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Pima County Superior Ct. C2013-4963

#5 JTO Exemplar

[JTO-062600]

Date: Wed, 18 Jan 2006 17:55:48 +0100
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Subject: Re: [Wg1-ar4-ch06] Follow-up from Christchurch, RF for last millennium

[JTO-062601]

1240.50 -0.0165 -0.0515 -0.0963 -0.1232 -0.1476
1241.50 -0.0183 -0.0570 -0.1050 -0.1353 -0.1618
1242.50 -0.0200 -0.0625 -0.1138 -0.1473 -0.1759
1243.50 -0.0218 -0.0680 -0.1225 -0.1594 -0.1901
1244.50 -0.0235 -0.0735 -0.1313 -0.1714 -0.2043
1245.50 -0.0253 -0.0790 -0.1400 -0.1835 -0.2185
1246.50 -0.0271 -0.0845 -0.1487 -0.1956 -0.2327
1247.50 -0.0288 -0.0900 -0.1575 -0.2076 -0.2469
1248.50 -0.0306 -0.0955 -0.1663 -0.2197 -0.2611
1249.50 -0.0324 -0.1010 -0.1750 -0.2318 -0.2752
1250.50 -0.0341 -0.1065 -0.1837 -0.2438 -0.2894
1251.50 -0.0359 -0.1120 -0.1925 -0.2559 -0.3036
1252.50 -0.0376 -0.1175 -0.2012 -0.2679 -0.3178
1253.50 -0.0394 -0.1230 -0.2100 -0.2800 -0.3320
1254.50 -0.0464 -0.1447 -0.2405 -0.3283 -0.3845
1255.50 -0.0533 -0.1665 -0.2710 -0.3765 -0.4370
1256.50 -0.0603 -0.1883 -0.3015 -0.4247 -0.4895
1257.50 -0.0672 -0.2100 -0.3320 -0.4730 -0.5420
1258.50 -0.0686 -0.2142 -0.3407 -0.4815 -0.5553
1259.50 -0.0699 -0.2185 -0.3495 -0.4900 -0.5685
1260.50 -0.0713 -0.2228 -0.3583 -0.4985 -0.5817
1261.50 -0.0726 -0.2270 -0.3670 -0.5070 -0.5950
1262.50 -0.0726 -0.2270 -0.3656 -0.5056 -0.5935
1263.50 -0.0726 -0.2270 -0.3642 -0.5042 -0.5920
1264.50 -0.0726 -0.2270 -0.3628 -0.5028 -0.5905
1265.50 -0.0726 -0.2270 -0.3613 -0.5013 -0.5890
1266.50 -0.0726 -0.2270 -0.3599 -0.4999 -0.5875
1267.50 -0.0726 -0.2270 -0.3585 -0.4985 -0.5860
1268.50 -0.0726 -0.2270 -0.3571 -0.4971 -0.5845
1269.50 -0.0726 -0.2270 -0.3557 -0.4957 -0.5830
1270.50 -0.0726 -0.2270 -0.3542 -0.4942 -0.5815
1271.50 -0.0726 -0.2270 -0.3528 -0.4928 -0.5800
1272.50 -0.0726 -0.2270 -0.3514 -0.4914 -0.5785
1273.50 -0.0726 -0.2270 -0.3500 -0.4900 -0.5770

1274.50 -0.0742 -0.2320 -0.3574 -0.5000 -0.5896
1275.50 -0.0758 -0.2370 -0.3649 -0.5100 -0.6021
1276.50 -0.0774 -0.2420 -0.3723 -0.5200 -0.6147
1277.50 -0.0790 -0.2470 -0.3797 -0.5300 -0.6273
1278.50 -0.0806 -0.2520 -0.3871 -0.5400 -0.6399
1279.50 -0.0822 -0.2570 -0.3946 -0.5500 -0.6524
1280.50 -0.0838 -0.2620 -0.4020 -0.5600 -0.6650
1281.50 -0.0846 -0.2646 -0.4071 -0.5650 -0.6724
1282.50 -0.0855 -0.2671 -0.4123 -0.5700 -0.6799
1283.50 -0.0863 -0.2697 -0.4174 -0.5750 -0.6873
1284.50 -0.0871 -0.2723 -0.4226 -0.5800 -0.6947
1285.50 -0.0879 -0.2749 -0.4277 -0.5850 -0.7021
1286.50 -0.0888 -0.2774 -0.4329 -0.5900 -0.7096

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1288.50 -0.0904 -0.2826 -0.4430 -0.6026 -0.7246
1289.50 -0.0913 -0.2851 -0.4480 -0.6101 -0.7321
1290.50 -0.0921 -0.2877 -0.4530 -0.6177 -0.7397
1291.50 -0.0929 -0.2903 -0.4580 -0.6253 -0.7473
1292.50 -0.0937 -0.2929 -0.4630 -0.6329 -0.7549
1293.50 -0.0946 -0.2954 -0.4680 -0.6404 -0.7624
1294.50 -0.0954 -0.2980 -0.4730 -0.6480 -0.7700
1295.50 -0.0963 -0.3008 -0.4787 -0.6567 -0.7788
1296.50 -0.0972 -0.3037 -0.4843 -0.6653 -0.7877
1297.50 -0.0981 -0.3065 -0.4900 -0.6740 -0.7965
1298.50 -0.0990 -0.3093 -0.4957 -0.6827 -0.8053
1299.50 -0.0999 -0.3122 -0.5013 -0.6913 -0.8142
1300.50 -0.1008 -0.3150 -0.5070 -0.7000 -0.8230
1301.50 -0.1019 -0.3185 -0.5123 -0.7070 -0.8317
1302.50 -0.1030 -0.3220 -0.5176 -0.7140 -0.8404
1303.50 -0.1042 -0.3255 -0.5229 -0.7210 -0.8491
1304.50 -0.1053 -0.3290 -0.5282 -0.7280 -0.8578
1305.50 -0.1064 -0.3325 -0.5335 -0.7350 -0.8665
1306.50 -0.1075 -0.3360 -0.5388 -0.7420 -0.8752
1307.50 -0.1086 -0.3395 -0.5441 -0.7490 -0.8839
1308.50 -0.1098 -0.3430 -0.5494 -0.7560 -0.8926
1309.50 -0.1109 -0.3465 -0.5547 -0.7630 -0.9013
1310.50 -0.1120 -0.3500 -0.5600 -0.7700 -0.9100
1311.50 -0.1129 -0.3529 -0.5643 -0.7772 -0.9173
1312.50 -0.1139 -0.3558 -0.5687 -0.7845 -0.9247
1313.50 -0.1148 -0.3588 -0.5730 -0.7917 -0.9320
1314.50 -0.1157 -0.3617 -0.5773 -0.7990 -0.9393
1315.50 -0.1167 -0.3646 -0.5817 -0.8063 -0.9467
1316.50 -0.1176 -0.3675 -0.5860 -0.8135 -0.9540
1317.50 -0.1185 -0.3704 -0.5903 -0.8207 -0.9613
1318.50 -0.1195 -0.3733 -0.5947 -0.8280 -0.9687
1319.50 -0.1204 -0.3762 -0.5990 -0.8353 -0.9760
1320.50 -0.1213 -0.3792 -0.6033 -0.8425 -0.9833
1321.50 -0.1223 -0.3821 -0.6077 -0.8498 -0.9907
1322.50 -0.1232 -0.3850 -0.6120 -0.8570 -0.9980
1323.50 -0.1232 -0.3850 -0.6120 -0.8556 -0.9965
1324.50 -0.1232 -0.3850 -0.6120 -0.8542 -0.9950
1325.50 -0.1232 -0.3850 -0.6120 -0.8528 -0.9935
1326.50 -0.1232 -0.3850 -0.6120 -0.8513 -0.9920
1327.50 -0.1232 -0.3850 -0.6120 -0.8499 -0.9905
1328.50 -0.1232 -0.3850 -0.6120 -0.8485 -0.9890
1329.50 -0.1232 -0.3850 -0.6120 -0.8471 -0.9875
1330.50 -0.1232 -0.3850 -0.6120 -0.8457 -0.9860
1331.50 -0.1232 -0.3850 -0.6120 -0.8442 -0.9845
1332.50 -0.1232 -0.3850 -0.6120 -0.8428 -0.9830
1333.50 -0.1232 -0.3850 -0.6120 -0.8414 -0.9815
1334.50 -0.1232 -0.3850 -0.6120 -0.8400 -0.9800
1335.50 -0.1176 -0.3676 -0.5842 -0.8016 -0.9380
1336.50 -0.1121 -0.3502 -0.5564 -0.7632 -0.8960
1337.50 -0.1065 -0.3328 -0.5286 -0.7248 -0.8540
1338.50 -0.1010 -0.3154 -0.5008 -0.6864 -0.8120

