

2.2.2. GEOMAGNETIC ECHOES OF THE CURRENT GEOLOGICAL CONCEPT REGIONAL TREND

In order to analyse the imprints of the current geological models on the study area within geomagnetic data, comparative views between the geological map of the INSTEC-SUD area (as well as CIOMADUL and PERSANI sub-perimeters), and specific images of the geomagnetic field (such as total intensity scalar geomagnetic anomaly, horizontal and vertical gradients of the geomagnetic anomaly, residual geomagnetic anomaly) have been performed.

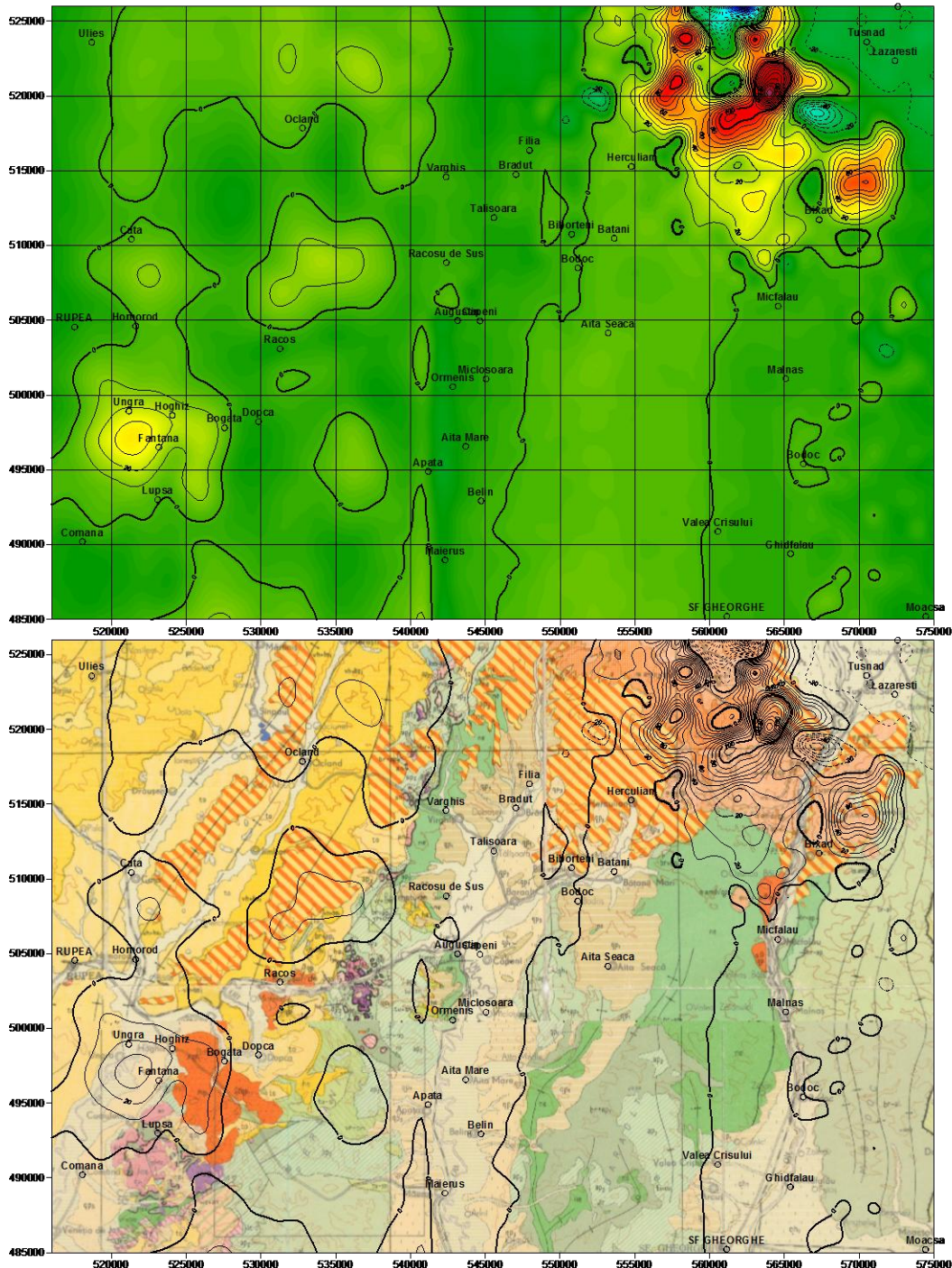


Fig. 17 - The geological model, as provided by the National Geological Map of the Romania, scale 1:200.000, and the residual geomagnetic anomaly for the INSTEC-SUD perimeter

