

# On a new species of *Inoceramus*, from the Himenoura Group in Kyushu

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## Abstract

This paper deals with a description of a new species of *Inoceramus*, *Inoceramus (Inoceramus) pseudamakusensis* n. sp., found from the Campanian strata of the Himenoura Group in Amakusa Area, Kyushu.

**Key word :** Kumamoto, Amakusa, Cretaceous, Himenoura Group, Amura Formation, *Inoceramus*

## Introduction

The Upper Cretaceous Himenoura Group in Southwest Japan is characterized by the abundant occurrence of the many species of inoceramids, each of which was very important in the zonal setting of each stage of the Upper Cretaceous in Japan or as determined by the geological ages (Matsumoto 1955).

Some specimens show a form closely similar to *Inoceramus (Inoceramus) amakusensis* Nagao and Matsumoto, characterized by the Lower Santonian stage, are recognized from several localities of inoceramid specimens from the Campanian stage of the Himenoura Group. Recently, we have obtained many specimens of this form from several localities of the Upper Himenoura Subgroup in the Campanian stage (Fig. 1).

As the specimens are considered to be a new form of the genus *Inoceramus*, we have described them as a distinct new species.

## Systematic paleontology

Class Bivalvia  
Family Inoceramidae  
Genus *Inoceramus* Sowerby, 1814  
Subgenus *Inoceramus* Sowerby, 1814

*Inoceramus (Inoceramus) pseudamakusensis* n. sp.

Plate 1, Figs. 1 – 5

*Inoceramus* sp. Otsuka, 2000, pl. 3, fig. 17.

*Inoceramus (Inoceramus)* aff. *amakusensis* Nagao and Matsumoto, Otsuka and Tashiro, 2005, pl. 7, fig. 1, pl. 8, fig. 1.

**Materials and Measurements.**— Table 1.

**Diagnosis.**— Outline round sub-quadrate; posterior hinge line, long, straight and extended horizontally; sub-concentric ribs of external surface conjoined vertically with posterior hinge margin.

**Description.**— Shell medium to large for this genus, weakly inflated, round sub-quadrate in outline, higher than length in general; umbo small, less prominent, sub-terminally located at anterior end of hinge margin; anterior dorsal margin indistinct; anterior margin weakly arched; ventral margin sub-circular; posterior margin nearly straight, vertically conjoined with nearly right angle to nearly horizontal and straight dorsal (hinge) margin; surface with broad and regularly spaced concentric ribs of 10 or more; top of the ribs are well rounded.

**Observation.**— Although many specimens of this new species were collected by hand, a lot of the specimens are either imperfect or fragments. Only three specimens were of measurable significance. The characteristic features of this species are visible in each imperfect specimen.

**Comparison.**— This species closely similar to *Inoceramus amakusensis* from the Lower Member (Santonian) of the Hinoshima Formation of the Lower Himenoura Subgroup of the Himenoura Group, at Hinoshima in Ryugadake-machi, Kamiamakusa City, in its concentric ribs, each of which is conjoined vertically with the horizontal posterior hinge line. However, it differs from *I. amakusensis* in having more distinct and regularly spaced concentric ribs than those of *I. amakusensis*. This species somewhat resembles the *I. (Cataceramus) bulticus toyajoanus* which is the well known Inoceramid from the Upper Cretaceous (Campanian) strata of Japan, however this species is distinguished from *I. (C.) bulticus toyajoanus* in its vertically located ribs near on the posterior hinge line.

Table 1. Measurements (in mm) and localities of *Inoceramus* (*Inoceramus*) *pseudamakusensis* n. sp.

| Specimen               | Valve | Length          | Height          | Thickness       | Locality  |
|------------------------|-------|-----------------|-----------------|-----------------|---|
| GCM-IVP2002 (holotype) | right | 105             | 130             | 14 <sup>+</sup> | Iwa-jima (Senzokuzozo-jima) in Kamiamakusa City, Kumamoto Pref. |
| GCM-IVP1901 (paratype) | left  | 73 <sup>+</sup> | 80 <sup>+</sup> | 10              | Oushima in Ushibuka, Amakusa City, Kumamoto Pref.               |
| GCM-IVP1999 (paratype) | right | 93              | 113             | 12              | Takeshima in Nagashima-machi, Kagoshima Pref.                   |

