

Andrea Prunotto Sigmoid A

Equation Family: Sigmoidal

$$z = a_0 + (a_1 / (1.0 + \exp(a_2 * (x + a_3 + a_4 * y + a_5 * x * y))))$$

Thu Apr 4 19:22:06 2019 local server time

John 14:27

Peace I leave with you, my peace I give unto you: not as the world giveth, give I unto you. Let not your heart be troubled, neither let it be afraid.

Read or search the King James Bible online at
<http://quod.lib.umich.edu/k/kjv/>

Coefficients

$$z = a_0 + (a_1 / (1.0 + \exp(a_2 * (x + a_3 + a_4 * y + a_5 * x * y))))$$

Fitting target of lowest sum of squared absolute error = 1.0433315231764595E+02

a0 = -5.7918734663173700E+02

a1 = 1.6597789090421043E+03

a2 = -1.5955180752254220E-03

a3 = -3.9007820282476678E+02

a4 = -1.5422796137881490E-02

a5 = -1.6222029398078749E-03

Coefficient and Fit Statistics

Most statistics from `scipy.odr.odrpack` and <http://www.scipy.org/Cookbook/OLS>
LL, AIC and BIC from <http://stackoverflow.com/questions/7458391/python-multiple-linear-regression-using-ols-code-with-specific-data>

If you entered coefficient bounds. Parameter statistics may not be valid for parameter values at or near the bounds.

```
Degrees of freedom (error): 244
Degrees of freedom (regression): 5
Chi-squared: 104.333152318
R-squared: 0.999973222765
R-squared adjusted: 0.999972674051
Model F-statistic: 1822394.76574
Model F-statistic p-value: 1.11022302463e-16
Model log-likelihood: -245.50066443
AIC: 2.01200531544
BIC: 2.09652037747
Root Mean Squared Error (RMSE): 0.646012855345

a0 = -5.7918734663173700E+02
    std err: 3.29363E+02
    t-stat: -3.19140E+01
    p-stat: 0.00000E+00
    95% confidence intervals: [-6.14935E+02, -5.43440E+02]
a1 = 1.6597789090421043E+03
    std err: 1.64120E+03
    t-stat: 4.09703E+01
    p-stat: 0.00000E+00
    95% confidence intervals: [1.57998E+03, 1.73958E+03]
a2 = -1.5955180752254220E-03
    std err: 1.66515E-09
    t-stat: -3.90999E+01
    p-stat: 0.00000E+00
    95% confidence intervals: [-1.67590E-03, -1.51514E-03]
a3 = -3.9007820282476678E+02
    std err: 2.16179E+01
    t-stat: -8.38966E+01
    p-stat: 0.00000E+00
    95% confidence intervals: [-3.99237E+02, -3.80920E+02]
a4 = -1.5422796137881490E-02
    std err: 2.14692E-05
    t-stat: -3.32855E+00
    p-stat: 1.00792E-03
    95% confidence intervals: [-2.45495E-02, -6.29605E-03]
a5 = -1.6222029398078749E-03
    std err: 1.30897E-11
    t-stat: -4.48374E+02
    p-stat: 0.00000E+00
    95% confidence intervals: [-1.62933E-03, -1.61508E-03]
```

Coefficient Covariance Matrix

```
[ 7.70268181e+02 -1.70879290e+03 -1.71437751e-03 1.28057282e+02
 2.95899543e-02 -3.63510957e-05]
[ -1.70879290e+03 3.83822325e+03 3.85562402e-03 -3.20412849e+02
 -7.51586259e-02 9.27491116e-05]
[ -1.71437751e-03 3.85562402e-03 3.89421712e-09 -3.22319139e-04
 -1.03288749e-07 1.16962187e-10]
[ 1.28057282e+02 -3.20412849e+02 -3.22319139e-04 5.05570815e+01
 5.04746083e-03 -1.21679791e-05]
[ 2.95899543e-02 -7.51586259e-02 -1.03288749e-07 5.04746083e-03
 5.02092683e-05 -3.39821791e-08]
[ -3.63510957e-05 9.27491116e-05 1.16962187e-10 -1.21679791e-05
 -3.39821791e-08 3.06123630e-11]
```

