Magnet Field Measurement

1. Choose 12 locations

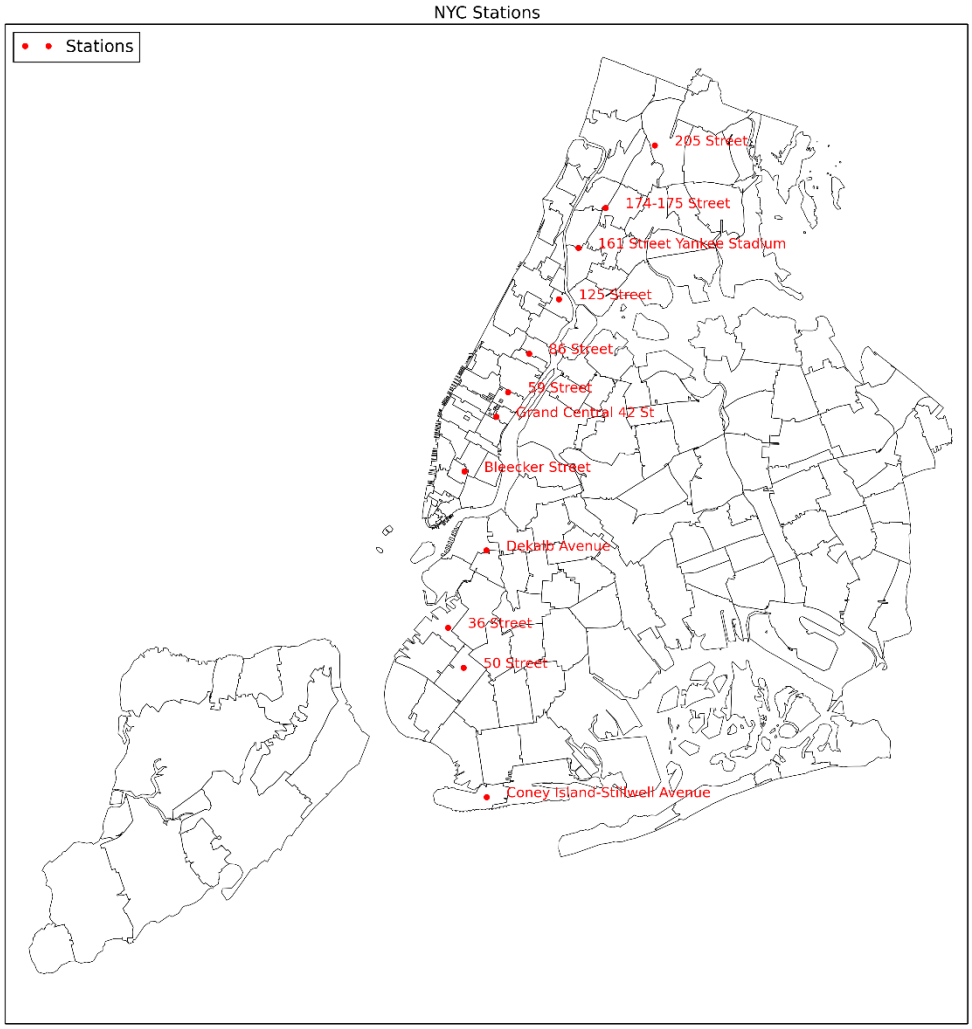

Figure 1, The stations visited

2. Measurement procedure

(a) choose two locations outside the subway stations

(b) use compass and spirit level to adjust the phone orientation

(c) use Teslameter 11th to measure the magnet field

(d) keep the one nearer to 52 μT

3. Calculations and records

Table 1, Magnet field measurement

Location	Calculation				Record			
	North	East	Vertical	Total	North	East	Vertical	Total
205 Street	19.9272	-4.6503	47.9355	52.1204	24.2	-1.9	48.5	54.2
174 Street	19.9347	-4.6443	47.9277	52.1155	19.9	-1.6	51.2	54.9
161 Street	19.9427	-4.6404	47.9176	52.109	18.7	-3.0	49.9	53.3
125 Street	19.9561	-4.6386	47.8979	52.0958	18.9	-6.8	47.7	51.8
86 Street	19.9642	-4.6347	47.8878	52.0892	25.2	-0.3	41.9	48.9
59 Street	19.9728	-4.6328	47.8754	52.081	33.6	-1.2	35.9	49.2
Grand Central	19.9769	-4.6308	47.8703	52.0777	25.3	-1.0	43.1	50.5
Bleecker Street	19.9855	-4.6289	47.8579	52.0694	32.5	-0.4	38.4	50.3
Dekalb Avenue	20.0047	-4.6314	47.8262	52.0479	30.2	-2.6	45.1	54.3
36 Street	20.022	-4.6276	47.8013	52.0313	26.3	-1.7	41.5	49.1
50 Street	20.0272	-4.6298	47.7916	52.0246	17.7	0.0	47.5	50.7
Coney Island	20.0555	-4.6324	47.7451	51.993	23.3	-2.6	40.8	47.1

4. Data Analysis

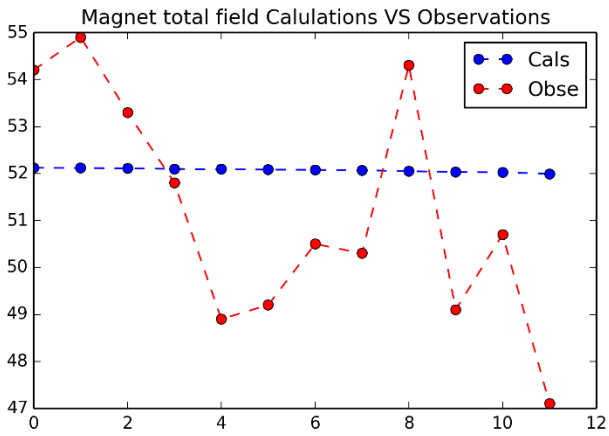

Figure 2, Magnet total field calculations and observations

Averaged percent of Error: 4.35%.

5. Discussion

The magnet field can be affected by various things, and measuring it in buildings or subway stations can't reflect the local magnet field. So I choose locations outside subway stations and buildings, and keep away from other constructions to eliminate the possible influences, and also try to testify the changes of local magnet field across New York City. But in fact, the App and phone I used were not precise enough to do the job, and they can only gave very rough measurements with the total field an averaged percent error 4.35%.