A Temporal Gazetteer for Chinese History

Merrick Lex Berman

Computational Methods on Local Gazetteers
Max Planck Institute for the History of Science
Berlin, 28 April 2015
<table>
<thead>
<tr>
<th>朝代</th>
<th>公元</th>
<th>隶属</th>
<th>支塘地区当时名称</th>
<th>备注</th>
<th>注</th>
</tr>
</thead>
<tbody>
<tr>
<td>中华民国</td>
<td>1912.1-1937.11</td>
<td>常熟县</td>
<td>支塘乡</td>
<td>1912-1929.8乡董制</td>
<td>长期</td>
</tr>
<tr>
<td>日伪时期：</td>
<td>1938.3-40.7</td>
<td>常熟县</td>
<td>支塘乡</td>
<td>1928.8县实行区乡制</td>
<td>1934年全县分8个区，以百户以上村为一乡，计260个三乡</td>
</tr>
<tr>
<td></td>
<td>1940.7-40.12</td>
<td>常熟县</td>
<td>支塘乡</td>
<td>支塘镇、窑镇乡、枫塘乡、梅苑乡、贺舍乡、黄浦乡、盐铁乡、支塘区</td>
<td>支塘镇及窑镇、枫塘、贺舍、梅苑、黄浦、盐铁等乡</td>
</tr>
</tbody>
</table>
|          | 1941.1-45.8 | 常熟县 第五区    | 支塘镇西南境    | 1941年1月，恢复1934年划分的区乡名，1941年7月，日伪清乡再次改区乡名 | 支塘镇，梅苑乡、黄浦乡、盐铁乡支塘镇，梅苑乡、黄浦乡、盐铁乡
|          | 1940.8-41.7 | 常熟县           | 支塘镇西南境    | 支塘镇，梅苑乡、黄浦乡、盐铁乡 | 支塘镇，梅苑乡、黄浦乡、盐铁乡
|          | (抗日民主政权) | 支塘区           | 支塘镇，窑镇乡   | 支塘镇，梅苑乡、黄浦乡、盐铁乡 | 支塘镇，梅苑乡、黄浦乡、盐铁乡
|          | 1945.11-48.4 | 常熟县           | 支塘镇，窑镇乡   | 支塘镇，梅苑乡、黄浦乡、盐铁乡 | 支塘镇，梅苑乡、黄浦乡、盐铁乡
|          | 1948.5-49.4 | 常熟县支塘区、徐市区 | 支塘镇          | 1948年5月支塘镇与窑镇乡合并建支塘镇，1949年2月设徐市区 | 支塘镇，梅苑乡、黄浦乡、盐铁乡 |
“Historical Atlas of China” (8 volumes)
Late Editor, Tan Qixiang

China Historical GIS Research Team & Advisors
• find admin units in existence at a **particular time**

• search by **placename**

• filter by **admin status** (feature type)

• determine the **administrative hierarchy** for a particular place instance

• show how a particular admin unit **changes over time**
Rules for adding records to CHGIS Database

- change in placename
- change in administrative status
- change in location, seat, or boundary
Changes do not occur at the same time
Changes do not occur at the same time
“Historical Instances” are the objects in CHGIS

<table>
<thead>
<tr>
<th>name</th>
<th>begin</th>
<th>end</th>
<th>preceded by</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>time1</td>
<td>time2</td>
<td></td>
</tr>
<tr>
<td>B</td>
<td>time2</td>
<td>time3</td>
<td>A</td>
</tr>
<tr>
<td>C</td>
<td>time3</td>
<td>time4</td>
<td>B</td>
</tr>
<tr>
<td>D</td>
<td>time4</td>
<td>time5</td>
<td>C</td>
</tr>
<tr>
<td>E</td>
<td>time5</td>
<td>time6</td>
<td>D</td>
</tr>
</tbody>
</table>
## Relational tables to track changes

