

Accepted Manuscript

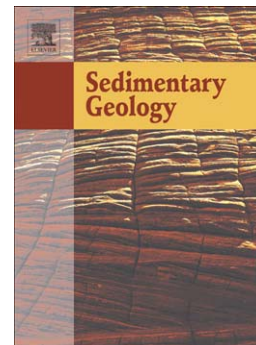
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PII: S0037-0738(16)00092-0
DOI: doi: [10.1016/j.sedgeo.2016.03.013](https://doi.org/10.1016/j.sedgeo.2016.03.013)
Reference: SEDGEO 5019

To appear in: *Sedimentary Geology*

Received date: 26 November 2015
Revised date: 29 February 2016
Accepted date: 15 March 2016



Please cite this article as: Ortner, Hugo, Kilian., Sinah, Sediment creep on slopes in pelagic limestones: Upper Jurassic of Northern Calcareous Alps, Austria, *Sedimentary Geology* (2016), doi: [10.1016/j.sedgeo.2016.03.013](https://doi.org/10.1016/j.sedgeo.2016.03.013)

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Sediment creep on slopes in pelagic limestones: Upper Jurassic of Northern Calcareous Alps,

Austria

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Abstract

Slump structures in Upper Jurassic pelagic limestones of the Northern Calcareous Alps were studied using methods of ductile structural geology. The early deformation observed cannot be explained by conventional models for slumping, commonly describing slump complexes with an extending upper and contracting lower part. Instead, the structures suggest distributed bedding-parallel surficial stretching, and folding localized by roll-over normal faulting. The initially isoclinal and recumbent folds are pervasively overprinted by stretching, causing reorientation of fold axes into the downslope direction. Transport of folds separates antiformal and synformal hinges, the resulting isolated hinges resemble intrafolial folds in metamorphic terranes. Only folds formed late in the process of lithification allow insight in the early stages of fold evolution. We suggest that this type of early deformation represents sediment creep that may be characteristic for slump structures in pelagic carbonates.

Keywords

Soft-sediment deformation, Slumping, Sediment creep, European Alps

1 Introduction

Deformation of sediments prior to lithification is widespread, but often underestimated in the geologic record. The main reasons for early deformation of sediments are (1) dewatering of the soft

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