

# Geological Structure and Sedimentary Environment of the Tsunemori Formation in Omine Town, Mine City, Yamaguchi Prefecture, southwest Japan.

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## Introduction

It is widely known that the Akiyoshi Limestone has a large scale overturned structure over a wide area. In discussing this reversed structure, the relationship between the Akiyoshi Limestone and non-calcareous facies is important. Although there are many studies (e.g. Fujii and Mikami, 1970; Wakita et al., 2018), it is still controversial.

The Tsunemori Formation is one of the most important non-limestone facies in terms of the reversed structure of the Akiyoshi Limestone, but its geological structure remains unclear because it is mainly constituted of massive mudstone and the stratigraphy is difficult to determine.

In this study, we clarify the younging direction of the Tsunemori Formation in the Omine area of Mine City, discuss the geographical structure and sedimentary environment, and examine the relationship between the Akiyoshi Limestone and the Tsunemori Formation.

## Result

The following four results were obtained from the field and laboratory observations.

Based on the observation of the sedimentary structure of the sand layer intercalated in the mudstone of the Tsunemori Formation. We were able to determine the younging directions at 17 locations.

The geological structure of this area shows two dip directions, south and north, both of which are generally younging to the south.

Both overturned layers and normal layers exist due to the change in the direction of inclination. The Tsunemori Formation in this area is stratigraphically lower to upper levels with mudstone, overlapped sandstone and does not fit into the chert-clastic sequence characteristic of accretionary complexes. Uncalcified wood fragments and plant fossils Maximum 1.8 cm are produced in sandstone.

In the Tenjiku Mountains of this area, crystalline limestone, part of the Akiyoshi Limestone, is distributed almost horizontally above the structural top of the Tsunemori Formation and obliquely across the geological structure of the Tsunemori Formation.

## Discussion

Based on the observations, an overturned structure with an axial planes of north vergence is assumed.

The stratigraphy, fossils, and wood fragments suggest that the depositional environment of the Tsunemori Formation is not in the trenches, but closer to the land.

It is thought that an overturned fold with an axial plane of north vergence was formed by the force that lifted the south side against the present north side.

The Akiyoshi Limestone, which had already been reversed, was superimposed almost horizontally on the structural top of the Tsunemori Formation.

Keywords: overturned fold, Akiyoshi Belt, Mine city, Tsunemori Formation