Error Listing

Indep. Data 1	Indep. Data 2	Dependent Data	Predicted	Abs Error	Rel Error
0.00E+00	2.4815E+02	0.0000000000E+00	-1.8256823119E+00	-1.825682E+00	n/a
0.00E+00	2.5815E+02	0.0000000000E+00	-1.9183313661E+00	-1.918331E+00	n/a
0.00E+00	2.6815E+02	0.0000000000E+00	-2.0109734807E+00	-2.010973E+00	n/a
0.00E+00	2.7815E+02	0.0000000000E+00	-2.1036086536E+00	-2.103609E+00	n/a
0.00E+00	2.8815E+02	0.0000000000E+00	-2.1962368828E+00	-2.196237E+00	n/a
0.00E+00	2.9815E+02	0.0000000000E+00	-2.2888581663E+00	-2.288858E+00	n/a
0.00E+00	3.0815E+02	0.0000000000E+00	-2.3814725020E+00	-2.381473E+00	n/a
0.00E+00	3.1815E+02	0.0000000000E+00	-2.4740798880E+00	-2.474080E+00	n/a
0.00E+00	3.2815E+02	0.0000000000E+00	-2.5666803221E+00	-2.566680E+00	n/a
0.00E+00	3.3815E+02	0.0000000000E+00	-2.6592738025E+00	-2.659274E+00	n/a
5.00E+01	3.3815E+02	1.0671008857E+01	1.0965509566E+01	2.945007E-01	n/a
5.00E+01	3.2815E+02	1.1160941863E+01	1.1551404928E+01	3.904631E-01	n/a
5.00E+01	3.1815E+02	1.1645108400E+01	1.2137560393E+01	4.924520E-01	n/a
5.00E+01	3.0815E+02	1.2123059403E+01	1.2723975438E+01	6.009160E-01	n/a
5.00E+01	2.9815E+02	1.2594380193E+01	1.3310649540E+01	7.162693E-01	n/a
5.00E+01	2.8815E+02	1.3058686015E+01	1.3897582174E+01	8.388962E-01	n/a
5.00E+01	2.7815E+02	1.3515618395E+01	1.4484772815E+01	9.691544E-01	n/a
5.00E+01	2.6815E+02	1.3964842094E+01	1.5072220936E+01	1.107379E+00	n/a
5.00E+01	2.5815E+02	1.4406042512E+01	1.5659926008E+01	1.253883E+00	n/a
5.00E+01	2.4815E+02	1.4838923438E+01	1.6247887503E+01	1.408964E+00	n/a
1.00E+02	3.3815E+02	2.3900437536E+01	2.4732770007E+01	8.323325E-01	n/a
1.00E+02	3.2815E+02	2.4973919748E+01	2.5822082461E+01	8.481627E-01	n/a
1.00E+02	3.1815E+02	2.6043284691E+01	2.6912231865E+01	8.689472E-01	n/a
1.00E+02	3.0815E+02	2.7107887486E+01	2.8003214801E+01	8.953273E-01	n/a
1.00E+02	2.9815E+02	2.8167136378E+01	2.9095027838E+01	9.278915E-01	n/a
1.00E+02	2.8815E+02	2.9220486877E+01	3.0187667532E+01	9.671807E-01	n/a
1.00E+02	2.7815E+02	3.0267436935E+01	3.1281130429E+01	1.013693E+00	n/a
1.00E+02	2.6815E+02	3.1307522914E+01	3.2375413064E+01	1.067890E+00	n/a
1.00E+02	2.5815E+02	3.2340316176E+01	3.3470511957E+01	1.130196E+00	n/a
1.00E+02	2.4815E+02	3.3365420176E+01	3.4566423619E+01	1.201003E+00	n/a
1.50E+02	3.3815E+02	3.7675248416E+01	3.8635689162E+01	9.604407E-01	n/a
1.50E+02	3.2815E+02	3.9319202444E+01	4.0237750830E+01	9.185484E-01	n/a
1.50E+02	3.1815E+02	4.0960358466E+01	4.1841490729E+01	8.811323E-01	n/a
1.50E+02	3.0815E+02	4.2597892649E+01	4.3446897810E+01	8.490052E-01	n/a
1.50E+02	2.9815E+02	4.4231050396E+01	4.5053960971E+01	8.229106E-01	n/a
1.50E+02	2.8815E+02	4.5859139370E+01	4.6662669058E+01	8.035297E-01	n/a
1.50E+02	2.7815E+02	4.7481523729E+01	4.8273010869E+01	7.914871E-01	n/a
1.50E+02	2.6815E+02	4.9097619304E+01	4.9884975148E+01	7.873558E-01	n/a
1.50E+02	2.5815E+02	5.0706889529E+01	5.1498550592E+01	7.916611E-01	n/a
2.00E+02	3.3815E+02	5.1765032375E+01	5.2667136074E+01	9.021037E-01	n/a
1.50E+02	2.4815E+02	5.2308842024E+01	5.3113725846E+01	8.048838E-01	n/a
2.00E+02	3.2815E+02	5.3970074295E+01	5.4790449628E+01	8.203753E-01	n/a
2.00E+02	3.1815E+02	5.6173479990E+01	5.6916482983E+01	7.430030E-01	n/a
2.00E+02	3.0815E+02	5.8374257550E+01	5.9045210052E+01	6.709525E-01	n/a
2.00E+02	2.9815E+02	6.0571499084E+01	6.1176604602E+01	6.051055E-01	n/a
2.00E+02	2.8815E+02	6.2764372782E+01	6.3310640254E+01	5.462675E-01	n/a
2.00E+02	2.7815E+02	6.4952116336E+01	6.5447290488E+01	4.951742E-01	n/a
2.50E+02	3.3815E+02	6.6066789861E+01	6.6819679203E+01	7.528893E-01	n/a
2.00E+02	2.6815E+02	6.7134031437E+01	6.7586528642E+01	4.524972E-01	n/a
2.50E+02	3.2815E+02	6.8825664864E+01	6.9471873987E+01	6.462091E-01	n/a
2.00E+02	2.5815E+02	6.9309479148E+01	6.9728327910E+01	4.188488E-01	n/a
2.00E+02	2.4815E+02	7.1477876048E+01	7.1872661350E+01	3.947853E-01	n/a
2.50E+02	3.1815E+02	7.1583975255E+01	7.2127961815E+01	5.439866E-01	n/a
2.50E+02	3.0815E+02	7.4340568476E+01	7.4787891221E+01	4.473227E-01	n/a
2.50E+02	2.9815E+02	7.7094389927E+01	7.7451610415E+01	3.572205E-01	n/a
2.50E+02	2.8815E+02	7.9844474174E+01	8.0119067289E+01	2.745931E-01	n/a
3.00E+02	3.3815E+02	8.0521554064E+01	8.1085599873E+01	5.640458E-01	n/a
2.50E+02	2.7815E+02	8.2589937636E+01	8.2790209421E+01	2.002718E-01	n/a
3.00E+02	3.2815E+02	8.3828348448E+01	8.4273390850E+01	4.450424E-01	n/a
2.50E+02	2.6815E+02	8.5329972469E+01	8.5464984075E+01	1.350116E-01	n/a
3.00E+02	3.1815E+02	8.7135593752E+01	8.7466307163E+01	3.307134E-01	n/a
2.50E+02	2.5815E+02	8.8063841445E+01	8.8143338209E+01	7.949676E-02	n/a
3.00E+02	3.0815E+02	9.0441982094E+01	9.0664258488E+01	2.222764E-01	n/a
2.50E+02	2.4815E+02	9.0790873717E+01	9.0825218478E+01	3.434476E-02	n/a
3.00E+02	2.9815E+02	9.3746316917E+01	9.3867153892E+01	1.208370E-01	n/a
3.50E+02	3.3815E+02	9.5091019559E+01	9.5456907120E+01	3.658876E-01	n/a
3.00E+02	2.8815E+02	9.7047503398E+01	9.7074901843E+01	2.739844E-02	n/a
3.50E+02	3.2815E+02	9.8940737521E+01	9.9186056954E+01	2.453194E-01	n/a

