


Advances in measuring the magnetic field using new novel sensors

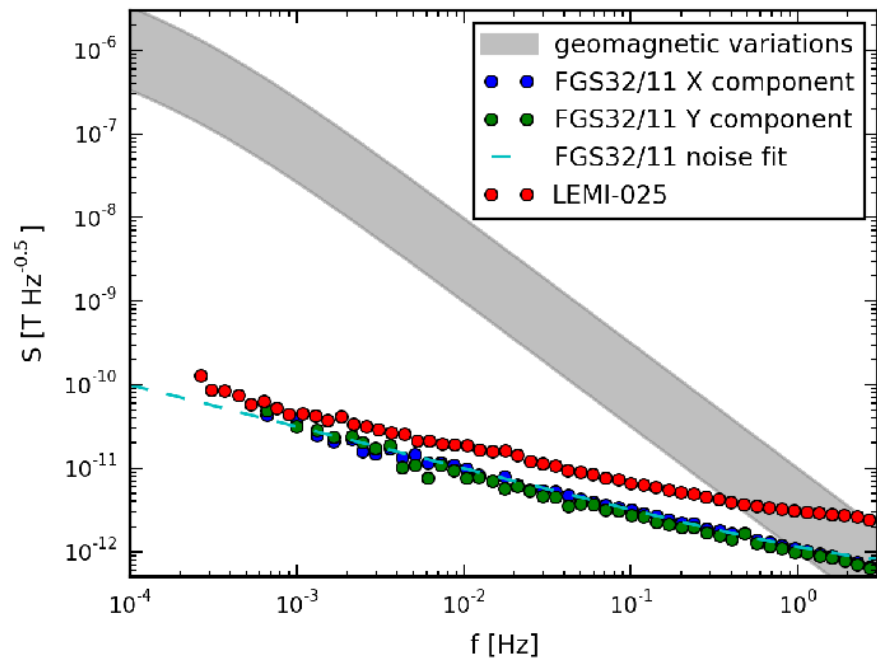
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(LEMI Instruments developer and manufacturer)

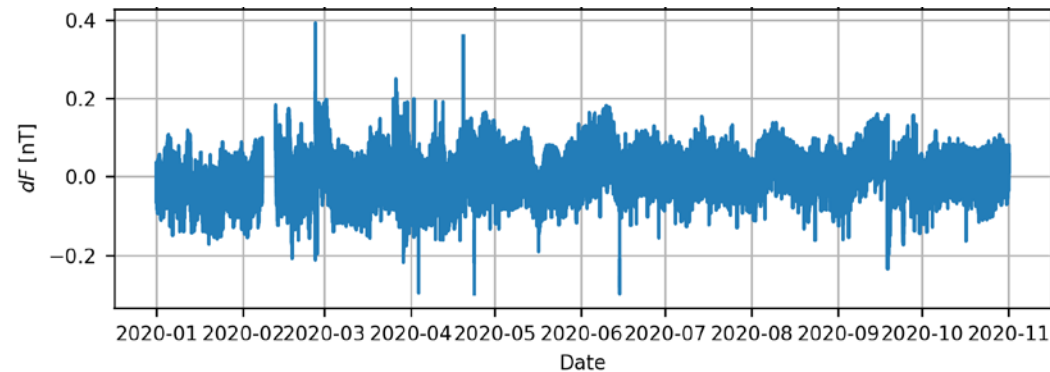
SENSORS for LMT

- For relatively shallow depths – present state is satisfactory (the noise level practically OK, thermal drift can be digitally compensated).
- For deep and super-deep sounding (long-term deployment) – sensor tilt and temporal drift influencing  necessary to reduce


LMT INSTRUMENT



	“Old” development	New development
Tilt compensation factor	<300	>10000
Hysteresis	up to 0.5 mrad	negligible
Housing	waterproof	non-hermetic



SENSORS for LMT-AMT

- For quiet environment the sensitivity threshold of available coils is practically close to theoretically possible level.
- Urbanization – more and more territories polluted by mains frequency, sensitive sensors were close to saturation, no possible to filter mains interference in logger  special means have to be applied to compensate mains signal in the sensor volume.

