



GIS in Humanities and Social Sciences 2009

*Integration of Contemporary Science & Technology and Culture Beliefs - with
Mazu Patrols and Pilgrimages for Example*

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Agenda

Concept and features of Folklore

Application of the technology in Mazu patrols

Information system in Mazu patrols

The difference between Baishatun and Dajia Mazu patrols

Website Browsing Behavior Analysis

Conclusion



Concept and features of Folklore

■ Definitions related to Festivals

<i>Noun</i>	<i>Definition</i>	<i>Example</i>
<i>Festival</i>	<i>It must have a celebration theme and is often used to describe celebration that has an open theme.</i>	<i>Mazu Culture Festival, Songkran Festival of Thailand</i>
<i>Fair</i>	<i>Trade, fair or temple fair. It has less celebration meaning and focuses more on the nature of business trade.</i>	<i>Kaohsiung Travel Fair</i>
<i>Events</i>	<i>An activity that is arranged especially, has only one purpose and goal and does not last very long.</i>	<i>Milan fashion week</i>
<i>Mega-Events</i>	<i>Large, international standard festival with mega scale and influence power and has great investment amount and good economic interests.</i>	<i>Olympics, World Games, Deaflympics</i>
<i>Hallmark events</i>	<i>An activity that is held at a certain time of the year which has become the representative activity for the city or the region and is able to promote the popularity and income for the city or region.</i>	<i>Carnival in , Pingtung Bluefin Tuna Cultural Festival, Yilan International Rain Festival</i>

The characteristics of festival

- *It is open to the public.*
- *The aim is to celebrate or exhibit a certain theme.*
- *It is held once a year or once several years.*
- *It has scheduled beginning and finishing dates.*
- *It does not need hardware building or construction.*
- *The activity design may include some different activities.*
- *All of the activities must be carried out in the same location.*



Mazu Patrols and Pilgrimages

- *Mazu's birthday is on the 23rd of the 3rd Lunar Month.*
- *Many temples in Taiwan would hold pilgrimages on this day to celebrate Mazu's birthday.*
- *Among the vast Mazu pilgrimages, most groups go to the designated place by cars.*
- *However, a small number of groups pilgrim by foot. The most well-known pilgrimages by foot are "Dajia Jenn Lann Temple Mazu Patrols and Pilgrimages" and "Baishatun Mazu Pilgrimage to Beigang."*
- *Pilgrims who participate in these two activities have to walk around 300km to 400km, which is a big test on their endurance.*



Temple Fair, Entertainment Group



Free Food and Drinks



Application of the Technology in Mazu Patrols

- *Global Positioning System*
- *Geographic Information System*
- *General Packet Radio Service*

<i>Communication Technology</i>	<i>Communication Technology</i>	<i>Upload/Download Speed</i>
2G	GSM(Global System for Communications)	9.6Kbps~14.4Kbps
2.5G	GPRS(General Packet Radio Service)	9.6Kbps~115Kbps(Max.)
2.75G	EDGE(Enhanced Data rates for GSM Evolution)	384Kbps
3G	UMTS(Universal Mobile Telecommunications System)	384Kbps/384Kbps
	WCDMA(Wideband Code Division Multiple Access)	64Kbps/2Mbps(indoor) ; 384Kbps(outdoor) ; 144Kbps(in vehicle)
3.5G	HSDPA(High-Speed Downlink Packet Access)	384Kbps/14.4Mbps(Max.)
3.75G	HSUPA(High-Speed Uplink Packet Access)	5.76Mbps/14.4Mbps
	HSPA=HSDPA+HSUPA	5.76Mbps/14.4Mbps
	HSPA+(MIMO+64QAM)	11.5Mbps/21~84Mbps
3.9G	LTE(Long Term Evolution)	75Mbps/150Mbps(2x2MIMO)
	Wi-Fi(Wireless fidelity)	2Mbps(802.11) ; 11Mbps(801.11b) ; 54Mbps(、)
	WiMax(Worldwide Interoperability for Microwave Access)	75Mbps(802.16-2004、fixed、frequency width 20MHz) ; 14Mbps/63Mbps(802.16e-2005、mobile、frequency width 10MHz)
4G	GSM(Global System for Communications)	9.6Kbps~14.4Kbps
	GPRS(General Packet Radio Service)	9.6Kbps~115Kbps(Max.)
	EDGE(Enhanced Data rates for GSM Evolution)	384Kbps

