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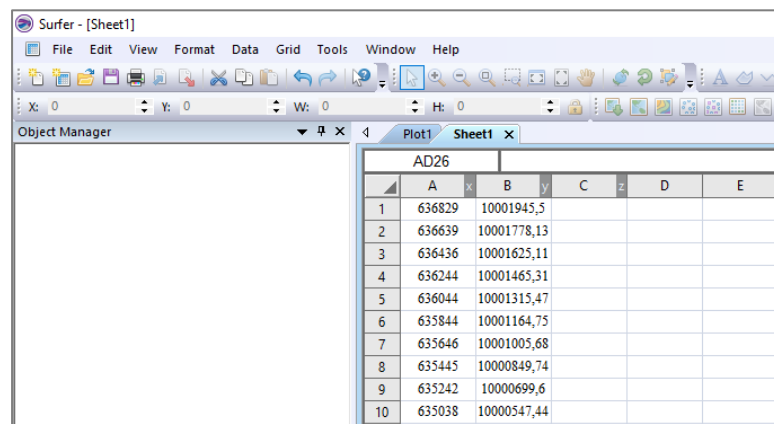
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LAMPIRAN

Lampiran 1. Mengkonversi Koordinat Titik Pengukuran

Berikut ini cara mengubah koordinat UTM dalam bentuk koordinat Geografis (*Longitude* dan *Latitude*):

1. Membuka *software Surfer* \Rightarrow *New Worksheet* (atau tekan *ctrl + W*) \Rightarrow pada kolom A dan B diisi dengan koordinat UTM yang akan diubah dalam bentuk koordinat UTM.

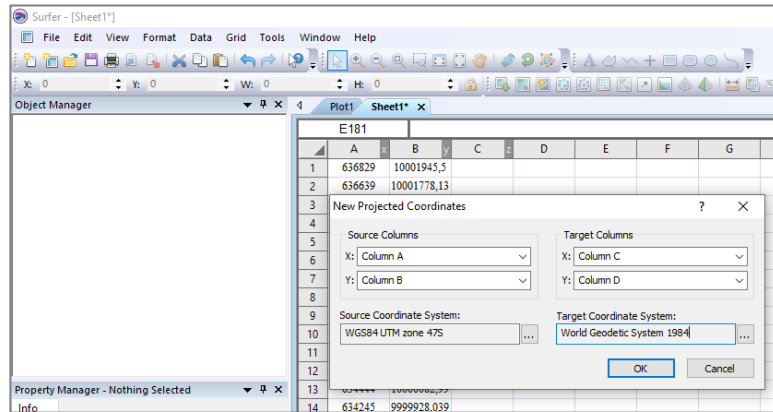


The screenshot shows the Surfer software interface. The main window displays a data table with the following content:

	A	B	C	D	E
1	636829	10001945,5			
2	636639	10001778,13			
3	636436	10001625,11			
4	636244	10001465,31			
5	636044	10001315,47			
6	635844	10001164,75			
7	635646	10001005,68			
8	635445	10000849,74			
9	635242	10000699,6			
10	635038	10000547,44			

Gambar 5.1 Proses memasukkan data koordinat UTM

2. *Data* \Rightarrow *New Projected Coordinates*. Pada kolom *source coordinate system* diisi dengan koordinat awal yaitu UTM sesuai zona wilayah (*Predefined* \Rightarrow *Projected System* \Rightarrow *UTM* \Rightarrow *WGS84* \Rightarrow *WGS84 UTM zone 47S*), sedangkan *target coordinate system* diisi dengan koordinat hasil konversi yaitu *Longitude* dan *Latitude* (*Predefined* \Rightarrow *Geographic* \Rightarrow *World Geodetic System 1984*), selanjutnya klik OK. Maka hasil konversi koordinat akan ditampilkan dalam kolom C dan D.



Gambar 5.2 Proses konversi dalam bentuk koordinat Geografis

	A	B	C	D
1	636829	10001945,5	100,22955	0,0175975
2	636639	10001778,13	100,22785	0,0160836
3	636436	10001625,11	100,22602	0,0146995
4	636244	10001465,31	100,22430	0,0132541
5	636044	10001315,47	100,22250	0,0118987
6	635844	10001164,75	100,22070	0,0105355
7	635646	10001005,68	100,21892	0,0090966
8	635445	10000849,74	100,21712	0,0076861
9	635242	10000699,6	100,21529	0,0063281
10	635038	10000547,44	100,21346	0,0049517

Gambar 5.3 Hasil konversi koordinat UTM dalam bentuk koordinat Geografis

Catatan: lokasi pengukuran geomagnet daerah panas bumi Bonjol, Kabupaten Pasaman, Provinsi Sumatera Barat berada di wilayah Zona UTM 47S.

Lampiran 2. Hasil Konversi Koordinat Titik Pengukuran

Station	Easting	Northing	Longitude	Latitude
A-1000	629782	9998752.887	100.1662370	-0.0112807
A-1250	629992	9998913.932	100.1681238	-0.0098239
A-1500	630191	9999069.09	100.1699118	-0.0084205
A-1750	630391	9999224.418	100.1717088	-0.0070155
A-2000	630595	9999381.018	100.1735417	-0.0055989
A-2250	630806	9999528.742	100.1754375	-0.0042627
A-2500	631010	9999686.474	100.1772704	-0.0028360
A-2750	631209	9999842.526	100.1790584	-0.0014244
A-3000	631410	9999997.118	100.1808643	-0.0000261
A-3250	631634	10000167.38	100.1828769	0.0015140
A-3500	631841	10000322.62	100.1847368	0.0029182
A-3750	631950	10000543.83	100.1857161	0.0049191
A-4000	632150	10000698.78	100.1875131	0.0063207
A-4250	632353	10000863.73	100.1893370	0.0078127
A-4500	632552	10001023.25	100.1911250	0.0092556
A-4750	632747	10001176.6	100.1928770	0.0106427
A-5000	632951	10001326.79	100.1947099	0.0120013
A-5250	633141	10001470.46	100.1964170	0.0133008
A-5500	633351	10001620.77	100.1983039	0.0146604
A-5750	633561	10001768.3	100.2001907	0.0159948
A-6000	633763	10001920.22	100.2020056	0.0173690
A-6250	633970	10002061.44	100.2038654	0.0186463
A-6500	634179	10002200.81	100.2057433	0.0199070
A-6750	634386	10002352.17	100.2076031	0.0212761
A-7000	634587	10002509.17	100.2094091	0.0226962
A-7250	634786	10002668.79	100.2111970	0.0241399
A-7500	634982	10002820.65	100.2129581	0.0255135
A-7750	635184	10002970.44	100.2147730	0.0268684
A-8000	635389	10003127.55	100.2166149	0.0282895
A-8250	635583	10003265.91	100.2183579	0.0295410
B-1500	630799	9998376.41	100.1753746	-0.0146860
B-1750	631001	9998532.181	100.1771896	-0.0132770
B-2000	631194	9998685	100.1789236	-0.0118947
B-2250	631393	9998834.828	100.1807116	-0.0105394
B-2500	631592	9998994.057	100.1824996	-0.0090991
B-2750	631791	9999134.991	100.1842875	-0.0078243

B-3000	631984	9999287.349	100.1860216	-0.0064462
B-3250	632175	9999458.434	100.1877377	-0.0048987
B-3500	632366	9999610.271	100.1894538	-0.0035252
B-3750	632563	9999753.871	100.1912238	-0.0022263
B-4000	632760	9999922.115	100.1929938	-0.0007045
B-4250	632966	10000078.18	100.1948447	0.0007072
B-4500	633141	10000249.08	100.1964170	0.0022530
B-4750	633330	10000393	100.1981151	0.0035548
B-5000	633510	10000545	100.1997324	0.0049297
B-5250	633715	10000703.6	100.2015743	0.0063643
B-5500	633919	10000857.67	100.2034072	0.0077579
B-5750	634120	10001017.54	100.2052131	0.0092040
B-6000	634321	10001172.38	100.2070190	0.0106045
B-6250	634460	10001275.08	100.2082679	0.0115335
B-6500	634645	10001426.22	100.2099301	0.0129006
B-6750	634849	10001582.05	100.2117630	0.0143101
B-7000	635025	10001723.66	100.2133443	0.0155910
B-7250	635219	10001880.39	100.2150874	0.0170086
B-7500	635400	10002019.35	100.2167136	0.0182655
B-7750	635559	10002153.24	100.2181422	0.0194766
B-8000	635760	10002300.2	100.2199481	0.0208059
B-8250	635956	10002459.17	100.2217091	0.0222438
B-8500	636113	10002579.85	100.2231197	0.0233354
C-2000	631738	9997954.727	100.1838114	-0.0185003
C-2250	631944	9998110.295	100.1856623	-0.0170931
C-2500	632145	9998270.956	100.1874682	-0.0156398
C-2750	632340	9998385.84	100.1892202	-0.0146006
C-3000	632522	9998557.754	100.1908555	-0.0130456
C-3250	632736	9998702.848	100.1927782	-0.0117332
C-3500	632922	9998862.957	100.1944494	-0.0102849
C-3750	633104	9999028.605	100.1960846	-0.0087866
C-4000	633316	9999173.238	100.1979894	-0.0074783
C-4250	633497	9999339.177	100.1996156	-0.0059774
C-4500	633693	9999485.531	100.2013766	-0.0046535
C-4750	633879	9999644.165	100.2030478	-0.0032186
C-5000	634064	9999780.762	100.2047099	-0.0019831
C-5250	634245	9999928.039	100.2063362	-0.0006509
C-5500	634444	10000082.99	100.2081241	0.0007507
C-5750	634643	10000235.43	100.2099121	0.0021295
C-6000	634841	10000388.5	100.2116911	0.0035141
C-6250	635038	10000547.44	100.2134611	0.0049517