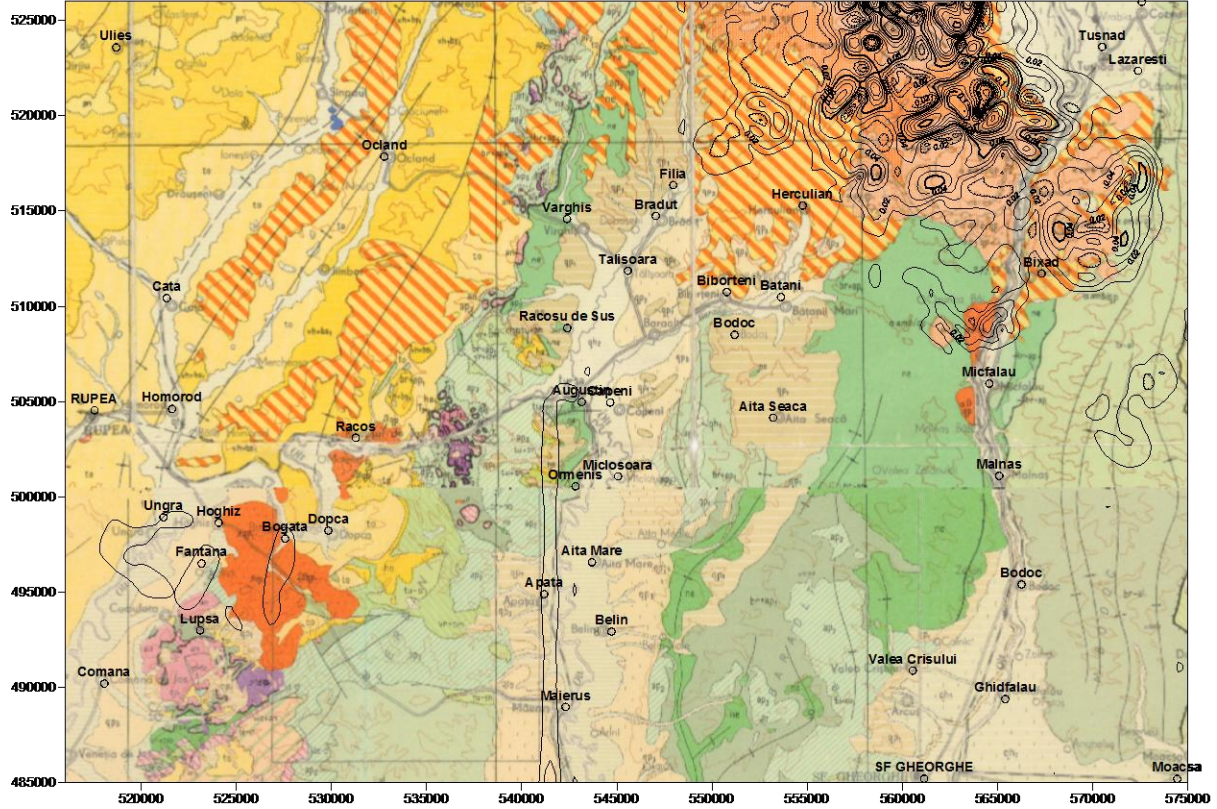
