

Global Change Data Encyclopedia

Hainan Dao, China

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Hainan Dao, also called as the Hainan Island (including Hainan Island and its surrounding small rocks, inshore reefs, estuary sand islands), is located in the tropics, with the geo-location of 18°09'34"N–20°09'43"N, 108°36'46"E–111°16'25"E^[1] (Figure 1). It is separated from Leizhou Peninsula by Qiongzhou Strait at its north, and separated from the People's Republic of Vietnam by adjacent Beibu Gulf at its west. In the south of the Island, there is the South China Sea with the islands such as Xisha Islands, Zhongsha Islands, and Nansha Islands. It is separated from the Philippines by South China Sea at its east^[2].

The total area of Hainan Dao including surrounding small rocks, inshore reefs, estuary sand islands is 34,012.66 km², and the total coastline is 2,453.79 km. The main island, Hainan Island, has an area of 33,959.44 km² and a coastline of 2,175.25 km (Table 1), which is the second largest island in China, second only to Taiwan Dao^[3]. It belongs to Hainan province, P. R. China.

The Geomorphological characteristic of Hainan Dao is high in the center and low all around. The highest location is Wuzhi Mountain, with the elevation of 1,867 m above sea level^[4]. In addition, the peaks, such as Limu Mountain and Jianfeng Mountain, distributed in the northeast-southwest direction, are located in the southwest-central of the Island. From the highest point of the peak to the coast, the terrain changes from mountains, hills, plat-



Figure 1 Data Map of Hainan Island (.shp format)

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forms, plains, coastal zones, and connects with the continental shelf. Restricted by the effect of physiographic stages, the mountain bodies are divided into 6 levels of denudation planation planes, 1,400 m, 800–900 m, 600 m, 500 m, 400 m, and 200–300 m^[5]. Under the influence of strata depression or fault, different sizes of basins are widely distributed between mountains and hills, while many alluvial-marine plains with varying widths are distributed along the coast. The climate of Hainan Dao is hot and rainy, long summer and no winter, and obvious dry and wet seasons. The annual average temperature is above 22 °C, with the average temperature higher than 16 °C in the coldest month (January) and annual accumulated temperature (≥ 10 °C) higher than 8,200 °C. The rain is rich on the Hainan Dao, with the annual average rainfall of 1,500–1,800 mm in most parts of the Island and even 2,000–2,500 mm in the central mountainous area. About 80% of the rainfall falls in the rainy season from May to October, while only about 20% of the rainfall falls in the dry season from November to April of the following year^[6]. Vegetation and soil are affected by regional differences in temperature and precipitation and vertical differentiation of mountains. Typical tropical rainforest and seasonal rainforest are developed on hilly platforms with the elevation below 400 m, and the soil is latosol. Vines and parasitic plants are widely distributed in the south-east of the Island, developing into a typical seasonal rainforest landscape^[7]. In the southwest of the Island, the rainfall is obviously less, so the drought-tolerant thickets or sparse trees are developed, and the soil is dry krasnozem. The vegetation is evergreen broad-leaved forest in the mountainous area with an elevation of 400–700 m, and the soil is krasnozem. The landscape of mixed evergreen and deciduous broad-leaved forest appeared in the evergreen broad-leaved forest landscape in the mountain area with an elevation of 700–1,200m, and the soil is developed into a yellow soil due to the moisture condition. In the mountains with an elevation above 1,200 m, the temperature is low, the humidity is high, and the wind is strong. Hence, the hilltop scrub and bush wood are grown, and the soil is developed into shrubby-meadow soil^[8]. There are mangroves along the coast of Hainan Dao^[9].

