GIS Historical Map Project and Metadata

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Introduction

In the changing landscape of digital research and open access, the roles of technical services librarians are not limited to traditional cataloging. One of the new roles we envision is supporting digital humanities research by organizing, managing, and providing access to data sets via metadata creation and management.

We created a mock digital map project that compares Japanese historical maps by using digital humanities tools and explored a way that technical services librarians can play an important role in digital humanities research.

Historical Maps

Historical maps are unique in that they may not necessarily fit into regular geospatial metadata standards well and this is where technical services librarians can utilize their knowledge and experience.

國郡全圖

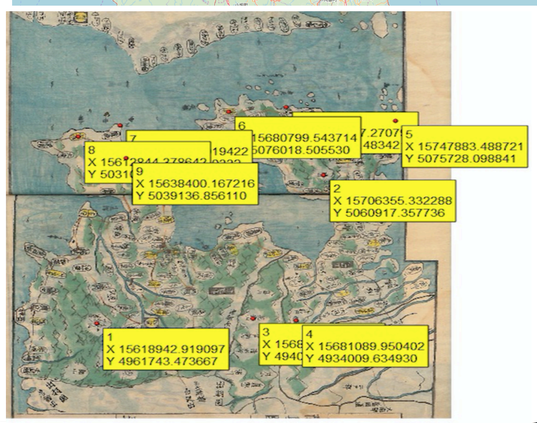
In this project, we compared Aou Tokei's Kokugun Zenzu國郡全圖 (1837) with Nagakubo Sekisui's Kaisei Nihon Yochi Rotei Zenzu改正日本輿地路程全図 (1779). In the preface of Kokugun Zenzu, the author says his maps in this atlas were created based on Nagakubo Sekisui's Kaisei Nihon Yochi Rotei Zenzu. However, it is not easy to see how they are related since one is an atlas and the other is a single sheet map. So, to compare, we decided to layer a northern part of the maps by using digital tools.

改正日本輿地路程全圖

Ground Control Points

To rectify the maps, ground control points are needed. This is one of the processes where a technical librarian's skills are useful since finding ground control points in historical maps may require consulting gazetteers and other reference tools. In this particular case, mountains, lakes and capes are selected.

types	改正日本輿地路程全図	國郡全圖	present	geo:lat	geo:lon
Mountain	イワキ山	イワキ山	岩木山	40.65556	140.30361
Mountain	恐山	恐山	恐山	41.32705	141.09027
Mountain	花部山	花部山	御鼻部山	40.51017	140.88011
Lake	十和田湖	十和田	十和田湖	40.46667	140.86667
Cape	尻矢崎	矢尻崎	尻屋崎	41.43056	141.46222
Cape	龍飛	龍飛	龍飛崎	41.26111	140.34278
Cape	大間	大間	大間崎	41.54639	140.9125
Cape	小泊	小泊	小泊岬	41.1256	140.24923
Village	佐井	佐井	佐井村	41.42967	140.85911
Town (cape)	今別	今別	今別町	41.18178	140.48167



Metadata

When we create metadata for such a GIS project, information about ground control points should be included. We believe that such information is integral to reusability of data, which is a key to successful digital humanities. One of the challenges is to find a file format and schema appropriate to our purpose. KML is used here to display geographic data. Technical services librarians can help researchers by figuring out consistent vocabularies and metadata standards. We hope to demonstrate the role of controlled vocabulary as a means to improving the access to and reusability of data.

```
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<kml xmlns="http://www.opengis.net/kml/2.2">
<Document>
  <name>改正日本輿地路程全圖</name>
  <Placemark>
    <name>イワキ山</name>
    <description>type: mountain; present name: 岩木山</description>
    <Point>
      <coordinates>140.303611,40.655556</coordinates>
    </Point>
  </Placemark>
  <Placemark>
    <name>恐山</name>
    <description>type: mountain; present name: 恐山</description>
    <Point>
      <coordinates>141.090269,41.327053</coordinates>
    </Point>
  </Placemark>

</Document>
</kml>
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