C-6500	635242	10000699.6	100.2152940	0.0063281
C-6750	635445	10000849.74	100.2171179	0.0076861
C-7000	635646	10001005.68	100.2189238	0.0090966
C-7250	635844	10001164.75	100.2207028	0.0105355
C-7500	636044	10001315.47	100.2224997	0.0118987
C-7750	636244	10001465.31	100.2242967	0.0132541
C-8000	636436	10001625.11	100.2260217	0.0146995
C-8250	636639	10001778.13	100.2278456	0.0160836
C-8500	636829	10001945.5	100.2295527	0.0175975
D-1500	631933	9996896.408	100.1855635	-0.0280731
D-1750	632128	9997054.068	100.1873155	-0.0266470
D-2000	632316	9997209.062	100.1890047	-0.0252450
D-2250	632521	9997366.895	100.1908465	-0.0238173
D-2500	632731	9997522.368	100.1927333	-0.0224110
D-2750	632927	9997680.633	100.1944943	-0.0209795
D-3000	633114	9997840.75	100.1961745	-0.0195311
D-3250	633320	9997992.326	100.1980253	-0.0181601
D-3500	633518	9998150.065	100.1998043	-0.0167332
D-3750	633716	9998305.587	100.2015833	-0.0153265
D-4000	633921	9998433.817	100.2034252	-0.0141666
D-4250	634106	9998585.671	100.2050873	-0.0127930
D-4500	634298	9998738.087	100.2068124	-0.0114144
D-4750	634502	9998900.404	100.2086453	-0.0099462
D-5000	634693	9999064.645	100.2103614	-0.0084605
D-5250	634892	9999217.405	100.2121493	-0.0070788
D-5500	635102	9999355.438	100.2140361	-0.0058302
D-5750	635304	9999508.595	100.2158510	-0.0044449
D-6000	635500	9999667.003	100.2176120	-0.0030120
D-6250	635699	9999815.207	100.2194000	-0.0016715
D-6500	635889	9999974.392	100.2211071	-0.0002316
D-6750	636090	10000110.1	100.2229130	0.0009959
D-7000	636286	10000267.61	100.2246740	0.0024206
D-7250	636494	10000400.19	100.2265428	0.0036198
D-7500	636690	10000563.56	100.2283038	0.0050975
D-7750	636882	10000734.64	100.2300289	0.0066450
D-8000	637094	10000878.49	100.2319336	0.0079461
D-8250	637293	10001025.5	100.2337216	0.0092759
D-8500	637493	10001169.53	100.2355185	0.0105786
E-2000	632956	9996228.068	100.1947550	-0.0341184
E-2250	633132	9996374.388	100.1963363	-0.0327949
E-2500	633288	9996578.624	100.1977379	-0.0309475

E-2750	633487	9996738.629	100.1995259	-0.0295001
E-3000	633687	9996893.481	100.2013228	-0.0280994
E-3250	633947	9997066.973	100.2036589	-0.0265301
E-3500	634110	9997192.94	100.2051234	-0.0253907
E-3750	634313	9997350.892	100.2069473	-0.0239620
E-4000	634510	9997509.294	100.2087172	-0.0225292
E-4250	634713	9997664.866	100.2105411	-0.0211219
E-4500	634912	9997820.386	100.2123291	-0.0197152
E-4750	635111	9997973.496	100.2141170	-0.0183303
E-5000	635314	9998132.03	100.2159409	-0.0168963
E-5250	635514	9998287.476	100.2177378	-0.0154902
E-5500	635719	9998434.655	100.2195797	-0.0141589
E-5750	635914	9998600.749	100.2213317	-0.0126566
E-6000	636106	9998765.31	100.2230568	-0.0111681
E-6250	636293	9998916.578	100.2247369	-0.0097998
E-6500	636491	9999071.944	100.2265159	-0.0083945
E-6750	636655	9999251.178	100.2279893	-0.0067733
E-7000	636859	9999406.415	100.2298222	-0.0053691
E-7250	637047	9999566.399	100.2315113	-0.0039220
E-7500	637250	9999713.41	100.2333352	-0.0025923
E-7750	637449	9999863.225	100.2351231	-0.0012372
E-8000	637643	10000007.18	100.2368662	0.0000649
F-1500	633017	9995380.428	100.1953032	-0.0417856
F-1750	633223	9995520.19	100.1971541	-0.0405213
F-2000	633416	9995675.088	100.1988881	-0.0391202
F-2250	633618	9995815.423	100.2007030	-0.0378508
F-2500	633807	9995972.019	100.2024011	-0.0364343
F-2750	634016	9996092.341	100.2042789	-0.0353460
F-3000	634209	9996246.94	100.2060129	-0.0339475
F-3250	634410	9996402.423	100.2078189	-0.0325411
F-3500	634617	9996568.451	100.2096787	-0.0310393
F-3750	634820	9996710.907	100.2115026	-0.0297508
F-4000	635027	9996852.47	100.2133624	-0.0284703
F-4250	635235	9996980.714	100.2152312	-0.0273102
F-4500	635436	9997134.357	100.2170371	-0.0259205
F-4750	635631	9997287.156	100.2187891	-0.0245384
F-5000	635832	9997418	100.2205950	-0.0233548
F-5250	636031	9997572.824	100.2223830	-0.0219544
F-5500	636234	9997730.271	100.2242069	-0.0205302
F-5750	636434	9997885.876	100.2260038	-0.0191227
F-6000	636635	9998042.059	100.2278097	-0.0177100

F-6250	636857	9998214.873	100.2298043	-0.0161469
F-6500	637059	9998371.102	100.2316192	-0.0147337
F-6750	637256	9998524.731	100.2333891	-0.0133441
F-7000	637454	9998678.276	100.2351681	-0.0119553
F-7250	637655	9998834.564	100.2369740	-0.0105416
F-7500	637855	9998990.387	100.2387709	-0.0091321
F-7750	638015	9999112.009	100.2402085	-0.0080320
F-8000	638222	9999272.096	100.2420683	-0.0065840
F-8250	638400	9999412.703	100.2436675	-0.0053122
G-1000	633218	9994099.235	100.1971094	-0.0533743
G-1250	633418	9994255.513	100.1989063	-0.0519607
G-1500	633616	9994410.428	100.2006852	-0.0505594
G-1750	633816	9994564.015	100.2024822	-0.0491702
G-2000	634013	9994718.046	100.2042521	-0.0477769
G-2250	634210	9994872.119	100.2060221	-0.0463832
G-2500	634407	9995030.766	100.2077921	-0.0449482
G-2750	634604	9995184.557	100.2095621	-0.0435571
G-3000	634803	9995339.551	100.2113500	-0.0421551
G-3250	635003	9995496.124	100.2131469	-0.0407388
G-3500	635207	9995655.178	100.2149798	-0.0393001
G-3750	635409	9995813.656	100.2167947	-0.0378666
G-4000	635612	9995971.286	100.2186185	-0.0364407
G-4250	635814	9996129.522	100.2204334	-0.0350094
G-4500	636013	9996284.662	100.2222214	-0.0336061
G-4750	636209	9996446	100.2239824	-0.0321468
G-5000	636407	9996614.909	100.2257613	-0.0306189
G-5250	636609	9996761.204	100.2275762	-0.0292956
G-5500	636814	9996912.665	100.2294180	-0.0279256
G-5750	637011	9997073.649	100.2311880	-0.0264695
G-6000	637216	9997228.919	100.2330298	-0.0250650
G-6250	637415	9997386.413	100.2348178	-0.0236404
G-6500	637611	9997541.773	100.2365788	-0.0222351
G-6750	637784	9997687.833	100.2381331	-0.0209140
G-7000	637967	9997852.019	100.2397773	-0.0194289
G-7250	638160	9998012.088	100.2415113	-0.0179810

Lampiran 3. Mencari Nilai Koreksi IGRF

Berikut ini cara mendapatkan nilai koreksi IGRF pada *website* resmi NOAA:

1. Mengakses *website* resmi NOAA yaitu <https://www.ngdc.noaa.gov/geomag/calculators/magcalc.shtml> \Rightarrow *Magnetic Field*. Lakukan penyetelan terlebih dahulu pada jendela *Magnetic Field Calculators*.

- *Latitude* : *N*
- *Longitude* : *E*
- *Elevation* : *Meters*
- *Model* : *IGRF (1590 – 2024)*
- *Start Date* : 2007/04/16
- *End Date* : 2007/04/16
- *Result Format* : *HTML*

Setelah itu, masukkan nilai *Latitude*, *Longitude*, *Elevation*, *Start Date* dan *End Date*. Waktu pengukuran medan magnet bumi dihitung per hari. Klik *Calculate*.

Calculate Magnetic Field

Latitude: S N

Longitude: W E

Elevation: GPS Mean sea level

Model: WMM (2019-2024) IGRF (1590-2024)
 EMM (2000-2019)

Start Date: Year Month Day

End Date: Year Month Day

Step size:

Result format: HTML XML CSV JSON

Gambar 5.4 Proses memasukkan data untuk perhitungan medan magnet bumi

Magnetic Field							
Model Used: IGRF2020							
Latitude: 0.0175975° N							
Longitude: 100.2295527° E							
Elevation: 326.72 m Mean Sea Level							
Date	Declination (+ E - W)	Inclination (+ D - U)	Horizontal Intensity	North Comp (+ N - S)	East Comp (+ E - W)	Vertical Comp (+ D - U)	Total Field
2007-04-16	-0.2510°	-19.0616°	40,300.9 nT	40,300.5 nT	-176.5 nT	-13,925.2 nT	42,638.8 nT
Change/year	0.0007°/yr	0.1128°/yr	21.3 nT/yr	21.3 nT/yr	0.4 nT/yr	81.5 nT/yr	-6.4 nT/yr

Gambar 5.5 Hasil perhitungan medan magnet bumi (IGRF)

- *Declination* : -0.2510°
- *Inclination* : -19.0616°
- *Magnetic Field* : 42638.8 nT

Catatan : lakukan langkah-langkah di atas untuk mencari nilai koreksi IGRF tiap stasiun.

