

**Refugee Review Tribunal
AUSTRALIA**

RRT RESEARCH RESPONSE

Research Response Number: CHN35275
Country: China
Date: 18 August 2009

Keywords: China – Fujian Province – Gaoshan – Tides – Tidal flats

This response was prepared by the Research & Information Services Section of the Refugee Review Tribunal (RRT) after researching publicly accessible information currently available to the RRT within time constraints. This response is not, and does not purport to be, conclusive as to the merit of any particular claim to refugee status or asylum. This research response may not, under any circumstance, be cited in a decision or any other document. Anyone wishing to use this information may only cite the primary source material contained herein.

Questions

- 1. Please advise how many tides a day there are in the area near Xijiang Village, Gaoshan Town, Fujian Province, and at a small island some 30 kilometres off shore, called Heyu Island?**
- 2. Please also tell me how many kilometres exactly the island is off shore, and whether people can walk to it at low tide?**

RESPONSE

- 1. Please advise how many tides a day there are in the area near Xijiang Village, Gaoshan Town, Fujian Province, and at a small island some 30 kilometres off shore, called Heyu Island?**

No precise information was found for the tidal patterns in the bay immediately off Gaoshan town, Xijiang village, or surrounding “Heyu Island”. Reports were found which discuss the tidal patterns in the South China Sea, which is the main body of water surrounding the coastal area off Gaoshan town and the southern part of Fujian province. The South China Sea and Gaoshan are both labeled on the following *Encarta* map:



(Source: ‘Gaoshan – South China Sea’ 2000, *Microsoft Encarta Interactive Atlas* – Attachment 1).

Distinctions in basic tidal patterns are clearly explained in the following note from the United States National Oceanic and Atmospheric Administration website:

Three basic tidal patterns occur along the Earth’s major shorelines. In general, most areas have two high tides and two low tides each day. When the two highs and the two lows are about the same height, the pattern is called a semi-daily or semidiurnal tide. If the high and low tides differ in height, the pattern is called a mixed semidiurnal tide. **Some areas, such as the Gulf of Mexico, have only one high and one low tide each day. This is called a diurnal tide.** The U.S. West Coast tends to have mixed semidiurnal tides, whereas a semidiurnal pattern is more typical of the East Coast (‘Tides and Water Levels: Types and Causes of Tidal Cycles –Diurnal, Semidiurnal, Mixed Semidiurnal; Continental Interference’ 2008, National Oceanic and Atmospheric Administration website, 25 March http://oceanservice.noaa.gov/education/kits/tides/tides07_cycles.html – Accessed 11 August 2009 – Attachment 2).

Sources do state that the South China Sea (SCS) is predominantly diurnal in its tidal pattern. Information on the University of Delaware’s Ocean Internal Wave Online Atlas states that the dominant tidal systems along the coasts of the SCS are diurnal or irregular diurnal:

The South China Sea (SCS) is a large marginal sea situated at the westernmost side of the tropical Pacific. It occupies an area of 3.4×10^6 km² from the equator to 23°N and from 99°E to 121°E. The SCS is a semi-closed ocean basin surrounded by South China, Philippines, Borneo Island, and the Indo-China Peninsula. **Its water body connects with the East China Sea, the Pacific, and the Indian Ocean through the Taiwan Strait, the Luzon Strait, and the Strait of Malacca, respectively.** The bottom topography of the sea is characterized by two extended continental shelves on the northern and the southern sides and a deep basin with a maximum depth of 5000 m situated in the central-eastern portion. The deep basin occupies

