced by the manufacturer DTCC.

- **SmartSolo 5 Hz** are autonomous nodes for recording seismic signals. Their autonomy, sensitivity and GPS synchronization are especially well suited for **passive seismic tomography** (by noise). **Seismic reflection** can be done with a **zero time recorder** (e.g. WTB3).
- SmartSolo is composed by battery pack with the spike and acquisition box including the DT-Solo sensor. Charging and downloading are separate processes
- With the SmartSolo, a **set of accessories** is delivered, including RFID scanner or Field Deployment Tool, start keys, charging/downloading boxes (labelled Slots All-In-One).



- Test, configuration, data management is carried out with **SmartSoloLigh** software. Data can be exported to files **SEG-D/SEG2/SEGY**.
- Available for **rent** :
  - **SmartSolo 1C**,
  - **SmartSolo 3C**,
  - accessories.

## Accessories

- **Field Deployment Tool** and **mobile app** is necessary to deploy and record GPS position of the SmartSolo. The nodes can be switched on or off using **start keys** (magnet).
- The **4-slots box** integrates two charging ports, one data harvesting port and one testing port. The **16-slots box** combines 12 charging ports, 3 data harvesting port and one testing port.



Field Deployment Tool

4 Slots

16 Slots



## Training

- **Get training on SmartSolo seismic nodes**, including setup, recording, data harvesting (first day).
- The second day of training focuses on data processing, in particular for **passive seismic tomography (cross-correlation, scatter curves)**, or for seismic reflection.



### Preparation



*Split*



*Charging  
(3.25 h)*



*Sensor test  
Configure*



*Assemble*

### Deployment



*Locate the station*



*Node detection  
(scan)*



*Drop the node*



*Switch On*

- Mark the station on the field (e.g. flag).
- Take its GPS position.
- The identification of the node is carried out with the RFID scanner or the mobile application.
- Wait for the green light before leaving (working state).
- Cover the node with ≈1 cm of ground for a better coupling and to attenuate wind noise (otherwise, protect it).

### Harvest



*Split*



*Download*



*Export*

- The GPS position is updated during data transfer (position averaged over the acquisition time).
- The SmartSoloLight software is used to test, configure the nodes and export the data.
- The export formats are SEG-D/SEG2/SEGY.



## Training (2 days)

Acquisition with SmartSolo nodes.  
Computation of cross-correlation.  
Estimation of phase velocities.  
Picking of dispersion curves.  
Seismic velocity tomograms.

### Acquisition

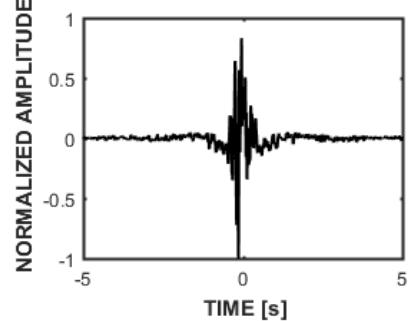


**SmartSolo** 5Hz 1C and 3C



*Data*

### Cross-Correlation

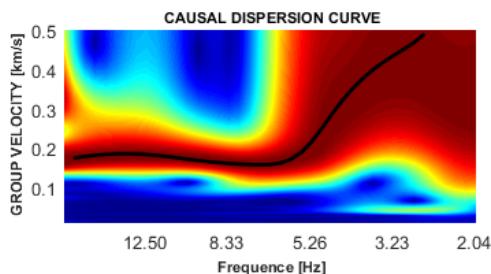


Estimation of correlation function  
with **MS Noise** software.

[www.msnoise.org/](http://www.msnoise.org/)



### Picking

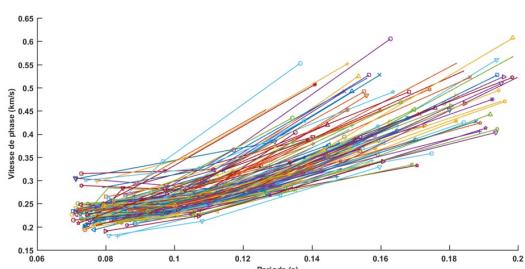


Picking of dispersion curves with **FTAN**

(MS Noise) or **NDCP**. [DOI.org/10.1016/](https://doi.org/10.1016/j.cageo.2019.104315)

[j.cageo.2019.104315](https://doi.org/10.1016/j.cageo.2019.104315)

### Dispersion curves



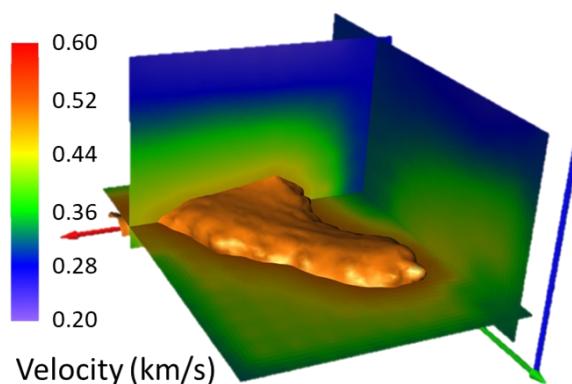
From the covarigrams, the phase velocity is

determined with **GSpecDisp**. [DOI.org/10.1016/](https://doi.org/10.1016/j.jcageo.2017.09.006)

[j.cageo.2017.09.006](https://doi.org/10.1016/j.jcageo.2017.09.006)

### Phase or group velocity

### Tomography



From the phase or group velocity,  
**GEOTomCG** builds the seismic  
velocity model.