Lampiran 4. Hasil Pengolahan Data Geomagnet

No.	Date	Time	Station	Easting	Northing	Elevation	Reading	DC	IGRF	Declination	Inclination	AMT
1.	16/04/2007	08:28	C-8500	636829	10001945.5	326.72	42907.3	42907.3	42649.2	-0.2514	-19.1417	258.1
2.	16/04/2007	08:49	C-8250	636639	10001778.13	291.924	42736.2	42730.3	42649.6	-0.2517	-19.1385	80.733
3.	16/04/2007	09:15	C-8000	636436	10001625.11	288.394	42834.5	42814.5	42649.4	-0.252	-19.1356	165.1
4.	16/04/2007	09:38	C-7750	636244	10001465.31	252.936	42797.1	42797.1	42649.8	-0.2522	-19.1325	147.3
5.	16/04/2007	09:52	C-7500	636044	10001315.47	241.506	42386.9	42385.8	42649.7	-0.2525	-19.1296	-263.87
6.	16/04/2007	10:08	C-7250	635844	10001164.75	232.634	42210.7	42209.8	42649.5	-0.2528	-19.1268	-439.73
7.	16/04/2007	10:24	C-7000	635646	10001005.68	211.689	42847.9	42847.9	42649.6	-0.2531	-19.1237	198.3
8.	16/04/2007	11:24	C-6750	635445	10000849.74	211.798	42810.2	42808.6	42649.3	-0.2534	-19.1208	159.3
9.	16/04/2007	11:40	C-6500	635242	10000699.6	211.098	42799.4	42798.7	42648.9	-0.2537	-19.1179	149.83
10.	16/04/2007	11:52	C-6250	635038	10000547.44	211.329	42777.6	42777.6	42648.5	-0.254	-19.115	129.1
11.	16/04/2007	12:05	C-6000	634841	10000388.5	221.143	42754.1	42754.1	42647.9	-0.2543	-19.1119	106.2
12.	16/04/2007	12:53	C-5750	634643	10000235.43	212.355	42851.6	42851.1	42647.8	-0.2546	-19.109	203.33
13.	16/04/2007	13:27	C-5500	634444	10000082.99	225.892	42714.8	42714.8	42647.1	-0.2549	-19.1061	67.7
14.	17/04/2007	08:43	C-5250	634245	9999928.039	238.091	42710.4	42710	42646.8	-0.2555	-19.106	63.2
15.	17/04/2007	09:07	C-5000	634064	9999780.762	222.017	42784.2	42783.1	42647.6	-0.2555	-19.109	135.53
16.	17/04/2007	09:30	C-4750	633879	9999644.165	242.131	42680.8	42648.8	42647.6	-0.2559	-19.112	1.2
17.	17/04/2007	09:50	C-4500	633693	9999485.531	263.559	42779.7	42775	42647.5	-0.2562	-19.1155	127.53
18.	17/04/2007	10:11	C-4250	633497	9999339.177	291.622	42799.2	42798.9	42647.3	-0.2566	-19.1187	151.63
19.	17/04/2007	10:34	C-4000	633316	9999173.238	334.444	42758.7	42758.7	42646.8	-0.2569	-19.1223	111.9
20.	17/04/2007	11:04	C-3750	633104	9999028.605	314.845	42711.2	42711.2	42647.7	-0.2573	-19.1255	63.5

21.	17/04/2007	12:15	C-3500	632922	9998862.957	257.706	42808.1	42774.1	4649.5	-0.2575	-19.1292	38125
22.	17/04/2007	12:33	C-3250	632736	9998702.848	252.324	42863.4	42861.8	42650.1	-0.2578	-19.1327	211.7
23.	17/04/2007	12:56	C-3000	632522	9998557.754	255.688	43170.9	43168.8	42650.4	-0.2582	-19.1359	518.37
24.	17/04/2007	13:45	C-2750	632340	9998385.84	372.679	42355.4	42341.4	42648.2	-0.2587	-19.1396	-306.8
25.	17/04/2007	14:25	C-2500	632145	9998270.956	352.138	42536.7	42536.4	42649.1	-0.259	-19.1422	-112.73
26.	17/04/2007	14:52	C-2250	631944	9998110.295	350.635	42594	42591.9	42649.6	-0.2593	-19.1457	-57.733
27.	17/04/2007	15:10	C-2000	631738	9997954.727	345.147	42486.6	42486.6	42650.2	-0.2597	-19.1491	-163.6
28.	18/04/2007	08:20	G-7250	638160	9998012.088	323.927	42811.3	42810.6	42649.1	-0.2493	-19.1404	161.53
29.	18/04/2007	08:40	G-7000	637967	9997852.019	305.193	43040	43039.7	42650	-0.2496	-19.144	389.67
30.	18/04/2007	09:03	G-6750	637784	9997687.833	275.137	42918.7	42917.1	42651.2	-0.2499	-19.1476	265.9
31.	18/04/2007	09:25	G-6500	637611	9997541.773	297.514	42757.4	42757.7	42651.1	-0.2502	-19.1508	106.63
32.	18/04/2007	09:36	G-6250	637415	9997386.413	272.254	42962.7	42962.1	42652.1	-0.2505	-19.1542	310
33.	18/04/2007	09:49	G-6000	637216	9997228.919	249.845	42690.2	42690.2	42653.1	-0.2508	-19.1577	37.1
34.	18/04/2007	10:07	G-5750	637011	9997073.649	258.462	42630.5	42630.5	42653.4	-0.2512	-19.1611	-22.9
35.	18/04/2007	10:28	G-5500	636814	9996912.665	263.191	42729.5	42729.5	42653.7	-0.2515	-19.1646	75.8
36.	18/04/2007	10:46	G-5250	636609	9996761.204	252.022	42870.8	42870.8	42654.5	-0.2518	-19.168	216.3
37.	18/04/2007	11:07	G-5000	636407	9996614.909	243.967	42944	42942.9	42655.1	-0.2522	-19.1712	287.83
38.	18/04/2007	11:39	G-4750	636209	9996446	220.57	42715.9	42715.9	42656.1	-0.2525	-19.1749	59.8
39.	18/04/2007	12:34	G-4500	636013	9996284.662	235.828	42574.1	42574.1	42656.2	-0.2528	-19.1785	-82.1
40.	18/04/2007	13:05	G-4250	635814	9996129.522	246.046	42562	42562	42656.5	-0.2532	-19.1819	-94.5
41.	19/04/2007	08:41	G-4000	635612	9995971.286	266.828	42431.5	42430.7	42656.4	-0.2536	-19.185	-225.7
42.	19/04/2007	09:04	G-3750	635409	9995813.656	272.506	43021.4	43021.4	42656.8	-0.2539	-19.1885	364.6
43.	19/04/2007	09:18	G-3500	635207	9995655.178	270.607	42602.2	42602.2	42657.3	-0.2543	-19.192	-55.1
44.	19/04/2007	09:43	G-3250	635003	9995496.124	234.187	42783.9	42783.6	42658.6	-0.2546	-19.1955	125.03
45.	19/04/2007	09:58	G-3000	634803	9995339.551	210.519	42769.3	42768.5	42659.6	-0.2549	-19.199	108.9

46.	19/04/2007	10:11	G-2750	634604	9995184.557	201.949	42851.9	42851.1	42660.3	-0.2552	-19.2024	190.8
47.	19/04/2007	10:16	G-2500	634407	9995030.766	196.872	42854.3	42854.3	42660.8	-0.2555	-19.2058	193.5
48.	19/04/2007	11:31	G-2250	634210	9994872.119	209.696	42843.4	42837.8	42661	-0.2559	-19.2093	176.8
49.	19/04/2007	11:35	G-2000	634013	9994718.046	207.812	42803.6	42799.6	42661.5	-0.2562	-19.2127	138.1
50.	19/04/2007	11:47	G-1750	633816	9994564.015	206.624	42701	42701	42662	-0.2566	-19.216	39
51.	19/04/2007	11:54	G-1500	633616	9994410.428	204.358	42682.7	42682.7	42662.5	-0.2569	-19.2194	20.2
52.	19/04/2007	12:05	G-1250	633418	9994255.513	206.206	42624.1	42622.8	42662.9	-0.2572	-19.2228	-40.133
53.	19/04/2007	12:16	G-1000	633218	9994099.235	199.536	42596.1	42588.6	42663.5	-0.2576	-19.2263	-74.867
54.	21/04/2007	07:50	B-8500	636113	10002579.85	249.596	42637.5	42634.2	42652.8	-0.2525	-19.154	-18.633
55.	21/04/2007	08:00	B-8250	635956	10002459.17	225.561	43001.4	42986.4	42653.1	-0.2528	-19.1518	333.3
56.	21/04/2007	08:09	B-8000	635760	10002300.2	235.611	43204.4	43204.4	42652.4	-0.2531	-19.1487	552
57.	21/04/2007	08:26	B-7750	635559	10002153.24	241.699	43028.2	43027.4	42651.9	-0.2534	-19.1459	375.5
58.	21/04/2007	08:39	B-7500	635400	10002019.35	267.051	42666.2	42665.4	42651	-0.2536	-19.1433	14.4
59.	21/04/2007	09:00	B-7250	635219	10001880.39	294.035	42662	42642	42650.1	-0.254	-19.1406	-8.1
60.	21/04/2007	09:22	B-7000	635025	10001723.66	304.991	42719.5	42714.2	42649.4	-0.2543	-19.1376	64.767
61.	21/04/2007	09:37	B-6750	634849	10001582.05	325.796	42740.9	42739.8	42648.6	-0.2546	-19.1349	91.233
62.	21/04/2007	09:48	B-6500	634645	10001426.22	335.143	42801.7	42798.5	42648.3	-0.2549	-19.1319	150.2
63.	21/04/2007	09:58	B-6250	634460	10001275.08	305.713	42744.3	42743.8	42648.3	-0.2551	-19.129	95.467
64.	21/04/2007	10:52	B-6000	634321	10001172.38	240.382	42773.9	42773.9	42649.6	-0.2552	-19.1271	124.3
65.	21/04/2007	11:14	B-5750	634120	10001017.54	270.177	42785.3	42785	42648.6	-0.2559	-19.1243	136.37
66.	21/04/2007	11:33	B-5500	633919	10000857.67	284.472	42850.4	42850.4	42647.8	-0.2559	-19.121	202.6
67.	21/04/2007	11:49	B-5250	633715	10000703.6	242.202	42838.2	42830.9	42648.4	-0.2562	-19.1181	182.47
68.	21/04/2007	13:25	B-5000	633510	10000545	190.248	42866.7	42866.7	42649.3	-0.2564	-19.1151	217.4
69.	22/04/2007	08:49	B-4750	633330	10000393	239.755	42946.1	42944.6	42647.7	-0.2567	-19.1119	296.93
70.	22/04/2007	09:25	B-4500	633141	10000249.08	274.069	42777.8	42777.8	42646.6	-0.2571	-19.109	131.2