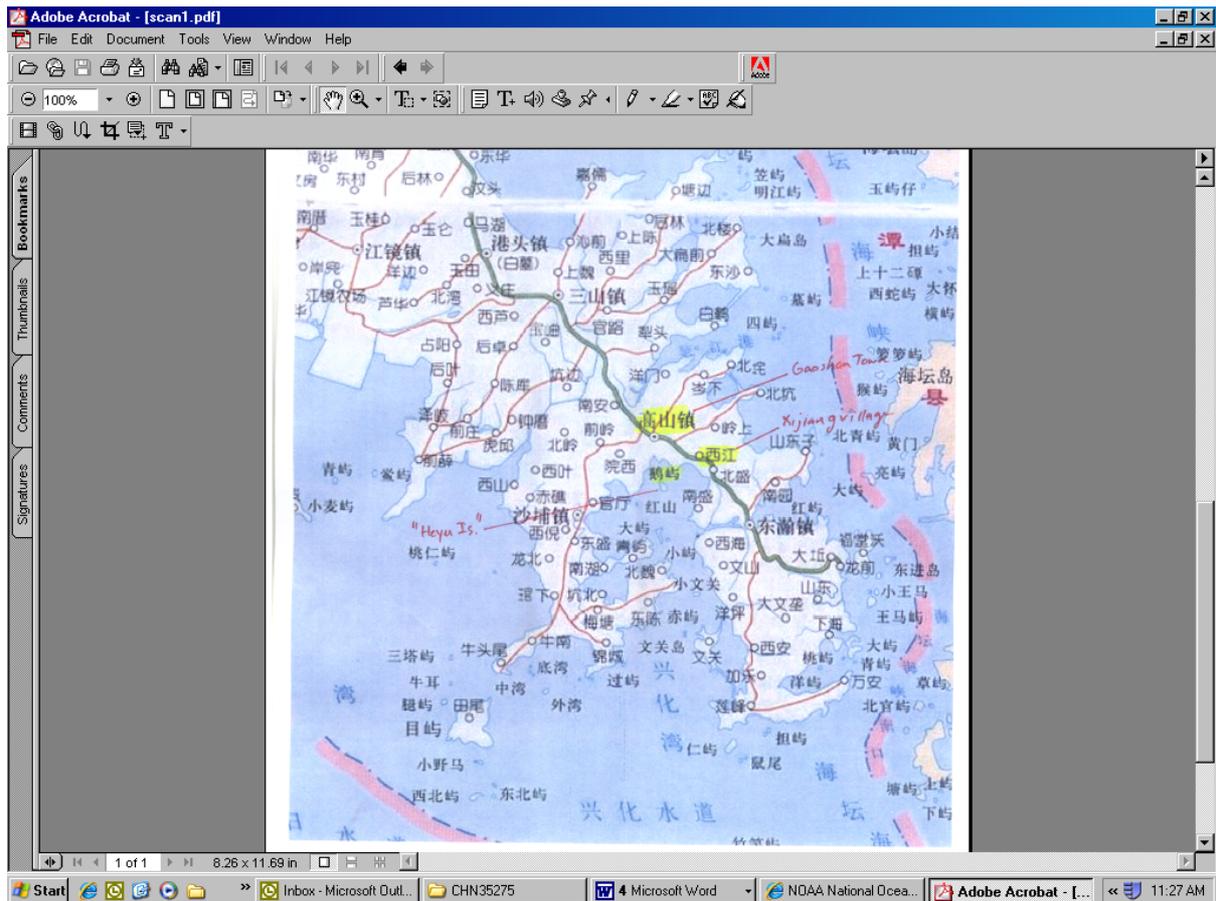
44% of the total area of the SCS. The climate of SCS belongs to the tropical monsoon type. **The dominant tidal systems along the coast of SCS belong to the diurnal or irregular diurnal tides** ('Photograph STS030-090-066 and STS030-090-068' 1998, University of Delaware Ocean Internal Wave Online Atlas website <http://atlas.cms.udel.edu/database/rpages/030090066.html#Publications> – Accessed 17 August 2009 – Attachment 3).

Several other sources were located indicating a “predominance of diurnal surface tides over semidiurnal surface tides in the South China Sea (SCS)”; and that “it is well known that diurnal tides are more prevalent than semi-diurnal tides in the SCS” ('Abstract: Generation of diurnal K1 internal tide in the Luzon Strait and its influence on surface tide in the South China Sea' 2007, *Journal of geophysical research*, vol.112, no.6, Cat.inist website <http://cat.inist.fr/?aModele=afficheN&cpsidt=18942916> – Accessed 17 August 2009 – Attachment 4; Yanagi, T. & Takao, T. 1998, 'A Numerical Simulation of Tides and Tidal Currents in the South China Sea', *Acta Oceanographica Taiwanica*, vol. 37, no.1, Institute of Oceanography, National Taiwan University website, June <http://sol.oc.ntu.edu.tw/aot/1998/371/E3712m.html> – Accessed 17 August 2009 – Attachment 5).

2. Please also tell me how many kilometres exactly the island is offshore, and whether people can walk to it at low tide?

