

POPULAR SCIENTIFIC SUMMARY

DOKTORAL CANDIDATE: Marta Agata Adamuszek

DEGREE: Philosophiae Doctor

FACULTY: Faculty of Mathematics and Natural Sciences

DEPARTMENT: Geology

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DISSERTATION TITLE: Large Amplitude Folding

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Various geological processes leave traces of their activity as rock structures. These structures can potentially serve as a source of information that is essential to interpret the history of the Earth. Establishing the relation between a process and the resulting structure is therefore important to decipher the geological history recorded in the rocks. The sensitivity of the structure on factors such as rock rheology, temperature, pressure, or water content can provide additional information about the Earth structure. The thesis of Marta Adamuszek deals with folding and folds, an example of a geological process and the resulting structures it forms. Folds contain information about rock properties and natural processes of deformation. Although, both the structure and the process have been studied intensely, the relation between folding and folds is not satisfactorily established. This is due to the fact that the folding process is not fully understood and there is a lack of methods that can accurately describe the geometry of a generic fold. Thus, the aim of this thesis is to advance the understanding of the folding process itself, its relation to the resulting fold structures, and its influence on the bulk properties of rocks. Marta Adamuszek develops a toolbox for routine numerical analysis of fold geometries. She also presents a new mathematical model for large amplitude folding. This set of tools provides a framework for future research and promotes unraveling the geological information from the fold shapes.