71.	22/04/2007	09:57	B-4250	632966	10000078.18	276.542	42780.7	42780.1	42646.1	-0.2573	-19.1058	134
72.	22/04/2007	10:24	B-4000	632760	9999922.115	277.052	42856.3	42856.3	42646.2	-0.2577	-19.106	210.1
73.	22/04/2007	10:50	B-3750	632563	9999753.871	262.161	42833.7	42833.7	42647	-0.258	-19.1097	186.7
74.	22/04/2007	11:09	B-3500	632366	9999610.271	250.851	42861.1	42859.9	42647.7	-0.2583	-19.1129	212.2
75.	22/04/2007	12:14	B-3250	632175	9999458.434	260.89	42870.3	42870.2	42647.9	-0.2586	-19.1162	222.27
76.	22/04/2007	12:36	B-3000	631984	9999287.349	239.827	42948.8	42946.4	42648.4	-0.259	-19.1199	298
77.	22/04/2007	13:05	B-2750	631791	9999134.991	281.938	42792.6	42791.9	42648.4	-0.2593	-19.1233	143.53
78.	22/04/2007	13:43	B-2500	631592	9998994.057	305.497	41952.5	41952.5	42648.2	-0.2597	-19.1264	-695.7
79.	22/04/2007	14:03	B-2250	631393	9998834.828	292.617	42787.7	42785.3	42649	-0.26	-19.1299	136.3
80.	22/04/2007	14:14	B-2000	631194	9998685	272.183	42705.2	42705	42649.9	-0.2603	-19.1332	55.1
81.	22/04/2007	14:28	B-1750	631001	9998532.181	289.872	42635	42634.7	42650	-0.2607	-19.1366	-15.267
82.	22/04/2007	14:32	B-1500	630799	9998376.41	279.973	42859.4	42859	42650	-0.261	-19.14	209.03
83.	23/04/2007	08:15	E-5500	635719	9998434.655	200.445	42751.9	42738.9	42651.3	-0.253	-19.133	87.6
84.	23/04/2007	08:27	E-5750	635914	9998600.749	199.137	42714.4	42714.4	42650.8	-0.2527	-19.1294	63.6
85.	23/04/2007	08:44	E-6000	636106	9998765.31	200	42757.3	42756.6	42650.3	-0.2523	-19.1258	106.33
86.	23/04/2007	08:49	E-6250	636293	9998916.578	201.801	42782.2	42778.5	42649.8	-0.252	-19.1225	128.73
87.	23/04/2007	09:00	E-6500	636491	9999071.944	207.143	42837.3	42811.3	42649.2	-0.2517	-19.119	162.1
88.	23/04/2007	09:10	E-6750	636655	9999251.178	210.628	42842.8	42842.8	42648.6	-0.2514	-19.1152	194.2
89.	23/04/2007	09:20	E-7000	636859	9999406.415	214.449	42830.9	42830.9	42648.1	-0.2511	-19.1117	182.8
90.	23/04/2007	09:26	E-7250	637047	9999566.399	223.788	42782.3	42782.3	42647.4	-0.2507	-19.1082	134.9
91.	23/04/2007	09:38	E-7500	637250	9999713.41	232.913	42733.1	42732.2	42646.7	-0.2504	-19.105	85.467
92.	23/04/2007	09:52	E-7750	637449	9999863.225	251.532	42747.6	42747.6	42645.9	-0.2501	-19.1016	101.7
93.	23/04/2007	10:04	E-8000	637643	10000007.18	311.905	42782	42778.3	42644.1	-0.2499	-19.0987	134.23
94.	23/04/2007	10:56	D-7500	636690	10000563.56	217.87	42658	42658	42648	-0.2513	-19.1113	10
95.	23/04/2007	11:31	D-7750	636882	10000734.64	245.7	42604.6	42599.9	42647.7	-0.2511	-19.1146	-47.767

96.	23/04/2007	12:10	D-8000	637094	10000878.49	255.735	42596	42594.3	42648.1	-0.2508	-19.1173	-53.767
97.	23/04/2007	12:40	D-8250	637293	10001025.5	312.051	42572.6	42572.6	42648.2	-0.2505	-19.1201	-75.6
98.	23/04/2007	12:52	D-8500	637493	10001169.53	352.804	42531.3	42528.1	42646.3	-0.2503	-19.1228	-118.2
99.	23/04/2007	13:32	D-7250	636494	10000400.19	214.963	42410.2	42409.3	42647.6	-0.2516	-19.1082	-238.27
100.	23/04/2007	13:43	D-7000	636286	10000267.61	211.734	42898.1	42898	42647.4	-0.2519	-19.1057	250.57
101.	23/04/2007	13:55	D-6750	636090	10000110.1	209.766	42875.3	42875.3	42647.1	-0.2522	-19.1026	228.2
102.	23/04/2007	14:04	D-6500	635889	9999974.392	208.653	42945.2	42945.2	42646.9	-0.2525	-19.1011	298.3
103.	23/04/2007	14:40	D-6250	635699	9999815.207	205.952	42814.4	42814.4	42647.4	-0.2529	-19.1046	167
104.	23/04/2007	14:48	D-6000	635500	9999667.003	202.283	42821.3	42821.3	42648	-0.2532	-19.1079	173.3
105.	24/04/2007	08:13	D-5750	635304	9999508.595	203.92	42764.7	42764.4	42648.4	-0.2535	-19.1111	116.03
106.	24/04/2007	08:24	D-5500	635102	9999355.438	204.005	42708.4	42707.2	42648.8	-0.2539	-19.1145	58.4
107.	24/04/2007	08:29	D-5250	634892	9999217.405	209.911	42637.6	42637.4	42649.1	-0.2542	-19.1175	-11.7
108.	24/04/2007	08:46	D-5000	634693	9999064.645	228.46	42688.4	42683.7	42649.1	-0.2546	-19.1209	34.633
109.	24/04/2007	09:14	D-4750	634502	9998900.404	240.423	42768.3	42768.3	42649.3	-0.2549	-19.1245	119
110.	24/04/2007	09:27	D-4500	634298	9998738.087	246.144	42827.6	42826.6	42649.7	-0.2553	-19.128	176.9
111.	24/04/2007	09:37	D-4250	634106	9998585.671	237.226	42941.4	42941.4	42650.3	-0.2556	-19.1314	291.1
112.	24/04/2007	09:48	D-4000	633921	9998433.817	259.157	42837.7	42832.9	42650.3	-0.256	-19.1347	182.6
113.	24/04/2007	10:17	D-3750	633716	9998305.587	271.294	43457.2	43450.3	42650.4	-0.2563	-19.1376	799.87
114.	24/04/2007	10:36	D-3500	633518	9998150.065	294.179	42571.5	42571.5	42650.3	-0.2567	-19.141	-78.8
115.	24/04/2007	11:25	D-3250	633320	9997992.326	299.895	42570.3	42570.3	42650.6	-0.257	-19.1445	-80.3
116.	24/04/2007	11:33	D-3000	633114	9997840.75	297.908	42742.4	42742.4	42651.1	-0.2574	-19.1478	91.3
117.	24/04/2007	11:52	D-2750	632927	9997680.633	277.72	42159.9	42159.9	42652.1	-0.2577	-19.1513	-492.2
118.	24/04/2007	12:33	D-2500	632731	9997522.368	277.442	41693.6	41692.8	42652.6	-0.258	-19.1548	-959.8
119.	24/04/2007	12:42	D-2250	632521	9997366.895	300.702	42732.7	42732.3	42652.5	-0.2584	-19.1582	79.8
120.	24/04/2007	13:00	D-2000	632316	9997209.062	339.154	42848.9	42810.9	42652.1	-0.2588	-19.1617	158.8

121.	24/04/2007	14:56	D-1750	632128	9997054.068	314.691	42699	42696.3	42653.1	-0.2591	-19.1651	43.233
122.	24/04/2007	15:19	D-1500	631933	9996896.408	256.553	42642.1	42640.6	42654.9	-0.2593	-19.1686	-14.267
123.	25/04/2007	08:16	E-5000	635314	9998132.03	228.033	42801	42793.5	42651.5	-0.2537	-19.1391	142.03
124.	25/04/2007	08:36	E-4750	635111	9997973.496	295.757	42545.9	42541.1	42650.4	-0.2541	-19.1425	-109.3
125.	25/04/2007	08:50	E-4500	634912	9997820.386	334.933	42541.3	42541.3	42649.9	-0.2545	-19.1459	-108.6
126.	25/04/2007	09:06	E-4250	634713	9997664.866	358.51	42385	42383.8	42649.8	-0.2549	-19.1493	-266
127.	25/04/2007	09:22	E-4000	634510	9997509.294	338.268	42872.9	42871.3	42650.8	-0.2552	-19.1527	220.5
128.	25/04/2007	09:34	E-3750	634313	9997350.892	355.227	42636.2	42632.5	42650.9	-0.2556	-19.1562	-18.367
129.	25/04/2007	09:56	E-3500	634110	9997192.94	389.526	41873.4	41873.4	42650.5	-0.256	-19.1597	-777.1
130.	25/04/2007	10:20	E-3250	633947	9997066.973	392.452	42794.2	42794.2	42650.8	-0.2563	-19.1624	143.4
131.	25/04/2007	10:35	E-3000	633687	9996893.481	331.211	43225.4	43218.7	42652.8	-0.2566	-19.1663	565.93
132.	25/04/2007	10:57	E-2750	633487	9996738.629	463.679	42363.8	42361.8	42650.2	-0.2571	-19.1697	-288.4
133.	25/04/2007	11:30	E-2500	633288	9996578.624	450.183	42255.4	42237.4	42651	-0.2575	-19.1732	-413.6
134.	25/04/2007	11:49	E-2250	633132	9996374.388	431.438	41849.3	41847.8	42652	-0.2577	-19.1776	-804.17
135.	25/04/2007	12:00	E-2000	632956	9996228.068	363.911	41485.6	41477.6	42654	-0.2579	-19.1808	-1176.4
136.	25/04/2007	15:20	E-5250	635514	9998287.476	198.14	42714.4	42714.4	42651.7	-0.2533	-19.1357	62.7
137.	26/04/2007	08:28	F-5000	635832	9997418	194.723	42704.5	42704.2	42654	-0.2529	-19.1529	50.233
138.	26/04/2007	08:48	F-4750	635631	9997287.156	189.487	42740.9	42737.7	42654.6	-0.2532	-19.1558	83.1
139.	26/04/2007	08:57	F-4500	635436	9997134.357	261.414	42180.9	42180.1	42653.3	-0.2537	-19.1591	-473.2
140.	26/04/2007	09:10	F-4250	635235	9996980.714	254.833	42475.7	42474.4	42654	-0.254	-19.1625	-179.63
141.	26/04/2007	09:23	F-4000	635027	9996852.47	284.809	42409.7	42409.7	42653.6	-0.2544	-19.1654	-243.9
142.	26/04/2007	09:44	F-3750	634820	9996710.907	323.557	41729.5	41729.2	42653.2	-0.2548	-19.1685	-924.03
143.	26/04/2007	09:58	F-3500	634617	9996568.451	334.76	42229.7	42229	42653.3	-0.2552	-19.1717	-424.27
144.	26/04/2007	10:14	F-3250	634410	9996402.423	320.045	42150	42149.9	42654.2	-0.2555	-19.1753	-504.33
145.	26/04/2007	10:30	F-3000	634209	9996246.94	336.669	42898.3	42860.3	42654.3	-0.2559	-19.1787	206