1339.50 -0.0954 -0.2980 -0.4730 -0.6480 -0.7700
1340.50 -0.0946 -0.2954 -0.4704 -0.6454 -0.7650
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1341.50 -0.0937 -0.2929 -0.4679 -0.6429 -0.7600
1342.50 -0.0929 -0.2903 -0.4653 -0.6403 -0.7550
1343.50 -0.0921 -0.2877 -0.4627 -0.6377 -0.7500
1344.50 -0.0913 -0.2851 -0.4601 -0.6351 -0.7450
1345.50 -0.0904 -0.2826 -0.4576 -0.6326 -0.7400
1346.50 -0.0896 -0.2800 -0.4550 -0.6300 -0.7350
1347.50 -0.0890 -0.2782 -0.4497 -0.6230 -0.7280
1348.50 -0.0884 -0.2764 -0.4444 -0.6160 -0.7210
1349.50 -0.0879 -0.2746 -0.4391 -0.6090 -0.7140
1350.50 -0.0873 -0.2728 -0.4338 -0.6020 -0.7070
1351.50 -0.0867 -0.2710 -0.4285 -0.5950 -0.7000
1352.50 -0.0861 -0.2692 -0.4232 -0.5880 -0.6930
1353.50 -0.0855 -0.2674 -0.4179 -0.5810 -0.6860
1354.50 -0.0850 -0.2656 -0.4126 -0.5740 -0.6790
1355.50 -0.0844 -0.2638 -0.4073 -0.5670 -0.6720
1356.50 -0.0838 -0.2620 -0.4020 -0.5600 -0.6650
1357.50 -0.0822 -0.2569 -0.3948 -0.5497 -0.6526
1358.50 -0.0805 -0.2518 -0.3876 -0.5394 -0.6403
1359.50 -0.0789 -0.2466 -0.3805 -0.5291 -0.6279
1360.50 -0.0773 -0.2415 -0.3733 -0.5188 -0.6156
1361.50 -0.0756 -0.2364 -0.3661 -0.5085 -0.6032
1362.50 -0.0740 -0.2313 -0.3589 -0.4982 -0.5909
1363.50 -0.0724 -0.2262 -0.3518 -0.4879 -0.5785
1364.50 -0.0707 -0.2211 -0.3446 -0.4776 -0.5662
1365.50 -0.0691 -0.2159 -0.3374 -0.4674 -0.5538
1366.50 -0.0674 -0.2108 -0.3302 -0.4571 -0.5415
1367.50 -0.0658 -0.2057 -0.3231 -0.4468 -0.5291
1368.50 -0.0642 -0.2006 -0.3159 -0.4365 -0.5168
1369.50 -0.0625 -0.1955 -0.3087 -0.4262 -0.5044
1370.50 -0.0609 -0.1904 -0.3015 -0.4159 -0.4921
1371.50 -0.0593 -0.1852 -0.2944 -0.4056 -0.4797
1372.50 -0.0576 -0.1801 -0.2872 -0.3953 -0.4674
1373.50 -0.0560 -0.1750 -0.2800 -0.3850 -0.4550
1374.50 -0.0560 -0.1750 -0.2818 -0.3867 -0.4568
1375.50 -0.0560 -0.1750 -0.2836 -0.3884 -0.4586
1376.50 -0.0560 -0.1750 -0.2854 -0.3901 -0.4604
1377.50 -0.0560 -0.1750 -0.2872 -0.3918 -0.4622
1378.50 -0.0560 -0.1750 -0.2890 -0.3935 -0.4640
1379.50 -0.0560 -0.1750 -0.2908 -0.3952 -0.4658
1380.50 -0.0560 -0.1750 -0.2926 -0.3969 -0.4676
1381.50 -0.0560 -0.1750 -0.2944 -0.3986 -0.4694
1382.50 -0.0560 -0.1750 -0.2962 -0.4003 -0.4712
1383.50 -0.0560 -0.1750 -0.2980 -0.4020 -0.4730
1384.50 -0.0574 -0.1794 -0.3023 -0.4086 -0.4795
1385.50 -0.0588 -0.1837 -0.3065 -0.4153 -0.4860
1386.50 -0.0602 -0.1881 -0.3107 -0.4219 -0.4925
1387.50 -0.0616 -0.1925 -0.3150 -0.4285 -0.4990
1388.50 -0.0630 -0.1969 -0.3193 -0.4351 -0.5055
1389.50 -0.0644 -0.2012 -0.3235 -0.4418 -0.5120
1390.50 -0.0658 -0.2056 -0.3277 -0.4484 -0.5185
1391.50 -0.0672 -0.2100 -0.3320 -0.4550 -0.5250
1392.50 -0.0700 -0.2188 -0.3453 -0.4768 -0.5513
1393.50 -0.0728 -0.2275 -0.3585 -0.4985 -0.5775
1394.50 -0.0756 -0.2362 -0.3718 -0.5202 -0.6038

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1395.50 -0.0784 -0.2450 -0.3850 -0.5420 -0.6300
1396.50 -0.0840 -0.2624 -0.4164 -0.5806 -0.6790
1397.50 -0.0895 -0.2798 -0.4478 -0.6192 -0.7280
1398.50 -0.0951 -0.2972 -0.4792 -0.6578 -0.7770
1399.50 -0.1006 -0.3146 -0.5106 -0.6964 -0.8260
1400.50 -0.1062 -0.3320 -0.5420 -0.7350 -0.8750
1401.50 -0.1078 -0.3370 -0.5470 -0.7450 -0.8850
1402.50 -0.1094 -0.3420 -0.5520 -0.7550 -0.8950
1403.50 -0.1110 -0.3470 -0.5570 -0.7650 -0.9050
1404.50 -0.1126 -0.3520 -0.5620 -0.7750 -0.9150
1405.50 -0.1142 -0.3570 -0.5670 -0.7850 -0.9250
1406.50 -0.1158 -0.3620 -0.5720 -0.7950 -0.9350
1407.50 -0.1174 -0.3670 -0.5770 -0.8050 -0.9450
1408.50 -0.1182 -0.3696 -0.5846 -0.8124 -0.9550
1409.50 -0.1191 -0.3721 -0.5921 -0.8199 -0.9650
1410.50 -0.1199 -0.3747 -0.5997 -0.8273 -0.9750
1411.50 -0.1207 -0.3773 -0.6073 -0.8347 -0.9850
1412.50 -0.1215 -0.3799 -0.6149 -0.8421 -0.9950
1413.50 -0.1224 -0.3824 -0.6224 -0.8496 -1.0050
1414.50 -0.1232 -0.3850 -0.6300 -0.8570 -1.0150
1415.50 -0.1288 -0.4025 -0.6533 -0.8920 -1.0558
1416.50 -0.1344 -0.4200 -0.6767 -0.9270 -1.0967
1417.50 -0.1400 -0.4375 -0.7000 -0.9620 -1.1375
1418.50 -0.1456 -0.4550 -0.7233 -0.9970 -1.1783
1419.50 -0.1512 -0.4725 -0.7467 -1.0320 -1.2192
1420.50 -0.1568 -0.4900 -0.7700 -1.0670 -1.2600
1421.50 -0.1584 -0.4950 -0.7800 -1.0770 -1.2726
1422.50 -0.1600 -0.5000 -0.7900 -1.0870 -1.2851
1423.50 -0.1616 -0.5050 -0.8000 -1.0970 -1.2977
1424.50 -0.1632 -0.5100 -0.8100 -1.1070 -1.3103
1425.50 -0.1648 -0.5150 -0.8200 -1.1170 -1.3229
1426.50 -0.1664 -0.5200 -0.8300 -1.1270 -1.3354
1427.50 -0.1680 -0.5250 -0.8400 -1.1370 -1.3480
1428.50 -0.1746 -0.5455 -0.8720 -1.1837 -1.4033
1429.50 -0.1811 -0.5660 -0.9040 -1.2303 -1.4587
1430.50 -0.1877 -0.5865 -0.9360 -1.2770 -1.5140
1431.50 -0.1943 -0.6070 -0.9680 -1.3237 -1.5693
1432.50 -0.2008 -0.6275 -1.0000 -1.3703 -1.6247
1433.50 -0.2074 -0.6480 -1.0320 -1.4170 -1.6800
1434.50 -0.2130 -0.6654 -1.0583 -1.4543 -1.7237
1435.50 -0.2185 -0.6827 -1.0845 -1.4915 -1.7675
1436.50 -0.2240 -0.7001 -1.1107 -1.5288 -1.8112
1437.50 -0.2296 -0.7175 -1.1370 -1.5660 -1.8550
1438.50 -0.2352 -0.7349 -1.1633 -1.6033 -1.8987
1439.50 -0.2407 -0.7523 -1.1895 -1.6405 -1.9425
1440.50 -0.2463 -0.7696 -1.2157 -1.6778 -1.9862
1441.50 -0.2518 -0.7870 -1.2420 -1.7150 -2.0300
1442.50 -0.2518 -0.7870 -1.2456 -1.7220 -2.0370
1443.50 -0.2518 -0.7870 -1.2492 -1.7290 -2.0440
1444.50 -0.2518 -0.7870 -1.2528 -1.7360 -2.0510
1445.50 -0.2518 -0.7870 -1.2564 -1.7430 -2.0580
1446.50 -0.2518 -0.7870 -1.2600 -1.7500 -2.0650
1447.50 -0.2518 -0.7870 -1.2600 -1.7464 -2.0616
1448.50 -0.2518 -0.7870 -1.2600 -1.7428 -2.0582
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1449.50 -0.2518 -0.7870 -1.2600 -1.7392 -2.0548