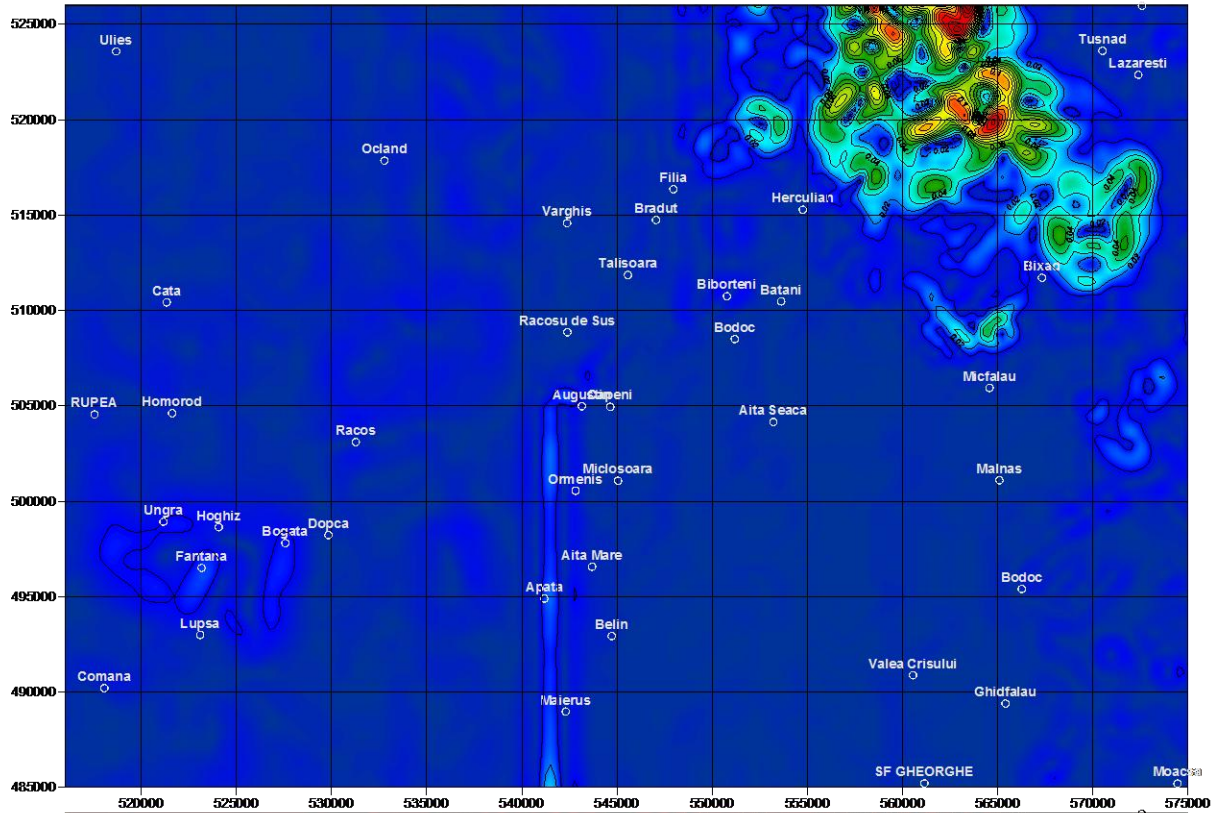