### Historical Instances Table

<table>
<thead>
<tr>
<th>sys-id</th>
<th>hist-place</th>
<th>begin</th>
<th>end</th>
</tr>
</thead>
<tbody>
<tr>
<td>333</td>
<td>Province T</td>
<td>1200</td>
<td>1350</td>
</tr>
<tr>
<td>334</td>
<td>Prefecture A</td>
<td>1200</td>
<td>1249</td>
</tr>
<tr>
<td>335</td>
<td>Prefecture B</td>
<td>1250</td>
<td>1350</td>
</tr>
<tr>
<td>336</td>
<td>Prefecture C</td>
<td>1200</td>
<td>1350</td>
</tr>
<tr>
<td>337</td>
<td>County X</td>
<td>800</td>
<td>1500</td>
</tr>
<tr>
<td>338</td>
<td>County Y</td>
<td>1200</td>
<td>1320</td>
</tr>
<tr>
<td>339</td>
<td>County Z</td>
<td>1321</td>
<td>1340</td>
</tr>
<tr>
<td>340</td>
<td>Town 1</td>
<td>200</td>
<td>1700</td>
</tr>
<tr>
<td>341</td>
<td>Town 2</td>
<td>100</td>
<td>1500</td>
</tr>
</tbody>
</table>

### Temporal Sequence Table

<table>
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<tr>
<th>sys-id</th>
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<th>prec-by</th>
<th>prec-by-name</th>
</tr>
</thead>
<tbody>
<tr>
<td>335</td>
<td>Prefecture B</td>
<td>334</td>
<td>Prefecture A</td>
</tr>
<tr>
<td>339</td>
<td>County Z</td>
<td>338</td>
<td>County Y</td>
</tr>
</tbody>
</table>

### Part-Of Table

<table>
<thead>
<tr>
<th>sys-id</th>
<th>place-name</th>
<th>part-of</th>
<th>part-of-name</th>
<th>begin</th>
<th>end</th>
</tr>
</thead>
<tbody>
<tr>
<td>334</td>
<td>Prefecture A</td>
<td>333</td>
<td>Province T</td>
<td>1200</td>
<td>1249</td>
</tr>
<tr>
<td>335</td>
<td>Prefecture B</td>
<td>333</td>
<td>Province T</td>
<td>1250</td>
<td>1350</td>
</tr>
<tr>
<td>336</td>
<td>Prefecture C</td>
<td>333</td>
<td>Province T</td>
<td>1200</td>
<td>1350</td>
</tr>
<tr>
<td>337</td>
<td>County X</td>
<td>334</td>
<td>Prefecture A</td>
<td>1200</td>
<td>1249</td>
</tr>
<tr>
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<td>County X</td>
<td>335</td>
<td>Prefecture B</td>
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<tr>
<td>338</td>
<td>County Y</td>
<td>336</td>
<td>Prefecture C</td>
<td>1200</td>
<td>1350</td>
</tr>
<tr>
<td>339</td>
<td>County Z</td>
<td>336</td>
<td>Prefecture C</td>
<td>1200</td>
<td>1350</td>
</tr>
<tr>
<td>340</td>
<td>Town 1</td>
<td>337</td>
<td>County X</td>
<td>1200</td>
<td>1350</td>
</tr>
<tr>
<td>341</td>
<td>Town 2</td>
<td>338</td>
<td>County Y</td>
<td>1300</td>
<td>1320</td>
</tr>
<tr>
<td>341</td>
<td>Town 2</td>
<td>339</td>
<td>County Z</td>
<td>1321</td>
<td>1340</td>
</tr>
</tbody>
</table>

222 BCE to 1911 CE

1911 CE

1820 CE

Xian 1980 Projection
CHGIS Version 5  (2012)

~40,000  towns & villages
~10,000 county seats

~3,500 prefecture capitals

~3,000 prefecture polygons
Using GIS boundaries
- extremely time consuming
- limits to what boundaries are known
- interpretations very hard to document
- missing parent boundaries leave gaps
GIS vs. Gazetteer: breaking the bottleneck