1450.50 -0.2518 -0.7870 -1.2600 -1.7356 -2.0514
1451.50 -0.2518 -0.7870 -1.2600 -1.7320 -2.0480
1452.50 -0.2535 -0.7921 -1.2674 -1.7420 -2.0579
1453.50 -0.2551 -0.7973 -1.2749 -1.7520 -2.0677
1454.50 -0.2568 -0.8024 -1.2823 -1.7620 -2.0776
1455.50 -0.2584 -0.8076 -1.2897 -1.7720 -2.0874
1456.50 -0.2601 -0.8127 -1.2971 -1.7820 -2.0973
1457.50 -0.2617 -0.8179 -1.3046 -1.7920 -2.1071
1458.50 -0.2634 -0.8230 -1.3120 -1.8020 -2.1170
1459.50 -0.2600 -0.8124 -1.2980 -1.7846 -2.0996
1460.50 -0.2566 -0.8018 -1.2840 -1.7672 -2.0822
1461.50 -0.2532 -0.7912 -1.2700 -1.7498 -2.0648
1462.50 -0.2498 -0.7806 -1.2560 -1.7324 -2.0474
1463.50 -0.2464 -0.7700 -1.2420 -1.7150 -2.0300
1464.50 -0.2454 -0.7670 -1.2362 -1.7033 -2.0183
1465.50 -0.2445 -0.7640 -1.2303 -1.6917 -2.0067
1466.50 -0.2435 -0.7610 -1.2245 -1.6800 -1.9950
1467.50 -0.2425 -0.7580 -1.2187 -1.6683 -1.9833
1468.50 -0.2416 -0.7550 -1.2128 -1.6567 -1.9717
1469.50 -0.2406 -0.7520 -1.2070 -1.6450 -1.9600
1470.50 -0.2350 -0.7346 -1.1771 -1.6074 -1.9124
1471.50 -0.2295 -0.7171 -1.1473 -1.5699 -1.8649
1472.50 -0.2239 -0.6997 -1.1174 -1.5323 -1.8173
1473.50 -0.2183 -0.6823 -1.0876 -1.4947 -1.7697
1474.50 -0.2127 -0.6649 -1.0577 -1.4571 -1.7221
1475.50 -0.2072 -0.6474 -1.0279 -1.4196 -1.6746
1476.50 -0.2016 -0.6300 -0.9980 -1.3820 -1.6270
1477.50 -0.1937 -0.6054 -0.9594 -1.3296 -1.5640
1478.50 -0.1858 -0.5808 -0.9208 -1.2772 -1.5010
1479.50 -0.1780 -0.5562 -0.8822 -1.2248 -1.4380
1480.50 -0.1701 -0.5316 -0.8436 -1.1724 -1.3750
1481.50 -0.1622 -0.5070 -0.8050 -1.1200 -1.3120
1482.50 -0.1627 -0.5086 -0.8097 -1.1248 -1.3184
1483.50 -0.1633 -0.5103 -0.8145 -1.1296 -1.3247
1484.50 -0.1638 -0.5119 -0.8192 -1.1345 -1.3311
1485.50 -0.1643 -0.5135 -0.8239 -1.1393 -1.3375
1486.50 -0.1648 -0.5152 -0.8286 -1.1441 -1.3438
1487.50 -0.1654 -0.5168 -0.8334 -1.1489 -1.3502
1488.50 -0.1659 -0.5185 -0.8381 -1.1537 -1.3565
1489.50 -0.1664 -0.5201 -0.8428 -1.1585 -1.3629
1490.50 -0.1669 -0.5217 -0.8475 -1.1634 -1.3693
1491.50 -0.1675 -0.5234 -0.8523 -1.1682 -1.3756
1492.50 -0.1680 -0.5250 -0.8570 -1.1730 -1.3820
1493.50 -0.1685 -0.5264 -0.8585 -1.1758 -1.3864
1494.50 -0.1689 -0.5278 -0.8600 -1.1787 -1.3908
1495.50 -0.1694 -0.5292 -0.8615 -1.1815 -1.3952
1496.50 -0.1698 -0.5307 -0.8630 -1.1843 -1.3997
1497.50 -0.1703 -0.5321 -0.8645 -1.1872 -1.4041
1498.50 -0.1707 -0.5335 -0.8660 -1.1900 -1.4085
1499.50 -0.1711 -0.5349 -0.8675 -1.1928 -1.4129
1500.50 -0.1716 -0.5363 -0.8690 -1.1957 -1.4173
1501.50 -0.1721 -0.5378 -0.8705 -1.1985 -1.4218
1502.50 -0.1725 -0.5392 -0.8720 -1.2013 -1.4262

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**CONFIDENTIAL -
IN CAMERA REVIEW ONLY
Pima County Superior Ct. C2013-4963**

1503.50 -0.1729 -0.5406 -0.8735 -1.2042 -1.4306
1504.50 -0.1734 -0.5420 -0.8750 -1.2070 -1.4350
1505.50 -0.1734 -0.5420 -0.8724 -1.2046 -1.4300
1506.50 -0.1734 -0.5420 -0.8699 -1.2021 -1.4250
1507.50 -0.1734 -0.5420 -0.8673 -1.1997 -1.4200
1508.50 -0.1734 -0.5420 -0.8647 -1.1973 -1.4150
1509.50 -0.1734 -0.5420 -0.8621 -1.1949 -1.4100

1510.50 -0.1734 -0.5420 -0.8596 -1.1924 -1.4050
1511.50 -0.1734 -0.5420 -0.8570 -1.1900 -1.4000
1512.50 -0.1758 -0.5496 -0.8696 -1.2050 -1.4200
1513.50 -0.1783 -0.5571 -0.8821 -1.2200 -1.4400
1514.50 -0.1807 -0.5647 -0.8947 -1.2350 -1.4600
1515.50 -0.1831 -0.5723 -0.9073 -1.2500 -1.4800
1516.50 -0.1855 -0.5799 -0.9199 -1.2650 -1.5000
1517.50 -0.1880 -0.5874 -0.9324 -1.2800 -1.5200
1518.50 -0.1904 -0.5950 -0.9450 -1.2950 -1.5400
1519.50 -0.1911 -0.5971 -0.9494 -1.3016 -1.5465
1520.50 -0.1918 -0.5992 -0.9537 -1.3082 -1.5530
1521.50 -0.1924 -0.6014 -0.9581 -1.3149 -1.5595
1522.50 -0.1931 -0.6035 -0.9625 -1.3215 -1.5660
1523.50 -0.1938 -0.6056 -0.9669 -1.3281 -1.5725
1524.50 -0.1945 -0.6078 -0.9712 -1.3348 -1.5790
1525.50 -0.1951 -0.6099 -0.9756 -1.3414 -1.5855
1526.50 -0.1958 -0.6120 -0.9800 -1.3480 -1.5920
1527.50 -0.1979 -0.6186 -0.9888 -1.3610 -1.6074
1528.50 -0.2001 -0.6252 -0.9975 -1.3740 -1.6228
1529.50 -0.2022 -0.6319 -1.0063 -1.3870 -1.6381
1530.50 -0.2043 -0.6385 -1.0150 -1.4000 -1.6535
1531.50 -0.2064 -0.6451 -1.0237 -1.4130 -1.6689
1532.50 -0.2085 -0.6518 -1.0325 -1.4260 -1.6843
1533.50 -0.2107 -0.6584 -1.0413 -1.4390 -1.6996
1534.50 -0.2128 -0.6650 -1.0500 -1.4520 -1.7150
1535.50 -0.2137 -0.6678 -1.0587 -1.4608 -1.7267
1536.50 -0.2146 -0.6707 -1.0673 -1.4697 -1.7383
1537.50 -0.2155 -0.6735 -1.0760 -1.4785 -1.7500
1538.50 -0.2164 -0.6763 -1.0847 -1.4873 -1.7617
1539.50 -0.2173 -0.6792 -1.0933 -1.4962 -1.7733
1540.50 -0.2182 -0.6820 -1.1020 -1.5050 -1.7850
1541.50 -0.2176 -0.6801 -1.0981 -1.4991 -1.7791
1542.50 -0.2170 -0.6782 -1.0942 -1.4932 -1.7732
1543.50 -0.2164 -0.6763 -1.0903 -1.4873 -1.7673
1544.50 -0.2158 -0.6744 -1.0864 -1.4814 -1.7614
1545.50 -0.2152 -0.6726 -1.0826 -1.4756 -1.7556
1546.50 -0.2146 -0.6707 -1.0787 -1.4697 -1.7497
1547.50 -0.2140 -0.6688 -1.0748 -1.4638 -1.7438
1548.50 -0.2134 -0.6669 -1.0709 -1.4579 -1.7379
1549.50 -0.2128 -0.6650 -1.0670 -1.4520 -1.7320
1550.50 -0.2128 -0.6650 -1.0653 -1.4520 -1.7303
1551.50 -0.2128 -0.6650 -1.0636 -1.4520 -1.7286
1552.50 -0.2128 -0.6650 -1.0619 -1.4520 -1.7269
1553.50 -0.2128 -0.6650 -1.0602 -1.4520 -1.7252
1554.50 -0.2128 -0.6650 -1.0585 -1.4520 -1.7235
1555.50 -0.2128 -0.6650 -1.0568 -1.4520 -1.7218
1556.50 -0.2128 -0.6650 -1.0551 -1.4520 -1.7201

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**CONFIDENTIAL -
IN CAMERA REVIEW ONLY
Pima County Superior Ct. C2013-4963**

1557.50 -0.2128 -0.6650 -1.0534 -1.4520 -1.7184
1558.50 -0.2128 -0.6650 -1.0517 -1.4520 -1.7167
1559.50 -0.2128 -0.6650 -1.0500 -1.4520 -1.7150
1560.50 -0.2111 -0.6598 -1.0428 -1.4417 -1.7026
1561.50 -0.2095 -0.6546 -1.0355 -1.4314 -1.6903
1562.50 -0.2078 -0.6495 -1.0283 -1.4211 -1.6779
1563.50 -0.2062 -0.6443 -1.0211 -1.4108 -1.6656
1564.50 -0.2045 -0.6391 -1.0138 -1.4005 -1.6532
1565.50 -0.2028 -0.6339 -1.0066 -1.3902 -1.6409
1566.50 -0.2012 -0.6288 -0.9994 -1.3799 -1.6285
1567.50 -0.1995 -0.6236 -0.9921 -1.3696 -1.6162
1568.50 -0.1979 -0.6184 -0.9849 -1.3594 -1.6038
1569.50 -0.1962 -0.6132 -0.9776 -1.3491 -1.5915

