Week Five Problem Set

The problem set for this week is developed around data from the Russian Vostok Station in East Antarctica. Samples of atmospheric gasses were taken from increasing depths within the ice, and the mean age of the samples were taken as well as CO2 concentration. The data are recorded below.

Your assignment is to develop scatter graphs that relate age of ice as a function of depth, and CO2 concentration as a function of the mean age of the air. The data represents time as yr BP, or years before the present time. Make your graph represent those years extend from 450000 years ago until the present time. Develop some type of analytical statement concerning these sample sets.

Added credit – make these line graphs as well as scatter graphs.

Here is some information about this data as well as ice core sampling: <http://cdiac.ornl.gov/trends/co2/vostok.html> and [https://en.wikipedia.org/wiki/Ice\_core#Vostok](https://en.wikipedia.org/wiki/Ice_core%23Vostok)

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\*\*\* Historical CO2 Record from the Vostok Ice Core \*\*\*

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\*\*\* January 2003 \*\*\*

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Mean

Age of age of CO2

Depth the ice the air concentration

(m) (yr BP) (yr BP) (ppmv)

149.1 5679 2342 284.7

173.1 6828 3634 272.8

177.4 7043 3833 268.1

228.6 9523 6220 262.2

250.3 10579 7327 254.6

266 11334 8113 259.6

302.6 13449 10123 261.6

321.2 14538 11013 263.7

331.6 15208 11326 244.8

342.1 15922 11719 238.3

365.5 17747 13405 236.2

375.6 18580 13989 225.3

443.5 24315 17695 182.2

470.8 26578 19988 189.2

506.4 29630 22977 191.6

544.7 32844 26303 188.5

554.2 33645 27062 191.7

602.3 37421 31447 205.4

625.6 39310 33884 209.1

700.2 45242 39880 209.1

765 50610 44766 189.3

788.2 52446 47024 188.4

800 53436 48229 210.1

812.2 54474 49414 215.7

834.8 56300 51174 190.4

902.2 61783 57068 221.8

912 62689 57799 210.4

986.2 69618 63687 195.4

1011.3 71767 65701 191.4

1023.5 72797 66883 195

1087.2 78042 72849 227.4

1112.5 80057 75360 229.2

1162.1 83615 78995 217.1

1175 84515 80059 221.8

1209.9 86840 82858 231

1237.2 88808 84929 241.1

1251.5 89864 85727 236.4

1261.2 90609 86323 228.1

1274.2 91560 87180 214.2

1289.2 92632 88051 217

1309.2 94039 89363 208

1338.2 96047 91691 224.3

1349 96791 92460 228.4

1387.2 99498 95349 232.1

1451.5 103733 99842 225.9

1463.2 104566 100833 230.9

1476.1 105492 101829 236.9

1505 107599 103372 228.2

1526.3 109404 105213 236.9

1542.1 110674 106203 230.7

1575.2 113363 108308 238.2

1582.8 113952 108994 245.7

1598 115077 110253 251.3

1615 116228 111456 256.8

1627.9 117072 112577 266.3

1637.6 117671 113472 261.4

1644 118074 114082 274.6

1651 118499 114738 273.3

1669.2 119601 116175 262.5

1687.2 120680 117519 267.6

1700.9 121485 118396 273.8

1716 122345 119273 272

1726.8 122965 120002 265.2

1736.8 123535 120652 277.7

1758.2 124721 121961 272.2

1770 125380 122606 276.5

1789.2 126447 123815 268.7

1790 126491 123858 266.6

1799 126955 124306 266.3

1804 127210 124571 279.8

1807 127360 124723 273

1810 127510 124876 277.2

1825.7 128293 125746 273.8

1830 128501 126023 267.1

1836 128804 126475 262.5

1841.6 129097 126809 262.6

1852.4 129674 127445 275.4

