

ORION

by Viktor de Terra

All-in-One 3-Axis Sample Magnetometer



Orion is top-of-the-edge multifunctional device for rock magnetic, paleomagnetic, archeomagnetic and paleointensity studies. It combines a water-cooled furnace, controlled DC-field, and ultra sensitive magnetic sensors for full-vector measuring. The instrument is placed into a three-layer permalloy magnetic shield. The interface is a Windows-based user-friendly software with plain scripting language.

Key features:

- Conducting extremely time-consuming Thellier-Coe experiments as well as Wilson-Burakov and Triaxe (Paris) routines for determining the value of Earth's ancient magnetic field in fully automatic regime.
- Recording full-vector behavior of the remanent magnetization in the temperature range of 25-800°C without the need for sample position changing.
- Acquisition of pTRM/TRM in any direction in controlled field up to 200 µT.
- Conducting physical experiments to create and study the properties of various types of remanent magnetization of rocks, such as pTRM, TRM, VRM, TVRM, CRM, etc.
- Works with oriented 1 cm³ cubic/cylinder samples.
- Any combinations of step-by-step or continuous heating/cooling treatment are possible.
- Full-vector recording of an induced magnetization as a function of temperature.
- Online drawing of Zijderveld, Arai-Nagata and stereo plots.

And much more (ask us!)...

Specifications:

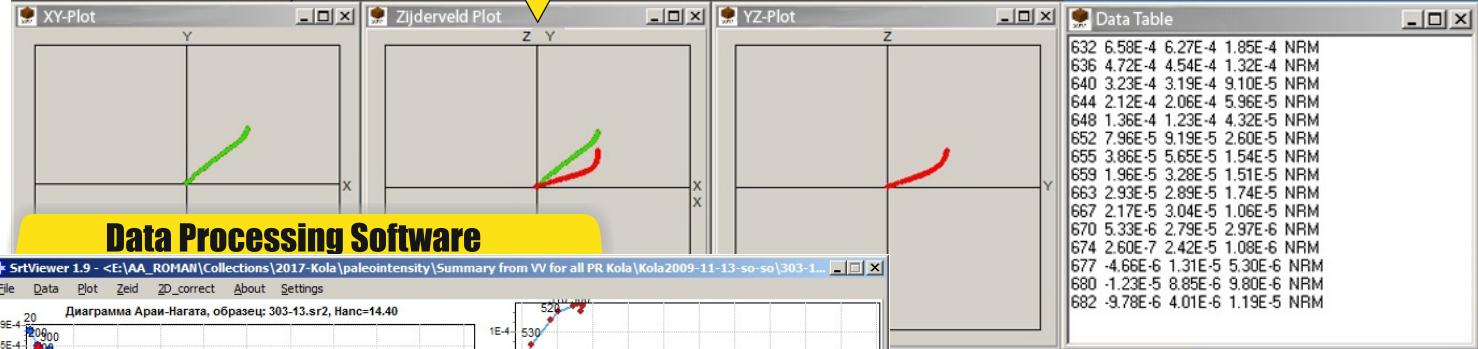
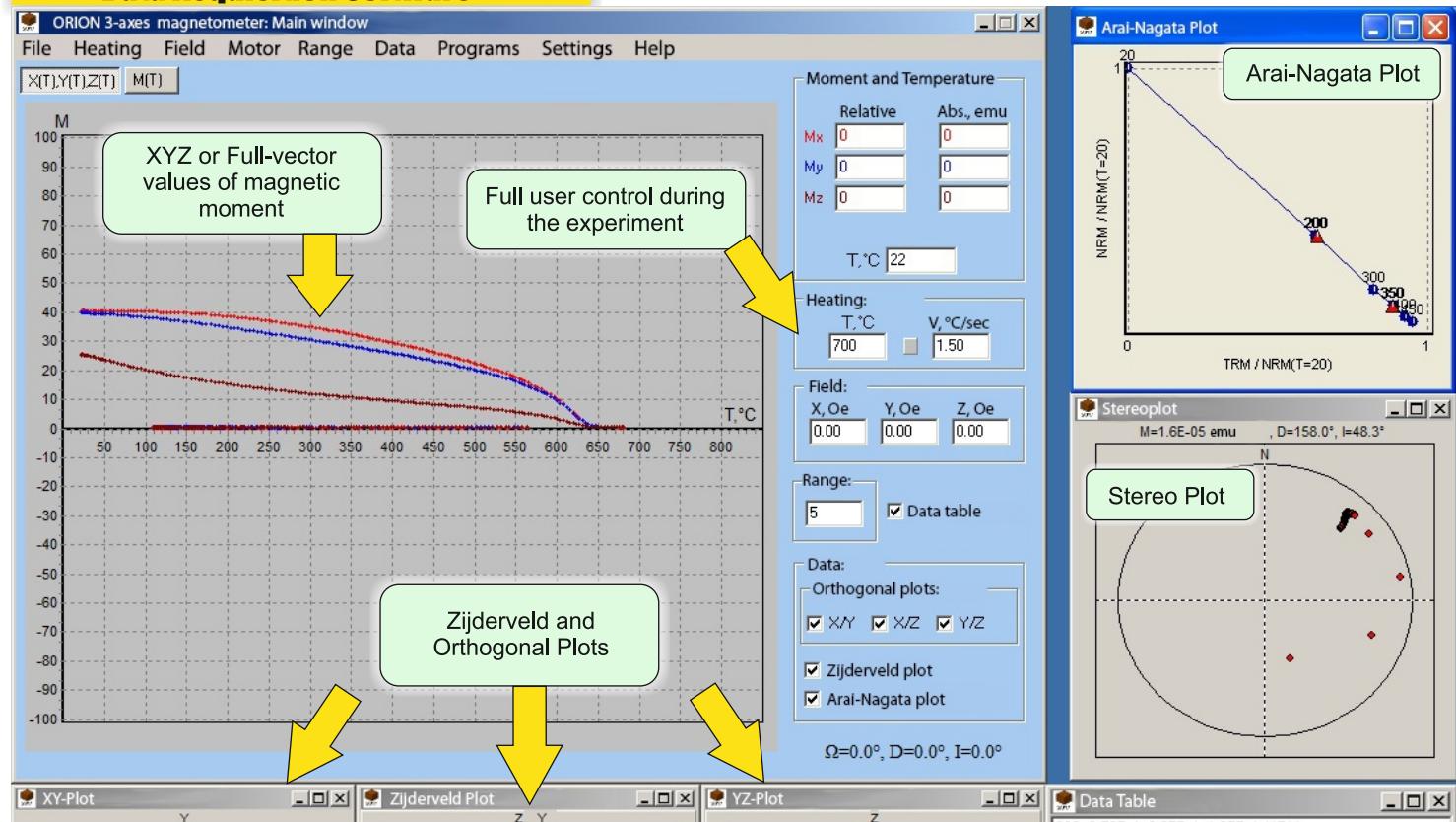
- Magnetic moment sensitivity: 5*10⁻⁸ Am²;
- Magnetic field range: 0 .. 200 µT;
- Heating temperatures range: +25 .. +800°C;
- Heating/cooling rate: 0.2 .. 2.0°C/sec;
- Shape of specimens: ~1 cm³ cube or cylinder;
- Windows-based software allows step-by-step set-up of fully automated routine measurements procedures (Thellier-Coe with check-points, Wilson and Triaxe);
- Water-cooled* (~0.5 L/min);
- Wall-mounted construction (we recommend using a brick wall).