1570.50 -0.1946 -0.6081 -0.9704 -1.3388 -1.5791
1571.50 -0.1929 -0.6029 -0.9632 -1.3285 -1.5668
1572.50 -0.1912 -0.5977 -0.9559 -1.3182 -1.5544
1573.50 -0.1896 -0.5925 -0.9487 -1.3079 -1.5421
1574.50 -0.1879 -0.5874 -0.9415 -1.2976 -1.5297
1575.50 -0.1863 -0.5822 -0.9342 -1.2873 -1.5174
1576.50 -0.1846 -0.5770 -0.9270 -1.2770 -1.5050
1577.50 -0.1804 -0.5640 -0.9074 -1.2486 -1.4721
1578.50 -0.1763 -0.5510 -0.8878 -1.2203 -1.4392
1579.50 -0.1721 -0.5380 -0.8681 -1.1919 -1.4064
1580.50 -0.1680 -0.5250 -0.8485 -1.1635 -1.3735
1581.50 -0.1638 -0.5120 -0.8289 -1.1351 -1.3406
1582.50 -0.1597 -0.4990 -0.8093 -1.1067 -1.3077
1583.50 -0.1555 -0.4860 -0.7896 -1.0784 -1.2749
1584.50 -0.1514 -0.4730 -0.7700 -1.0500 -1.2420
1585.50 -0.1489 -0.4651 -0.7544 -1.0306 -1.2187
1586.50 -0.1463 -0.4572 -0.7389 -1.0111 -1.1953
1587.50 -0.1438 -0.4493 -0.7233 -0.9917 -1.1720
1588.50 -0.1413 -0.4414 -0.7078 -0.9722 -1.1487
1589.50 -0.1387 -0.4336 -0.6922 -0.9528 -1.1253
1590.50 -0.1362 -0.4257 -0.6767 -0.9333 -1.1020
1591.50 -0.1337 -0.4178 -0.6611 -0.9139 -1.0787
1592.50 -0.1311 -0.4099 -0.6456 -0.8944 -1.0553
1593.50 -0.1286 -0.4020 -0.6300 -0.8750 -1.0320
1594.50 -0.1239 -0.3871 -0.6100 -0.8450 -0.9970
1595.50 -0.1191 -0.3723 -0.5900 -0.8150 -0.9620
1596.50 -0.1144 -0.3574 -0.5700 -0.7850 -0.9270
1597.50 -0.1096 -0.3426 -0.5500 -0.7550 -0.8920
1598.50 -0.1049 -0.3277 -0.5300 -0.7250 -0.8570
1599.50 -0.1001 -0.3129 -0.5100 -0.6950 -0.8220
1600.50 -0.0954 -0.2980 -0.4900 -0.6650 -0.7870
1601.50 -0.0947 -0.2958 -0.4835 -0.6584 -0.7782
1602.50 -0.0940 -0.2935 -0.4770 -0.6518 -0.7695
1603.50 -0.0932 -0.2913 -0.4705 -0.6451 -0.7608
1604.50 -0.0925 -0.2890 -0.4640 -0.6385 -0.7520
1605.50 -0.0918 -0.2868 -0.4575 -0.6319 -0.7432
1606.50 -0.0911 -0.2845 -0.4510 -0.6252 -0.7345
1607.50 -0.0903 -0.2823 -0.4445 -0.6186 -0.7258
1608.50 -0.0896 -0.2800 -0.4380 -0.6120 -0.7170
1609.50 -0.0882 -0.2756 -0.4314 -0.6022 -0.7061
1610.50 -0.0868 -0.2713 -0.4248 -0.5924 -0.6951
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Pima County Superior Ct. C2013-4963**

1611.50 -0.0854 -0.2669 -0.4181 -0.5826 -0.6842
1612.50 -0.0840 -0.2625 -0.4115 -0.5727 -0.6733
1613.50 -0.0826 -0.2581 -0.4049 -0.5629 -0.6623
1614.50 -0.0812 -0.2538 -0.3982 -0.5531 -0.6514
1615.50 -0.0798 -0.2494 -0.3916 -0.5433 -0.6404
1616.50 -0.0784 -0.2450 -0.3850 -0.5335 -0.6295
1617.50 -0.0770 -0.2406 -0.3784 -0.5237 -0.6186
1618.50 -0.0756 -0.2363 -0.3718 -0.5139 -0.6076
1619.50 -0.0742 -0.2319 -0.3651 -0.5041 -0.5967
1620.50 -0.0728 -0.2275 -0.3585 -0.4943 -0.5857
1621.50 -0.0714 -0.2231 -0.3519 -0.4844 -0.5748
1622.50 -0.0700 -0.2188 -0.3453 -0.4746 -0.5639
1623.50 -0.0686 -0.2144 -0.3386 -0.4648 -0.5529
1624.50 -0.0672 -0.2100 -0.3320 -0.4550 -0.5420
1625.50 -0.0664 -0.2074 -0.3271 -0.4500 -0.5346
1626.50 -0.0655 -0.2049 -0.3223 -0.4450 -0.5271
1627.50 -0.0647 -0.2023 -0.3174 -0.4400 -0.5197
1628.50 -0.0639 -0.1997 -0.3126 -0.4350 -0.5123
1629.50 -0.0631 -0.1971 -0.3077 -0.4300 -0.5049

1630.50 -0.0622 -0.1946 -0.3029 -0.4250 -0.4974
1631.50 -0.0614 -0.1920 -0.2980 -0.4200 -0.4900
1632.50 -0.0654 -0.2046 -0.3204 -0.4500 -0.5250
1633.50 -0.0695 -0.2171 -0.3429 -0.4800 -0.5600
1634.50 -0.0735 -0.2297 -0.3653 -0.5100 -0.5950
1635.50 -0.0775 -0.2423 -0.3877 -0.5400 -0.6300
1636.50 -0.0815 -0.2549 -0.4101 -0.5700 -0.6650
1637.50 -0.0856 -0.2674 -0.4326 -0.6000 -0.7000
1638.50 -0.0896 -0.2800 -0.4550 -0.6300 -0.7350
1639.50 -0.0920 -0.2874 -0.4674 -0.6450 -0.7550
1640.50 -0.0943 -0.2949 -0.4799 -0.6600 -0.7750
1641.50 -0.0967 -0.3023 -0.4923 -0.6750 -0.7950
1642.50 -0.0991 -0.3097 -0.5047 -0.6900 -0.8150
1643.50 -0.1015 -0.3171 -0.5171 -0.7050 -0.8350
1644.50 -0.1038 -0.3246 -0.5296 -0.7200 -0.8550
1645.50 -0.1062 -0.3320 -0.5420 -0.7350 -0.8750
1646.50 -0.1094 -0.3420 -0.5571 -0.7574 -0.9000
1647.50 -0.1126 -0.3520 -0.5723 -0.7799 -0.9250
1648.50 -0.1158 -0.3620 -0.5874 -0.8023 -0.9500
1649.50 -0.1190 -0.3720 -0.6026 -0.8247 -0.9750
1650.50 -0.1222 -0.3820 -0.6177 -0.8471 -1.0000
1651.50 -0.1254 -0.3920 -0.6329 -0.8696 -1.0250
1652.50 -0.1286 -0.4020 -0.6480 -0.8920 -1.0500
1653.50 -0.1334 -0.4170 -0.6730 -0.9270 -1.0900
1654.50 -0.1382 -0.4320 -0.6980 -0.9620 -1.1300
1655.50 -0.1430 -0.4470 -0.7230 -0.9970 -1.1700
1656.50 -0.1478 -0.4620 -0.7480 -1.0320 -1.2100
1657.50 -0.1526 -0.4770 -0.7730 -1.0670 -1.2500
1658.50 -0.1574 -0.4920 -0.7980 -1.1020 -1.2900
1659.50 -0.1622 -0.5070 -0.8230 -1.1370 -1.3300
1660.50 -0.1629 -0.5092 -0.8251 -1.1393 -1.3344
1661.50 -0.1637 -0.5115 -0.8272 -1.1415 -1.3388
1662.50 -0.1644 -0.5138 -0.8294 -1.1438 -1.3431
1663.50 -0.1651 -0.5160 -0.8315 -1.1460 -1.3475
1664.50 -0.1658 -0.5182 -0.8336 -1.1482 -1.3519
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Pima County Superior Ct. C2013-4963

1665.50 -0.1666 -0.5205 -0.8357 -1.1505 -1.3562
1666.50 -0.1673 -0.5228 -0.8379 -1.1527 -1.3606
1667.50 -0.1680 -0.5250 -0.8400 -1.1550 -1.3650
1668.50 -0.1699 -0.5308 -0.8487 -1.1667 -1.3767
1669.50 -0.1717 -0.5367 -0.8573 -1.1783 -1.3883
1670.50 -0.1736 -0.5425 -0.8660 -1.1900 -1.4000
1671.50 -0.1755 -0.5483 -0.8747 -1.2017 -1.4117
1672.50 -0.1773 -0.5542 -0.8833 -1.2133 -1.4233
1673.50 -0.1792 -0.5600 -0.8920 -1.2250 -1.4350
1674.50 -0.1847 -0.5773 -0.9273 -1.2717 -1.4933
1675.50 -0.1903 -0.5947 -0.9627 -1.3183 -1.5517
1676.50 -0.1958 -0.6120 -0.9980 -1.3650 -1.6100
1677.50 -0.1958 -0.6120 -0.9935 -1.3607 -1.6055
1678.50 -0.1958 -0.6120 -0.9890 -1.3565 -1.6010
1679.50 -0.1958 -0.6120 -0.9845 -1.3523 -1.5965
1680.50 -0.1958 -0.6120 -0.9800 -1.3480 -1.5920
1681.50 -0.1973 -0.6165 -0.9888 -1.3589 -1.6053
1682.50 -0.1987 -0.6210 -0.9975 -1.3698 -1.6185
1683.50 -0.2001 -0.6255 -1.0063 -1.3806 -1.6318
1684.50 -0.2016 -0.6300 -1.0150 -1.3915 -1.6450
1685.50 -0.2031 -0.6345 -1.0237 -1.4024 -1.6583
1686.50 -0.2045 -0.6390 -1.0325 -1.4133 -1.6715
1687.50 -0.2059 -0.6435 -1.0413 -1.4241 -1.6847
1688.50 -0.2074 -0.6480 -1.0500 -1.4350 -1.6980
1689.50 -0.2045 -0.6390 -1.0325 -1.4085 -1.6625