Using GIS boundaries
- extremely time consuming
- limits to what boundaries are known
- interpretations very hard to document
- missing parent boundaries leave gaps

Using gazetteer entries
- enter data based on text descriptions
- relations are not based on geometry
- attestations are easy to document
- boundaries are not a bottleneck
TGAZ API launched (2014)

TGAZ API :: search results : name=龍

Results: 1-100 of 771 total  1  2  3  4  5  6  7  8  next

hvd_113395
龍州 (Long Zhou) begin 537 CE end 589 CE [109.40440, 24.30986]

hvd_113385
龍州 (Long Zhou) begin 555 CE end 606 CE [104.82484, 32.19813]

hvd_96584
龍州 (Long Zhou) begin 583 CE end 606 CE [104.82484, 32.19813]

hvd_110634
龍州 (Long Zhou) begin 621 CE end 632 CE [109.26009, 24.58617]

hvd_93588
龍州 (Long Zhou) begin 621 CE end 632 CE [0.00000, 0.00000]

hvd_110606
龍州 (Long Zhou) begin 623 CE end 627 CE [110.14212, 37.21839]

hvd_111068
龍州 (Long Zhou) begin 626 CE end 741 CE [104.82484, 32.19813]

hvd_44135
龍州 (Long Zhou) begin 711 CE end 1300 CE [106.77722, 22.52632]

TGAZ API :: placename : hvd_44135

Placename: 龍州 龍州 Long Zhou

type: 州州 zhou prefecture

temporal span: 711 - 1300

spatial info: POINT point N 22.52632 E 106.77722 (geo data source: FROM_AC)

part of historical units:

邕州都督府 Yong Zhoududufu from 711 to 959

迁隆洞 Qianlongdong from 960 to 1300

data source: CHGIS

唐景云二年（711年）置，属属邕州都督府，宋属左江道迁隆峒（1）。治所即今广西龙州县北武德乡（2）。元大德五年（1301年）迁治，并升为万户府（3）。
TGAZ test: Russian Gazetteer (2014)

**TGAZ API**

:: search results : name=b src=HGR

Results: 1-50 of 57 total hits

1. Балахна (Cyrillic)
   attested by: SLOV_POLUNIT

2. Балахна (Russian Simplified ALA-LC)
   attested by: SLOV_POLUNIT

---

**TGAZ API**

:: placename : hgr_699

placename:

Балахна (Cyrillic)
attested by: SLOV_POLUNIT

Балахна (Russian Simplified ALA-LC)
attested by: SLOV_POLUNIT

type: город

temporal span: from 1785 to 1796

spatial info: POINT point N 56.48989 E 43.60114 (geo data source: http://www.geonames.org/579514)

part of historical units: Балахнинский уезд Балахлунский уезд from 1785 to 1796
data source: HGR

source note: БАЛАХНА, город Нижегородского наместничества. Въ оконъ бываетъ каждую недѣлю по середѣмъ и пятницамъ, а въ зимнее время и по воскресеньямъ торговы, на которые крестьянъ привозятъ бары, хлѣбъ, сѣмяные припасы и разныя для жителей потребности.

source url: http://babel.hathitrust.org/cgi/pt?id=uc1.b4583201.view=1up;seq=14

---

**TGAZ API**

:: placename : hgr_296

placename:

Балахнинский уезд
(Balakhninskiy uezd) begin 1785 CE end 1796 CE [30.5725, 54.8351]

---

**TGAZ API**

:: placename : hgr_65

placename:

Балахна
(Balakhna) begin 1785 CE end 1796 CE [43.60114, 56.48989]

---

**TGAZ API**

:: placename : hgr_414

placename:

Барышевка
(Baryshevka) begin 1785 CE end 1796 CE [31.32173, 50.36098]