Operating Principle:

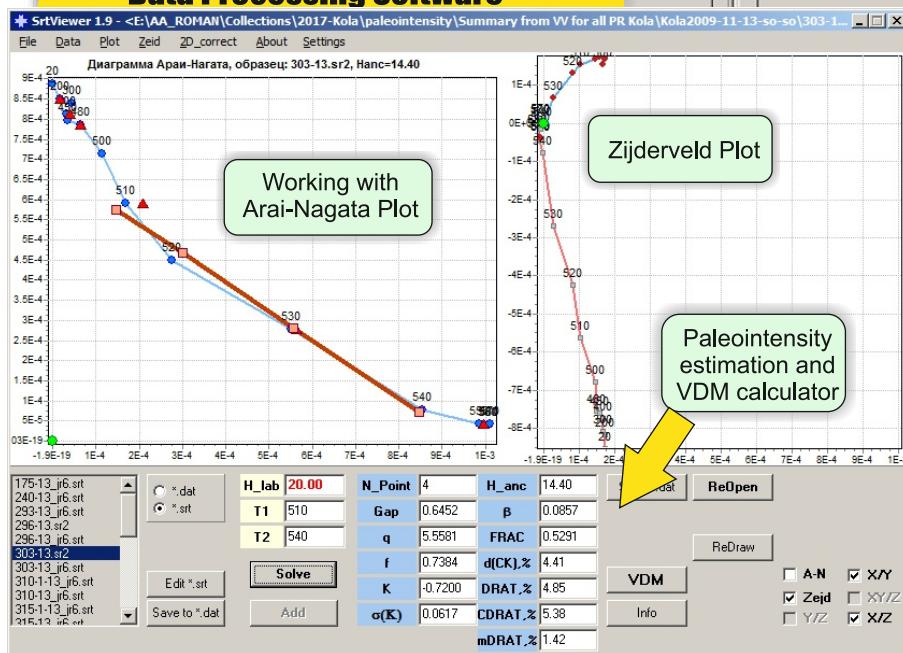
Three (XYZ) fluxgate sensors are placed inside of a mu-metal shielded volume and measure the magnetic signal. Rock specimen (~1 cm³) of cubic or cylindric shape moves in vertical direction with a 10.7 Hz frequency used by the lock-in amplifier for noise reduction. Built-in non-magnetic furnace and XYZ-coils allow: (1) measuring the full magnetization vector during heating/cooling process; (2) creating thermal remanent magnetization of any strength and direction, (3) measuring the induced magnetization and its thermal dependence.

All-in-One 3-Axis Sample Magnetometer

Data Acquisition Software



Data Processing Software



Basic Package and Cost:

- ORION 3-axis magnetometer;
- Windows-based computer;
- Software for measurements and data processing;
- 3 days installation and training;
- User manual in English;
- 1 year warranty;
- Freight and insurance.

Total price: € 65 150*

*water cooled chiller system is not included in the price