1690.50 -0.2016 -0.6300 -1.0150 -1.3820 -1.6270
1691.50 -0.2001 -0.6253 -1.0068 -1.3727 -1.6165
1692.50 -0.1986 -0.6207 -0.9986 -1.3633 -1.6061
1693.50 -0.1971 -0.6160 -0.9904 -1.3540 -1.5956
1694.50 -0.1956 -0.6113 -0.9822 -1.3447 -1.5851
1695.50 -0.1941 -0.6067 -0.9740 -1.3353 -1.5747
1696.50 -0.1926 -0.6020 -0.9658 -1.3260 -1.5642
1697.50 -0.1911 -0.5973 -0.9576 -1.3167 -1.5537
1698.50 -0.1897 -0.5927 -0.9494 -1.3073 -1.5433
1699.50 -0.1882 -0.5880 -0.9412 -1.2980 -1.5328
1700.50 -0.1867 -0.5833 -0.9330 -1.2887 -1.5223
1701.50 -0.1852 -0.5787 -0.9248 -1.2793 -1.5119
1702.50 -0.1837 -0.5740 -0.9166 -1.2700 -1.5014
1703.50 -0.1822 -0.5693 -0.9084 -1.2607 -1.4909
1704.50 -0.1807 -0.5647 -0.9002 -1.2513 -1.4805
1705.50 -0.1792 -0.5600 -0.8920 -1.2420 -1.4700
1706.50 -0.1768 -0.5524 -0.8796 -1.2220 -1.4474
1707.50 -0.1743 -0.5449 -0.8671 -1.2020 -1.4249
1708.50 -0.1719 -0.5373 -0.8547 -1.1820 -1.4023
1709.50 -0.1695 -0.5297 -0.8423 -1.1620 -1.3797
1710.50 -0.1671 -0.5221 -0.8299 -1.1420 -1.3571
1711.50 -0.1646 -0.5146 -0.8174 -1.1220 -1.3346
1712.50 -0.1622 -0.5070 -0.8050 -1.1020 -1.3120
1713.50 -0.1587 -0.4961 -0.7875 -1.0780 -1.2836
1714.50 -0.1552 -0.4853 -0.7700 -1.0540 -1.2552
1715.50 -0.1518 -0.4744 -0.7525 -1.0300 -1.2269
1716.50 -0.1483 -0.4635 -0.7350 -1.0060 -1.1985
1717.50 -0.1448 -0.4526 -0.7175 -0.9820 -1.1701
1718.50 -0.1414 -0.4417 -0.7000 -0.9580 -1.1418

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Pima County Superior Ct. C2013-4963

1719.50 -0.1379 -0.4309 -0.6825 -0.9340 -1.1134
1720.50 -0.1344 -0.4200 -0.6650 -0.9100 -1.0850
1721.50 -0.1256 -0.3924 -0.6224 -0.8524 -1.0150
1722.50 -0.1167 -0.3649 -0.5799 -0.7949 -0.9450
1723.50 -0.1079 -0.3373 -0.5373 -0.7373 -0.8750
1724.50 -0.0991 -0.3097 -0.4947 -0.6797 -0.8050
1725.50 -0.0903 -0.2821 -0.4521 -0.6221 -0.7350
1726.50 -0.0814 -0.2546 -0.4096 -0.5646 -0.6650
1727.50 -0.0726 -0.2270 -0.3670 -0.5070 -0.5950
1728.50 -0.0698 -0.2182 -0.3518 -0.4874 -0.5709
1729.50 -0.0670 -0.2095 -0.3365 -0.4677 -0.5467
1730.50 -0.0642 -0.2008 -0.3212 -0.4481 -0.5226
1731.50 -0.0614 -0.1920 -0.3060 -0.4285 -0.4985
1732.50 -0.0586 -0.1832 -0.2908 -0.4089 -0.4744
1733.50 -0.0558 -0.1745 -0.2755 -0.3892 -0.4503
1734.50 -0.0530 -0.1658 -0.2602 -0.3696 -0.4261
1735.50 -0.0502 -0.1570 -0.2450 -0.3500 -0.4020
1736.50 -0.0433 -0.1353 -0.2100 -0.3017 -0.3453
1737.50 -0.0363 -0.1135 -0.1750 -0.2535 -0.2885
1738.50 -0.0294 -0.0918 -0.1400 -0.2052 -0.2318
1739.50 -0.0224 -0.0700 -0.1050 -0.1570 -0.1750
1740.50 -0.0210 -0.0656 -0.0963 -0.1439 -0.1619
1741.50 -0.0196 -0.0613 -0.0875 -0.1308 -0.1487
1742.50 -0.0182 -0.0569 -0.0788 -0.1176 -0.1356
1743.50 -0.0168 -0.0525 -0.0700 -0.1045 -0.1225
1744.50 -0.0154 -0.0481 -0.0613 -0.0914 -0.1094
1745.50 -0.0140 -0.0438 -0.0525 -0.0782 -0.0963
1746.50 -0.0126 -0.0394 -0.0438 -0.0651 -0.0831
1747.50 -0.0112 -0.0350 -0.0350 -0.0520 -0.0700
1748.50 -0.0098 -0.0306 -0.0306 -0.0455 -0.0613
1749.50 -0.0084 -0.0263 -0.0263 -0.0390 -0.0525

1750.50 -0.0070 -0.0219 -0.0219 -0.0325 -0.0438
1751.50 -0.0056 -0.0175 -0.0175 -0.0260 -0.0350
1752.50 -0.0042 -0.0131 -0.0131 -0.0195 -0.0263
1753.50 -0.0028 -0.0088 -0.0088 -0.0130 -0.0175
1754.50 -0.0014 -0.0044 -0.0044 -0.0065 -0.0088
1755.50 0.0000 0.0000 0.0000 0.0000 0.0000
1756.50 0.0007 0.0023 0.0044 0.0065 0.0065
1757.50 0.0015 0.0045 0.0088 0.0130 0.0130
1758.50 0.0022 0.0068 0.0131 0.0195 0.0195
1759.50 0.0029 0.0090 0.0175 0.0260 0.0260
1760.50 0.0036 0.0113 0.0219 0.0325 0.0325
1761.50 0.0044 0.0135 0.0263 0.0390 0.0390
1762.50 0.0051 0.0158 0.0306 0.0455 0.0455
1763.50 0.0058 0.0180 0.0350 0.0520 0.0520
1764.50 0.0044 0.0136 0.0263 0.0411 0.0390
1765.50 0.0030 0.0092 0.0175 0.0303 0.0260
1766.50 0.0016 0.0049 0.0088 0.0194 0.0130
1767.50 0.0002 0.0005 0.0000 0.0085 0.0000
1768.50 -0.0012 -0.0039 -0.0088 -0.0024 -0.0130
1769.50 -0.0026 -0.0083 -0.0175 -0.0133 -0.0260
1770.50 -0.0040 -0.0126 -0.0263 -0.0241 -0.0390
1771.50 -0.0054 -0.0170 -0.0350 -0.0350 -0.0520
1772.50 -0.0103 -0.0324 -0.0569 -0.0679 -0.0893
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1773.50 -0.0153 -0.0478 -0.0788 -0.1008 -0.1265
1774.50 -0.0202 -0.0631 -0.1006 -0.1336 -0.1637
1775.50 -0.0251 -0.0785 -0.1225 -0.1665 -0.2010
1776.50 -0.0300 -0.0939 -0.1444 -0.1994 -0.2382
1777.50 -0.0350 -0.1093 -0.1662 -0.2323 -0.2755
1778.50 -0.0399 -0.1246 -0.1881 -0.2651 -0.3127
1779.50 -0.0448 -0.1400 -0.2100 -0.2980 -0.3500
1780.50 -0.0462 -0.1444 -0.2188 -0.3110 -0.3654
1781.50 -0.0476 -0.1487 -0.2275 -0.3240 -0.3807
1782.50 -0.0490 -0.1531 -0.2363 -0.3370 -0.3961
1783.50 -0.0504 -0.1575 -0.2450 -0.3500 -0.4115
1784.50 -0.0518 -0.1619 -0.2538 -0.3630 -0.4269
1785.50 -0.0532 -0.1663 -0.2625 -0.3760 -0.4422
1786.50 -0.0546 -0.1706 -0.2712 -0.3890 -0.4576
1787.50 -0.0560 -0.1750 -0.2800 -0.4020 -0.4730
1788.50 -0.0570 -0.1782 -0.2848 -0.4084 -0.4801
1789.50 -0.0580 -0.1814 -0.2895 -0.4147 -0.4873
1790.50 -0.0591 -0.1845 -0.2943 -0.4211 -0.4944
1791.50 -0.0601 -0.1877 -0.2991 -0.4275 -0.5015
1792.50 -0.0611 -0.1909 -0.3039 -0.4338 -0.5087
1793.50 -0.0621 -0.1941 -0.3086 -0.4402 -0.5158
1794.50 -0.0631 -0.1973 -0.3134 -0.4465 -0.5230
1795.50 -0.0641 -0.2005 -0.3182 -0.4529 -0.5301
1796.50 -0.0652 -0.2036 -0.3230 -0.4593 -0.5372
1797.50 -0.0662 -0.2068 -0.3277 -0.4656 -0.5444
1798.50 -0.0672 -0.2100 -0.3325 -0.4720 -0.5515
1799.50 -0.0682 -0.2132 -0.3373 -0.4784 -0.5586
1800.50 -0.0692 -0.2164 -0.3420 -0.4847 -0.5658
1801.50 -0.0703 -0.2195 -0.3468 -0.4911 -0.5729
1802.50 -0.0713 -0.2227 -0.3516 -0.4975 -0.5800
1803.50 -0.0723 -0.2259 -0.3564 -0.5038 -0.5872
1804.50 -0.0733 -0.2291 -0.3611 -0.5102 -0.5943
1805.50 -0.0743 -0.2323 -0.3659 -0.5165 -0.6015
1806.50 -0.0753 -0.2355 -0.3707 -0.5229 -0.6086
1807.50 -0.0764 -0.2386 -0.3755 -0.5293 -0.6157
1808.50 -0.0774 -0.2418 -0.3802 -0.5356 -0.6229
1809.50 -0.0784 -0.2450 -0.3850 -0.5420 -0.6300