1859 130026 127808 275.6

1869.3 130599 128300 274.1

1870.2 130653 128399 287.1

1875.9 130998 128652 286.8

1882.5 131406 129007 282.7

1890 131908 129411 264.1

1895 132264 129755 263.4

1902 132763 130106 257.9

1903.5 132873 130167 259

1919 134091 130992 264.6

1930 135107 131661 245

1932 135308 131789 240.4

1936 135702 132067 228.9

1947 136819 132818 223.5

1954.5 137601 133334 224

1955 137651 133366 220.3

1960 138193 133636 210.6

1969.8 139285 134205 208.9

1972 139530 134362 203.7

1980.2 140452 135003 204.6

1982 140655 135172 200.4

1983 140766 135271 198

1987.4 141257 135683 198.1

1990.6 141615 135976 201.8

1992 141773 136099 200.7

1994.6 142064 136359 202.5

1998 142440 136659 195.9

1999 142551 136743 201.1

2005.8 143315 137383 194.4

2009.5 143732 137694 193.4

2013 144126 137986 194.2

2015 144346 138226 190.2

2025.7 145527 139445 192.3

2029 145905 139851 196.5

2041 147236 141256 195.6

2041.5 147292 141312 196.5

2050.3 148287 142357 190.4

2077.5 151234 145435 197

2107.05 154557 149157 203

2116 155625 150303 191.9

2117 155743 150423 188.9

2131.1 157456 151854 200.6

2157 160293 154471 189

2164 161077 155299 185.5

2167.2 161451 155707 187.5

2203 165646 160494 204.4

2207.3 166193 161037 196.5

2225 168391 162996 191.6

2231.1 169094 163522 190.1

2240.1 170119 164341 186.7

2247 170922 165278 183.8

2254.1 171766 166299 196.5

2280 174920 169870 197.9

2302 177644 172596 197.8

2316.1 179474 174617 196

2325 180546 175440 190.3

2331.1 181265 176030 189.4

2333 181502 176271 190.1

2348 183525 178550 207.7

2363 185640 180779 213.2

2372 186927 181617 217.7

2379.2 187934 182447 198.1

2386 188892 183355 199.8

2399 190587 185063 203.5

2414 192382 187199 210.7

2425 193816 189335 231.4

2437 195298 191057 231.5

2442.1 195947 191592 220.3

2451 197086 192632 218

2470.3 199372 195123 226.5

2475 199904 195625 220.1

2488.1 201324 197567 226.4

2494.1 201968 198442 241.2

2499 202496 199025 242.6

2525 205458 202212 251

2533 206496 203191 239.1

2543 207803 204283 247.7

2552.01 208947 205148 244.4

2554.9 209307 205435 231.9

2557.71 209648 205715 232.2

2560.91 210053 206119 228.7

2564.9 210525 206672 226.3

2567.5 210837 207029 229.4

2570.4 211175 207412 231.4

2574.21 211628 207991 238.2

2575.5 211781 208177 237.2

2579.9 212295 208794 230

2581.9 212528 209073 240.5

2584.71 212846 209414 242.2

2588.81 213315 210022 244.6

2590.4 213500 210232 243.9

2595.11 214036 210830 247.3

2596.71 214219 211005 252

2600.4 214639 211476 246.9

2603.7 215012 211929 239.5

2606.61 215343 212281 257.4

2612.5 216014 213005 243.4

2621.71 217099 214153 251.2

2629.41 217989 215041 241.4

2634.41 218602 215593 240.3

2636.71 218908 215879 242.7

2640.41 219393 216459 247.5

2644.41 219935 217009 251.7

2646.61 220255 217271 251.2

2649.4 220680 217574 245.3

2650.41 220822 217676 245.4

2656.21 221718 218342 240.5

2666.7 223548 219679 214.1

2666.71 223548 219680 212.2

2669.4 224102 220042 216.1

2670.41 224240 220182 216.2

2674.6 224993 220758 203.7

2674.61 224993 220760 207.2

2677.41 225469 221054 208.9

2682.61 226339 221612 205.7

2691.01 227885 222958 203.4

2693.61 228349 223446 215.7

2698.01 229167 224630 236.9

2701.41 229802 225299 234.5

2702.71 230039 225509 233.1

2705.61 230547 225888 224.5