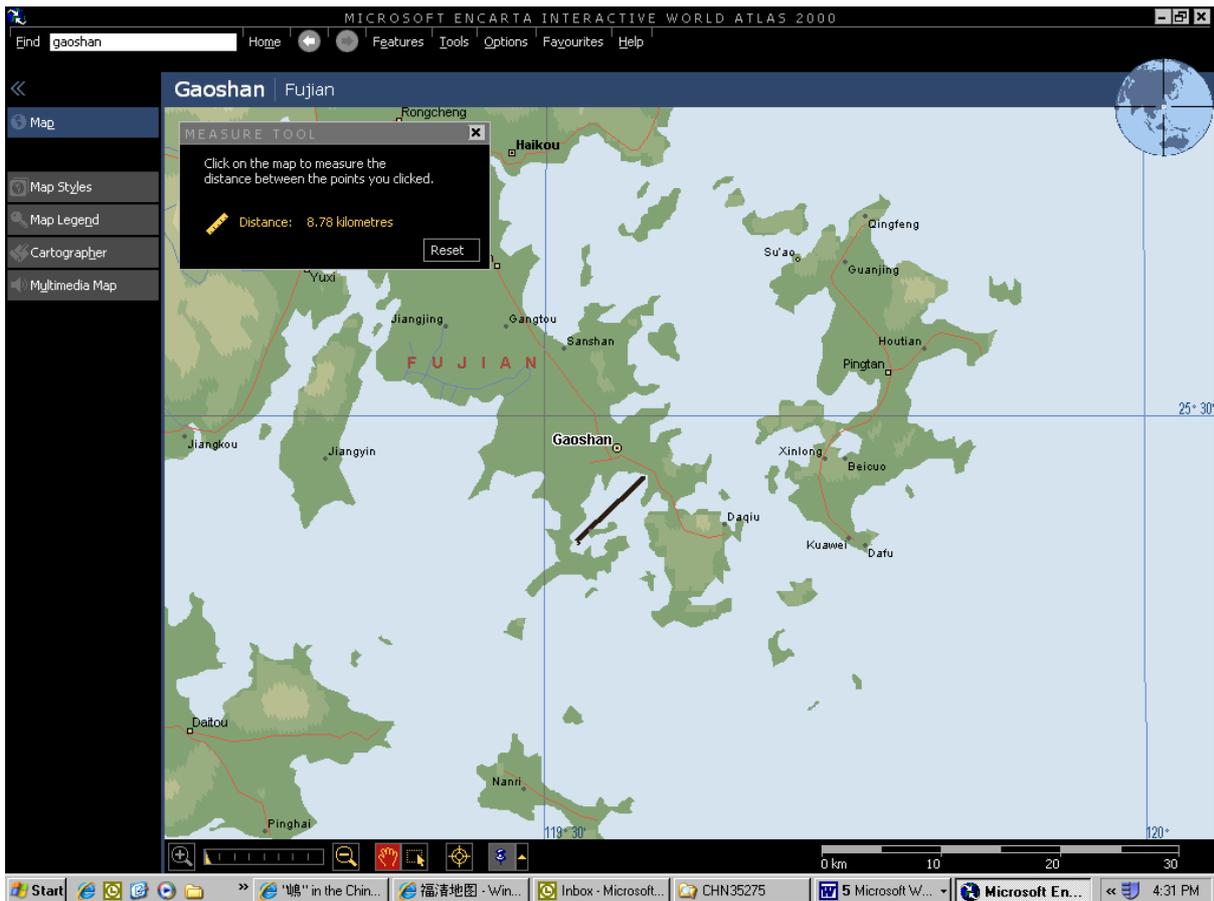
Xijiang Village, Gaoshan Town and “Heyu/Ay-u Island” were identified on a detailed Mandarin-language map with the assistance of a Mandarin-speaking Tribunal officer ('Fuqing map – 福清地图' (undated), Guang.net website <http://www.9654.com/m/fuqing.htm> – Accessed 14 August 2009 – Attachment 6).

The location of Gaoshan Zhen/township (高山镇) is identified below. Xijiang Village was identified as the next marked location in a south-easterly direction. The officer identified “Heyu Island” as that island immediately offshore and south of both Gaoshan and Xijiang. The Mandarin characters are: 鵝 é (main meaning: goose) and 嶋 dǎo (island). The Tribunal officer stated that the pronunciation of “鵝 é” may vary considerably depending on the linguistic background of the speaker.



(Source: 'Gaoshan- Xijiang- Heyu Island Map' (undated), Guang.net website <http://www.9654.com/m/fuqing.htm> – Accessed 14 August 2009 – Attachment 7).

No scale for the approximation of distance is provided for the above map in Mandarin. Tools available on the *Microsoft Encarta Interactive Atlas* (2000) do provide an estimate of the size of the bay off Xijiang Village/Gaoshan Town in which “Heyu/Ay-u Island” is situated: the approximate distance between the shorelines in a north/east-south/westerly direction as indicated below is given as 8-9 kilometres. This suggests that the distance from the coast to “Heyu/Ay-u Island” is approximately 2-3 kilometres:



(Source: 'Gaoshan: Estimate of distance across bay' 2000, *Microsoft Encarta Interactive Atlas – Attachment 8*).