1810.50 -0.0808 -0.2526 -0.3976 -0.5571 -0.6500
1811.50 -0.0833 -0.2601 -0.4101 -0.5723 -0.6700
1812.50 -0.0857 -0.2677 -0.4227 -0.5874 -0.6900
1813.50 -0.0881 -0.2753 -0.4353 -0.6026 -0.7100
1814.50 -0.0905 -0.2829 -0.4479 -0.6177 -0.7300
1815.50 -0.0930 -0.2904 -0.4604 -0.6329 -0.7500
1816.50 -0.0954 -0.2980 -0.4730 -0.6480 -0.7700
1817.50 -0.0969 -0.3029 -0.4829 -0.6629 -0.7850
1818.50 -0.0985 -0.3077 -0.4927 -0.6777 -0.8000
1819.50 -0.1000 -0.3126 -0.5026 -0.6926 -0.8150
1820.50 -0.1016 -0.3174 -0.5124 -0.7074 -0.8300
1821.50 -0.1031 -0.3223 -0.5223 -0.7223 -0.8450
1822.50 -0.1047 -0.3271 -0.5321 -0.7371 -0.8600
1823.50 -0.1062 -0.3320 -0.5420 -0.7520 -0.8750
1824.50 -0.1090 -0.3408 -0.5537 -0.7667 -0.8925
1825.50 -0.1119 -0.3497 -0.5653 -0.7813 -0.9100
1826.50 -0.1147 -0.3585 -0.5770 -0.7960 -0.9275
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1827.50 -0.1175 -0.3673 -0.5887 -0.8107 -0.9450
1828.50 -0.1204 -0.3762 -0.6003 -0.8253 -0.9625
1829.50 -0.1232 -0.3850 -0.6120 -0.8400 -0.9800
1830.50 -0.1195 -0.3733 -0.5975 -0.8195 -0.9567
1831.50 -0.1157 -0.3617 -0.5830 -0.7990 -0.9333
1832.50 -0.1120 -0.3500 -0.5685 -0.7785 -0.9100
1833.50 -0.1083 -0.3383 -0.5540 -0.7580 -0.8867
1834.50 -0.1045 -0.3267 -0.5395 -0.7375 -0.8633
1835.50 -0.1008 -0.3150 -0.5250 -0.7170 -0.8400
1836.50 -0.0960 -0.3000 -0.4950 -0.6771 -0.7950
1837.50 -0.0912 -0.2850 -0.4650 -0.6373 -0.7500
1838.50 -0.0864 -0.2700 -0.4350 -0.5974 -0.7050
1839.50 -0.0816 -0.2550 -0.4050 -0.5576 -0.6600
1840.50 -0.0768 -0.2400 -0.3750 -0.5177 -0.6150
1841.50 -0.0720 -0.2250 -0.3450 -0.4779 -0.5700
1842.50 -0.0672 -0.2100 -0.3150 -0.4380 -0.5250
1843.50 -0.0651 -0.2034 -0.3063 -0.4248 -0.5075
1844.50 -0.0630 -0.1967 -0.2975 -0.4115 -0.4900
1845.50 -0.0608 -0.1901 -0.2888 -0.3982 -0.4725
1846.50 -0.0587 -0.1835 -0.2800 -0.3850 -0.4550
1847.50 -0.0566 -0.1769 -0.2712 -0.3718 -0.4375
1848.50 -0.0545 -0.1703 -0.2625 -0.3585 -0.4200
1849.50 -0.0523 -0.1636 -0.2537 -0.3453 -0.4025
1850.50 -0.0502 -0.1570 -0.2450 -0.3320 -0.3850
1851.50 -0.0478 -0.1496 -0.2350 -0.3170 -0.3700
1852.50 -0.0455 -0.1421 -0.2250 -0.3020 -0.3550
1853.50 -0.0431 -0.1347 -0.2150 -0.2870 -0.3400
1854.50 -0.0407 -0.1273 -0.2050 -0.2720 -0.3250
1855.50 -0.0383 -0.1199 -0.1950 -0.2570 -0.3100
1856.50 -0.0360 -0.1124 -0.1850 -0.2420 -0.2950
1857.50 -0.0336 -0.1050 -0.1750 -0.2270 -0.2800
1858.50 -0.0329 -0.1027 -0.1706 -0.2226 -0.2756
1859.50 -0.0322 -0.1005 -0.1663 -0.2182 -0.2712
1860.50 -0.0314 -0.0983 -0.1619 -0.2139 -0.2669
1861.50 -0.0307 -0.0960 -0.1575 -0.2095 -0.2625
1862.50 -0.0300 -0.0938 -0.1531 -0.2051 -0.2581
1863.50 -0.0293 -0.0915 -0.1487 -0.2008 -0.2538
1864.50 -0.0285 -0.0893 -0.1444 -0.1964 -0.2494
1865.50 -0.0278 -0.0870 -0.1400 -0.1920 -0.2450
1866.50 -0.0282 -0.0884 -0.1427 -0.1961 -0.2491
1867.50 -0.0287 -0.0898 -0.1454 -0.2002 -0.2532
1868.50 -0.0291 -0.0912 -0.1481 -0.2042 -0.2572
1869.50 -0.0296 -0.0925 -0.1508 -0.2083 -0.2613

1870.50 -0.0300 -0.0939 -0.1535 -0.2124 -0.2654
1871.50 -0.0305 -0.0953 -0.1562 -0.2165 -0.2695
1872.50 -0.0309 -0.0967 -0.1588 -0.2205 -0.2735
1873.50 -0.0314 -0.0981 -0.1615 -0.2246 -0.2776
1874.50 -0.0318 -0.0995 -0.1642 -0.2287 -0.2817
1875.50 -0.0323 -0.1008 -0.1669 -0.2328 -0.2858
1876.50 -0.0327 -0.1022 -0.1696 -0.2368 -0.2898
1877.50 -0.0332 -0.1036 -0.1723 -0.2409 -0.2939
1878.50 -0.0336 -0.1050 -0.1750 -0.2450 -0.2980
1879.50 -0.0344 -0.1076 -0.1774 -0.2474 -0.3004
1880.50 -0.0353 -0.1101 -0.1799 -0.2499 -0.3029

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1881.50 -0.0361 -0.1127 -0.1823 -0.2523 -0.3053
1882.50 -0.0369 -0.1153 -0.1847 -0.2547 -0.3077
1883.50 -0.0377 -0.1179 -0.1871 -0.2571 -0.3101
1884.50 -0.0386 -0.1204 -0.1896 -0.2596 -0.3126
1885.50 -0.0394 -0.1230 -0.1920 -0.2620 -0.3150
1886.50 -0.0418 -0.1304 -0.2020 -0.2770 -0.3326
1887.50 -0.0441 -0.1379 -0.2120 -0.2920 -0.3501
1888.50 -0.0465 -0.1453 -0.2220 -0.3070 -0.3677
1889.50 -0.0489 -0.1527 -0.2320 -0.3220 -0.3853
1890.50 -0.0513 -0.1601 -0.2420 -0.3370 -0.4029
1891.50 -0.0536 -0.1676 -0.2520 -0.3520 -0.4204
1892.50 -0.0560 -0.1750 -0.2620 -0.3670 -0.4380
1893.50 -0.0568 -0.1774 -0.2696 -0.3771 -0.4504
1894.50 -0.0575 -0.1799 -0.2771 -0.3873 -0.4629
1895.50 -0.0583 -0.1823 -0.2847 -0.3974 -0.4753
1896.50 -0.0591 -0.1847 -0.2923 -0.4076 -0.4877
1897.50 -0.0599 -0.1871 -0.2999 -0.4177 -0.5001
1898.50 -0.0606 -0.1896 -0.3074 -0.4279 -0.5126
1899.50 -0.0614 -0.1920 -0.3150 -0.4380 -0.5250
1900.50 -0.0614 -0.1920 -0.3150 -0.4354 -0.5224
1901.50 -0.0614 -0.1920 -0.3150 -0.4329 -0.5199
1902.50 -0.0614 -0.1920 -0.3150 -0.4303 -0.5173
1903.50 -0.0614 -0.1920 -0.3150 -0.4277 -0.5147
1904.50 -0.0614 -0.1920 -0.3150 -0.4251 -0.5121
1905.50 -0.0614 -0.1920 -0.3150 -0.4226 -0.5096
1906.50 -0.0614 -0.1920 -0.3150 -0.4200 -0.5070
1907.50 -0.0614 -0.1920 -0.3150 -0.4200 -0.5070
1908.50 -0.0614 -0.1920 -0.3150 -0.4200 -0.5070
1909.50 -0.0614 -0.1920 -0.3150 -0.4200 -0.5070
1910.50 -0.0614 -0.1920 -0.3150 -0.4200 -0.5070
1911.50 -0.0614 -0.1920 -0.3150 -0.4200 -0.5070
1912.50 -0.0614 -0.1920 -0.3150 -0.4200 -0.5070
1913.50 -0.0593 -0.1855 -0.3040 -0.4069 -0.4895
1914.50 -0.0573 -0.1790 -0.2930 -0.3937 -0.4720
1915.50 -0.0552 -0.1725 -0.2820 -0.3806 -0.4545
1916.50 -0.0531 -0.1660 -0.2710 -0.3675 -0.4370
1917.50 -0.0510 -0.1595 -0.2600 -0.3544 -0.4195
1918.50 -0.0490 -0.1530 -0.2490 -0.3412 -0.4020
1919.50 -0.0469 -0.1465 -0.2380 -0.3281 -0.3845
1920.50 -0.0448 -0.1400 -0.2270 -0.3150 -0.3670
1921.50 -0.0420 -0.1313 -0.2140 -0.2953 -0.3451
1922.50 -0.0392 -0.1225 -0.2010 -0.2755 -0.3232
1923.50 -0.0364 -0.1138 -0.1880 -0.2558 -0.3014
1924.50 -0.0336 -0.1050 -0.1750 -0.2360 -0.2795
1925.50 -0.0308 -0.0963 -0.1620 -0.2162 -0.2576
1926.50 -0.0280 -0.0875 -0.1490 -0.1965 -0.2358
1927.50 -0.0252 -0.0788 -0.1360 -0.1767 -0.2139
1928.50 -0.0224 -0.0700 -0.1230 -0.1570 -0.1920
1929.50 -0.0208 -0.0650 -0.1129 -0.1446 -0.1770

