

The      みなしご元禄津波  
ORPHAN TSUNAMI  
of 1700

親地震は北米西海岸にいた

Japanese Clues to a Parent Earthquake in North America

**Front cover**

A simulated tsunami reaches Japan ten hours after its start along the Pacific coast of North America (p. 74-75).

**Back cover**

Sailboats skirt a pine-covered spit where Japanese villagers puzzled over a tsunami of remote origin in 1700 (p. 76-79). At the nearby castle, the word *tsunami* received its earliest known use in 1612 (p. 41). Map, from 1687, courtesy of East Asian Library, University of California, Berkeley.

## The Orphan Tsunami of 1700

みなしご元禄津波



A merchant's notebook, in an entry for January 1700, tells of a tsunami that lacked an associated earthquake in Japan. The shaking occurred instead along the northwest coast of North America. A French map compiled in 1720 shows what Europeans then knew of those shores.

地震  
は  
も  
た  
ら  
な  
い

jishin nite mo  
earthquake

tsukamatsurazu  
did not occur



Quote from Moriai-ke "Nikki kakitome cho" (p. 50-52). Map by Guillaume Del'Isle, from University of Washington Libraries, Special Collections Division (p. 2, 5).

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Japanese clues to a parent earthquake in North America

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## LANGUAGE NOTES

### みなしご 元禄 津波

*minashigo Genroku tsunami*

THE BOOK'S TITLE in Japanese, “Minashigo Genroku tsunami,” means “The orphan tsunami of the Genroku era.” In western calendars, the Genroku era began in 1688 and ended in 1704. Japanese written records tell of but one Genroku tsunami of remote origin. It dates to the year 1700 (p. 42).

### 親地震 は 北米 西海岸 に いた

*oya-jishin wa Hokubei nishi kaigan ni ita*

THE SUBTITLE, “Oya-jishin wa Hokubei nishi kaigan ni ita,” means, “The parent earthquake was along the west coast of North America.”

JAPANESE CITIZENS' NAMES appear in customary order, family name first. For clarity, the authors' family names contain small capital letters on the title page, pages 110-111, and the back cover.

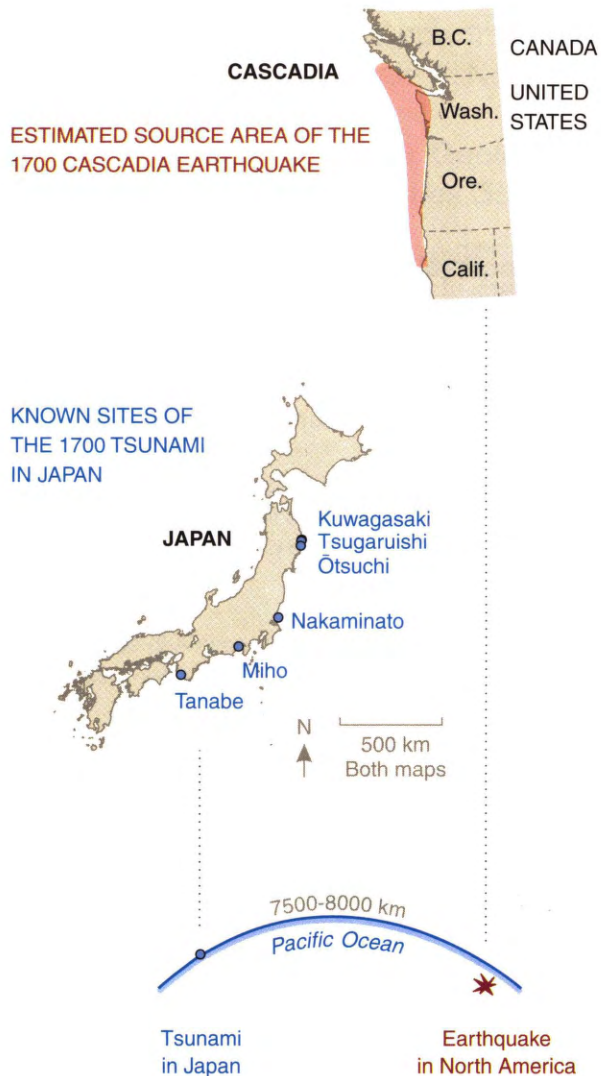
TO WRITE JAPANESE WORDS in Roman letters we use a variant of the Hepburn system. The vowel sounds resemble those in Spanish: *a* resembles the first vowel in “mama,” *e* the final vowel in “Santa Fé,” *i* the second vowel in “police,” *o* the first vowel in “José,” and *u* the first vowel in “uno.” The combination *ei* prolongs the *e* sound, as does *ii* for *i*. Prolonged *o* and *u* take macrons (*ō*, *ū*) except in internationalized words (Tokyo = Tōkyō). The *n* is pronounced *m* before *b* or *p* (Nambu, Sumpu) as it is in English (imbalance, empower). Additional changes in sound at the junctures between syllables or words are footnoted on pages 38, 52, 60, 68, and 78. A slight pause precedes a doubled consonant (*yokka*).

JAMES CURTIS HEPBURN (1815-1911), an American missionary, devised the system now employed widely, in modified form, to transcribe Japanese sounds into Roman letters. The standard dictionary by Nelson and Haig (1997) uses the Hepburn system. We hyphenate most counters (as in *niji-kken*, p. 39) but follow Nelson and Haig in closing compounds for the day counter *ka* (*yōka*, *yokka*).



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This book tells the scientific detective story of a giant earthquake and its trans-Pacific tsunami.



**Part 1** illustrates geologic signs of enormous earthquakes and tsunamis at Cascadia, along the Pacific coast of North America from British Columbia to California.

**Part 2** presents old Japanese writings about a tsunami of mysterious origin that caused flooding and damage in January 1700 from Kuwagasaki in the north to Tanabe in the south.

**Part 3** links this orphan tsunami to a Cascadia earthquake and to seismic hazards in the western United States and Canada.



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