No definitive information was found on whether people can walk to the island or across the bay at low tide. A 1994 scientific research paper on tidal flats in China includes a map of the coast of eastern China where tidal flats are located: it includes the coastal areas of Fujian adjacent to Taiwan and would appear to include the bays around Gaoshan (p.447). This paper also includes the following general description of tidal flats in Fujian:

Tidal flats in China can be classified into two types... The embayment type is developed in long, narrow, and rocky tidal inlets along the coasts of the East China Sea and South China Sea. For example the embayments of Zhejiang, Fujian... These coastal areas are associated with large tidal ranges, more than 4m in the average. Powerful tidal currents are found in most embayments: current speeds can exceed 1m/s, but wave energy is weak because the bays extend inland and are sheltered. The average wave height in these bays is less than 0.5m (Wang, Y. & Zhu, Dai-kui 1994, 'Tidal Flats in China' in *Oceanology of China Seas*, eds. Zhou Di, Liang Yuan-Bo, & Zeng Cheng-Kui, Kluwer, Dordrecht, Boston, pp. 446, 447, 453, google books website

<http://books.google.com.au/books?id=dfxoVRbPcgAC&pg=PA445&dq=Tidal+Flats+in+China%E2%80%99#v=onepage&q=&f=false> – Accessed 18 August 2009 – Attachment 9).

List of Sources Consulted

Internet Sources:

Non-Government Organisations

National Oceanic and Atmospheric Administration website <http://oceanservice.noaa.gov/>

Guang.net website <http://www.9654.com/>

Search Engines

Google search engine <http://www.google.com.au/>

University Sites

University of Delaware Ocean Internal Wave Online Atlas website <http://atlas.cms.udel.edu/>

National Taiwan University website <http://sol.oc.ntu.edu.tw/>

Databases:

FACTIVA (news database)

BACIS (DIAC Country Information database)

REFINFO (IRBDC (Canada) Country Information database)

ISYS (RRT Research & Information database, including Amnesty International, Human Rights Watch, US Department of State Reports)

RRT Library Catalogue

List of Attachments

1. 'Gaoshan – South China Sea' 2000, *Microsoft Encarta Interactive Atlas*.
2. 'Tides and Water Levels: Types and Causes of Tidal Cycles –Diurnal, Semidiurnal, Mixed Semidiurnal; Continental Interference' 2008, National Oceanic and Atmospheric Administration website, 25 March http://oceanservice.noaa.gov/education/kits/tides/tides07_cycles.html – Accessed 11 August 2009.
3. 'Photograph STS030-090-066 and STS030-090-068' 1998, University of Delaware Ocean Internal Wave Online Atlas website <http://atlas.cms.udel.edu/database/rpages/030090066.html#Publications> – Accessed 17 August 2009.
4. 'Abstract: Generation of diurnal K1 internal tide in the Luzon Strait and its influence on surface tide in the South China Sea' 2007, *Journal of geophysical research*, vol.112, no.6, Cat.inist website <http://cat.inist.fr/?aModele=afficheN&cpsidt=18942916> – Accessed 17 August 2009.
5. Yanagi, T. & Takao, T. 1998, 'A Numerical Simulation of Tides and Tidal Currents in the South China Sea', *Acta Oceanographica Taiwanica*, vol. 37, no.1, Institute of Oceanography, National Taiwan University website, June <http://sol.oc.ntu.edu.tw/aot/1998/371/E3712m.html> – Accessed 17 August 2009.
6. 'Fuqing map – 福清地图' (undated), Guang.net website <http://www.9654.com/m/fuqing.htm> – Accessed 14 August 2009.

7. 'Gaoshan- Xijiang- Heyu Island Map' (undated), Guang.net website
<http://www.9654.com/m/fuqing.htm> – Accessed 14 August 2009.
8. 'Gaoshan: Estimate of distance across bay' 2000, *Microsoft Encarta Interactive Atlas*.
9. 'Wang, Y. & Zhu, Dai-kui 1994, 'Tidal Flats in China' in *Oceanology of China Seas*, eds. Zhou Di, Liang Yuan-Bo, & Zeng Cheng-Kui, Kluwer, Dordrecht, Boston, pp. 446, 447, 453, Google books website
<http://books.google.com.au/books?id=dfxoVRbPcgAC&pg=PA445&dq=Tidal+Flats+in+China%E2%80%99#v=onepage&q=&f=false> – Accessed 18 August 2009.