---

**TGAZ API**

:: placename : hgr_415

placename:

Батурин
(Baturin) begin 1785 CE end 1796 CE [32.87794, 51.34567]

---

**TGAZ API**

:: placename : hgr_276

placename:

Бельский уезд
(Bel'skiy uezd) begin 1785 CE end 1796 CE [32.92948, 55.848054]
@prefix cito: <http://purl.org/spar/cito/> .
@prefix cnt: <http://www.w3.org/2011/content#> .
@prefix dcterms: <http://purl.org/dc/terms/> .
@prefix foaf: <http://xmlns.com/foaf/0.1/> .
@prefix geo: <http://www.w3.org/2003/01/geo/wgs84_pos#> .
@prefix gn: <http://www.geonames.org/ontology#> .
@prefix lawd: <http://lawd.info/ontology/> .
@prefix rdfs: <http://www.w3.org/2000/01/rdf-schema#> .
@prefix skos: <http://www.w3.org/2004/02/skos/core#> .

<http://chgis.harvard.edu/placename/hvd_45572> a lawd:Place;
  rdfs:label "Shuangbai Xian";
  lawd:hasName [ rdfs:label "雙柏縣"@zh-Hant ];
  lawd:hasName [ rdfs:label "双柏县"@zh ];
  lawd:hasName [ rdfs:label "Shuangbai Xian"@en ];
  geo:location [ geo:lat 24.67262; geo:long 102.14977 ];
  gn:countryCode "cn";
  dcterms:coverage "云南省玉溪地区易门县";
  dcterms:temporal "start=-109; end=548";
  dcterms:description "county 县";
  dcterms:isPartOf "<http://chgis.harvard.edu/placename/hvd_80726> part of Yizhou Jun 益州郡 from -109 to 13 " ;
  dcterms:isPartOf "<http://chgis.harvard.edu/placename/hvd_80724> part of Yizhou Jun 益州郡 from -109 to 22 " ;
  dcterms:isPartOf "<http://chgis.harvard.edu/placename/hvd_80724> part of Yizhou Jun 益州郡 from 14 to 224 " ;
  dcterms:isPartOf "<http://chgis.harvard.edu/placename/hvd_80724> part of Yizhou Jun 益州郡 from 23 to 224 " ;
  dcterms:isPartOf "<http://chgis.harvard.edu/placename/hvd_80175> part of Jianning Jun 建宁郡 from 225 to 419 " ;
  dcterms:isPartOf "<http://chgis.harvard.edu/placename/hvd_113539> part of Ning Zhou 宁州 from 420 to 478 " ;
  dcterms:isPartOf "<http://chgis.harvard.edu/placename/hvd_115662> part of Ning Zhoujinning Jun 宁州晉宁郡 from 479 to 548 " ;
@prefix cito: <http://purl.org/spar/cito/>.
@prefix cnt: <http://www.w3.org/2011/content#>.
@prefix dcterm: <http://purl.org/dc/terms/>.
@prefix foaf: <http://xmlns.com/foaf/0.1/>.
@prefix geo: <http://www.w3.org/2003/01/geo/wgs84_pos#>.
@prefix gn: <http://www.geonames.org/ontology#>.
@prefix lawd: <http://lawd.info/ontology/>.
@prefix rdfs: <http://www.w3.org/2000/01/rdf-schema#>.
@prefix skos: <http://www.w3.org/2004/02/skos/core#>.
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  rdfs:label "Shuangbai Xian";
  lawd:hasName [ rdfs:label "雙柏縣"@zh-Hant ];
  lawd:hasName [ rdfs:label "双柏县"@zh ];
  lawd:hasName [ rdfs:label "Shuangbai Xian"@en ];
  geo:location [ geo:lat 24.67262; geo:long 102.14977 ];
  gn:countryCode "cn";
  dcterms:coverage "云南省玉溪地区易门县";
  dcterms:temporal "start=-109; end=548";
  dcterms:description "county 县";
  dcterms:isPartOf <http://chgis.hmdc.harvard.edu/placename/hvd_80726>;
  dcterms:isPartOf <http://chgis.hmdc.harvard.edu/placename/hvd_80724>;
  dcterms:isPartOf <http://chgis.hmdc.harvard.edu/placename/hvd_80724>;
  dcterms:isPartOf <http://chgis.hmdc.harvard.edu/placename/hvd_80724>;
  dcterms:isPartOf <http://chgis.hmdc.harvard.edu/placename/hvd_80175>;
  dcterms:isPartOf <http://chgis.hmdc.harvard.edu/placename/hvd_113539>;
  dcterms:isPartOf <http://chgis.hmdc.harvard.edu/placename/hvd_115662>;
. 
Dump of database to RDF
71,000 records