Fig. 18 - The geological model, as provided by the National Geological Map of the Romania, scale 1:200.000, and the horizontal gradient of the geomagnetic anomaly for the INSTEC-SUD perimeter

PERSANI AREA

Within the PERSANI sub-perimeter, where joint geological and geomagnetic investigations have been conducted during 2014 campaign, direct comparisons of the geological concept with the geomagnetic field pattern, but also by employing 2D numerical simulations have been performed

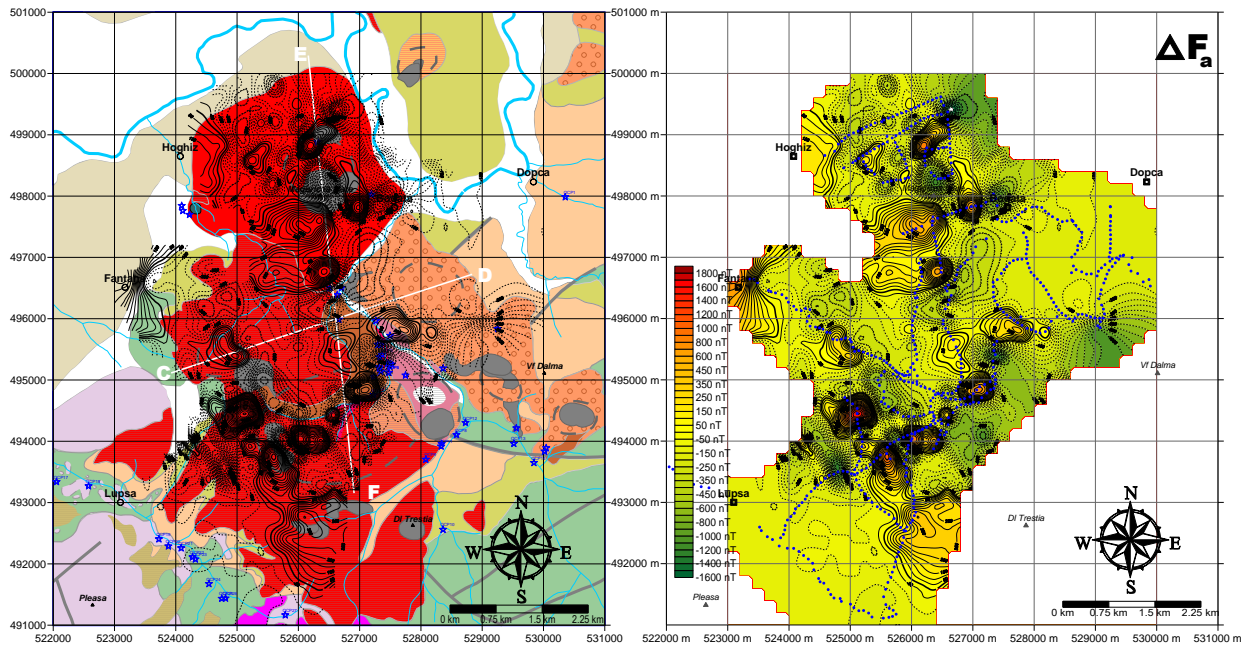


Fig. 19 - Geological model and the ground total intensity scalar geomagnetic anomaly within the PERSANI area

Comparative views are presented along the two lines crossing the investigated area.

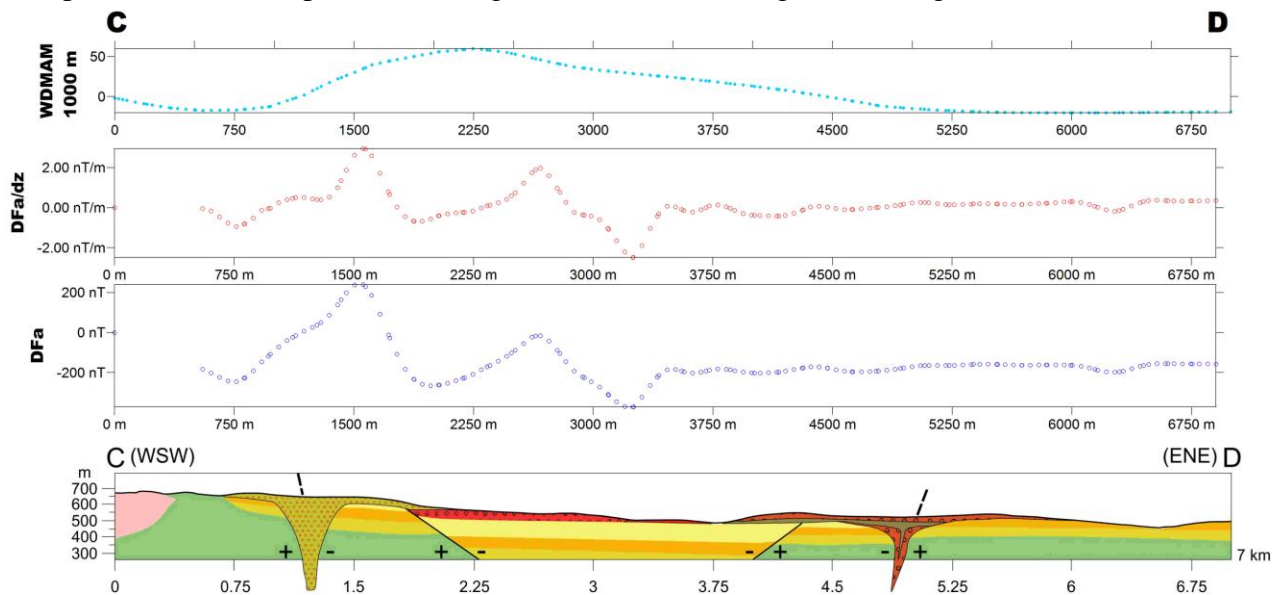


Fig. 20 - Geological model and geomagnetic data along CD line

WDMAM, geomagnetic anomaly provided by WDMAM project
 DFa/dz, vertical gradient of the ground geomagnetic anomaly
 DFa, ground total intensity geomagnetic anomaly

