

## Global Change Data Encyclopedia

# Ogasawara Archipelago, Japan

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The Ogasawara Archipelago is located in the Philippine Sea, Northwestern Pacific Ocean. It is part of the Volcano Islands Arc of North Pacific Ocean and 394 km from north to south. It is 351 km from the Tori-shima of Izu Islands at its north, and 538 km from the Farallon de Pajaros of Mariana Islands at its south. Its geo-location is 20°25'22"N–27°43'31"N, 136°3'55"E–153°59'11"E<sup>[1]</sup>.

The Ogasawara Archipelago is consisted of Ogasawara Islands (or Bonin Islands), Volcano Islands (or Iwo Islands), Nishinoshima, Minami-Tori-shima and Okinotorishima. The Bonin Islands is consisted of three island groups, Muko-jima Group, Chichi-jima Group, and Haha-jima Group. The Volcano Islands is consisted of Kita Iwo Jima, Iwo Jima, and Minami Iwo Jima (Figure 1). The most recent volcanic eruption in Nishinoshima occurred in 2013 and till to early 2014 (Figure 2). The total area of the Ogasawara Archipelago is 106.60 km<sup>2</sup>, and its total coastline is 376.27 km. The islands groups and three remote small islands of the Ogasawara Archipelago are listed in Table 1.



**Figure 1** Geo-location of Ogasawara Archipelago (ArcGIS .shp format)

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[2] Liu, C., Chen, W. B., Shi, R. X. Ogasawara Archipelago [DB/OL]. Global Change Research Data Publishing & Repository, 2016. DOI: 10.3974/geodb.2016.09.18.V1.

The Muko-jima Group is located in northern of the Ogasawara Archipelago, and its geo-location is 27°29'3"N–27°43'31"N, 142°5'36"E–142°13'11"E. It is consisted of Muko-jima, Nakadachi-jima, Yome-jima, Kita-no-jima, Torishima, and Mae-jima. The Muko-jima, Nakadachi-jima, Yome-jima, and Kita-no-jima are on the list of UNESCO World Heritages. The total area of the Muko-jima Group is 5.20 km<sup>2</sup>, and the total coastline is 60.75 km (Table 2).



**Figure 2** Volcanic eruption in Nishinoshima (Google Earth Image, Feb. 2014)

**Table 1** List of island groups and three remote islands of the Ogasawara Archipelago

| Name of islands           | Name of the island group      | Geo-location                                   | Area (km <sup>2</sup> ) | Coastline (km) |
|---------------------------|-------------------------------|--|-------------------------|----------------|
| Ogasawara Is. (Bonin Is.) | Muko-jima Group               | 27°29'3"N–27°43'31"N, 142°5'36"E–142°13'11"E   | 5.20                    | 60.75          |
|                           | Chichi-jima Group             | 27°1'47"N–27°11'57"N, 142°9'41"E–142°14'58"E   | 38.34                   | 130.33         |
|                           | Haha-jima Group               | 26°32'23"N–26°43'2"N, 142°7'11"E–142°14'33"E   | 25.99                   | 129.49         |
| Volcano Is. (Iwo Is.)     | Volcano Islands (Iwo Islands) | 24°13'29"N–25°26'56"N, 141°16'19"E–141°28'23"E | 34.82                   | 44.01          |
|                           | Nishinoshima                  | 27°14'21"N–27°15'7"N, 140°52'22"E–140°52'57"E  | 0.78                    | 5.05           |
|                           | Minami-Tori-shima             | 24°16'52"N–24°17'52"N, 153°58'15"E–153°59'11"E | 1.46                    | 5.58           |
|                           | Okinotorishima                | 20°25'22"N–20°25'33"N, 136°3'55"E–136°4'53"E   | 0.01                    | 1.05           |
| Total                     |                               |  | 106.60                  | 376.27         |

Note: The area and coastline include those from main islands and its surrounding small islands or rocks.