146.	26/04/2007	10:38	F-2750	634016	9996092.341	327.15	42488.4	42487.9	42654.9	-0.2562	-19.1821	-166.97
147.	26/04/2007	10:54	F-2500	633807	9995972.019	298.566	42498	42497.2	42656	-0.2565	-19.1849	-158.8
148.	26/04/2007	11:10	F-2250	633618	9995815.423	211.18	43421.2	43420.5	42658.4	-0.2567	-19.1884	762.13
149.	26/04/2007	11:29	F-2000	633416	9995675.088	220.432	43184.3	43184.3	42658.7	-0.2571	-19.1915	525.6
150.	26/04/2007	11:41	F-1750	633223	9995520.19	193.284	42563.4	42562.3	42659.7	-0.2574	-19.1949	-97.367
151.	26/04/2007	11:52	F-1500	633017	9995380.428	200.153	42691	42691	42660	-0.2577	-19.198	31
152.	26/04/2007	13:45	F-5250	636031	9997572.824	216.249	42656.7	42628.7	42653.1	-0.2526	-19.1495	-24.4
153.	26/04/2007	13:57	F-5500	636234	9997730.271	252.966	42682.4	42681.2	42651.8	-0.2523	-19.146	29.4
154.	26/04/2007	14:09	F-5750	636434	9997885.876	269.428	42758.7	42757.9	42650.9	-0.252	-19.1425	107
155.	26/04/2007	14:24	F-6000	636635	9998042.059	297.677	42736.4	42735.2	42649.8	-0.2517	-19.1391	85.4
156.	26/04/2007	15:03	F-6250	636857	9998214.873	247.217	42851.5	42843.5	42650.5	-0.2512	-19.1353	193
157.	26/04/2007	15:42	F-6500	637059	9998371.102	281.208	42859.8	42859.4	42649.2	-0.2509	-19.1318	210.2
158.	26/04/2007	15:52	F-6750	637256	9998524.731	276.094	42942.5	42942	42648.9	-0.2506	-19.1285	293.07
159.	26/04/2007	16:05	F-7000	637454	9998678.276	272.658	42876	42876	42648.5	-0.2503	-19.1251	227.5
160.	26/04/2007	16:15	F-7250	637655	9998834.564	319.196	42762.6	42752.6	42647	-0.25	-19.1216	105.6
161.	26/04/2007	16:39	F-7500	637855	9998990.387	333.22	42693.7	42693.3	42646.2	-0.2497	-19.1182	47.1
162.	26/04/2007	16:58	F-7750	638015	9999112.009	393.337	42713.6	42713.6	42644.4	-0.2495	-19.1154	69.2
163.	26/04/2007	17:26	F-8000	638222	9999272.096	444.103	42769.3	42767.7	42642.8	-0.2492	-19.1119	124.9
164.	26/04/2007	17:58	F-8250	638400	9999412.703	474.58	42730.9	42730.9	42641.7	-0.2489	-19.1088	89.2
165.	28/04/2007	09:53	A-4250	632353	10000863.73	358.668	42749.4	42749.4	42646.4	-0.2585	-19.1207	103
166.	28/04/2007	10:35	A-4000	632150	10000698.78	434.278	42773.2	42771.9	42644.2	-0.2589	-19.1175	127.67
167.	28/04/2007	11:03	A-3750	631950	10000543.83	455.859	42793.3	42790.9	42643.3	-0.2592	-19.1145	147.6
168.	28/04/2007	12:20	A-3500	631841	10000322.62	350.129	42784.5	42784.5	42645.2	-0.2593	-19.1102	139.3
169.	28/04/2007	12:32	A-3250	631634	10000167.38	350.054	42711.5	42711.5	42644.8	-0.2596	-19.1072	66.7
170.	28/04/2007	12:44	A-3000	631410	9999997.118	330.863	42164.1	42164.1	42644.9	-0.2599	-19.104	-480.8

171.	28/04/2007	13:05	A-2750	631209	9999842.526	320.814	42299.8	42293.1	42645.6	-0.2602	-19.1075	-352.47
172.	28/04/2007	13:21	A-2500	631010	9999686.474	302.335	42070.7	42070.7	42646.5	-0.2605	-19.1109	-575.8
173.	28/04/2007	13:32	A-2250	630806	9999528.742	296.189	42472.6	42465.7	42647.1	-0.2609	-19.1144	-181.43
174.	28/04/2007	13:45	A-2000	630595	9999381.018	297.078	42248.4	42274.4	42647.5	-0.2612	-19.1177	-373.1
175.	28/04/2007	14:00	A-1750	630391	9999224.418	301.498	42563.2	42589.2	42647.9	-0.2616	-19.1211	-58.7
176.	28/04/2007	14:14	A-1500	630191	9999069.09	307.455	42308.5	42308	42648.2	-0.2619	-19.1246	-340.17
177.	28/04/2007	14:26	A-1250	629992	9998913.932	302.587	42735.6	42735.6	42648.7	-0.2623	-19.128	86.9
178.	28/04/2007	14:56	A-1000	629782	9998752.887	306.905	42407.3	42404.6	42649.1	-0.2626	-19.1315	-244.47
179.	29/04/2007	09:50	A-8250	635583	10003265.91	259.384	42637.9	42636.6	42654.4	-0.2535	-19.1663	-17.833
180.	29/04/2007	08:12	A-8000	635389	10003127.55	296.952	43089.9	43089.9	42653.2	-0.2538	-19.1636	436.7
181.	29/04/2007	08:34	A-7750	635184	10002970.44	355.15	42720.2	42720.2	42651.5	-0.2542	-19.1606	68.7
182.	29/04/2007	08:45	A-7500	634982	10002820.65	359.475	42793.5	42783.5	42651	-0.2545	-19.1577	132.5
183.	29/04/2007	08:57	A-7250	634786	10002668.79	313.685	42854.5	42854.5	42651.7	-0.2548	-19.1549	202.8
184.	29/04/2007	09:11	A-7000	634587	10002509.17	295.402	42865.8	42865.8	42651.7	-0.255	-19.1518	214.1
185.	29/04/2007	09:28	A-6750	634386	10002352.17	275.667	42795.7	42795.7	42651.8	-0.2553	-19.1488	143.9
186.	29/04/2007	09:40	A-6500	634179	10002200.81	246.45	42813.7	42813.7	42652.1	-0.2556	-19.146	161.6
187.	29/04/2007	09:58	A-6250	633970	10002061.44	251.855	42731.4	42731.1	42651.7	-0.2559	-19.1433	79.433
188.	29/04/2007	10:17	A-6000	633763	10001920.22	287.313	42643.2	42639.7	42650.5	-0.2563	-19.1406	-10.767
189.	29/04/2007	10:31	A-5750	633561	10001768.3	290.282	42784.1	42784.1	42650.1	-0.2566	-19.1377	134
190.	29/04/2007	10:43	A-5500	633351	10001620.77	295.355	42787.1	42787.1	42649.6	-0.2569	-19.1349	137.5
191.	29/04/2007	10:58	A-5250	633141	10001470.46	317.942	42792.2	42791.4	42648.7	-0.2573	-19.132	142.7
192.	29/04/2007	11:56	A-5000	632951	10001326.79	331.9	42787.3	42786	42648.1	-0.2576	-19.1293	137.87
193.	29/04/2007	12:16	A-4750	632747	10001176.6	388.285	42691.9	42688.2	42646.4	-0.258	-19.1264	41.767
194.	29/04/2007	12:31	A-4500	632552	10001023.25	393.938	42763.3	42763.3	42645.9	-0.2583	-19.1234	117.4

Keterangan:

Date = waktu pengukuran

Time = jam pengukuran

Easting = koordinat *x* UTM

Northing = koordinat *y* UTM

Reading = pembacaan alat (medan magnetik total)

DC = koreksi variasi harian (*Diurnal Correction*)

IGRF = koreksi medan magnet utama bumi (*International Geomagnetism Reference Field*)

Declination = sudut antara utara magnetik dan utara geografis

Inclination = sudut antara utara magnetik dan vektor medan magnet

AMT = anomali magnetik total

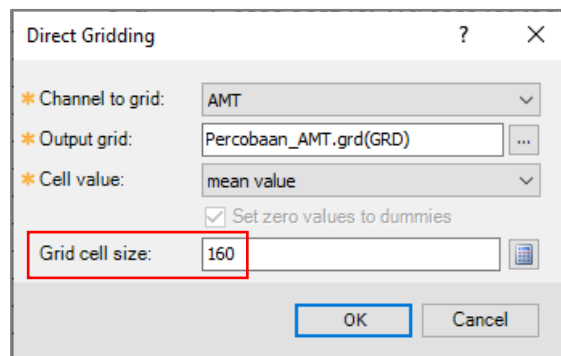
Lampiran 5. Pengolahan Data Anomali Magnet Total

Berikut ini cara pengolahan data anomali magnetik total berdasarkan dari diagram alir penelitian:

1. Membuka *software Oasis Montaj* \Rightarrow *Create New Project* \Rightarrow masukkan nama *file* \Rightarrow *Save*.
2. Mengklik *Database* \Rightarrow *Import* \Rightarrow *Excel Spreadsheet* \Rightarrow *Single Sheet* \Rightarrow masukkan nama *database* baru \Rightarrow *OK*. Setelah itu akan muncul *window Import Excel Spreadsheet* \Rightarrow *File to Import* \Rightarrow masukkan data geomagnet (**excel 97-2003*) \Rightarrow *Selection* \Rightarrow *Selected Sheet & Columns* \Rightarrow *OK*.
3. Pada *window Import Database* \Rightarrow *Data Table* \Rightarrow pilih data geomagnet seperti pada **Lampiran 4** \Rightarrow *OK*.
4. Untu mengatur koordinat pada *software* klik *Coordinates* \Rightarrow *Set Current X, Y, Z Coordinates*. Pada *window Set Current X,Y Channels* \Rightarrow *Current X (Easting)* \Rightarrow *Easting* \Rightarrow *Current Y (Northing)* \Rightarrow *Northing* \Rightarrow *Current Z (Elevation)* \Rightarrow *OK*.
5. Mengklik kembali *Coordinates* \Rightarrow *Coordinates System*. Pada *window Georeference Database Channels* \Rightarrow *Coordinate System* \Rightarrow atur koordinat sesuai dengan lokasi penelitian \Rightarrow *OK*.
 - *Coordinate System* : *Projected (x,y)*
 - *Projection Method* : *UTM Zone 47S*
 - *Datum* : *WGS 84*

Gridding

6. Untuk mengetahui *Grid Cell Size* yang akan dimasukkan, terlebih dahulu mengklik *Grid and Image* \Rightarrow *Gridding* \Rightarrow *Direct Gridding* \Rightarrow *Channel to Grid* \Rightarrow *AMT* \Rightarrow *Cell Value* \Rightarrow *Mean Value* \Rightarrow klik tools *Calculator*, maka nilai *Grid Cell Size* akan ditampilkan secara otomatis \Rightarrow 160 \Rightarrow *close window*.



