A statistical approach to the characteristics of jointing in the Magura nappe, West Carpathians, Poland

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The study focuses on statistical parametres of joint sets identified within Upper Cretaceous through Oligocene flysch strata in the Magura Nappe, West Carpathians of Poland. More than 120 stations, each numbering 100 measurements, have been analysed. The joint set distributions have been described by computed normalized eigenvalues plotted on diagrams devised by Woodcock, as well as by parametres that denote fabric strength (C) and girdle/cluster tendencies (K) of the distributions studied. These parametres are defined as: $C = \ln(S1/S2)$; and $K = \ln(S1/S2):\ln(S2/S3)$, where S1, S2 and S3 represent normalized eigenvalues ($S1 + S2 + S3 = 1$). The fabric strength measures attain increasingly higher values, indicating better-defined joint fabric within progressively younger strata, as well as when proceeding from the west to the east. The average values calculated for Tertiary strata do not exceed 2.03, whereas the Upper Cretaceous ones cluster around 1.88. Joints within Oligocene strata reveal the best defined fabric (2.32). Such a tendency could result from the clockwise, eastward-directed diachronous migration of Miocene folding along the Carpathian arc; it could also suggest that older, i.e. Upper Cretaceous strata might have been affected by at least two episodes of folding.