Magnetometers for high level 50/60Hz contaminated terrains

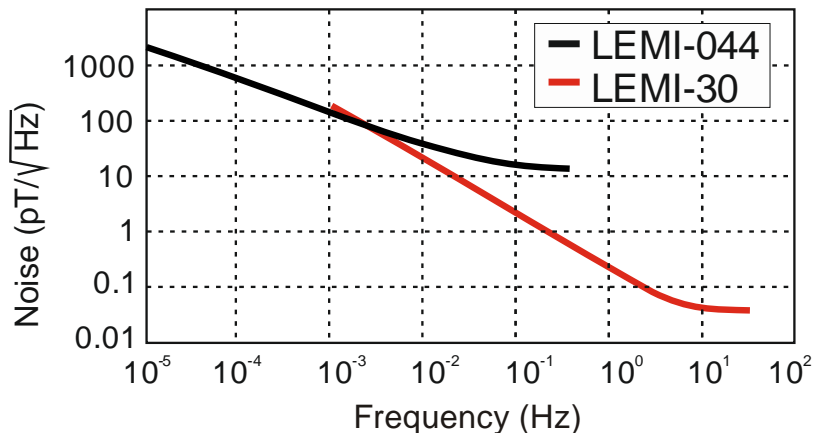


LEMI-044

(developed for GIC study)

Measured range	± 70000 nT
Frequency range	DC...0.3 Hz
Sample rate of measurements	1 Hz
Noise level at 1 Hz	< 0.02 nT/ $\sqrt{\text{Hz}}$
Attenuation at 50 Hz	100 dB

Noise Level



LEMI-30

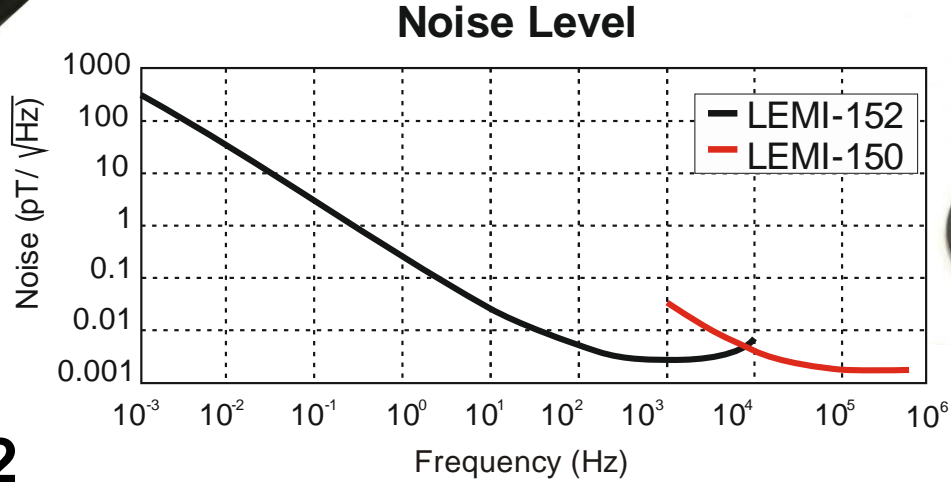
Frequency band of received signals	0.001 ... 30 Hz
Magnetic noise level at	
0.001 Hz	≤ 200 pT \times Hz $^{-1/2}$
1 Hz	≤ 0.2 pT \times Hz $^{-1/2}$
10 Hz	≤ 0.04 pT \times Hz $^{-1/2}$
Attenuation at (50 \pm 0.2) or (60 \pm 0.2) Hz	> 60 dB

BBMT INSTRUMENT



LEMI-152

0.001 - 10000 Hz



LEMI-150

1 – 500 kHz

Data logger is under development

CONCLUSION

In our opinion, major improvements are not expected, only some parameters can be slightly improved.

A significant breakthrough in the near future might only occur if new physical principles for measuring the magnetic field appear.

It would be important to know the opinion of MT instrumentation Users, whether improvements are needed at all, and if so, which ones.

Also it would be good to know the opinion of Users what additional service they expect: data transfer via GSM, mobile access, networking, etc...

THANK YOU FOR ATTENTION!