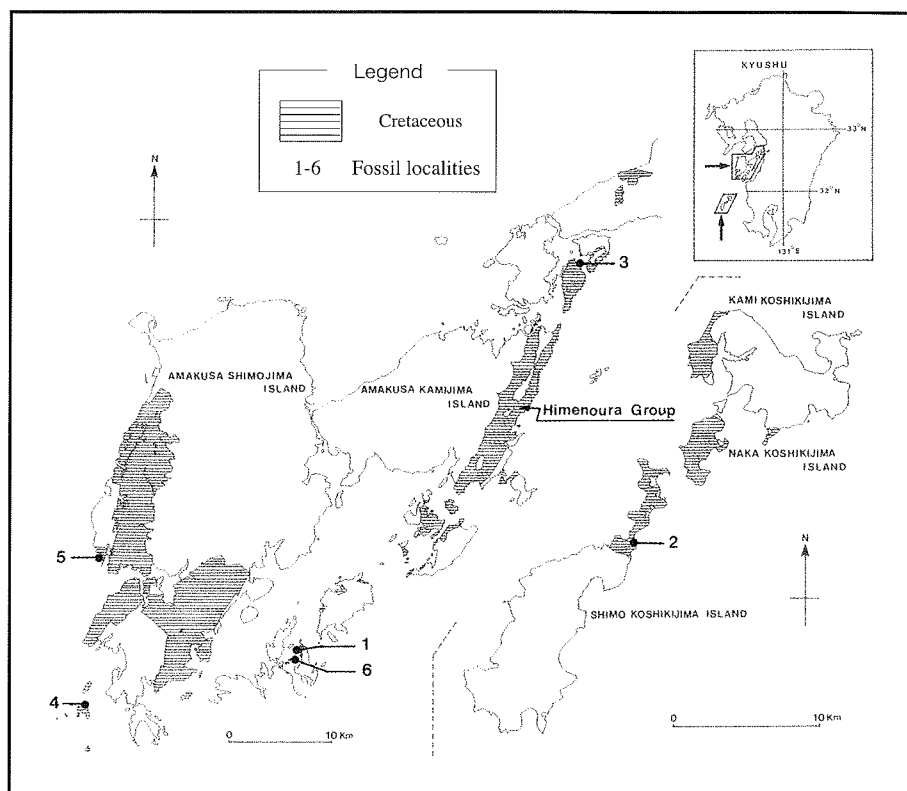


Figure 1. Distribution of the Himenoura Group and fossil localities (1. Ikarajima, 2. Shimo-koshikijima, 3. Iwa-jima, 4. Ushibuka-Oushima, 5. Oe, 6. Take-shima) in Amakusa and Koshiki areas.

**Occurrence and stratigraphical notes.**— The specimens offered to this new species, are known in six localities of the silty-mudstones sediments (Campanian in age) of the Himenoura Group, such as follows:

- 1) Ikarajima in Nagashima-machi, Kagoshima Pref. (Co-amura Formation, of the Himenoura Group)
- 2) South of Higire in Shimokoshiki-jima, Kagoshima Pref. (U-I Formation of the Upper Himenoura Subgroup of the Himenoura Group)
- 3) Iwa-jima (Senzokuzozojima of Kamiamakusa City, Kumamoto Pref. (Amura Formation of the Lower Himenoura Subgroup of the Himenoura Group)
- 4) Ushibuka-Oushima in Amakusa City, Kumamoto Pref. (U-I Formation of the Upper Himenoura Subgroup of the Himenoura Group)
- 5) Oe in Amakusa-machi, in Amakusa City, Kumamoto Pref. (U-II Formation of the Upper Himenoura Subgroup of the Himenoura Group).
- 6) Take-shima of Nagashima-machi, Kagoshima Pref. (Co-amura Formation, of the Himenoura Group)

#### Reference

- Nagao, T. and Matsumoto, T. (1939-1940): A monograph of the Cretaceous *Inoceramus* of Japan; *Jour. Fac. Sci., Hokkaido Imp. Univ.*, Part 1, **4**, 3-4, 241-299, 12 pls.; Part 2, **6**, 1, 1-64, pls. 1-22.
- Matsumoto, T. (1959): Zonation of the Upper Cretaceous in Japan. *Mem. Fac. Sci., Kyushu Univ., ser. D*, **9**, 2, 55-93, pls. 6-11.
- Otsuka, M. (2000): Geological study of the Cretaceous and Palaeogene strata at Ikarajima islet of Kagoshima Prefecture, Kyushu. *Bull. Goshoura Cret. Mus.*, **1**, 3-8, pls. 1-3.
- Otsuka, M. and Tashiro, M. (2005): Stratigraphic study of the Cretaceous System of Tobase-jima and Senzokuzozo-jima islets in Southwest Kyushu, Japan. *Bull. Goshoura Cret. Mus.*, **6**, 10-24, pls. 4-8.

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Plate 1

## Explanation of Plate 1

1. Lateral view of right valve (holotype) ;  $\times 0.8$  ; GCM-IVP 2002.  
Locality ; Shiohama area of Iwa-jima (Senzokuzozo-jima), Kamiamakusa City, Kumamoto Pref.  
Upper member of Amura Formation of Lower Himenoura Subgroup, Himenoura Group.
2. Lateral view of left valve (paratype) ;  $\times 0.8$  ; GCM-IVP 1901.  
Locality ; Oushima of Ushibuka area, Amakusa City, Kumamoto Pref.  
(U-I) lower Formation of Upper Himenoura Subgroup, Himenoura Group.
3. Lateral cast of left valve ;  $\times 0.5$   
Locality ; Takeshima of Usui area, Nagashima-machi, Kagoshima Pref.  
co-Amura Formation of Lower Himenoura Subgroup, Himenoura Group.
4. Lateral cast of left valve ;  $\times 0.8$  ; GCM-IVP 1999.  
Locality ; Takeshima of Usui area, Nagashima-machi, Kagoshima Pref.  
co-Amura Formation of Lower Himenoura Subgroup, Himenoura Group.
5. Lateral view of right valve, gum cast of external mould ;  $\times 1$   
Locality ; Oushima of Ushibuka area, Amakusa City, Kumamoto Pref.  
(U-I) lower Formation of Upper Himenoura Subgroup, Himenoura Group.