3.00E+02	2.7815E+02	1.0034454047E+02	1.0028741022E+02	-5.713025E-02	n/a
3.50E+02	3.1815E+02	1.0279188591E+02	1.0292154736E+02	1.296615E-01	n/a
3.00E+02	2.6815E+02	1.0363651412E+02	1.0350458632E+02	-1.319278E-01	n/a
3.50E+02	3.0815E+02	1.0664300547E+02	1.0666323242E+02	2.022694E-02	n/a
3.00E+02	2.5815E+02	1.0692259186E+02	1.0672633688E+02	-1.962550E-01	n/a
4.00E+02	3.3815E+02	1.0974827308E+02	1.0992535389E+02	1.770808E-01	n/a
3.00E+02	2.4815E+02	1.1020201810E+02	1.0995256805E+02	-2.494500E-01	n/a
3.50E+02	2.9815E+02	1.1049276122E+02	1.1041096515E+02	-8.179607E-02	n/a
4.00E+02	3.2815E+02	1.1413658560E+02	1.1420063847E+02	6.405287E-02	n/a
3.50E+02	2.8815E+02	1.1433993211E+02	1.1416459761E+02	-1.753345E-01	n/a
3.50E+02	2.7815E+02	1.1818340239E+02	1.1792398086E+02	-2.594215E-01	n/a
4.00E+02	3.1815E+02	1.1852728503E+02	1.1848338282E+02	-4.390221E-02	n/a
3.50E+02	2.6815E+02	1.2202215443E+02	1.2168896502E+02	-3.331894E-01	n/a
4.00E+02	3.0815E+02	1.2291876373E+02	1.2277336530E+02	-1.453984E-01	n/a
4.50E+02	3.3815E+02	1.2447336047E+02	1.2448245449E+02	9.094026E-03	n/a
3.50E+02	2.5815E+02	1.2585526272E+02	1.2545939924E+02	-3.958635E-01	n/a
4.00E+02	2.9815E+02	1.2730955097E+02	1.2707036270E+02	-2.391883E-01	n/a
4.50E+02	3.2815E+02	1.2939644449E+02	1.2930763221E+02	-8.881227E-02	n/a
3.50E+02	2.4815E+02	1.2968188898E+02	1.2923513181E+02	-4.467572E-01	n/a
4.00E+02	2.8815E+02	1.3169830185E+02	1.3137415030E+02	-3.241515E-01	n/a
4.50E+02	3.1815E+02	1.3432285791E+02	1.3414121158E+02	-1.816463E-01	n/a
4.00E+02	2.7815E+02	1.3608378809E+02	1.3568450190E+02	-3.992862E-01	n/a
4.50E+02	3.0815E+02	1.3925084698E+02	1.3898287182E+02	-2.679752E-01	n/a
5.00E+02	3.3815E+02	1.3925089394E+02	1.3911950336E+02	-1.313906E-01	n/a
4.00E+02	2.6815E+02	1.4046489037E+02	1.4000118986E+02	-4.637005E-01	n/a
4.50E+02	2.9815E+02	1.4417880726E+02	1.4383228995E+02	-3.465173E-01	n/a
5.00E+02	3.2815E+02	1.4470532331E+02	1.4449728835E+02	-2.080350E-01	n/a
4.00E+02	2.5815E+02	1.4484059186E+02	1.4432398518E+02	-5.166067E-01	n/a
4.50E+02	2.8815E+02	1.4910527182E+02	1.4868914087E+02	-4.161309E-01	n/a
4.00E+02	2.4815E+02	1.4920997312E+02	1.4865265751E+02	-5.573156E-01	n/a
5.00E+02	3.1815E+02	1.5016401715E+02	1.4988415667E+02	-2.798605E-01	n/a
4.50E+02	2.7815E+02	1.5402890149E+02	1.5355309741E+02	-4.758041E-01	n/a
5.50E+02	3.3815E+02	1.5406864529E+02	1.5382759484E+02	-2.410505E-01	n/a
5.00E+02	3.0815E+02	1.5562507735E+02	1.5527966179E+02	-3.454156E-01	n/a
4.50E+02	2.6815E+02	1.5894847669E+02	1.5842383043E+02	-5.246463E-01	n/a
5.50E+02	3.2815E+02	1.6005131342E+02	1.5975963447E+02	-2.916790E-01	n/a
5.00E+02	2.9815E+02	1.6108676728E+02	1.6068335426E+02	-4.034130E-01	n/a
4.50E+02	2.5815E+02	1.6386289062E+02	1.6330100893E+02	-5.618817E-01	n/a
5.50E+02	3.1815E+02	1.6603917862E+02	1.6570109517E+02	-3.380835E-01	n/a
5.00E+02	2.8815E+02	1.6654749940E+02	1.6609478180E+02	-4.527176E-01	n/a
4.50E+02	2.4815E+02	1.6877114384E+02	1.6818430010E+02	-5.868437E-01	n/a
6.00E+02	3.3815E+02	1.6891666403E+02	1.6859764409E+02	-3.190199E-01	n/a
5.00E+02	2.7815E+02	1.7200582489E+02	1.7151348954E+02	-4.923353E-01	n/a
5.50E+02	3.0815E+02	1.7203019976E+02	1.7165137497E+02	-3.788248E-01	n/a
6.00E+02	3.2815E+02	1.7542472697E+02	1.7508450089E+02	-3.402261E-01	n/a
5.00E+02	2.6815E+02	1.7746042500E+02	1.7693902008E+02	-5.214049E-01	n/a
5.50E+02	2.9815E+02	1.7802250924E+02	1.7760986826E+02	-4.126410E-01	n/a
6.00E+02	3.1815E+02	1.8193892103E+02	1.8158068863E+02	-3.582324E-01	n/a
5.00E+02	2.5815E+02	1.8291010396E+02	1.8237091369E+02	-5.391903E-01	n/a
6.50E+02	3.3815E+02	1.8378669610E+02	1.8342040896E+02	-3.662871E-01	n/a
5.50E+02	2.8815E+02	1.8401439992E+02	1.8357596603E+02	-4.384339E-01	n/a
5.00E+02	2.4815E+02	1.8835378322E+02	1.8780870845E+02	-5.450748E-01	n/a
6.00E+02	3.0815E+02	1.8845706308E+02	1.8808541747E+02	-3.716456E-01	n/a
5.50E+02	2.7815E+02	1.9000431424E+02	1.8954905613E+02	-4.552581E-01	n/a
6.50E+02	3.2815E+02	1.9081752954E+02	1.9046154715E+02	-3.559824E-01	n/a
6.00E+02	2.9815E+02	1.9497715536E+02	1.9459789332E+02	-3.792620E-01	n/a
5.50E+02	2.6815E+02	1.9599083515E+02	1.9552852348E+02	-4.623117E-01	n/a
6.50E+02	3.1815E+02	1.9785543276E+02	1.9751141500E+02	-3.440178E-01	n/a
7.00E+02	3.3815E+02	1.9867178523E+02	1.9828651261E+02	-3.852726E-01	n/a
6.00E+02	2.8815E+02	2.0149737193E+02	2.0111731830E+02	-3.800536E-01	n/a
5.50E+02	2.5815E+02	2.0197267862E+02	2.0151375037E+02	-4.589283E-01	n/a
6.50E+02	3.0815E+02	2.0489808127E+02	2.0456899987E+02	-3.290814E-01	n/a
7.00E+02	3.2815E+02	2.0622295117E+02	2.0588028946E+02	-3.426617E-01	n/a
5.50E+02	2.4815E+02	2.0794868766E+02	2.0750411668E+02	-4.445710E-01	n/a
6.00E+02	2.7815E+02	2.0801604719E+02	2.0764289106E+02	-3.731561E-01	n/a
6.50E+02	2.9815E+02	2.1194334784E+02	2.1163328468E+02	-3.100632E-01	n/a
7.50E+02	3.3815E+02	2.1356599019E+02	2.1318646700E+02	-3.795232E-01	n/a
7.00E+02	3.1815E+02	2.1378213268E+02	2.1348160149E+02	-3.005312E-01	n/a
6.00E+02	2.6815E+02	2.1453166636E+02	2.1417380724E+02	-3.578591E-01	n/a
6.50E+02	2.8815E+02	2.1898928824E+02	2.1870324845E+02	-2.860398E-01	n/a
6.00E+02	2.5815E+02	2.2104285770E+02	2.2070925982E+02	-3.335979E-01	n/a
7.00E+02	3.0815E+02	2.2134686442E+02	2.2108917651E+02	-2.576879E-01	n/a