**Table 2** Geo-location, area and length of coastline of each island in Muko-jima Group

| Name of island | Geo-location of the main island                | Central location of the main island | Area (km <sup>2</sup> ) | Coastline (km) |
|----------------|--|-------------------------------------|-------------------------|----------------|
| Muko-jima      | 27°40'12"N–27°41'22"N, 142°7'25"E–142°8'58"E   | 27°40'44"N, 142°8'35"E              | 2.71                    | 21.86          |
| Nakadachi-jima | 27°37'11"N–27°38'8"N, 142°10'12"E–142°11'15"E  | 27°37'42"N, 142°10'43"E             | 1.35                    | 12.63          |
| Yome-jima      | 27°29'19"N–27°30'8"N, 142°12'11"E–142°12'58"E  | 27°29'51"N, 142°12'35"E             | 0.69                    | 8.89           |
| Kita-no-jima   | 27°42'54"N–27°43'14"N, 142°5'47"E–142°6'11"E   | 27°43'5"N, 142°5'60"E               | 0.29                    | 13.58          |
| Torishima      | 27°40'40"N–27°40'54"N, 142°7'24"E–142°7'37"E   | 27°40'47"N, 142°7'32"E              | 0.08                    | 1.54           |
| Mae-jima       | 27°29'11"N–27°29'22"N, 142°12'17"E–142°12'32"E | 27°29'15"N, 142°12'28"E             | 0.08                    | 2.25           |
|                |  |                                     | 5.20                    | 60.75          |

Note: The area and coastline include those from main islands and its surrounding small islands or rocks.

The Chichi-jima Group<sup>[3]</sup> is located between the Muko-jima Group and Haha-jima Group

of the Ogasawara Archipelago, and its geo-location is 27°1'47"N–27°11'57"N, 142°9'41"E–142°14'58"E. It is consisted of Chichi-jima, Ani-jima, Otōto-jima, Nishi-jima, Minami-jima, Higashi-jima, Mago-jima, Hyoutan-jima, and Hitomaru Shima. In which, the Chichi-jima, Ani-jima, Otōto-jima, Nishi-jima, Minami-jima, and Higashi-jima are on the list of UNESCO World Heritages. The total area of the Chichi-jima Group is 38.34 km<sup>2</sup>, and the total coastline is 130.33 km (Table 3).

**Table 3** Geo-location, area and length of coastline of each island in Chichi-jima Group

| Name of island | Geo-location of the main island                   | Central location of the main island | Area (km <sup>2</sup> ) | Coastline (km) |
|----------------|---|-------------------------------------|-------------------------|----------------|
| Chichi-jima    | 27°2'9"N–27°6'22"N,<br>142°10'54"E–142°14'16"E    | 27°4'12"N,<br>142°12'33"E           | 23.82                   | 59.63          |
| Ani-jima       | 27°6'30"N–27°8'39"N,<br>142°11'12"E–142°14'15"E   | 27°7'20"N,<br>142°12'35"E           | 7.92                    | 27.48          |
| Otōto-jima     | 27°8'40"N–27°11'25"N,<br>142°10'48"E–142°12'8"E   | 27°9'60"N,<br>142°11'27"E           | 5.24                    | 20.87          |
| Nishi-jima     | 27°6'46"N–27°7'18"N,<br>142°9'41"E–142°10'20"E    | 27°7'2"N,<br>142°10'0"E             | 0.49                    | 5.12           |
| Minami-jima    | 27°1'55"N–27°2'43"N,<br>142°10'18"E–142°10'41"E   | 27°2'18"N,<br>142°10'30"E           | 0.33                    | 8.16           |
| Higashi-jima   | 27°5'25"N–27°5'45"N,<br>142°14'26"E–142°14'58"E   | 27°5'36"N,<br>142°14'43"E           | 0.27                    | 3.01           |
| Mago-jima      | 27°11'34"N–27°11'49"N,<br>142°11'37"E–142°11'55"E | 27°11'42"N,<br>142°11'45"E          | 0.14                    | 2.48           |
| Hyoutan-jima   | 27°7'36"N–27°7'46"N,<br>142°10'36"E–142°10'55"E   | 27°7'41"N,<br>142°10'45"E           | 0.08                    | 2.38           |
| Hitomaru Shima | 27°6'57"N–27°7'8"N,<br>142°11'3"E–142°11'19"E     | 27°7'2"N,<br>142°11'10"E            | 0.06                    | 1.21           |
|                |   |                                     | 38.34                   | 130.33         |

Note: The area and coastline include those from main islands and its surrounding small islands or rocks.

The Haha-jima Group<sup>[4]</sup> is located between the Chichi-jima Group and Volcano Islands (Iwo Islands) of the Ogasawara Archipelago, and its geo-location is 26°32'23"N–26°43'2"N, 142°7'11"E–142°14'33"E. It is consisted of Haha-jima, Mukō-jima, Ane-jima, Imōto-jima, Mei-jima, Hirashima, Futako-jima, Katsuotorishima, and Marushima. The total area of the Haha-jima Group is 25.99 km<sup>2</sup>, and the total coastline is 129.49 km (Table 4).