System Construction



System Development Technology

- *Web-GIS Development Technology*
 - *The website is constructed by Web-GIS developed using interactive and asynchronous webpage development technology (Asynchronous JavaScript and XML , AJAX).*
 - *Relative technology specifications are shown below:*
 - *It uses XHTML and CSS as the foundation for representing the webpage.*
 - *It uses DOM (Document Object Model) to execute dynamic display and interaction.*
 - *It uses XML and XSLT for data exchange and edition.*
 - *It uses XMLHttpRequest to obtain required data asynchronously.*
 - *It uses relative JavaScript integration technology.*



System Development Technology

- *Image Transmission Technology*
 - *The DVR of the front end adopts the MPEG-4 digital image compressing technology with a removable 250GB hard disk.*
 - *The resolution of the image is 640*480.*
 - *The framerate of the video is 30FPS (PAL/NTSC) per second whereas the format of the images taken every 2 minutes is JPEG.*
 - *Videos can be browsed or played directly using QuickTime on a notebook or a normal PC. As for images taken every 2 minutes, GPRS wireless transmission can be used to browse the mobile, immediate pilgrimage images.*



GPS Tracking Service Website

- *“Wooden divinatory blocks” are used to ask Mazu for the next route and direction.*
- *It all depends on the mysterious power that leads the sedan chair carriers.*
- *Believers can go online and know the immediate position of the sedan chair through the website.*



Mazu Patrols and Pilgrimages Information Service System



DVR equipments. The image shows the waterproof camera installed on the top of the sedan chair.



Immediate Live Images and Videos

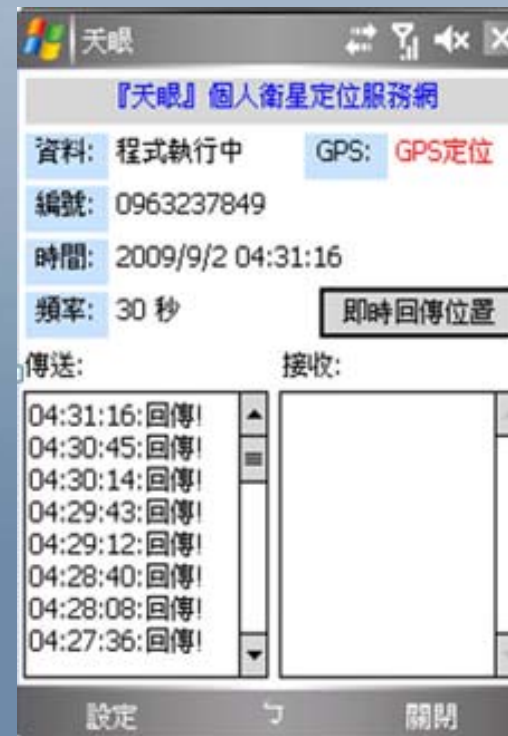


The DVR and the batteries installed at the back of the sedan chair.



Bicycle Pilgrimage Service- M-Skyeyes

- *Bicycle activity has popularized during the last few years.*
- *Believers and bikers have to have Windows Mobile mobile phones with GPS.*
- *They can then upload the positioning.*



Bicycle Pilgrimage Service- M-Skyeyes

- *People can obtain the exact positions and the images of the bikers and the Mazu sedan chair from the website or the PDA via the Internet.*

己丑年天上聖母遠境進香即時衛星定位服務



台中縣大甲鎮 鎮瀾宮
2009/4/8 下午 01:59:52
[即時影像](#) | [更新畫面](#)
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台中縣大甲鎮 鎮瀾宮
2009/5/20 下午 01:14:19
[即時影像](#) | [更新畫面](#)
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Mazu Patrols and Pilgrimages Route” Dajia Mazu”

- *It's famous around the world and is honored to be one of the three biggest pilgrimages.*
- *Temple has a history of more than 100 years.*
- *There are more than 1 million people who participate every year.*

財團法人大甲鎮安宮
乙丑年天上聖母遶境進香即時衛星定位服務
天賜全球衛星定位服務網 系統設計：逢甲大學地理資訊系統研究中心

活動實況

大甲媽祖遶境路線

歐吉亞科技
OGYA TECHNOLOGY

隆盈科技
Long In Tech

全球衛星定位服務網
Global GPS Service Net

165公里

大甲交通164-2

聯絡我們 · 電話: 093613 · 建議使用瀏覽器IE 6.0以上的版本
天賜全球衛星定位服務網 · 版權所有 ©2009 All Rights Reserved. (Powered by EasyMap)



Mazu Patrols and Pilgrimages Route” Baishatun Mazu”