7.50E+02	3.2815E+02	2.2163521055E+02	2.2133012891E+02	-3.050816E-01	n/a
6.50E+02	2.7815E+02	2.2603412928E+02	2.2577786691E+02	-2.562624E-01	n/a
6.00E+02	2.4815E+02	2.2754838621E+02	2.2724843952E+02	-2.999467E-01	n/a
8.00E+02	3.3815E+02	2.2846417879E+02	2.2811069683E+02	-3.534820E-01	n/a
7.00E+02	2.9815E+02	2.2891489007E+02	2.2870173809E+02	-2.131520E-01	n/a
7.50E+02	3.1815E+02	2.2971340156E+02	2.2947945855E+02	-2.339430E-01	n/a
6.50E+02	2.6815E+02	2.3307625890E+02	2.3285611307E+02	-2.201458E-01	n/a
7.00E+02	2.8815E+02	2.3648414747E+02	2.3631800645E+02	-1.661410E-01	n/a
8.00E+02	3.2815E+02	2.3704931420E+02	2.3680038050E+02	-2.489337E-01	n/a
7.50E+02	3.0815E+02	2.3779795732E+02	2.3763288585E+02	-1.650715E-01	n/a
6.50E+02	2.5815E+02	2.4011421798E+02	2.3993695784E+02	-1.772601E-01	n/a
8.50E+02	3.3815E+02	2.4336187412E+02	2.4304956407E+02	-3.123100E-01	n/a
7.00E+02	2.7815E+02	2.4405275615E+02	2.4393669934E+02	-1.160568E-01	n/a
8.00E+02	3.1815E+02	2.4564438646E+02	2.4549311447E+02	-1.512720E-01	n/a
7.50E+02	2.9815E+02	2.4588649263E+02	2.4578883756E+02	-9.765507E-02	n/a
6.50E+02	2.4815E+02	2.4714669387E+02	2.4701937063E+02	-1.273232E-01	n/a
7.00E+02	2.6815E+02	2.5161900700E+02	2.5155653284E+02	-6.247417E-02	n/a
8.50E+02	3.2815E+02	2.5246090660E+02	2.5228030254E+02	-1.806041E-01	n/a
7.50E+02	2.8815E+02	2.5397682759E+02	2.5394573851E+02	-3.108908E-02	n/a
8.00E+02	3.0815E+02	2.5424664919E+02	2.5418699165E+02	-5.965754E-02	n/a
9.00E+02	3.3815E+02	2.5825513746E+02	2.5799339281E+02	-2.617447E-01	n/a
7.00E+02	2.5815E+02	2.5918135376E+02	2.5917622227E+02	-5.131488E-03	n/a
8.50E+02	3.1815E+02	2.6157085479E+02	2.6151065051E+02	-6.020428E-02	n/a
7.50E+02	2.7815E+02	2.6206697462E+02	2.6210201279E+02	3.503817E-02	n/a
8.00E+02	2.9815E+02	2.6285358842E+02	2.6288010398E+02	2.651556E-02	n/a
7.00E+02	2.4815E+02	2.6673840631E+02	2.6679448307E+02	5.607677E-02	n/a
9.00E+02	3.2815E+02	2.6786615607E+02	2.6775912642E+02	-1.070296E-01	n/a
7.50E+02	2.6815E+02	2.7015512766E+02	2.7025608495E+02	1.009573E-01	n/a
8.50E+02	3.0815E+02	2.7068883182E+02	2.7073832461E+02	4.949279E-02	n/a
8.00E+02	2.8815E+02	2.7146290654E+02	2.7157054408E+02	1.076375E-01	n/a
9.50E+02	3.3815E+02	2.7314047766E+02	2.7293249423E+02	-2.079834E-01	n/a
9.00E+02	3.1815E+02	2.7748908330E+02	2.7752013641E+02	3.105311E-02	n/a
7.50E+02	2.5815E+02	2.7823965340E+02	2.7840638128E+02	1.667279E-01	n/a
8.50E+02	2.9815E+02	2.7981219488E+02	2.7996104410E+02	1.488492E-01	n/a
8.00E+02	2.7815E+02	2.8007250887E+02	2.8025640688E+02	1.838980E-01	n/a
9.50E+02	3.2815E+02	2.8326166649E+02	2.8322608664E+02	-3.557985E-02	n/a
7.50E+02	2.4815E+02	2.8631908432E+02	2.8655133094E+02	2.322466E-01	n/a
9.00E+02	3.0815E+02	2.8712089162E+02	2.8727372426E+02	1.528326E-01	n/a
1.00E+03	3.3815E+02	2.8801477965E+02	2.8785719182E+02	-1.575878E-01	n/a
8.00E+02	2.6815E+02	2.8868049243E+02	2.8893579134E+02	2.552989E-01	n/a
8.50E+02	2.8815E+02	2.8893852859E+02	2.8917653314E+02	2.380045E-01	n/a
9.50E+02	3.1815E+02	2.9339577212E+02	2.9350966587E+02	1.138938E-01	n/a
9.00E+02	2.9815E+02	2.9675880920E+02	2.9701719967E+02	2.583905E-01	n/a
8.00E+02	2.5815E+02	2.9728513684E+02	2.9760680212E+02	3.216653E-01	n/a
8.50E+02	2.7815E+02	2.9806563106E+02	2.9838252302E+02	3.168920E-01	n/a
1.00E+03	3.2815E+02	2.9864440772E+02	2.9867045065E+02	2.604292E-02	n/a
1.05E+03	3.3815E+02	3.0287524761E+02	3.0275784634E+02	-1.174013E-01	n/a
9.50E+02	3.0815E+02	3.0353962606E+02	3.0378008076E+02	2.404547E-01	n/a
8.00E+02	2.4815E+02	3.0588489715E+02	3.0626755116E+02	3.826540E-01	n/a
9.00E+02	2.8815E+02	3.0640030270E+02	3.0674788349E+02	3.475808E-01	n/a
8.50E+02	2.6815E+02	3.0719150229E+02	3.0757675441E+02	3.852521E-01	n/a
1.00E+03	3.1815E+02	3.0928797708E+02	3.0946739192E+02	1.794148E-01	n/a
9.50E+02	2.9815E+02	3.1369032718E+02	3.1403419629E+02	3.438691E-01	n/a
1.05E+03	3.2815E+02	3.1401166017E+02	3.1408154860E+02	6.988844E-02	n/a
9.00E+02	2.7815E+02	3.1604306284E+02	3.1646311072E+02	4.200479E-01	n/a
8.50E+02	2.5815E+02	3.1631433474E+02	3.1675697957E+02	4.426448E-01	n/a
1.10E+03	3.3815E+02	3.1771935893E+02	3.1762488068E+02	-9.447826E-02	n/a
1.00E+03	3.0815E+02	3.1994217792E+02	3.2024437637E+02	3.021985E-01	n/a
9.50E+02	2.8815E+02	3.2384522390E+02	3.2426889746E+02	4.236736E-01	n/a
1.05E+03	3.1815E+02	3.2516305580E+02	3.2538156192E+02	2.185061E-01	n/a
8.50E+02	2.4815E+02	3.2543250589E+02	3.2592096449E+02	4.884586E-01	n/a
9.00E+02	2.6815E+02	3.2568499243E+02	3.2616023333E+02	4.752409E-01	n/a
1.10E+03	3.2815E+02	3.2936097001E+02	3.2944880275E+02	8.783275E-02	n/a
1.00E+03	2.9815E+02	3.3060397943E+02	3.3099779175E+02	3.938123E-01	n/a
1.15E+03	3.3815E+02	3.3254482669E+02	3.3244880439E+02	-9.602230E-02	n/a
9.50E+02	2.7815E+02	3.3400189929E+02	3.3448109296E+02	4.791937E-01	n/a
9.00E+02	2.5815E+02	3.3532419655E+02	3.3583662317E+02	5.124266E-01	n/a
1.05E+03	3.0815E+02	3.3632598291E+02	3.3665372634E+02	3.277434E-01	n/a
1.10E+03	3.1815E+02	3.4101862414E+02	3.4124055198E+02	2.219278E-01	n/a
1.00E+03	2.8815E+02	3.4127061143E+02	3.4172405766E+02	4.534462E-01	n/a
9.50E+02	2.6815E+02	3.4415815867E+02	3.4466771893E+02	5.095603E-01	n/a
1.15E+03	3.2815E+02	3.4469011267E+02	3.4476175625E+02	7.164358E-02	n/a