Ingested gazetteer
Into Pelagios system

http://pelagios.org/recogito/

<http://chgis.hmdc.harvard.edu/placename/hvd_1> a lawd:Place;
  rdfs:label "Ba Zhou"@en;
  lawd:hasName [ lawd:primaryForm "霸州"@zh-Hant ];
  lawd:hasName [ lawd:primaryForm "霸州"@zh ];
  lawd:hasName [ lawd:primaryForm "Ba Zhou"@en ];
  geo:location [ geo:lat 39.10154 ; geo:long 116.39525 ];
  gn:countryCode "cn";
  dcterms:description "河北霸县";
  dcterms:temporal "start=1820; end=1820;";
  dcterms:subject "department 州";
.

<http://chgis.hmdc.harvard.edu/placename/hvd_2> a lawd:Place;
  rdfs:label "Zhenghuangdengsiqi Muchang"@en;
  lawd:hasName [ lawd:primaryForm "正⿈黃等四旗牧廠"@zh-Hant ];
  lawd:hasName [ lawd:primaryForm "正⻩黄等四旗牧⼚厂"@zh ];
  lawd:hasName [ lawd:primaryForm "Zhenghuangdengsiqi Muchang"@en ];
  geo:location [ geo:lat 41.21478 ; geo:long 113.89422 ];
  gn:countryCode "cn";
  dcterms:description "内蒙古兴和县北⼤大井洼东北";
  dcterms:temporal "start=1820; end=1820;";
  dcterms:subject "pasture land 牧场";
.
CHAPTER I.

Formerly, when Fa Hsien was at Ch'angan, he was distressed at the imperfect state of the Disciplines; and, subsequently, in the second year of Hung Shih, the Chi-hai of the cycle, he agreed with Hui Ching, Tao Cheng, Hui Ying, Hui Wei and others to go to India and try to obtain these Disciplines. They started from Ch'angan, crossed the Lung (mountains), and arrived at the country of Ch'ien Kuei [Lintao Xian] where they spent the rainy season. The rainy season over they went on to the country of Nou Tan.

and crossing the Yang-lou range arrived at the garrison city of Chang-yeh. Chang-yeh was in a state of rebellion.
Blaeu, Willem: 'Dutch Sea Atlas' India quae Orientalis (ca. 1654)
Integration of CHGIS data with MARKUS (2015)
Integration of CHGIS data with MARKUS (2015)

hvd_112596
 Yingchuan Jun
 (-230 ~ -203) [113.46706, 34.16249]

hvd_112598
 Yingchuan Jun
 (-201 ~ -196) [113.46706, 34.16249]

hvd_112599
 Yingchuan Jun
 (-194 ~ 0) [113.46706, 34.16249]

Yingchuan Jun (Pinyin)
attested by:

Yingchuan Jun (traditional Chinese)
attested by:

type: 郡郡 jun commandery
temporal span: from -230 to -203
spatial info: POINT point N 34.16249 E 113.46706
(geo data source: )
part of historical units:
秦 Qin from -230 to -207
西汉 Xihan from -206 to -203
data source: CHGIS
permalink:
http://chgis.hmdc.harvard.edu/placename/hvd_112596

