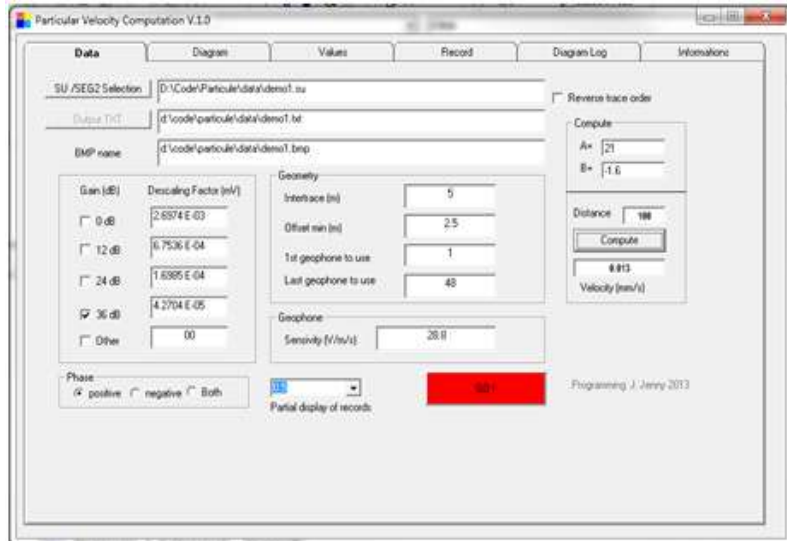# Particule 1.1
Particle Velocity determination

software for Windows 32 and 64 bits

PARTICULE compute **particle velocities** using your existing refraction/reflection seismic equipment.

Geophysicists or engineers need to know **Particle velocity / distance curve** to determine security distance between a vibration/seismic source and a building, pipe... The software is user friendly and can be used very intuitively.

Particule run under all 32/64 bits Windows.
With **PARTICULE** you can use any SEG-2 (Geometrics, Abem, Oyo, PASI)

To compute the Particle Velocities versus distances, you must know the **DESCALING** factor (From field record header) and **geophones sensitivity** (From manufacturer data).

You have to plant your geophones (12, 24, 48) with a regular distance or group few receivers at the same distance to average the signal. In this case distance must be corrected on the grid. The shot must be fired (offset) at little distance (5-10 m) from the first geophone to avoid receiver saturation. Record one shot and then check it to adapt parameters. **The geophones and shot must be on a straight line!** The intertrace depends on the number of geophones available and the local context. You must use **low frequency geophones** (4.5 Hz). Be careful to avoid geophone saturation use 24dB instead 36dB for example.

Receiver saturation can be suspected when the firsts points of the curve are not close to the computed curve using the formula $Y = a * X^b$

The shot (sledge hammer, buffalo gun or explosive) must be near receiver 1. If the shot was located close to last geophone, you can reverse the shot using the REVERSE TRACE ORDER

PARTICULE will determine the best curve fitting of your data using an exponential formula.
PARTICULE will draw Distance/Particle velocity curve, arithmetic and logarithmic scale

PARTICULE show all data (editable)

PARTICULE allow computing any velocity at any distance.