2711.71 231601 226710 232.4

2715.41 232206 227384 233.9

2717.71 232571 227840 241.7

2732.71 234795 230703 245.2

2735.71 235232 231382 252.1

2738.71 235652 231990 241.4

2741.71 236077 232570 247.4

2744.61 236467 233102 243.1

2747.61 236866 233646 239.2

2751.11 237301 234126 245.7

2753.61 237602 234470 245.9

2756.21 237889 234781 247.4

2759.11 238206 235213 252.9

2765.21 238908 236236 259.8

2768.2 239273 236851 263.2

2773.51 240006 237831 279

2776.5 240467 238199 280.3

2782.71 241535 238935 263.8

2785.51 242092 239250 252.4

2788.51 242675 239545 249.9

2791.5 243237 239866 236.7

2794.51 243813 240201 230.4

2797.51 244446 240577 219.4

2806.51 246379 242068 214.7

2815.61 248364 243653 200.2

2818.61 249046 244215 213.9

2821.51 249670 244863 195.4

2824.51 250309 245483 196.7

2827.5 250920 246090 195.4

2833.81 252279 247447 199

2836.51 252879 248087 201.9

2839.51 253559 248980 204

2845.51 254873 250461 203.9

2851.51 256182 251521 209.7

2854.4 256858 252174 205.7

2857.51 257604 252959 208.9

2860.51 258351 253880 214.7

2866.51 259882 255233 228.2

2870.51 260936 256053 199.9

2872.71 261526 256501 211.7

2876.21 262455 257247 188.7

2878.5 263067 257792 187.2

2881.42 263844 258477 194.2

2884.51 264666 259228 198.9

2887.51 265457 259958 184.7

2890.51 266255 260754 190.4

2893.51 267039 261595 193.9

2896.51 267825 262411 194.2

2899.51 268558 263207 198.4

2902.51 269307 264046 193.2

2905.51 270052 264834 202.2

2908.5 270770 265703 204.5

2911.46 271454 266492 211

2914.51 272171 267434 215.4

2919.41 273256 268679 223.7

2926.51 274802 270680 231.4

2932.5 276091 272275 228

2935.51 276731 273012 226.4

2939.3 277526 273910 231.4

2941.51 278017 274445 230.4

2944.51 278711 275218 231

2953.5 280944 277298 234.9

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2970.5 285549 281200 206.7

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2994.51 292121 287846 236.2

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3012.5 296982 293002 248.6

3015.51 297810 293676 244.9

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3057.7 309281 305304 245.2

3057.71 309281 305306 244.7

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3087.8 317108 314374 264

3090.51 317775 315143 266.2

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3096.46 319231 316681 271.9

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3105.51 321448 318980 265

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3111.51 322746 320378 272.7

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3117.51 324021 322111 282.4

3119.51 324461 322582 289.2

3120.61 324711 322827 288.4

3123.51 325400 323485 298.7

3126.51 326200 324189 278.2

3129.91 327237 324991 285.8

3132.41 328058 325527 278.7

3135.51 329135 326239 270.5

3138.51 330278 327114 255.7

3141.51 331513 328097 241.9

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3180.5 350773 346105 209.5

3183.41 352377 347610 209.2

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3264.51 398091 394628 266.3

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3273.81 403173 400390 278

3283.51 408236 405844 279.7

3289.45 411202 409022 281.2

3289.45 411202 409022 283.7

3292.91 413010 410831 276.3

3299.01 416332 414085 285.5

3301.4 417638 415434 286.9

3304.4 419328 417160 277.6