- *The distance the pilgrimage team walks is the longest in Taiwan.*
- *The pilgrimage route and the resting and sleeping sites are decided by Mazu’s wishes through the shaking of the sedan chair during the journey.*

白沙屯媽祖網站
BAISHATUN MATSU WEBSITE

白沙屯媽祖往北港徒步進香 即時衛星定位服務

03/27 離家 03/28 離家 03/29 離家 03/30 離家 03/31 離家 04/01 離家

行程表:
日期 3月23日(一)深夜
登橋 日期 3月26日(四)PM 11:45
出發 日期 3月27日(五)AM 00:20
到北港 日期 3月28日(六)抵達北港(進入朝天宮時間一般多數在接近中午時分)
進火 日期 3月28日(六)PM11:40
回宮 日期 4月1日(三)PM02:30
遊庄 日期 4月2日(四)AM06:30
開爐 日期 4月11日(六)pm11:35

以上行程說明僅供參考，實際時間仍應以白沙屯媽祖宮最新公告為準

歐吉亞科技
隆盛科技
全球衛星定位服務網

聯絡我們，總機人員：86162 人次，建議使用瀏覽器IE 6.0以上的版本
天圖全球衛星定位服務網，版權所有©2009 All Rights Reserved.(Powered by EasyMap)



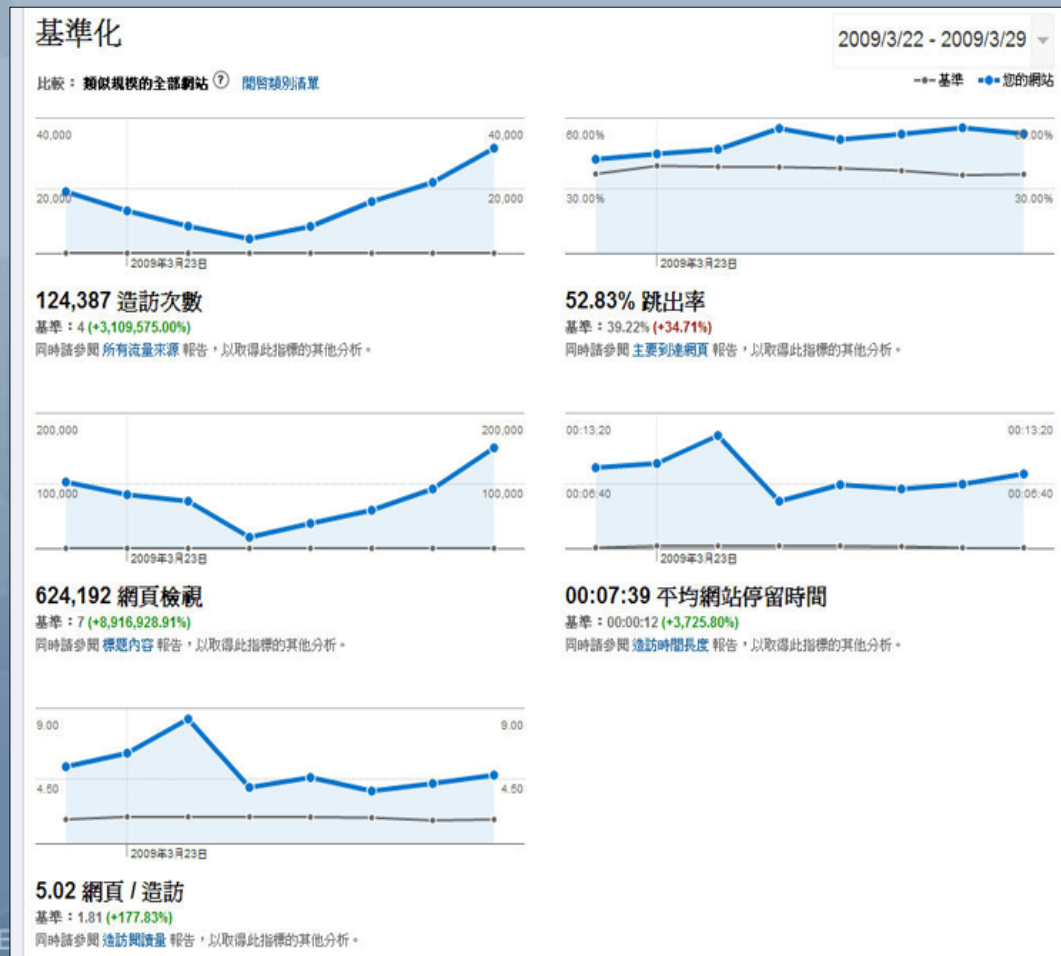
Mazu Instructed Believers to Walk through Chou-shui River



Website Browsing Behavior Analysis

■ Visitor Information Standardization

- “Standardization” provides the comparison between websites of the same scale.