9.00E+02	2.4815E+02	3.4495897496E+02	3.4548967480E+02	5.306998E-01	n/a
1.20E+03	3.3815E+02	3.4734956873E+02	3.4722023769E+02	-1.293310E-01	n/a
1.05E+03	2.9815E+02	3.4749728055E+02	3.4789392328E+02	3.966427E-01	n/a
1.00E+03	2.7815E+02	3.5193954900E+02	3.5241963021E+02	4.800812E-01	n/a
1.10E+03	3.0815E+02	3.5268872736E+02	3.5299541885E+02	3.066915E-01	n/a
9.50E+02	2.5815E+02	3.5431201950E+02	3.5482574254E+02	5.137230E-01	n/a
1.15E+03	3.1815E+02	3.5685252067E+02	3.5703290052E+02	1.803799E-01	n/a
1.05E+03	2.8815E+02	3.5867405950E+02	3.5909808142E+02	4.240219E-01	n/a
1.20E+03	3.2815E+02	3.5999706270E+02	3.6001010126E+02	1.303856E-02	n/a
1.00E+03	2.6815E+02	3.6260849960E+02	3.6308100668E+02	4.725071E-01	n/a
1.10E+03	2.9815E+02	3.6436798807E+02	3.6470875362E+02	3.407655E-01	n/a
9.50E+02	2.4815E+02	3.6446170356E+02	3.6495216557E+02	4.904620E-01	n/a
1.15E+03	3.0815E+02	3.6902831374E+02	3.6925695383E+02	2.286401E-01	n/a
1.05E+03	2.7815E+02	3.6985368639E+02	3.7026218252E+02	4.084961E-01	n/a
1.20E+03	3.1815E+02	3.7266277739E+02	3.7274734091E+02	8.456353E-02	n/a
1.00E+03	2.5815E+02	3.7327539275E+02	3.7370472995E+02	4.293372E-01	n/a
1.10E+03	2.8815E+02	3.7605339748E+02	3.7637597340E+02	3.225759E-01	n/a
1.05E+03	2.6815E+02	3.8103377046E+02	3.8138226705E+02	3.484966E-01	n/a
1.15E+03	2.9815E+02	3.8121406898E+02	3.8142871550E+02	2.146465E-01	n/a
1.00E+03	2.4815E+02	3.8393837193E+02	3.8428739288E+02	3.490210E-01	n/a
1.20E+03	3.0815E+02	3.8534283215E+02	3.8542608037E+02	8.324822E-02	n/a
1.10E+03	2.7815E+02	3.8774221329E+02	3.8799256923E+02	2.503559E-01	n/a
1.05E+03	2.5815E+02	3.9221215289E+02	3.9245443954E+02	2.422867E-01	n/a
1.15E+03	2.8815E+02	3.9340665749E+02	3.9354307614E+02	1.364187E-01	n/a
1.20E+03	2.9815E+02	3.9803367215E+02	3.9804055422E+02	6.882071E-03	n/a
1.10E+03	2.6815E+02	3.9943194603E+02	3.9955411270E+02	1.221667E-01	n/a
1.05E+03	2.4815E+02	4.0338689846E+02	4.0347487392E+02	8.797546E-02	n/a
1.15E+03	2.7815E+02	4.0560322747E+02	4.0559502584E+02	-8.201630E-03	n/a
1.20E+03	2.8815E+02	4.1073204768E+02	4.1058511799E+02	-1.469297E-01	n/a
1.10E+03	2.5815E+02	4.1112034810E+02	4.1105626245E+02	-6.408566E-02	n/a
1.15E+03	2.6815E+02	4.1780119025E+02	4.1757966208E+02	-2.215282E-01	n/a
1.10E+03	2.4815E+02	4.2280540521E+02	4.2249477030E+02	-3.106349E-01	n/a
1.20E+03	2.7815E+02	4.2343499688E+02	4.2305425767E+02	-3.807392E-01	n/a
1.15E+03	2.5815E+02	4.2999820893E+02	4.2949219720E+02	-5.060117E-01	n/a
1.20E+03	2.6815E+02	4.3613983128E+02	4.3544259882E+02	-6.972325E-01	n/a
1.15E+03	2.4815E+02	4.4219218965E+02	4.4132796550E+02	-8.642242E-01	n/a
1.20E+03	2.5815E+02	4.4884412415E+02	4.4774491501E+02	-1.099209E+00	n/a
1.20E+03	2.4815E+02	4.6154570156E+02	4.5995613584E+02	-1.589566E+00	n/a

Error Statistics

NOTE: Relative error statistics cannot be compiled, as at least one of the dependent variable data points contains a value of exactly zero.