Table 1 Hainan Dao (Island) and its surrounding small islands

Name of island	Geo-location	Center location	Area (m ²)	Coastline (m)
Hainan Dao	18°9'34"N–20°9'41"N, 108°36'46"E–111°2'32"E	19°11'46"N, 109°44'38"E	33,959,438,300	2,175,246
Haidian Dao	20°2'49"N–20°4'51"N, 110°18'2"E–110°21'24"E	20°3'50"N, 110°19'47"E	14,408,422	16,307
Xinbu Dao	20°3'4"N–20°5'29"N, 110°20'27"E–110°22'30"E	20°4'30"N, 110°21'38"E	8,169,865	20,941
Dazhou Dao	18°39'19"N–18°41'25"N, 110°28'12"E–110°29'39"E	18°39'55"N, 110°28'56"E	4,108,109	13,958
Ruyi Dao	20°3'41"N–20°5'0"N, 110°13'29"E–110°14'49"E	20°4'2"N, 110°14'9"E	2,718,410	12,293
Haitou	19°29'45"N–19°30'38"N, 108°56'15"E–108°57'17"E	19°30'14"N, 108°56'45"E	2,115,007	6,381
Ximao Zhou	18°13'35"N–18°14'44"N, 109°21'48"E–109°22'40"E	18°14'6"N, 109°22'12"E	1,957,264	6,070
Dongyu Dao	19°8'3"N–19°9'4"N, 110°33'35"E–110°34'33"E	19°8'35"N, 110°34'5"E	1,844,350	6,170
Lecheng Dao	19°8'13"N–19°9'1"N, 110°30'53"E–110°31'60"E	19°8'38"N, 110°31'24"E	1,569,211	5,724
Simapo Dao	20°0'4"N–20°1'4"N, 110°22'26"E–110°23'12"E	20°0'34"N, 110°22'51"E	1,450,627	4,943

(To be continued to the next page)

(Continued)

Name of island	Geo-location	Center location	Area (m ²)	Coastline (m)
Niuqi Zhou	18°18'22"N-18°18'59"N, 109°45'16"E-109°46'10"E	18°18'43"N, 109°45'44"E	1,047,654	5,919
Fenghuang Dao	18°13'50"N-18°14'44"N, 109°28'22"E-109°29'40"E	18°14'8"N, 109°28'41"E	881,305	6,256
Yezhu Dao	18°12'26"N-18°13'21"N, 109°39'27"E-109°40'4"E	18°13'3"N, 109°39'43"E	637,795	4,911
Dongmao Zhou	18°12'46"N-18°13'22"N, 109°24'42"E-109°25'5"E	18°13'1"N, 109°24'52"E	461,734	2,985
Zhouzai Dao	18°38'14"N-18°38'36"N, 110°21'10"E-110°21'47"E	18°38'25"N, 110°21'27"E	445,198	3,019
Nanshi	19°54'18"N-19°54'51"N, 111°11'49"E-111°12'15"E	19°54'34"N, 111°12'1"E	398,556	4,147
Fenjie Zhou	18°34'27"N-18°34'59"N, 110°11'33"E-110°12'1"E	18°34'43"N, 110°11'47"E	394,629	4,320
Beishi Dao	19°58'37"N-19°59'12"N, 111°16'2"E-111°16'24"E	19°58'55"N, 111°16'12"E	338,638	3,083
Xizhou	18°10'55"N-18°12'16"N, 109°39'57"E-109°40'51"E	18°11'6"N, 109°40'38"E	257,107	6,798
Baian Dao	18°48'30"N-18°48'58"N, 110°33'53"E-110°34'12"E	18°48'45"N, 110°34'3"E	255,308	2,449
Jiajing Dao	18°38'50"N-18°39'12"N, 110°17'7"E-110°17'21"E	18°39'0"N, 110°17'13"E	170,372	1,913
Dongluo Dao	18°19'26"N-18°19'46"N, 108°59'17"E-108°59'28"E	18°19'35"N, 108°59'23"E	120,720	2,022
Pingshi Dao	19°57'35"N-19°57'51"N, 111°14'55"E-111°15'15"E	19°57'42"N, 111°15'6"E	118,635	2,270
Hongpai	19°58'34"N-19°58'51"N, 109°48'16"E-109°48'38"E	19°58'43"N, 109°48'26"E	114,800	1,891
Luoting Po	19°57'52"N-19°58'3"N, 110°36'32"E-110°36'47"E	19°57'58"N, 110°36'40"E	93,818	1,173
Dingshi Dao	19°57'56"N-19°58'10"N, 111°15'38"E-111°15'55"E	19°58'2"N, 111°15'47"E	88,699	1,601
Ganzhe Dao	18°45'37"N-18°45'49"N, 110°30'2"E-110°30'13"E	18°45'43"N, 110°30'7"E	84,861	1,113
Dazhou	18°13'38"N-18°13'50"N, 109°28'59"E-109°29'11"E	18°13'42"N, 109°29'5"E	63,221	1,130
Xigu Dao	18°19'18"N-18°19'30"N, 108°57'6"E-108°57'14"E	18°19'23"N, 108°57'9"E	61,217	974
Gangmenshi	18°52'57"N-18°53'3"N, 110°31'16"E-110°31'20"E	18°52'60"N, 110°31'18"E	17,185	520
Chishi Dao	19°55'34"N-19°55'41"N, 111°11'52"E-111°11'55"E	19°55'37"N, 111°11'53"E	14,679	593
Shuangfan	19°53'1"N-19°53'5"N, 111°12'43"E-111°12'49"E	19°53'4"N, 111°12'46"E	11,200	503
Shuangfan Shi (West)	18°26'8"N-18°26'11"N, 110°8'24"E-110°8'28"E	18°26'10"N, 110°8'26"E	7,160	336
Shuangfan Shi (East)	18°26'9"N-18°26'12"N, 110°8'27"E-110°8'31"E	18°26'11"N, 110°8'29"E	5,257	344
Wuzhizhou Dao	18°18'57"N-18°18'58"N, 109°46'11"E-109°46'11"E	18°18'57"N, 109°46'11"E	506	87
Others			8,794,328	125,404
Total			34,012,664,148	2,453,793