Gambar 5.6 Nilai *Grid Cell Size* yang ditampilkan secara otomatis dalam software *Oasis Montaj*

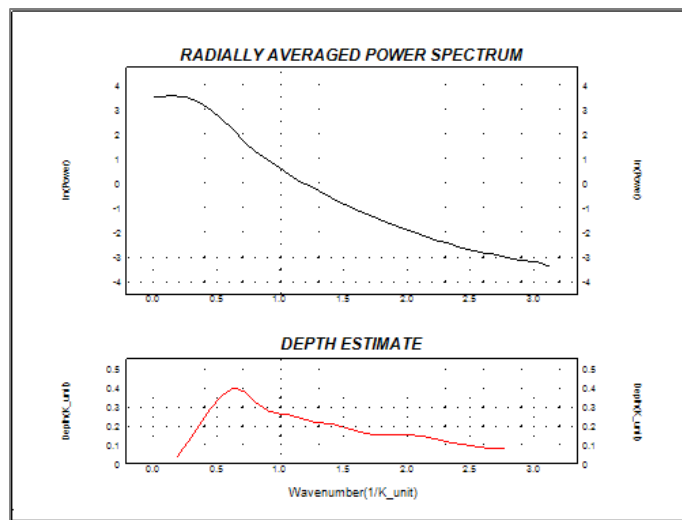
7. Mengklik kembali *Grid and Image* \Rightarrow *Gridding*. Pada window *Minimum Curvature Gridding* atur *channel* yang akan digrid \Rightarrow *OK*.
 - *Channel to Grid* : *AMT*
 - *Output Grid* : *AMT*
 - *Grid Cell Size* : 160

Catatan: lakukan proses *gridding* ini untuk *channel* yang lain seperti Medan Magnet Total (*Reading*), Elevasi, Koreksi Harian, dan Koreksi IGRF.

Pemisahan Anomali

8. Mengklik *GX* \Rightarrow *Load Menu* \Rightarrow ketik *magmap* pada *File Name* \Rightarrow *Open*.

9. Mengklik *MAGMAP* \Rightarrow *Step-By-Step Filtering* \Rightarrow *Prepare Grid* \Rightarrow atur *FFT2 Grid Pre-Processing* \Rightarrow *Start*.
 - *Name of Input (Original)* : *AMT.grd(GRD)*
 - *Name of Input (Pre-Processed)* : *Pre-AMT*
10. Mengklik *MAGMAP* \Rightarrow *Step-By-Step Filtering* \Rightarrow *Forward FFT*. Pada *window FFT2IN* \Rightarrow *Name of Input Pre-Processed Grid File* \Rightarrow *Pre-AMT.grd (GRD)* \Rightarrow *OK*.
11. Mengklik *MAGMAP* \Rightarrow *Interactive Filtering* \Rightarrow *Radial Average Spectrum*. Pada *window FFT2RSPC* \Rightarrow *Name of Output Spectrum File* \Rightarrow *RA-Spectrum* \Rightarrow *OK*.
12. Mengklik *MAGMAP* \Rightarrow *Spectrum Calculation and Display* \Rightarrow *Radial Average Spectrum* \Rightarrow *OK*. Maka grafik *RA-Spectrum* dan *Depth Estimate* akan ditampilkan pada *database*.

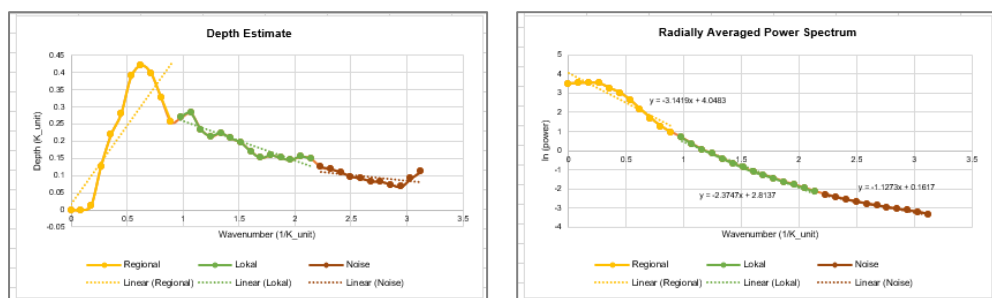


Gambar 5.7 Tampilan grafik *RA-Spectrum* dan *Depth Estimate*

13. Membuka *Microsoft Excel* \Rightarrow *File* \Rightarrow *Open* \Rightarrow *Browse* \Rightarrow atur kolom menjadi *All Files* \Rightarrow masukkan *file RA-Spectrum (*PKCS #7 Certificates)* \Rightarrow *Open*.

Pada *window Text Import Wizard* \Rightarrow pilih *Fixed Width* \Rightarrow *Next* \Rightarrow *Next* \Rightarrow *Finish*.

14. Untuk membuat grafik *RA-Spectrum* dalam *Microsoft Excel*, plot data *CYC/K_unit* sebagai sumbu *x* dan data *Ln-P* sebagai sumbu *y* \Rightarrow *Insert* \Rightarrow *toolbox Charts* \Rightarrow *Scatter* \Rightarrow *Scatter with Smooth Lines and Markers*.
15. Untuk membuat grafi *Depth Estimate* dalam *Microsoft Excel*, plot data *CYC/K_unit* sebagai sumbu *x* dan data *3_DEPTH* sebagai sumbu *y* \Rightarrow *Insert* \Rightarrow *toolbox Charts* \Rightarrow *Scatter* \Rightarrow *Scatter with Smooth Lines and Markers*.
16. Untuk memudahkan dalam proses pemisahan anomali dalam *software Oasis Montaj*, maka perlu dilakukan indikasi awal untuk menentukan anomali. Dari grafik dapat diindikasikan bahwa anomali regional terlihat curam, anomali lokal terlihat landai, dan selebihnya diindikasikan sebagai *noise* (anomali di permukaan).



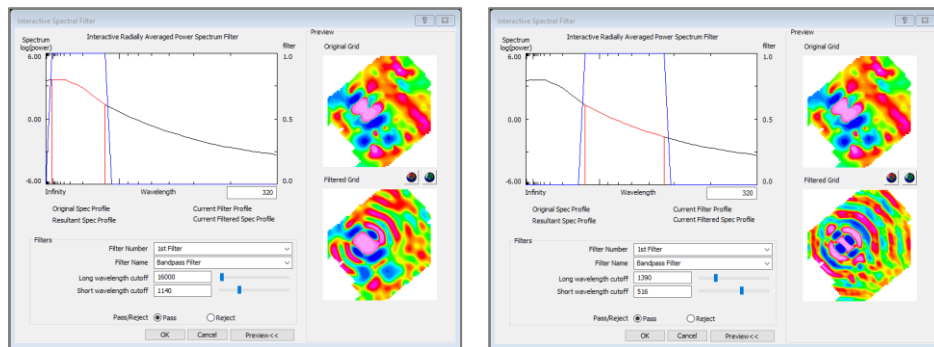
Gambar 5.8 Hasil indikasi awal anomali dari grafik *RA-Spectrum* dan *Depth Estimate*

17. Untuk mengetahui kedalaman tiap anomali, maka dapat dihitung menggunakan Persamaan (2.9).
18. Pada *software Oasis Montaj* \Rightarrow klik *MAGMAP* \Rightarrow *Interactive Filtering* \Rightarrow *Interactive Spectrum Filters* \Rightarrow *OK*. Pada *window Interactive Spectral Filter*

⇒ *Preview* ⇒ *Filter Name* ⇒ *Bandpass Filter* ⇒ atur batas anomali regional (sesuaikan dengan grafik indikasi anomali dalam *Microsoft Excel*) ⇒ *OK*.

19. *MAGMAP* ⇒ *Interactive Filtering* ⇒ *Apply Filter*. Pada window *FFT2FLT* ⇒ *Name of Output Grid File* ⇒ *Anomali Regional* ⇒ *OK*.

20. Mengulangi langkah 18 dan 19 untuk memisahkan anomali lokal, sedangkan *noise* tidak perlu dilakukan pemisahan anomali karena sudah terpisah secara otomatis apabila menggunakan *Bandpass Filter*.



Gambar 5.9 Proses pemisahan anomali menggunakan *Bandpass Filter*

Upward Continuation

21. Mengklik *MAGMAP* ⇒ *MAGMAP 1-Step Filtering*. Pada window *MAGMAP Processing* masukkan data yang akan dilakukan proses *Upward Continuation*, dalam penelitian ini yang menjadi data *input* adalah anomali lokal.

- *Name of Input (Original)* : *Anomali Lokal.grd(GRD)*
- *Name of Output (Processed)* : *Upward Continuation*
- *Name of Filter Control* : *magmap.con*

22. Mengklik *Filter* \Rightarrow pada *window MAGMAP Filter Design* \Rightarrow *Filter 1* \Rightarrow *Upward Continuation* \Rightarrow *Distance to Upward Continue* \Rightarrow 190 (sesuaikan dengan ketinggian pengangkatan awal) \Rightarrow *OK* \Rightarrow *OK*.
23. Mengulangi langkah 22 sampai mendapatkan ketinggian pengangkatan sesuai perkiraan dan menghasilkan kontur anomali yang lebih *smooth*.

Reduce to Magnetic Equator

24. Mengklik *MAGMAP* \Rightarrow *MAGMAP 1-Step Filtering*. Pada *window MAGMAP Processing* masukkan data yang akan dilakukan proses *Reduction to Magnetic Equator*.

- *Name of Input (Original)* : *Upward Continuation.grd(GRD)*
- *Name of Output (Processed)* : *RTE*
- *Name of Filter Control* : *magmap.con*

25. Mengklik *Filter* \Rightarrow pada *window MAGMAP Filter Design* \Rightarrow *Filter 1* \Rightarrow *Reduce to Magnetic Equator* \Rightarrow masukkan data yang akan difilter. Data yang dimasukkan cukup pada stasiun-1 \Rightarrow *OK* \Rightarrow *OK*.