The Volcano Islands (Iwo Islands) is located at the most south of Ogasawara Archipelago, and its geo-location is 24°13'29"N–25°26'56"N, 141°16'19"E–141°28'23"E. It is consisted of Kita Iwo Jima, Iwo Jima, and Minami Iwo Jima. The total area of the Volcano Islands (Iwo Islands) is 34.82 km<sup>2</sup>, and the total coastline is 44.01 km (Table 5).

**Table 4** Geo-location, area and length of coastline of each island in Haha-jima Group

| Name of island | Geo-location of the main island                  | Center location of the main island | Area (km <sup>2</sup> ) | Coastline (km) |
|----------------|--|------------------------------------|-------------------------|----------------|
| Haha-jima      | 26°36'27"N–26°42'52"N,<br>142°7'19"E–142°11'21"E | 26°40'2"N,<br>142°9'20"E           | 20.18                   | 75.63          |
| Mukō-jima      | 26°35'42"N–26°36'44"N,<br>142°7'22"E–142°8'9"E   | 26°36'12"N,<br>142°7'46"E          | 1.44                    | 8.89           |
| Ane-jima       | 26°32'35"N–26°33'54"N,<br>142°9'1"E–142°9'41"E   | 26°33'15"N,<br>142°9'23"E          | 1.50                    | 13.05          |

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| Name of island  | Geo-location of the main island                   | Center location of the main island | Area (km <sup>2</sup> ) | Coastline (km) |
|-----------------|---|------------------------------------|-------------------------|----------------|
| Imōto-jima      | 26°33'11"N–26°33'52"N,<br>142°12'6"E–142°13'6"E   | 26°33'33"N,<br>142°12'35"E         | 1.29                    | 9.50           |
| Mei-jima        | 26°33'49"N–26°34'31"N,<br>142°13'33"E–142°14'26"E | 26°34'10"N,<br>142°13'54"E         | 0.91                    | 7.74           |
| Hirashima       | 26°34'55"N–26°35'19"N,<br>142°8'50"E–142°9'44"E   | 26°35'10"N,<br>142°9'17"E          | 0.48                    | 7.57           |
| Futako-jima     | 26°35'20"N–26°35'35"N,<br>142°9'47"E–142°9'59"E   | 26°35'32"N,<br>142°9'50"E          | 0.08                    | 2.85           |
| Katsuotorishima | 26°36'6"N–26°36'20"N,<br>142°10'32"E–142°10'44"E  | 26°36'13"N,<br>142°10'38"E         | 0.08                    | 3.28           |
| Marushima       | 26°35'36"N–26°35'45"N,<br>142°10'3"E–142°10'8"E   | 26°35'40"N,<br>142°10'6"E          | 0.03                    | 0.97           |
|                 |   |                                    | 25.99                   | 129.49         |

Note: The area and coastline include those from main islands and its surrounding small islands or rocks.

**Table 5** Geo-location, area and length of coastline of each island in Volcano Islands (Iwo Islands)

| Name of island  | Geo-location of the main island                   | Center location of the main island | Area (km <sup>2</sup> ) | Coastline (km) |
|-----------------|---|------------------------------------|-------------------------|----------------|
| Kita Iwo Jima   | 25°25'7"N–25°26'56"N,<br>141°16'19"E–141°17'37"E  | 25°25'59"N,<br>141°16'57"E         | 5.56                    | 9.05           |
| Iwo Jima        | 24°44'44"N–24°48'48"N,<br>141°17'6"E–141°20'54"E  | 24°46'58"N,<br>141°18'57"E         | 25.72                   | 27.04          |
| Minami Iwo Jima | 24°13'29"N–24°14'42"N,<br>141°27'12"E–141°28'23"E | 24°14'6"N,<br>141°27'45"E          | 3.54                    | 7.92           |
|                 |   |                                    | 34.82                   | 44.01          |

Note: The area and coastline include those from main islands and its surrounding small islands or rocks.

The dataset includes spatial data, attribute data as well as the annotations for the islands in both Chinese and English, it is developed based on Google Earth imagery integrated with thematic maps<sup>[2–5]</sup>. The dataset is consisted of 15 data files and archived in both .shp<sup>[6]</sup> and .kmz<sup>[7]</sup> data formats with the data size of 4.62 MB, these data files are compressed into 2 data files with the data size of 1.74 MB.

## References

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## Data Computing Environment

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- [7] Google LLC. Google Earth Pro. 7.3.2.5481 (32-bit), [hk.google.com](http://hk.google.com)

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