Analyzing the early 19th century's geomagnetic declination in Japan from Tadataka Inoh's Santou-Houi-Ki. The third report.

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Santou-Houi-Ki Japan's important cultural property is gigantic survey data book comprised of 67 volumes consisting nearly whole of Japan's land survey magnetic compass azimuth of approximately 200,000 data in 1800 to 1816,written by cartographer Tadataka Inoh. The first analysis of geomagnetic declination in early 19th century was made by RyoukichI Ohtani in 1917. Based on Santou-Houi-Ki Ohtani analyzed the average geomagnetic declination at only one point at Fukagawa in Edo(Tokyo) during 1802 and 1803 as 0 deg 19 min E. But this value is different from the value of my analysis based on Santou-Hoi-Ki 3 deg 30 min E at Hiro-o in east Hokkaido in 1800,or 2 deg 30 min W at northwestern Tsushima Isl.in 1813 definitely. I anlyzed the geomagnetic declination at 68 points based on Santou-Houi-Ki from Hokkaido toTanegashima Isl.

1.Advantage to use the data recorded in Santou-Houi-Ki for the analysis of geomagnetic declination. The value of declination is vary less than 30 min in each of east and west from the average. This is much more accurate than the age determination in archaeologicalreserch by measurement of remanent magnetization.Huge number of survey data of approximately 200,000. Covers almost all over mainland of Japan. Datas are concentrated in 1800 to 1816. 2.Method of analysis. Collation with the written contents of Santou-Houi-Ki,suvey diary,Inoh map,old map,source book of local history to confirm the position of the reference point. Consult with the specialist in local museum or go for inquires around the neighborhood at the site by portable GPS as if it possible to explore,or by internet map reference service published by the Geographical Survey institute Government of Japan. Serch the true azimuth substitute the longitude and latitude of both reference point and target point to the calcuration formula of true azimuth. Calcurate the average of the remainder as the declination,deduct the magnetic azimuth recorded in Santou-Houi-Ki from true azimuth. 3.Distribution of geomagnetic declination. In

Hokkaido in 1800,I confirmed a remarkable change between 0 deg 30 min W at Matsumae western end,and 3 deg 30 minE at Hirowo in eastern Hokkaido. I estimate the isogonic line of 0 degEW in northern Honshuu during 1800 to 1803,start from western side of Tsugaru penisula and down to the south along the western foot of Ou-u mountain range,and reaches to Teradomari in northwestern coast of mid Honshuu in 1805.

It's veer west from Chita Penisula go west along the sea coast in 1804. In eastern Japan it's veer east in eastern sea coast side ,and veer west inwestern sea coast side.in 1800 to 1806. In Chuugoku area,1deg W at Takasago and Akoh in Hyogo Pref,or Fukuyama in Hiroshima Pref,Mihonosekiand Matsue in Shimane Pref,except 0 degEW at Mt.

Kanayama in Okayama Pref in 1806. In Kyushu areal I confirmed a remarkable change between northern part and southern part, 2 deg 30 min W at 5 points in northwestern Tsushima Isl.in 1813,1 deg W at 3 points in Tanegashima Isl,. But it's 0 deg 36 min W atMt.Togami in IKi Isl.or 0 deg EW at Mt.Yasumanndake in HIrado Isl. I estimate these are the infruence ofremanent magnetization material in lava stratum. 4.Assignment The declinations at particular places analysed from Santou-Houi-Ki are inconsistent with Gauss-Webber's isogonic atlas in 1830, I hope to make the isogonic map of Japan early 19th century, for revision. For making the isogonic map,I must increase the analyzed point,and choose the point where not formed by the stratum of the igneous rock etc.