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THE 3-D VISUALISATION OF KARKONOSZE GRANITE CONTACT SURFACE IN THE ENVIRONS OF KOWARY GÓRNE

INTRODUCTION

The shape of the eastern contact surface of Karkonosze granite massif has been discussed in the literature (Berg 1913, Teisseyre, 1973), however running of the edge was considerably generalised. In the recent years attempts were made to describe this form and its characteristics more precisely in selected sections of Rudawy Janowickie (Zagożdżon and Zagożdżon 1997, 1998).

This study has been made on the basis of numerous but random data related to this massif boundary in the region of Kowary Górne. The aim of this study is to show, in the most possible detailed way, the shape of the indicated contact surface at the premises of the abandoned iron and uranium ore mine “Wolność”. The shape of the contact surface has been showed from the east slopes of Rudnik to the axis of the Piszczyk stream valley. Surface geological maps (Szałamacha 1957, Геологическая...) have been used, as well as sketches presented in literature (Mochnacka 1966, 1967, Zimnoch 1960), analysis of plans and mining profiles, results of shallow geotechnical drillings made in 2001 (Koszela et al., 2000) and data obtained as a result of the authors’ own research. All the data are processed using the computer program “Datamine Studio”.

RESULTS

Contact surface visualisations in the area of the mining fields “Wulkan” and “Marta” have been made mostly on the basis of data provided in the older literature. Zimnoch (1960) produced a scheme of the boundary between the Karkonosze granite and its metamorphic cover on various levels of the central part of “Wulkan” field. Mochnacka presented the geologic sections in the area of all fields as well as geologic sketches of the various levels of the mine (Mochnacka, 1966, 1967). Shape of the discussed boundary in the sub-surface area and on the earth surface were set out from the authors’ own research (Zagożdżon 1995, Zagożdżon and Zagożdżon 1997, 1998), results of mapping and drillings made while working out a land reclamation scheme for the settling pond in Kowary

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(Koszela et al., 1999, Koszela et al., 2000) and an archival geologic map 1:5000 (Геологическая...).

Running of the contact of Karkonosze granite on the surface of earth in the “Wolność” field is traced out on the basis of the authors’ own research (Zagożdżon 1995, Zagożdżon and Zagożdżon 1997) and the archival geological map mentioned above (Геологическая...). Position and orientation of this boundary on the lower levels of the “Wolność” field has been marked due to a detailed penetration of available parts of Główna Gallery (level 568 m a.s.l.), Górna Gallery (622 m a.s.l.) and Stara Gallery (643 m a.s.l.) (Zagożdżon and Zagożdżon 1997, 1998).

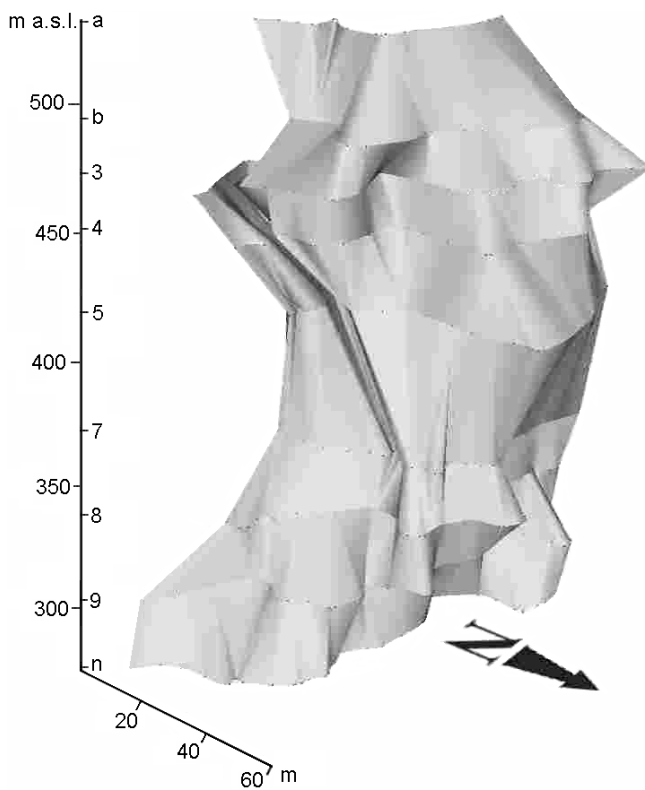


Fig. 1. The 3-D visualisation of Karkonosze granite contact surface in the western part of “Wulkan” mining field; upper part of a mine – levels “a” to “n” (after the data of Zimnoch 1961).

CONCLUSIONS

1. Creation of a detailed visualisation of a shape of the eastern contact surface of Karkonosze granite massif was possible on the basis of the analysis of the data from the abandoned mine “Wolność” at Kowary Górne. This way it has been possible to avoid the overestimations in the generalisations typical for the reconstructions that resulted solely from the surface field work.
2. Shape of the contact surface is very complicated. On the visualisations a lot of irregularities in the size of hundreds, tens and even of several meters are visible (Fig. 1).
3. The authors pay attention to the enormous amount of geological data available in old, but still accessible mine galleries. The state of such objects is often very good and the approachable rock material is fresh, suitable for peculiar geological research.

REFERENCES

- BERG G., 1913: Die Erzlagerstätten der nordlichen Sudeten. Der Bergbau im Osten der Königreichs Preussen. Band I. Beiträge zur Geologie Ostdeutschlands. Berlin.
- Геологическая карта восточного и юго-восточного контактов Испалиново-горской гранитной интрузии. (issue year and author are missing) .
- KOSZELA J., MUSKAŁA M., ZAGOŹDŹON P., 1999: Kartowanie geologiczne rejonu stawu osadowego „Kowary”. Raport Inst. Geotechn. i Hydrotechn. Polit. Wr., Ser. U nr 216.
- KOSZELA J. et al. 2000: Dokumentacja geologiczno-inżynierska dla potrzeb rekultywacji stawu osadowego odpadów z przeróbki rud uranowych w Kowarach. T. I–III. Raport Inst. Geotechn. i Hydrotechn. Polit. Wr., Ser. SPR. 3/2000, 6/2000.
- MOCHNACKA K., 1966: Minerale kruszcowe złoże polimetalicznego w Kowarach (Dolny Śląsk). Pr. Min. PAN, 4, 7–54.
- MOCHNACKA K., 1967: Geologia polimetalicznego złoże w Kowarach. Pr. Geol. PAN, 40, 7–58.
- SZAŁAMACHA J., 1957: Szczegółowa mapa geologiczna Sudetów 1:25000. Ark. Kowary. Wyd. Geol., Warszawa.
- TEISSEYRE J.H., 1973: Skały metamorficzne Rudaw Janowickich i Grzbietu Lasockiego. Geol. Sud., 8, 7–111.
- ZAGOŹDŹON K., 1995: Charakterystyka zmian endo- i egzokontaktowych związanych z granitem karkonoskim na odcinku Janowice Wielkie – Kowary (M. Sc. dissertation) .
- ZAGOŹDŹON K., ZAGOŹDŹON P., 1997: Kontakt masywu Karkonoszy z osłoną metamorficzną w sztolni w Kowarach Górnych. Przegl. Geol., vol. 45, nr 4, 414–418.
- ZAGOŹDŹON K., ZAGOŹDŹON P., 1998: Kontakt granitu karkonoskiego z jego wschodnią okrywą metamorficzną w nieczynnych sztolniach okolic Kowar. Pr. Spec. PTMin., z. 11, 181–183.
- ZIMNOCH E., 1961: Seria magnetytowa Kowar. Biul. Inst. Geol., 171, 7–75.