Absolute Error

Minimum:	-2.659274E+00
Maximum:	1.408964E+00
Mean:	-2.684932E-08
Std. Error of Mean:	4.093940E-02
Median:	2.695700E-02
Variance:	4.173326E-01
Standard Deviation:	6.460129E-01
Skew:	-1.443737E+00
Kurtosis:	4.202763E+00

Data Statistics

X	Y	Z	
Minimum:	0.000000E+00	2.481500E+02	0.000000E+00
Maximum:	1.200000E+03	3.381500E+02	4.615457E+02
Mean:	6.000000E+02	2.931500E+02	1.989847E+02
Std. Error of Mean:	2.284925E+01	1.820234E+00	7.911496E+00
Median:	6.000000E+02	2.931500E+02	1.969231E+02
Variance:	1.300000E+05	8.250000E+02	1.558535E+04
Standard Deviation:	3.605551E+02	2.872281E+01	1.248413E+02
Skew:	0.000000E+00	0.000000E+00	9.631061E-02
Kurtosis:	-1.203846E+00	-1.224242E+00	-1.116003E+00

Source Code in C++

```
// To the best of my knowledge this code is correct.
// If you find any errors or problems please contact
// me directly using zunzun@zunzun.com.
//
//      James

#include

// Fitting target: lowest sum of squared absolute error
// Fitting target value = 104.333152318

double Sigmoidal_AndreaPrunottoSigmoidA_model(double x_in, double y_in)
{
    double temp;
    temp = 0.0;

    // coefficients
    double a0 = -5.7918734663173700E+02;
    double a1 = 1.6597789090421043E+03;
    double a2 = -1.5955180752254220E-03;
    double a3 = -3.9007820282476678E+02;
    double a4 = -1.5422796137881490E-02;
    double a5 = -1.6222029398078749E-03;

    temp = a0 + (a1 / (1.0 + exp(a2 * (x_in + a3 + a4 * y_in + a5 * x_in * y_in))));
    return temp;
}
```

Source Code in Fortran90

```
! To the best of my knowledge this code is correct.
! If you find any errors or problems please contact
! me directly using zunzun@zunzun.com.
!
!      James

! Fitting target: lowest sum of squared absolute error
! Fitting target value = 104.333152318

real function Sigmoidal_AndreaPrunottoSigmoidA_model(x_in, y_in)
real :: x_in ! input
real :: y_in ! input
real :: temp ! output

! coefficients
real :: a0 = -5.7918734663173700E+02
real :: a1 = 1.6597789090421043E+03
real :: a2 = -1.5955180752254220E-03
real :: a3 = -3.9007820282476678E+02
real :: a4 = -1.5422796137881490E-02
real :: a5 = -1.6222029398078749E-03

temp = 0.0

temp = a0 + (a1 / (1.0 + exp(a2 * (x_in + a3 + a4 * y_in + a5 * x_in * y_in))))

end function Sigmoidal_AndreaPrunottoSigmoidA_model
```

Source Code in Java

```
// To the best of my knowledge this code is correct.
// If you find any errors or problems please contact
// me directly using zunzun@zunzun.com.
//
//      James

import java.lang.Math;

// Fitting target: lowest sum of squared absolute error
// Fitting target value = 104.333152318

class Sigmoidal_AndreaPrunottoSigmoidA
{
    double Sigmoidal_AndreaPrunottoSigmoidA_model(double x_in, double y_in)
    {
        double temp;
        temp = 0.0;

        // coefficients
        double a0 = -5.7918734663173700E+02;
        double a1 = 1.6597789090421043E+03;
        double a2 = -1.5955180752254220E-03;
        double a3 = -3.9007820282476678E+02;
        double a4 = -1.5422796137881490E-02;
        double a5 = -1.6222029398078749E-03;

        temp = a0 + (a1 / (1.0 + Math.exp(a2 * (x_in + a3 + a4 * y_in + a5 * x_in * y_in))));
        return temp;
    }
}
```

Source Code in Julia

```
# To the best of my knowledge this code is correct.
# If you find any errors or problems please contact
# me directly using zunzun@zunzun.com.
#
#      James

# Fitting target: lowest sum of squared absolute error
# Fitting target value = 104.333152318

function Sigmoidal_AndreaPrunottoSigmoidA_model(x_in, y_in)
    temp = 0.0

    # coefficients
    a0 = -5.7918734663173700E+02
    a1 = 1.6597789090421043E+03
    a2 = -1.5955180752254220E-03
    a3 = -3.9007820282476678E+02
    a4 = -1.5422796137881490E-02
    a5 = -1.6222029398078749E-03

    temp = a0 + (a1 / (1.0 + exp(a2 * (x_in + a3 + a4 * y_in + a5 * x_in * y_in))))
end
```

Source Code in JavaScript

```
// To the best of my knowledge this code is correct.
// If you find any errors or problems please contact
// me directly using zunzun@zunzun.com.
//
//      James

// Fitting target: lowest sum of squared absolute error
// Fitting target value = 104.333152318

function Sigmoidal_AndreaPrunottoSigmoidA_model(x_in, y_in)
{
    var temp;
    temp = 0.0;

    // coefficients
    var a0 = -5.7918734663173700E+02;
    var a1 = 1.6597789090421043E+03;
    var a2 = -1.5955180752254220E-03;
    var a3 = -3.9007820282476678E+02;
    var a4 = -1.5422796137881490E-02;
    var a5 = -1.6222029398078749E-03;

    temp = a0 + (a1 / (1.0 + Math.exp(a2 * (x_in + a3 + a4 * y_in + a5 * x_in * y_in))));
    return temp;
}
```