Copyright: 2015 © CHGIS
Published by: China Historical GIS [Harvard University and Fudan University]
License: CC BY-NC 4.0
Generated by the Temporal Gazetteer Service
TGAZ JSON format (2014)

{
  "system": "China Historical GIS, Harvard University and Fudan University",
  "license": "c. 2014",
  "uri": "http://140.247.114.125/placename/hvd_80547",
  "sys_id": "hvd_80547",
  "sys_id of alternate": "",
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    {
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      "script": "traditional Chinese",
      "exonym language": "",
      "attested by": "",
      "note": ""
    },
    {
      "written form": "騰冲府",
      "script": "simplified Chinese",
      "exonym language": "",
      "attested by": "",
      "note": ""
    },
    {
      "written form": "Tengchong Fu",
      "transcribed in": "Pinyin",
      "attested by": "",
      "note": ""
    }
  ],
  "feature_type": {
    "name": "府"
  }
}
JSON gazetteer record

```json
{
    "system": "China Historical GIS, Harvard University and Fudan University",
    "license": "c. 2014",
    "uri": "http://chgis.hmdc.harvard.edu/placename/hvd_80547",
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    "sys_id of alternate": "",
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            "traditional Chinese": "騰沖府",
            "exonym language": "",
            "attested by": "",
            "note": ""
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        {
            "simplified Chinese": "腾冲府",
            "exonym language": "",
            "attested by": "",
            "note": ""
        },
        {
            "transcribed in Pinyin": "Tengchong Fu",
            "attested by": "",
            "note": ""
        }
    ],
    "feature_type": {
        "name": "府",
        "alternate name": "府",
        "transcription": "fu",
        "English": "superior prefecture"
    },
    "temporal": {
        "begin year": "937",
        "begin rule": "2",
        "end year": "1273",
        "end rule": "4"
    },
    "spatial": {
        "object_type": "POINT",
        "xy_type": "point",
        "latitude": "25.05579",
        "longitude": "98.50229",
        "source": "FROM_FD",
        "present_location": [
            {
                "country code": "cn",
                "text": "云南省腾冲县西郊西山坝",
                "source": "Fudan",
                "attribution": ""}
        ],
        "historical_context": {
            "part of": []
        },
        "preceded by": []
    },
    "data source": "CHGIS",
    "source note": "腾冲府（937－1273年）（陆韧编写） 宋大理改南诏软化府置，属宋大理政权。治今云南腾冲县西郊西山坝"
}
```

Revisions will be written to TGAZ database
**TGAZ opportunities for collaboration**

- Application development to read from TGAZ API
- Editorial access to revise and add to TGAZ records (using ESGAR)
- Linking historical materials to TGAZ records using Pelagios
- Developing specialized gazetteers for inclusion in TGAZ
- Analysis of TGAZ contents (such as historical networks)

**TGAZ projects in queue for development**

- Tibetan Monasteries (with Tibetan Buddhist Resource Center)
- Filling in missing Chinese Places (from CBDB and other sources)
- Turkish Placenames (Digital Ottoman Empire Project)
Spatial Analysis of geocoded places from TGAZ

http://maps.cga.harvard.edu/chinapostoffice/

The Chinese Courier Route System application calculates the total distance between postal stations, the number of postal stations visited, and the number of provinces crossed. You can select a postal stations from the pulldown menu or pick it up from the map.

Postal Stations
XIUWU

- JINNIUYI
- PUYANGYI

Post Offices: 81
Provinces: 59
Length: 2413.654727 Km
TGAZ Project Resources

TGAZ API: http://chgis.hmdc.harvard.edu/tgaz/

Papers: http://www.fas.harvard.edu/~chgis/gazetteer/

Merrick Lex Berman: mberman@fas.harvard.edu