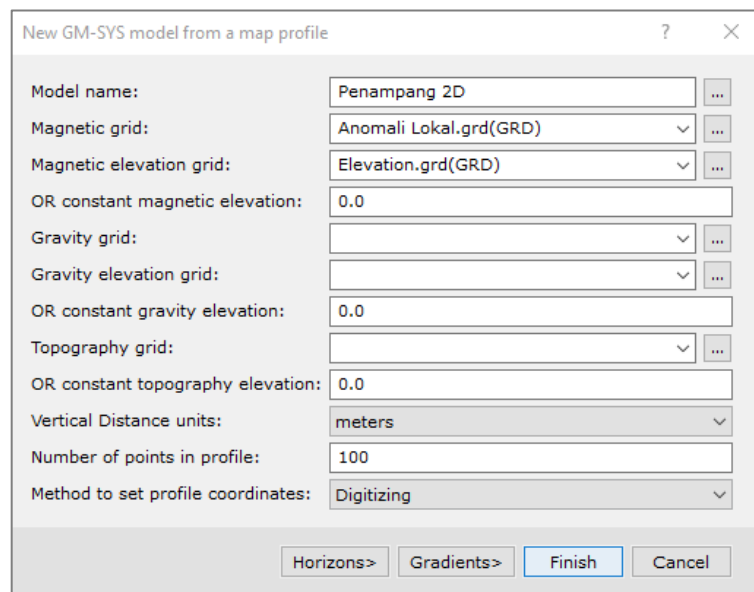
- *IGRF* : 2007/04/16
- *Inclination* : -19.1417°
- *Declination* : -0.2514°
- *Amplitude Correction Inclination* : -70.8583° (Persamaan 2.11)

Slicing

26. Mengklik *GX* \Rightarrow *Load Menu* \Rightarrow ketik *GM-SYS* pada *File Name* \Rightarrow *Open*.

27. *GM-SYS* \Rightarrow *New Model* \Rightarrow *From Map Profile* \Rightarrow masukkan data yang akan dislice pada *window New GM-SYS Model From a Map Profile* \Rightarrow *Finish*.

- *Model Name* : Penampang 2D
- *Magnetic Grid* : *Anomali Lokal.grd(GRD)*
- *Magnetic Elevation Grid* : *Elevation.grd(GRD)*

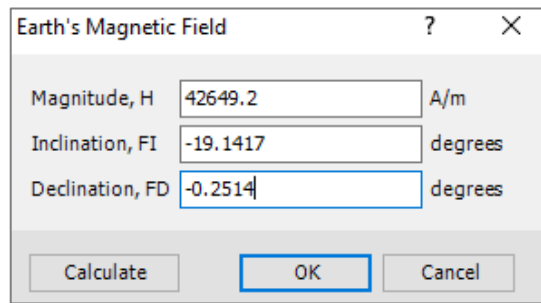


Gambar 5.10 Tampilan *window New GYM-SYS Model From a Map Profile*

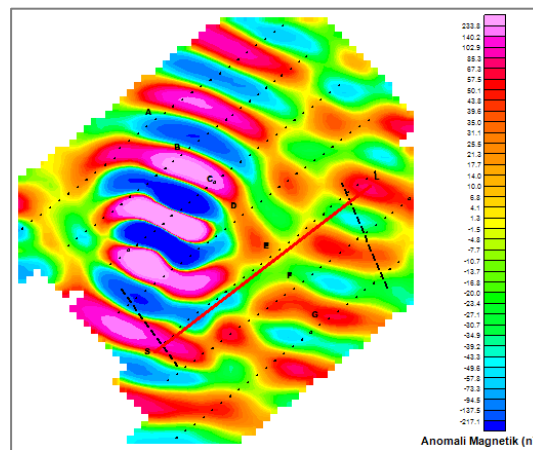
28. Menarik garis *slicing* \Rightarrow klik kiri pada awal dan akhir penarikan garis \Rightarrow klik kanan *done*.

29. Masukkan nilai IGRF, Inklinasi, dan Deklinasi pada *window Earth's Magnetic Field* \Rightarrow *OK*. Disini medan magnet bumi atau IGRF tidak perlu dikalkulasi lagi, karena nilai yang terbaru sudah didapatkan dari *website* resmi NOAA (**Lampiran 3**).

- *Magnitude, H* : 42649.2 A/m
- *Inclination, FI* : -19.1417°
- *Declination, FD* : -0.2514°



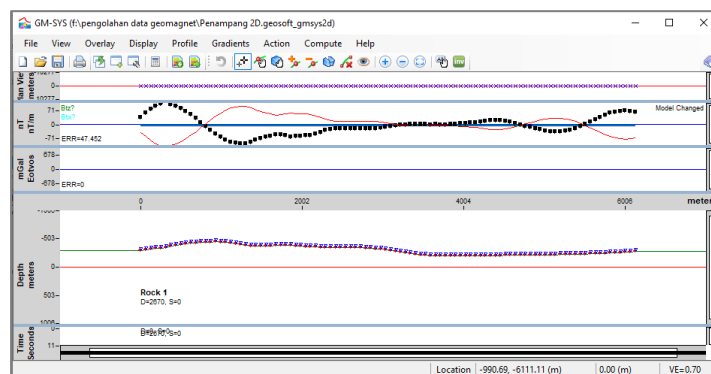
Gambar 5.11 Tampilan window *Earth's Magnetic Field*



Gambar 5.12 Tampilan hasil *slicing RTE*

Pemodelan 2D (*Forward Modelling*)

30. Setelah itu, akan muncul tampilan awal penampang 2D di bawah permukaan.



Gambar 5.13 Tampilan awal penampang 2D di bawah permukaan

31. Pada *window GM-SYS Model 2D* \Rightarrow *File* \Rightarrow *Preferences* \Rightarrow *Anomalies* \Rightarrow

Uncheck beberapa *display* data yang tidak diinginkan \Rightarrow *OK*.

- *Gravity* : [] *Obs.* [] *Calc.*
- *Gzx* : [] *Obs.* [] *Calc.*
- *Gzy* : [] *Obs.* [] *Calc.*
- *Gzz* : [] *Obs.* [] *Calc.*
- *Gxx* : [] *Obs.* [] *Calc.*
- *Gxy* : [] *Obs.* [] *Calc.*
- *Magnetics* : [✓] *Obs.* [✓] *Calc.*
- *Btz* : [] *Obs.* [] *Calc.*
- *Btx* : [] *Obs.* [] *Calc.*

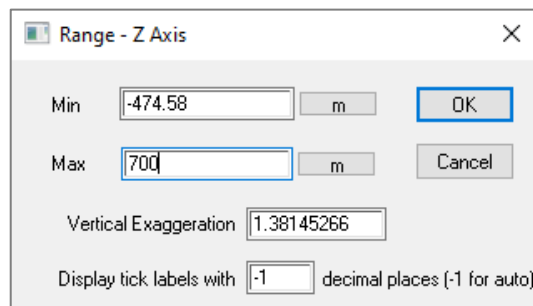
32. Mengklik kanan pada *Depth* yang berada di samping kiri bentuk model *Change Range*. Pada *window Range – Z Axis* masukkan nilai *min* dan *max* kedalaman, dalam hal ini dimasukkan nilai topografi (di atas garis merah/mdpl) sebagai nilai *min* serta kedalaman di bawah permukaan (di bawah garis merah/mdpl) sebagai nilai *max* \Rightarrow *OK*.

- Untuk kedalaman topografi dapat dilihat dari nilai maksimum elevasi
(**Lampiran 4**)
- Untuk kedalaman di bawah permukaan dapat dilihat dari nilai kedalaman anomali (**Tabel 4.2**)

Karena nilai maksimum elevasi dalam penelitian adalah 474.58 m di Stasiun F-8250. Sedangkan nilai maksimum kedalaman anomali adalah 250.024 m,

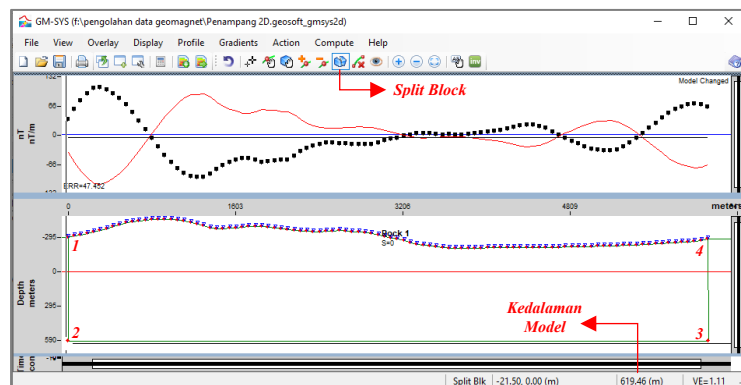
kemudian nilai ini dijumlahkan dengan nilai maksimum elevasi. Maka nilai kedalaman pada *window Range – Z Axis*:

- *Min* : -474.58 m
- *Max* : 700 m (dibulatkan ke bawah)



Gambar 5.14 Tampilan *window Range – Z Axis*

33. Membuat batas kedalaman dengan menarik garis hingga membentuk persegi dengan cara klik *Split Block* \Rightarrow klik kiri pada keempat ujung model \Rightarrow pada titik terakhir klik kanan \Rightarrow *Accept New Block*.

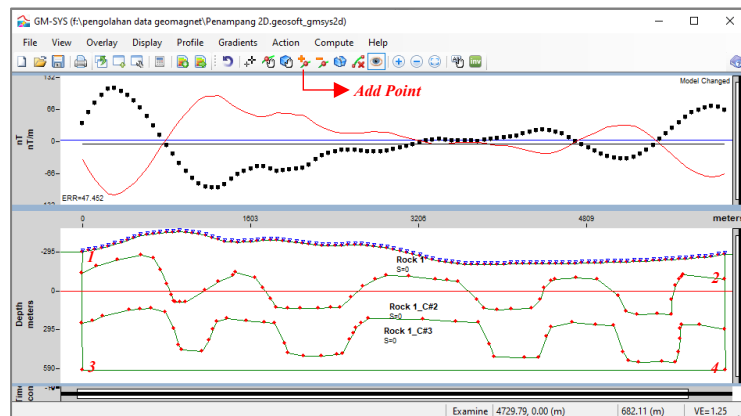


Gambar 5.15 Proses pembuatan batas kedalaman model

Catatan: nilai kedalaman yang dibuat adalah sekitar 600 m (sesuai dengan perkiraan nilai kedalaman model, yang terpenting nilai kedalaman

ini melewati batas kedalaman maksimum anomali). Perhatikan bagian bawah bentuk model untuk melihat perkiraan nilai kedalaman yang dihasilkan.

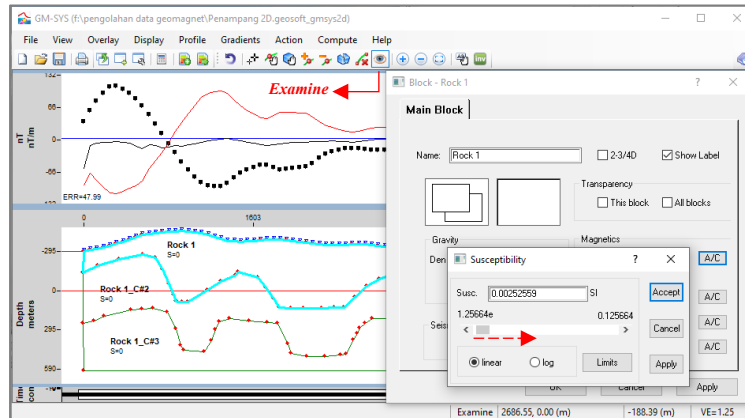
34. Mengklik *Add Point* \Rightarrow klik kiri pada keempat ujung model \Rightarrow buat garis model dari titik 1 ke titik 2 \Rightarrow pada titik terakhir klik kanan *Accept New Block*.