1930.50 -0.0192 -0.0600 -0.1027 -0.1321 -0.1620
1931.50 -0.0176 -0.0550 -0.0926 -0.1197 -0.1470
1932.50 -0.0160 -0.0500 -0.0824 -0.1073 -0.1320
1933.50 -0.0144 -0.0450 -0.0723 -0.0949 -0.1170
1934.50 -0.0128 -0.0400 -0.0621 -0.0824 -0.1020
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1935.50 -0.0112 -0.0350 -0.0520 -0.0700 -0.0870
1936.50 -0.0093 -0.0291 -0.0423 -0.0583 -0.0716
1937.50 -0.0074 -0.0232 -0.0327 -0.0467 -0.0561
1938.50 -0.0055 -0.0173 -0.0230 -0.0350 -0.0407
1939.50 -0.0036 -0.0114 -0.0133 -0.0233 -0.0252
1940.50 -0.0018 -0.0056 -0.0037 -0.0117 -0.0098
1941.50 0.0001 0.0003 0.0060 0.0000 0.0057
1942.50 0.0020 0.0062 0.0157 0.0117 0.0211
1943.50 0.0039 0.0121 0.0253 0.0233 0.0366
1944.50 0.0058 0.0180 0.0350 0.0350 0.0520
1945.50 0.0048 0.0150 0.0292 0.0292 0.0433
1946.50 0.0039 0.0120 0.0233 0.0233 0.0347
1947.50 0.0029 0.0090 0.0175 0.0175 0.0260
1948.50 0.0019 0.0060 0.0117 0.0117 0.0173
1949.50 0.0010 0.0030 0.0058 0.0058 0.0087
1950.50 0.0000 0.0000 0.0000 0.0000 0.0000
1951.50 -0.0005 -0.0015 -0.0032 -0.0047 -0.0047
1952.50 -0.0010 -0.0031 -0.0064 -0.0095 -0.0095
1953.50 -0.0015 -0.0046 -0.0095 -0.0142 -0.0142
1954.50 -0.0020 -0.0062 -0.0127 -0.0189 -0.0189
1955.50 -0.0025 -0.0077 -0.0159 -0.0236 -0.0236
1956.50 -0.0029 -0.0093 -0.0191 -0.0284 -0.0284
1957.50 -0.0034 -0.0108 -0.0223 -0.0331 -0.0331
1958.50 -0.0039 -0.0124 -0.0255 -0.0378 -0.0378
1959.50 -0.0044 -0.0139 -0.0286 -0.0425 -0.0425
1960.50 -0.0049 -0.0155 -0.0318 -0.0473 -0.0473
1961.50 -0.0054 -0.0170 -0.0350 -0.0520 -0.0520
1962.50 -0.0054 -0.0170 -0.0350 -0.0520 -0.0520
1963.50 -0.0054 -0.0170 -0.0350 -0.0520 -0.0520
1964.50 -0.0054 -0.0170 -0.0350 -0.0520 -0.0520
1965.50 -0.0054 -0.0170 -0.0350 -0.0520 -0.0520
1966.50 -0.0054 -0.0170 -0.0350 -0.0520 -0.0520
1967.50 -0.0054 -0.0170 -0.0350 -0.0520 -0.0520
1968.50 -0.0054 -0.0170 -0.0350 -0.0520 -0.0520
1969.50 -0.0054 -0.0170 -0.0350 -0.0520 -0.0520
1970.50 -0.0054 -0.0170 -0.0350 -0.0520 -0.0520
1971.50 -0.0054 -0.0170 -0.0350 -0.0520 -0.0520
1972.50 -0.0054 -0.0170 -0.0350 -0.0520 -0.0520
1973.50 -0.0054 -0.0170 -0.0350 -0.0520 -0.0520
1974.50 -0.0054 -0.0170 -0.0350 -0.0520 -0.0520
1975.50 -0.0054 -0.0170 -0.0350 -0.0520 -0.0520
1976.50 -0.0054 -0.0170 -0.0350 -0.0520 -0.0520
1977.50 -0.0054 -0.0170 -0.0350 -0.0520 -0.0520
1978.50 -0.0054 -0.0170 -0.0350 -0.0520 -0.0520
1979.50 -0.0054 -0.0170 -0.0350 -0.0520 -0.0520
1980.50 -0.0054 -0.0170 -0.0350 -0.0520 -0.0520
1981.50 -0.0054 -0.0170 -0.0350 -0.0520 -0.0520
1982.50 -0.0054 -0.0170 -0.0350 -0.0520 -0.0520
1983.50 -0.0054 -0.0170 -0.0350 -0.0520 -0.0520
1984.50 -0.0054 -0.0170 -0.0350 -0.0520 -0.0520
1985.50 -0.0054 -0.0170 -0.0350 -0.0520 -0.0520
1986.50 -0.0054 -0.0170 -0.0350 -0.0520 -0.0520
1987.50 -0.0054 -0.0170 -0.0350 -0.0520 -0.0520
1988.50 -0.0054 -0.0170 -0.0350 -0.0520 -0.0520
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```
1989.50 -0.0054 -0.0170 -0.0350 -0.0520 -0.0520
1990.50 -0.0054 -0.0170 -0.0350 -0.0520 -0.0520
1991.50 -0.0054 -0.0170 -0.0350 -0.0520 -0.0520
1992.50 -0.0054 -0.0170 -0.0350 -0.0520 -0.0520
1993.50 -0.0054 -0.0170 -0.0350 -0.0520 -0.0520
1994.50 -0.0054 -0.0170 -0.0350 -0.0520 -0.0520
1995.50 -0.0054 -0.0170 -0.0350 -0.0520 -0.0520
1996.50 -0.0054 -0.0170 -0.0350 -0.0520 -0.0520
1997.50 -0.0054 -0.0170 -0.0350 -0.0520 -0.0520
1998.50 -0.0054 -0.0170 -0.0350 -0.0520 -0.0520
1999.50 -0.0054 -0.0170 -0.0350 -0.0520 -0.0520
2000.50 -0.0054 -0.0170 -0.0350 -0.0520 -0.0520
2001.50 -0.0054 -0.0170 -0.0350 -0.0520 -0.0520
2002.50 -0.0054 -0.0170 -0.0350 -0.0520 -0.0520
# Atmospheric CO2 850 to 2000 AD
# -----
#
# Spline fit used for construction (until starting point of stabilization
# scenario) of Stabilisation Pathways SP450, SP550, SP650, SP750, SP1000
# DSP450, DSP550, OSP350, OSP450
# Based on ice core and atmospheric measurements until 2004 and
# AlT from BernCC model
#
# Simon Mueller
# Climate and Environmental Physics, Physics Institute
# University of Bern
# Sidlerstr. 5
# CH-3012 Bern
# (smueller@climate.unibe.ch)
#
# Nov./Dez. 2004, Jan. 2006
#
# Construction:
#
# A) until 2085 (or the respective start of each stabilisation pathway):
#
# -3500-2004: ice core and atmospheric measurements from
# - ice data from Siegenthaler et al., Tellus, in press, 2004
# - ice data from Etheridge et al., JGR, 1996
# - 1958-1979 Atmospheric data from Mauna Loa and Southpole, Keeling and
# Whorf, Trends, CDIAC
# - 1979-2004 Atmospheric data from NOAA-CMDL (Conway, personal communication,
# Nov. 2004)
#
# B) from 2004 until 2085
#
# AlT from BernCC model, 31yr running average
#
# The combined records were subsequently splined (Enting, 1987) with a cut-off
# period of 200yr until 1850 AD and 30yr from 1850 until
# starting point of the stabilisation pathways.
#
## year atmospheric conc.
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```

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Pima County Superior Ct. C2013-4963**

(yr) (ppmv)
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863.00 276.9368
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870.00 276.8972
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877.00 276.8549
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880.00 276.8363
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882.00 276.8239
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893.00 276.7568
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JTO-062616

**CONFIDENTIAL -
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Pima County Superior Ct. C2013-4963**

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914.00 276.6535
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916.00 276.6466
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918.00 276.6405
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923.00 276.6283
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925.00 276.6248
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927.00 276.6223
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929.00 276.6206
930.00 276.6201
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934.00 276.6205
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936.00 276.6223
937.00 276.6236
938.00 276.6252
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940.00 276.6292
941.00 276.6316
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943.00 276.6373
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945.00 276.6443
946.00 276.6482
947.00 276.6525
948.00 276.6571
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952.00 276.6788
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956.00 276.7061
JTO-062617

**CONFIDENTIAL -
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Pima County Superior Ct. C2013-4963**

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961.00 276.7483
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972.00 276.8693
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974.00 276.8951
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976.00 276.9219
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983.00 277.0233
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987.00 277.0860
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989.00 277.1186
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991.00 277.1518
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993.00 277.1858
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998.00 277.2734
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1000.00 277.3094
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1004.00 277.3837
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1006.00 277.4221
1007.00 277.4417
1008.00 277.4616
1009.00 277.4818
1010.00 277.5024
JTO-062618

**CONFIDENTIAL -
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Pima County Superior Ct. C2013-4963**

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1013.00 277.5664
1014.00 277.5887
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1016.00 277.6349
1017.00 277.6589
1018.00 277.6836
1019.00 277.7090
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1021.00 277.7620
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1027.00 277.9429
1028.00 277.9766

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1033.00 278.1600
1034.00 278.1994
1035.00 278.2397
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1037.00 278.3228
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1046.00 278.7292
1047.00 278.7767
1048.00 278.8245
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1051.00 278.9694
1052.00 279.0181
1053.00 279.0669
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1055.00 279.1650
1056.00 279.2141
1057.00 279.2634
1058.00 279.3127
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1063.00 279.5607
1064.00 279.6106
JTO-062619

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Pima County Superior Ct. C2013-4963**

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1071.00 279.9621
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1076.00 280.2156
1077.00 280.2665
1078.00 280.3175
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1080.00 280.4198
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1082.00 280.5223
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1084.00 280.6251
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1087.00 280.7796
1088.00 280.8309

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1094.00 281.1321
1095.00 281.1806
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1097.00 281.2754
1098.00 281.3217
1099.00 281.3671
1100.00 281.4116
1101.00 281.4550
1102.00 281.4973
1103.00 281.5385
1104.00 281.5785
1105.00 281.6172
1106.00 281.6545
1107.00 281.6903
1108.00 281.7247
1109.00 281.7575
1110.00 281.7886
1111.00 281.8180
1112.00 281.8456
1113.00 281.8714
1114.00 281.8955
1115.00 281.9178
1116.00 281.9384
1117.00 281.9572
1118.00 281.9744
JTO-062620

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1122.00 282.0262
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1125.00 282.0480
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1128.00 282.0556
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1131.00 282.0494
1132.00 282.0443
1133.00 282.0377
1134.00 282.0296
1135.00 282.0200
1136.00 282.0089
1137.00 281.9963
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1139.00 281.9669
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1141.00 281.9316
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1144.00 281.8683
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1146.00 281.8196
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1148.00 281.7660