Hainan Dao has a resident population of more than 9 million (9.11 million in 2015^[10]), with more than 1 million in Haikou city, the capital of Hainan province^[11]. There are several people groups of Han nationality, and besides Han, there are Li, Miao, etc. There are six Li and Miao autonomous counties (Baisha, Changjiang, Ledong, Lingshui, Baoting, and Qiongzong) on the island. In 2001, the Boao Forum for Asia was held on the Hainan Dao, which became the annual gathering place of the Asian economic forum^[12]. Hainan Dao is a suitable region for the tropical agriculture. The main food crops include rice, sweet potato. Cash crops include sugar cane, peanuts, beans, sesame, and tea; economic trees include rubber, coconut, coffee, pepper, betel nut, oil palm, cocoa, cashew nuts, etc.; while tropical fruits include litchi, mango, longan, pineapple, and durian, with abundant yield^[13]. Hainan Dao is rich in different types of tourism resources, and has the unique basis and conditions to develop tropical island tourism, mountain tourism, coastal tourism, cruise tourism, and folk tourism^[14].

The boundary data of Hainan Dao was developed based on the Google Earth images (2015) and related maps and references. The dataset consists of 15 data files and archived in the .shp^[15] and .kmz formats with the data size of 10.2 MB (compressed to 4.0 MB in two data files).

References

- [1] Shen, Y. C., Liu, C., Shi, R. X. Boundary of Hainan Island [DB/OL]. Global Change Research Data Publishing & Repository, 2015. DOI: 10.3974/geodb.2015.01.10.V1.
- [2] Zheng, D., Yang, Q. Y., Wu, S. H. Physical Geography of China [M]. Beijing: Science Press, 2015: 588–594.
- [3] Editorial Board of 1 : 1000000 Map on Land Type in China. Description of E-49 in 1 : 1000000 Map Land Type in China [M]. Beijing: Surveying and Mapping Press, 1989.
- [4] Yuan, J. P., Yu, L. S., Deng, G. Q. Geomorphologic division and classification of Hainan Island [J]. *Natural Science Journal of Hainan University*, 2006, 24(4): 364–370.
- [5] Zeng, Z. X., Zeng, X. Z. Physical Geography of Hainan Island [M]. Beijing: Science Press, 1989.
- [6] He, D. Z., Zhang, S. L. The regional climate division of Hainan Island [J]. *Acta Geographica Sinica*, 1985, 40(2): 169–178.
- [7] Tan, X. D., Liu, Y. L. Biodiversity of Hainan Island and its protection countermeasures [J]. *Chinese Journal of Tropical Agriculture*, 2007, 27(6): 50–53.
- [8] Zou, B. S., Zhang, W. Y. The groups and features of tropical forest vegetation of Hainan Island [J]. *Huihaia*, 2002, 22(2): 107–115.
- [9] Editorial board of Chinese Vegetation. Chinese Vegetation [M]. Beijing: Science Press, 1980: 402–410.
- [10] Website of the People's Government of Hainan province [OL]. <http://www.hainan.gov.cn/hainan/zfsj/xsj.shtml>.
- [11] Ministry of Civil Affairs of P. R. China. Brief Description of Administration Division of China [M]. Beijing: Sinomap Press, 2016.
- [12] Zhou, W., Wang, Z. P. Structural optimization and functional perfection of Boao Forum for Asia [J]. *Journal of Nantong University (Social Sciences Edition)*, 2017, 33(5): 42–48.
- [13] Guangzhou Institute of Geography. Natural Resources and Regionalization of Tropical Agriculture in Hainan Island [M]. Beijing: Science Press, 1985.
- [14] Sinomap Press. Hainan Tourism [M]. Beijing: Sinomap Press, 1994.

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