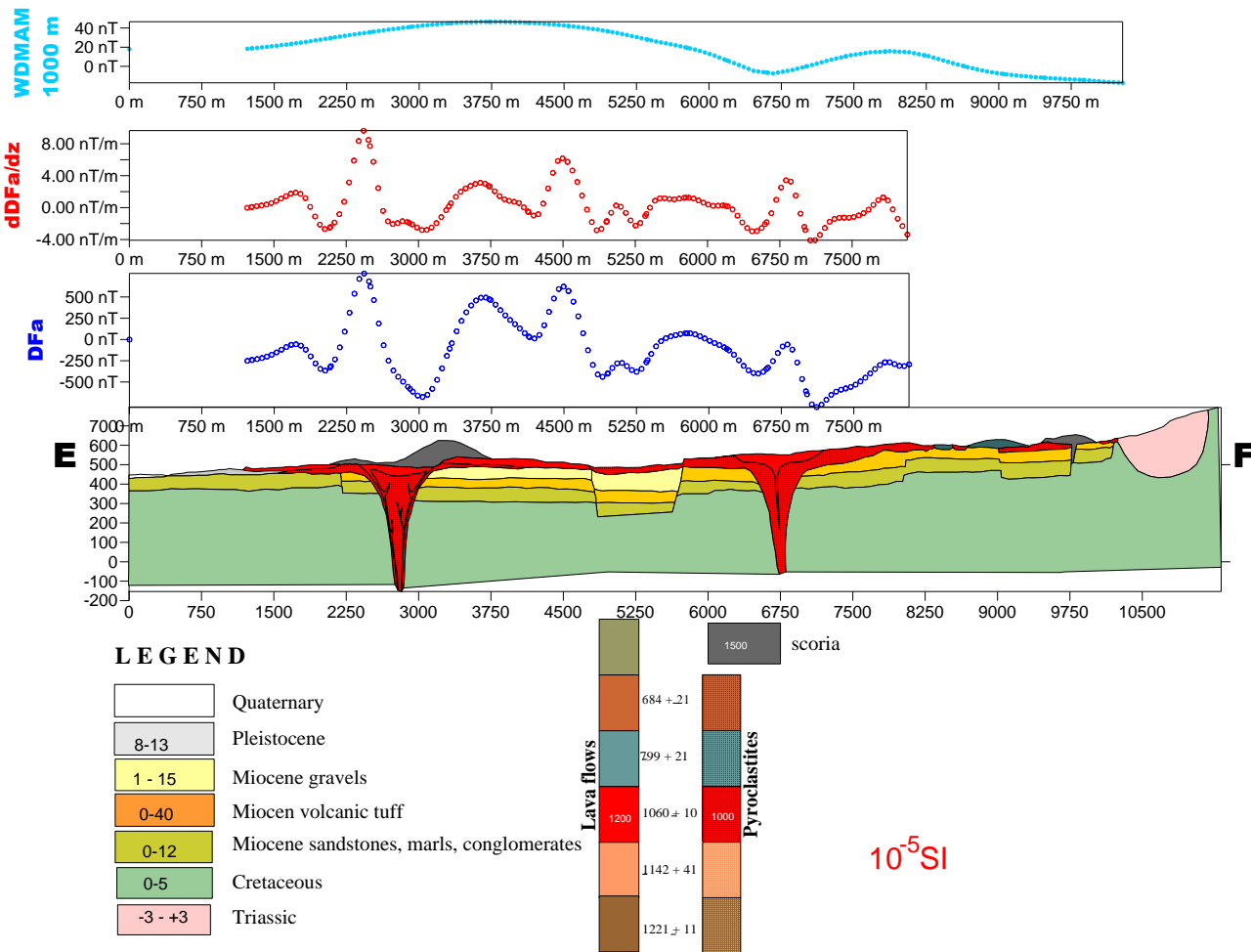


Fig. 21. Geological model and geomagnetic data along EF line

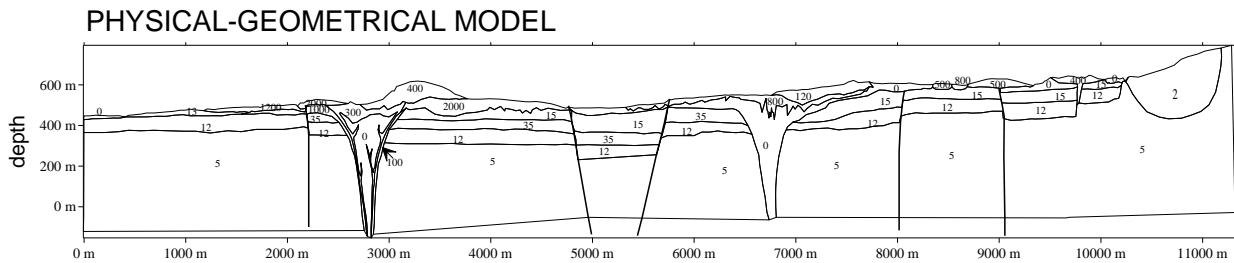
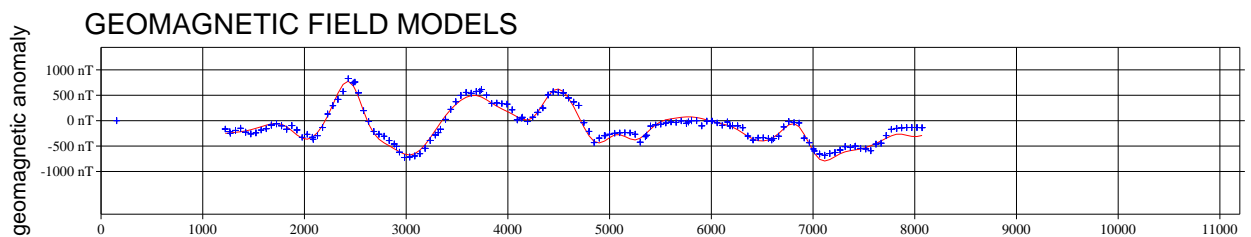
WDMAM, geomagnetic anomaly provided by WDMAM project
 DFa/dz, vertical gradient of the ground geomagnetic anomaly
 DFa, ground total intensity geomagnetic anomaly

Magnetic susceptibility of the main geological formations appears in the legend of the illustration (as expressed in 10^{-5}SI)

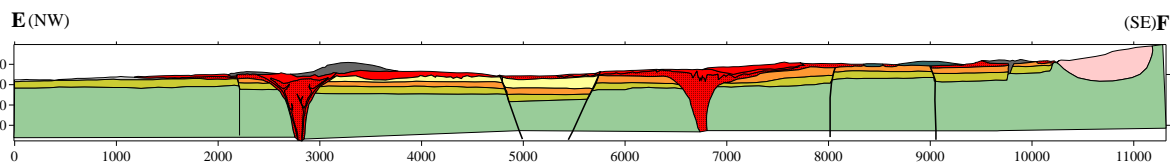
Based on the preliminary geological concept and rock physics properties of the main geological formations cropping out in the area, some tentative interpretative models of the observed geomagnetic data have been performed based on a 2D iterative approach.