Source Code in Python

```
# To the best of my knowledge this code is correct.
# If you find any errors or problems please contact
# me directly using zunzun@zunzun.com.
#
#     James

import math

# Fitting target: lowest sum of squared absolute error
# Fitting target value = 104.333152318

def Sigmoidal_AndreaPrunottoSigmoidA_model(x_in, y_in):
    temp = 0.0

    # coefficients
    a0 = -5.7918734663173700E+02
    a1 = 1.6597789090421043E+03
    a2 = -1.5955180752254220E-03
    a3 = -3.9007820282476678E+02
    a4 = -1.5422796137881490E-02
    a5 = -1.6222029398078749E-03

    temp = a0 + (a1 / (1.0 + math.exp(a2 * (x_in + a3 + a4 * y_in + a5 * x_in * y_in))))
    return temp
```


Source Code in C#

```
// To the best of my knowledge this code is correct.
// If you find any errors or problems please contact
// me directly using zunzun@zunzun.com.
//
//      James

using System;

// Fitting target: lowest sum of squared absolute error
// Fitting target value = 104.333152318

class Sigmoidal_AndreaPrunottoSigmoidA
{
    double Sigmoidal_AndreaPrunottoSigmoidA_model(double x_in, double y_in)
    {
        double temp;
        temp = 0.0;

        // coefficients
        double a0 = -5.7918734663173700E+02;
        double a1 = 1.6597789090421043E+03;
        double a2 = -1.5955180752254220E-03;
        double a3 = -3.9007820282476678E+02;
        double a4 = -1.5422796137881490E-02;
        double a5 = -1.6222029398078749E-03;

        temp = a0 + (a1 / (1.0 + Math.Exp(a2 * (x_in + a3 + a4 * y_in + a5 * x_in * y_in))));
        return temp;
    }
}
```

Source Code in SCILAB

```
// To the best of my knowledge this code is correct.
// If you find any errors or problems please contact
// me directly using zunzun@zunzun.com.
//
//      James

// Fitting target: lowest sum of squared absolute error
// Fitting target value = 104.333152318

function z = Sigmoidal_AndreaPrunottoSigmoidA_model(x_in, y_in)
    temp = 0.0;

    // coefficients
    a0 = -5.7918734663173700E+02;
    a1 = 1.6597789090421043E+03;
    a2 = -1.5955180752254220E-03;
    a3 = -3.9007820282476678E+02;
    a4 = -1.5422796137881490E-02;
    a5 = -1.6222029398078749E-03;

    temp = a0 + (a1 / (1.0 + exp(a2 * (x_in + a3 + a4 * y_in + a5 * x_in * y_in))));

    z = temp;
endfunction
```

Source Code in MATLAB

```
% To the best of my knowledge this code is correct.
% If you find any errors or problems please contact
% me directly using zunzun@zunzun.com.
%
%      James

% Fitting target: lowest sum of squared absolute error
% Fitting target value = 104.333152318

function z = Sigmoidal_AndreaPrunottoSigmoidA_model(x_in, y_in)
    temp = 0.0;

    % coefficients
    a0 = -5.7918734663173700E+02;
    a1 = 1.6597789090421043E+03;
    a2 = -1.5955180752254220E-03;
    a3 = -3.9007820282476678E+02;
    a4 = -1.5422796137881490E-02;
    a5 = -1.6222029398078749E-03;

    temp = a0 + (a1 ./ (1.0 + exp(a2 .* (x_in + a3 + a4 .* y_in + a5 .* x_in .* y_in))));

    z = temp;
```

Source Code in VBA

```
' To the best of my knowledge this code is correct.
' If you find any errors or problems please contact
' me directly using zunzun@zunzun.com.
'
'     James

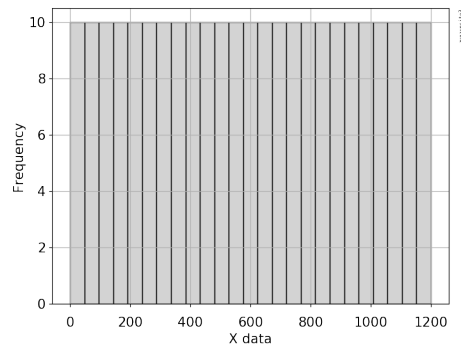
' Fitting target: lowest sum of squared absolute error
' Fitting target value = 104.333152318

Public Function Sigmoidal_AndreaPrunottoSigmoidA_model(x_in, y_in)
    temp = 0.0

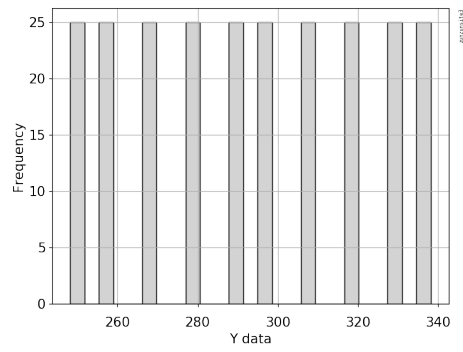
    ' coefficients
    Const a0 = -5.7918734663173700E+02
    Const a1 = 1.6597789090421043E+03
    Const a2 = -1.5955180752254220E-03
    Const a3 = -3.9007820282476678E+02
    Const a4 = -1.5422796137881490E-02
    Const a5 = -1.6222029398078749E-03

    temp = a0 + (a1 / (1.0 + Exp(a2 * (x_in + a3 + a4 * y_in + a5 * x_in * y_in))))
    Sigmoidal_AndreaPrunottoSigmoidA_model = temp
End Function
```