Gambar 5.16 Pembuatan bentuk model

Catatan: lakukan langkah 34 untuk membuat garis model kedua yang diambil dari titik 3 ke titik 4.

35. Mengatur nilai suseptibilitas ketiga lapisan dengan cara klik *Examine* \Rightarrow klik kiri salah satu lapisan \Rightarrow *Magnetics* \Rightarrow A/C. pada *window Susceptibility* \Rightarrow geser ke kanan pengaturan suseptibilitas sesuai perkiraan \Rightarrow *Accept* \Rightarrow *OK*.



Gambar 5.17 Pengaturan nilai suseptibilitas awal

Catatan: pengaturan nilai suseptibilitas awal ini hanya untuk memberikan perubahan nilai suseptibilitas pada tiap lapisan (abaikan nilai *magnetic error* yang terbentuk). Lakukan langkah 35 untuk lapisan kedua dan ketiga.

36. Mengatur bentuk model dengan menggeser titik-titik pada garis model tiap lapisan untuk meminimalkan *magnetic error* yang dihasilkan dengan cara klik *Move Point* geser titik yang diinginkan.
37. Membuat formasi batuan sesuai dengan dengan geologi regional daerah penelitian, atur nilai suseptibilitas serta jenis batuan atau lapisan.

Lampiran 6. Pembuatan Peta Kontur

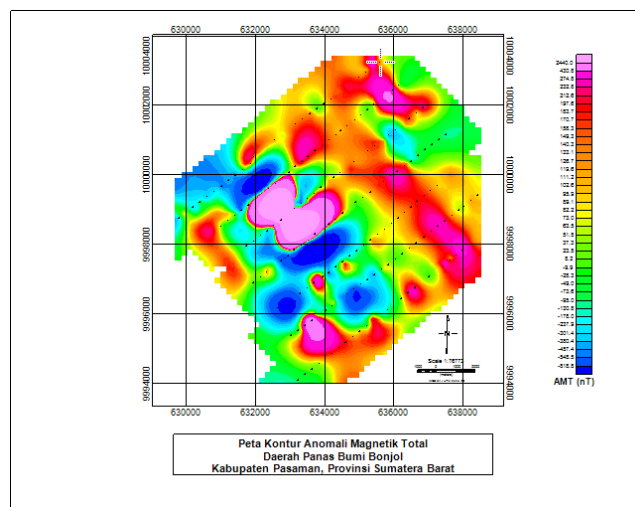
Oasis Montaj

Berikut ini cara membuat peta kontur anomali dalam 2D menggunakan *software Oasis Montaj*:

1. Mengklik *Map Tools* \Rightarrow *New Map* \Rightarrow *New Map From X,Y* \Rightarrow *Next*. Pada *window Create a New Map* masukkan data yang akan dibuat peta kontur anomali \Rightarrow *Finish*.
 - *Map Name* : Peta Kontur AMT
 - *Map Template* : *Landscape Letter*
2. Mengklik *Map Tools* \Rightarrow *Base Map* \Rightarrow *Draw Base Map*. Pada *window Basemap Layout* \Rightarrow *Map Style* \Rightarrow *Map* \Rightarrow *Next* \Rightarrow *Next*. Pada *window Map Title Block* masukkan keterangan gambar peta kontur \Rightarrow *Finish*.
 - *Map Title* : Peta Kontur Anomali Magnetik Total
 - *Sub-Title* : Daerah Panas Bumi Bonjol
 - *Sub-Title* : Kabupaten Pasaman, Provinsi Sumatera Barat
3. Mengklik *Map Tools* \Rightarrow *Gridding and Image Display* \Rightarrow *Single Grid*. Pada *window Display Grid* \Rightarrow *Grid Name* \Rightarrow *AMT.grd(GRD)* \Rightarrow centang *Add Colour Bar* \Rightarrow *Current Map*. Pada *window Colour Legend Bar* \Rightarrow *Title* \Rightarrow *AMT (nT)* \Rightarrow *Locate* \Rightarrow klik kiri di tengah *Base Map* \Rightarrow *OK*.
4. Mengklik *Map Tools* \Rightarrow *Symbol* \Rightarrow *Location Plot*. Pada *window Symbol Plot* masukkan simbol dari *channel* peta kontur anomali \Rightarrow *OK*.
 - *Mask Channel* : *AMT*

- *Symbol* : *Dot*
- *Size (mm)* : *5*
- *Weight* : *Light*

5. Mengatur posisi *Colour Bar*, *Map Title*, *Scale Bar*, dan *North Arrow* agar terlihat rapi.



Gambar 5.18 Tampilan peta kontur AMT

Catatan: lakukan langkah-langkah di atas untuk membuat peta kontur topografi dan peta kontur anomali lainnya.

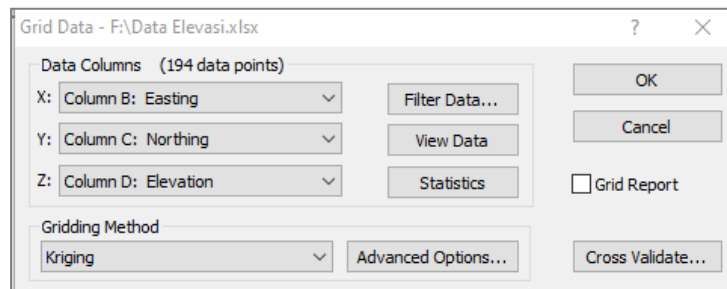
Surfer

Berikut ini cara membuat peta kontur topografi dalam 3D menggunakan *software Surfer*:

1. Membuka *software Surfer* \Rightarrow *New Plot* (atau tekan *ctrl + N*) \Rightarrow *Grid* \Rightarrow *Data* \Rightarrow pilih *file* data elevasi pengukuran (*excel*) \Rightarrow *Open* \Rightarrow atur *data columns* \Rightarrow OK \Rightarrow *Save* (*.grd).

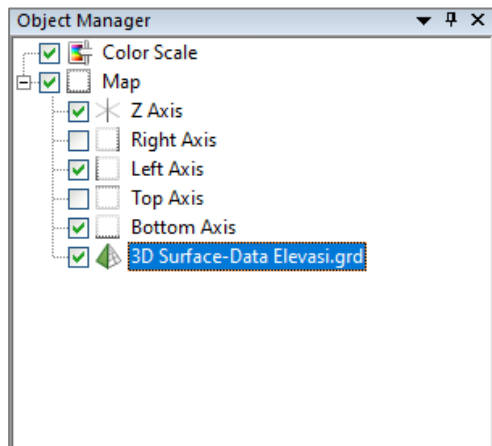
	A	B	C	D	E	F	G	H
1	Station	Easting	Northing	Elevation				
2	A 1000	629782	9998753	306.905				
3	A 1250	629992	9998914	302.587				
4	A 1500	630191	9999069	307.455				
5	A 1750	630391	9999224	301.498				
6	A 2000	630595	9999381	297.078				
7	A 2250	630806	9999529	296.189				
8	A 2500	631010	9999686	302.335				
9	A 2750	631209	9999843	320.814				
10	A 3000	631410	9999997	330.863				

Gambar 5.19 Data elevasi pengukuran (*excel*)

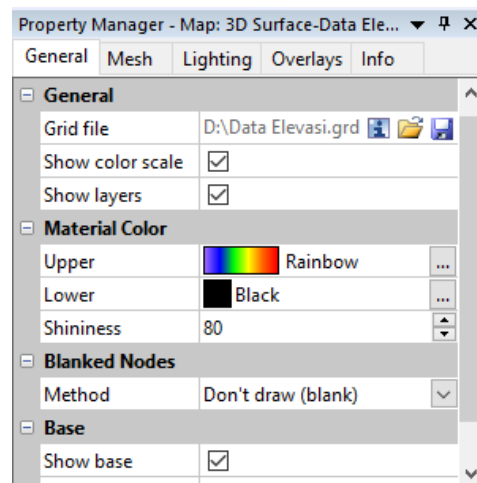


Gambar 5.20 Pengaturan *Data Columns*

2. Mengklik *Map* \Rightarrow *New* \Rightarrow *3D Surface* \Rightarrow pilih file Data Elevasi (*.grd) \Rightarrow *Open*.
3. Pada window *Object Manager* \Rightarrow pilih *3D Surface-Data Elevasi.grd* \Rightarrow atur *Property Manager*.
 - *General* \Rightarrow centang *Show Color Scale*.
 - *Material Colour* \Rightarrow *Upper* \Rightarrow pilih warna *Rainbow*.
 - *Base* \Rightarrow *Show Base*.

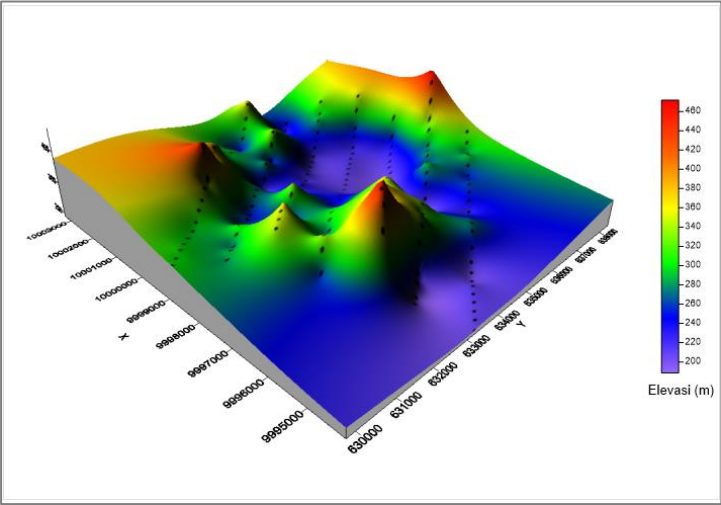


Gambar 5.21 *Window Object Manager*



Gambar 5.22 *Window Property Manager*

4. Untuk menambahkan titik pengukuran, klik *Map* \Rightarrow *Post Map* \Rightarrow pilih file data elevasi pengukuran (*excel*) \Rightarrow *Open* \Rightarrow pada *window Object Manager* \Rightarrow *Post-Data Elevasi.xlsx* \Rightarrow atur *Property Manager*.
 - *General* \Rightarrow *Worksheet Columns* \Rightarrow masukkan *X coordinates* untuk *easting* dan *Y coordinates* untuk *northing*
 - *Symbol* \Rightarrow pilih *symbol 12 (circle)* \Rightarrow atur *symbol size 0.04 in*



Gambar 5.23 Tampilan peta kontur topografi 3D