As it can be seen, the final synthesized effect fits very well the observed data, offering a good support to the revealed geological model.

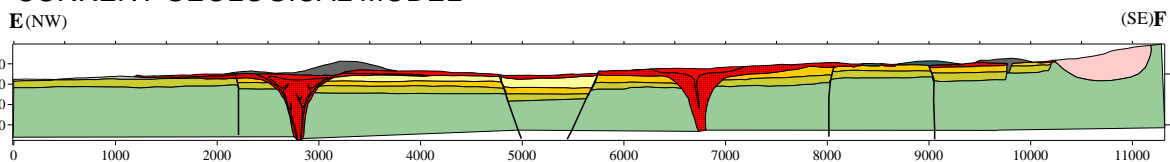
The obtained results are presented in the next figure.



TENTATIVE GEOLOGICAL INTERPRETATION



CURRENT GEOLOGICAL MODEL



LEGEND

- observed effect
- ++++++ synthetic model

Total intensity $F = 48500 \text{ nT}$
 Inclination $I = 63$
 Declination $D = 3$
 Line azimuth = 170
 Relative angle to the structure = 90

	Quaternary
	8-13 Pleistocene
	1 - 15 Miocene gravels
	0-40 Miocen volcanic tuff
	0-12 Miocene sandstones, marls, conglomerates
	0-5 Cretaceous
	-3 - +3 Triassic

10^{-5}SI

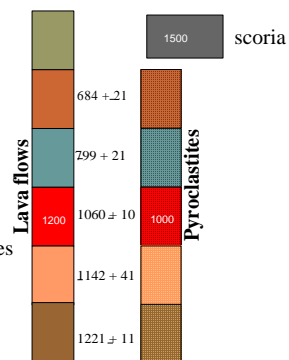


Fig. 22 - Tentative interpretative model of the geomagnetic data along the interpretative line EF within Persani area