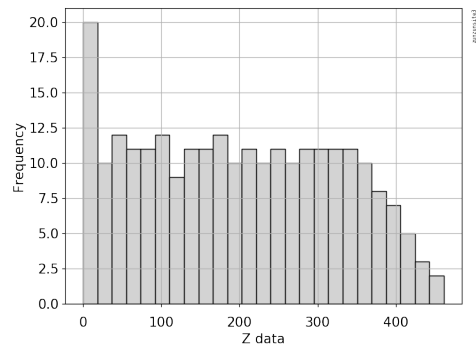
Histogram of X data



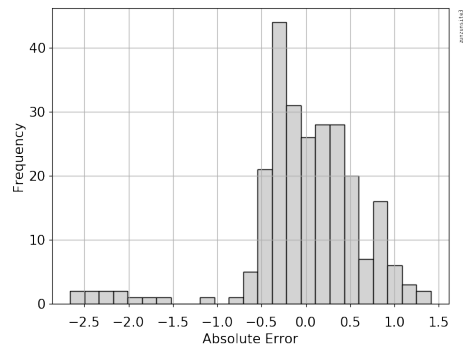
Histogram of Y data



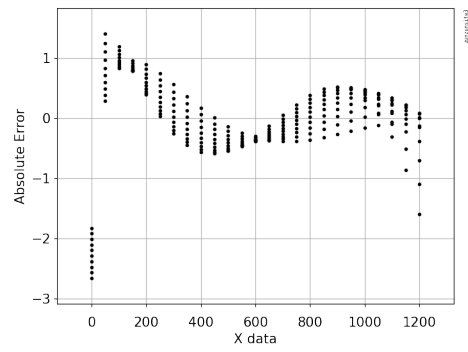
Histogram of Z data



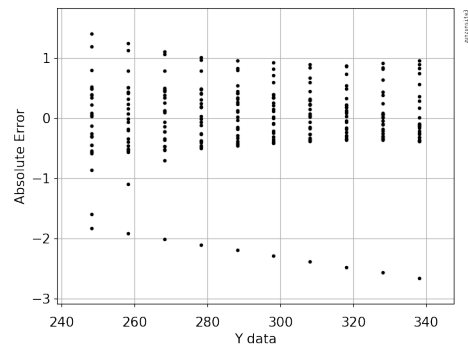
Histogram of Absolute Error



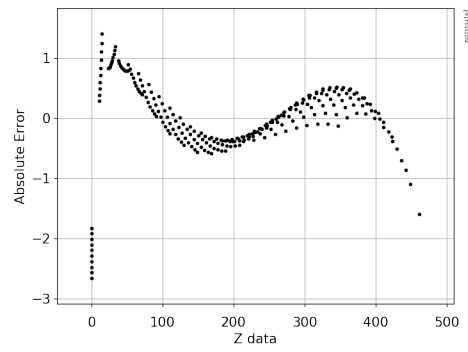
Absolute Error vs. X data



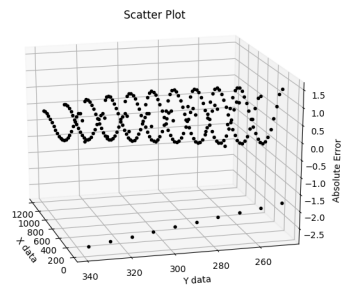
Absolute Error vs. Y data



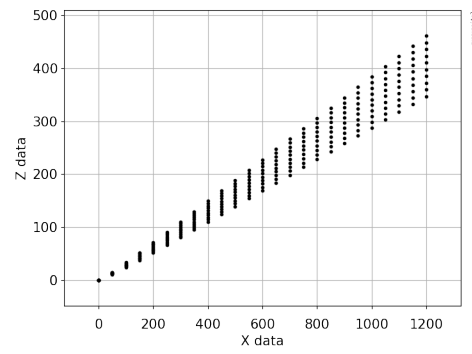
Absolute Error vs. Z data



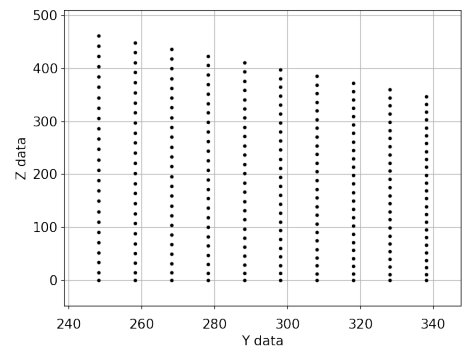
Absolute Error Scatter Plot



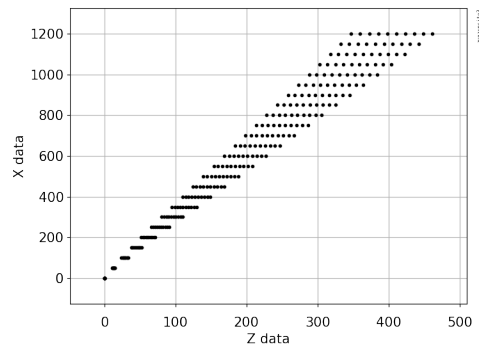
Z data vs. X data



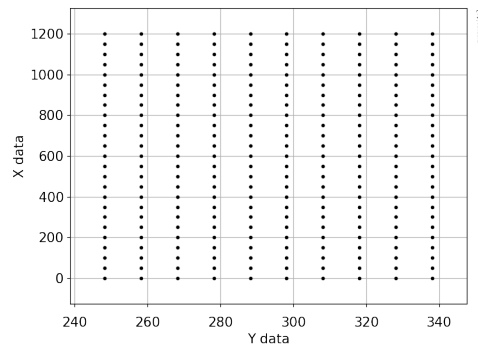
Z data vs. Y data



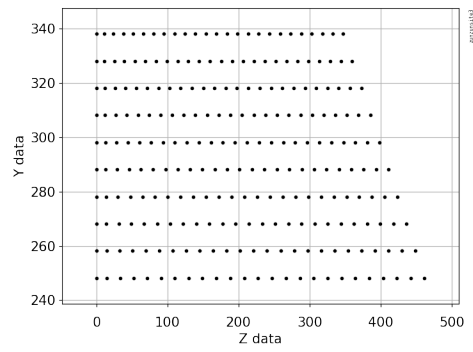
X data vs. Z data



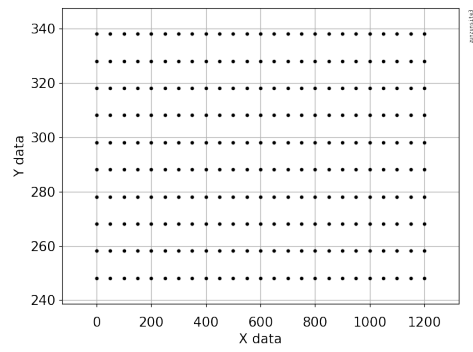
X data vs. Y data



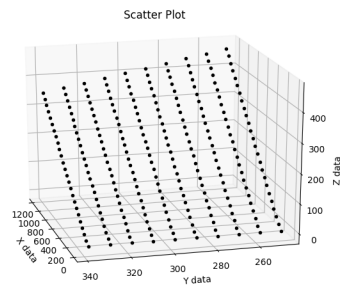
Y data vs. Z data



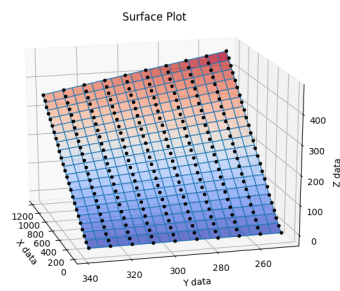
Y data vs. X data



Scatter Plot



Surface Plot



Contour Plot