- *Where the visits came from?*
 - *People from more than 168 cities and 32 countries/regions had visited the website.*

124,387 次造訪來自 32 國家 / 領域
 詳細資料層級: 城市 | 國家 / 領域 | 次大陸地區 | 大陸 維度: 無

網站使用方式: 目標轉換 檢視: [圖表] [列表] [地圖]

造訪次數: **124,387** 網頁 / 造訪: **5.02** 平均網站停留時間: **00:07:39** 新造訪次數百分比: **32.04%** 跳出率: **52.83%**
 網站總值的百分比: 100.00% 網站平均值: 5.02 (0.00%) 網站平均值: 00:07:39 (0.00%) 網站平均值: 31.88% (0.50%) 網站平均值: 52.83% (0.00%)

詳細資料層級: 國家 / 領域	造訪次數 ↓	網頁 / 造訪	平均網站停留時間	新造訪次數百分比	跳出率
1. Taiwan	123,504	5.00	00:07:36	31.99%	52.83%
2. China	385	8.83	00:16:11	36.36%	49.61%
3. United States	167	8.17	00:11:13	38.32%	58.68%
4. Singapore	51	2.43	00:02:39	29.41%	68.63%
5. Vietnam	40	3.15	00:04:31	32.50%	65.00%
6. Japan	40	5.30	00:09:34	67.50%	72.50%
7. Hong Kong	37	2.81	00:03:48	48.65%	56.76%
8. Canada	35	16.20	00:18:40	48.57%	31.43%
9. Switzerland	30	25.87	00:31:44	3.33%	3.33%
10. Australia	17	5.47	00:09:01	41.18%	29.41%

篩選器國家 / 領域: 包含 [] 開始 移至: 1 顯示列: 10 1 - 10 (共 32 頁)

124,387 次造訪來自 168 城市
 詳細資料層級: 城市 | 國家 / 領域 | 次大陸地區 | 大陸 維度: 無

網站使用方式: 目標轉換 檢視: [圖表] [列表] [地圖]

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詳細資料層級: 城市	造訪次數 ↓	網頁 / 造訪	平均網站停留時間	新造訪次數百分比	跳出率
1. Tai-Chung	78,977	5.14	00:07:55	29.53%	51.53%
2. Chiayi	15,313	4.24	00:06:23	30.57%	58.43%
3. San-Ch'Ung	11,035	5.10	00:07:52	39.99%	53.48%
4. Chu-Nan	3,506	3.22	00:05:21	32.92%	58.61%
5. Kao-Hsiung	3,058	5.53	00:08:12	41.73%	48.63%
6. Hsin-Chu	2,387	6.82	00:10:03	37.83%	53.67%
7. Tai-Nan	2,338	5.97	00:08:07	42.09%	52.10%
8. Taipei	1,435	3.65	00:06:11	35.68%	55.61%
9. Nei-Hu	1,294	5.68	00:07:16	43.20%	53.48%
10. Taoyuan	1,224	4.05	00:05:34	41.34%	52.94%

篩選器城市: 包含 [] 開始 移至: 1 顯示列: 10 1 - 10 (共 168 頁)



Flow Origin, Search Engine and Content Browsed



Conclusion

- *Combine modern technologies such as GPS, Web-GIS, Image Transmission Technology and Mobile Device Positioning with Mazu Belief.*
- *GPS and GSM allow people to search the pilgrimage team's immediate position online.*
- *Live images allow people to feel the exciting atmosphere.*



Further improvements

- *The space that can be used on the sedan chair is narrow therefore all the devices (machine, camera, video recorder) must be tiny and light.*
- *Cornering the devices must be waterproof, anti-shaking, anti-dropping, anti-touching and easy to change, the devices are placed in a specially made stainless steel box.*



- *When the battery or the device must be changed, security staff and sedan chair carrier would help the maintenance staff to go to the back of the sedan chair and carry out the work while the sedan chair is moving. The process can be done within 20 seconds.*
- *Using GPS and GPRS on mobile phones at the same time would exhaust the battery quickly.*



Future

- *Location-Based Service (LBS) can be included in the system and the mobility of mobile communication device and service innovation can be combined to provide more diversified and convenient service.*
- *Applying technology in religious activity can be a new application trend in the future.*