1149.00 281.7375
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1156.00 281.5138
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1158.00 281.4442
1159.00 281.4088
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1161.00 281.3371
1162.00 281.3010
1163.00 281.2649
1164.00 281.2287
1165.00 281.1925
1166.00 281.1565
1167.00 281.1207
1168.00 281.0852
1169.00 281.0500
1170.00 281.0153
1171.00 280.9810
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1176.00 280.8172
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1178.00 280.7552
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1189.00 280.4533
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1200.00 280.2504
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1217.00 280.2249
1218.00 280.2326
1219.00 280.2411
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1224.00 280.2950
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1227.00 280.3351
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1234.00 280.4365
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1251.00 280.6275
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1258.00 280.6619
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1263.00 280.6723
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1314.00 280.7575
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1316.00 280.7754
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1318.00 280.7947
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1324.00 280.8569
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1326.00 280.8778
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1328.00 280.8980

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1357.00 281.0078
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1359.00 281.0004
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1361.00 280.9913
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1369.00 280.9373
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1371.00 280.9196
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1373.00 280.9003
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1375.00 280.8793
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1378.00 280.8446
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1380.00 280.8194
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1383.00 280.7781
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1385.00 280.7483
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1390.00 280.6649
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1405.00 280.3217
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1412.00 280.1287
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1415.00 280.0454
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1417.00 279.9905
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1420.00 279.9103
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1422.00 279.8587
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1425.00 279.7851
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1427.00 279.7392
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1432.00 279.6362
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1436.00 279.5668
1437.00 279.5513
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1439.00 279.5223
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1442.00 279.4834

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Pima County Superior Ct. C2013-4963

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1444.00 279.4604
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1449.00 279.4132
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1451.00 279.3983
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1454.00 279.3797
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1456.00 279.3699
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1461.00 279.3556
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1466.00 279.3570
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1473.00 279.3886
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1478.00 279.4324
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1480.00 279.4547
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1485.00 279.5211
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1490.00 279.5973
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Pima County Superior Ct. C2013-4963

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1499.00 279.7366

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1506.00 279.8276
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1511.00 279.8763
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1516.00 279.9085
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1518.00 279.9163
1519.00 279.9191
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1521.00 279.9222
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1523.00 279.9221
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1536.00 279.8302
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1538.00 279.8009
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1543.00 279.7106
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1548.00 279.5991
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1550.00 279.5495
JTO-062628

**CONFIDENTIAL -
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1570.00 278.9815
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1580.00 278.7096
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1582.00 278.6599
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1585.00 278.5876
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1587.00 278.5406
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1589.00 278.4945
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1592.00 278.4263
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1594.00 278.3815
1595.00 278.3593
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1597.00 278.3156
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1599.00 278.2727
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1602.00 278.2106
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1604.00 278.1709
JTO-062629

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1614.00 277.9926
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1616.00 277.9599
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1623.00 277.8496
1624.00 277.8340
1625.00 277.8183
1626.00 277.8026
1627.00 277.7868
1628.00 277.7708
1629.00 277.7546
1630.00 277.7383
1631.00 277.7217
1632.00 277.7048
1633.00 277.6877
1634.00 277.6703
1635.00 277.6525
1636.00 277.6344
1637.00 277.6159
1638.00 277.5971
1639.00 277.5780
1640.00 277.5587
1641.00 277.5391
1642.00 277.5192
1643.00 277.4990
1644.00 277.4787
1645.00 277.4581
1646.00 277.4373
1647.00 277.4163
1648.00 277.3952
1649.00 277.3739
1650.00 277.3525
1651.00 277.3310
1652.00 277.3093
1653.00 277.2876
1654.00 277.2659
1655.00 277.2442
1656.00 277.2224
1657.00 277.2007
1658.00 277.1791

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1659.00 277.1575
1660.00 277.1360
1661.00 277.1146
1662.00 277.0934
1663.00 277.0724
1664.00 277.0515
1665.00 277.0310
1666.00 277.0107
1667.00 276.9907
1668.00 276.9711
1669.00 276.9518
1670.00 276.9330
1671.00 276.9147
1672.00 276.8969
1673.00 276.8796
1674.00 276.8629
1675.00 276.8468
1676.00 276.8314
1677.00 276.8166
1678.00 276.8025
1679.00 276.7891

1680.00 276.7763
1681.00 276.7642
1682.00 276.7527
1683.00 276.7420
1684.00 276.7318
1685.00 276.7223
1686.00 276.7134
1687.00 276.7052
1688.00 276.6976
1689.00 276.6906
1690.00 276.6842
1691.00 276.6784
1692.00 276.6733
1693.00 276.6687
1694.00 276.6648
1695.00 276.6615
1696.00 276.6588
1697.00 276.6568
1698.00 276.6553
1699.00 276.6545
1700.00 276.6543
1701.00 276.6547
1702.00 276.6557
1703.00 276.6574
1704.00 276.6596
1705.00 276.6624
1706.00 276.6659
1707.00 276.6699
1708.00 276.6745
1709.00 276.6797
1710.00 276.6855
1711.00 276.6918
1712.00 276.6987
JTO-062631

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1713.00 276.7061
1714.00 276.7141
1715.00 276.7225
1716.00 276.7315
1717.00 276.7410
1718.00 276.7510
1719.00 276.7615
1720.00 276.7724
1721.00 276.7838
1722.00 276.7956
1723.00 276.8079
1724.00 276.8206
1725.00 276.8337
1726.00 276.8473
1727.00 276.8613
1728.00 276.8757
1729.00 276.8905
1730.00 276.9057
1731.00 276.9214
1732.00 276.9374
1733.00 276.9539
1734.00 276.9708
1735.00 276.9882
1736.00 277.0060
1737.00 277.0243
1738.00 277.0430
1739.00 277.0623

1740.00 277.0820
1741.00 277.1023
1742.00 277.1231
1743.00 277.1445
1744.00 277.1664
1745.00 277.1890
1746.00 277.2122
1747.00 277.2361
1748.00 277.2606
1749.00 277.2859
1750.00 277.3120
1751.00 277.3388
1752.00 277.3664
1753.00 277.3949
1754.00 277.4242
1755.00 277.4544
1756.00 277.4855
1757.00 277.5175
1758.00 277.5505
1759.00 277.5844
1760.00 277.6193
1761.00 277.6551
1762.00 277.6919
1763.00 277.7295
1764.00 277.7681
1765.00 277.8076
1766.00 277.8480

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1767.00 277.8893
1768.00 277.9315
1769.00 277.9745
1770.00 278.0184
1771.00 278.0631
1772.00 278.1087
1773.00 278.1551
1774.00 278.2024
1775.00 278.2504
1776.00 278.2992
1777.00 278.3488
1778.00 278.3992
1779.00 278.4504
1780.00 278.5023
1781.00 278.5549
1782.00 278.6083
1783.00 278.6625
1784.00 278.7174
1785.00 278.7731
1786.00 278.8296
1787.00 278.8868
1788.00 278.9448
1789.00 279.0036
1790.00 279.0632
1791.00 279.1236
1792.00 279.1848
1793.00 279.2468
1794.00 279.3096
1795.00 279.3733
1796.00 279.4378
1797.00 279.5032
1798.00 279.5695
1799.00 279.6367

1800.00 279.7049
1801.00 279.7740
1802.00 279.8440
1803.00 279.9151
1804.00 279.9871
1805.00 280.0602
1806.00 280.1343
1807.00 280.2094
1808.00 280.2856
1809.00 280.3628
1810.00 280.4412
1811.00 280.5207
1812.00 280.6012
1813.00 280.6829
1814.00 280.7657
1815.00 280.8495
1816.00 280.9345
1817.00 281.0206
1818.00 281.1077
1819.00 281.1960
1820.00 281.2853

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1821.00 281.3757
1822.00 281.4673
1823.00 281.5599
1824.00 281.6536
1825.00 281.7484
1826.00 281.8442
1827.00 281.9412
1828.00 282.0393
1829.00 282.1385
1830.00 282.2389
1831.00 282.3404
1832.00 282.4432
1833.00 282.5471
1834.00 282.6523
1835.00 282.7587
1836.00 282.8663
1837.00 282.9753
1838.00 283.0855
1839.00 283.1970
1840.00 283.3096
1841.00 283.4234
1842.00 283.5382
1843.00 283.6542
1844.00 283.7711
1845.00 283.8891
1846.00 284.0079
1847.00 284.1277
1848.00 284.2483
1849.00 284.3698
1850.00 284.4921
1851.00 284.6153
1852.00 284.7401
1853.00 284.8674
1854.00 284.9978
1855.00 285.1321
1856.00 285.2701
1857.00 285.4115
1858.00 285.5559
1859.00 285.7030

1860.00 285.8524
1861.00 286.0037
1862.00 286.1570
1863.00 286.3127
1864.00 286.4719
1865.00 286.6358
1866.00 286.8053
1867.00 286.9816
1868.00 287.1657
1869.00 287.3589
1870.00 287.5621
1871.00 287.7757
1872.00 288.0002
1873.00 288.2358
1874.00 288.4830
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1875.00 288.7422
1876.00 289.0136
1877.00 289.2967
1878.00 289.5900
1879.00 289.8908
1880.00 290.1964
1881.00 290.5039
1882.00 290.8104
1883.00 291.1135
1884.00 291.4127
1885.00 291.7080
1886.00 291.9992
1887.00 292.2871
1888.00 292.5743
1889.00 292.8641
1890.00 293.1575
1891.00 293.4527
1892.00 293.7484
1893.00 294.0441
1894.00 294.3407
1895.00 294.6395
1896.00 294.9416
1897.00 295.2482
1898.00 295.5605
1899.00 295.8792
1900.00 296.2035
1901.00 296.5323
1902.00 296.8648
1903.00 297.2001
1904.00 297.5379
1905.00 297.8776
1906.00 298.2186
1907.00 298.5607
1908.00 298.9035
1909.00 299.2468
1910.00 299.5901
1911.00 299.9333
1912.00 300.2759
1913.00 300.6179
1914.00 300.9594
1915.00 301.3009
1916.00 301.6429
1917.00 301.9851
1918.00 302.3275
1919.00 302.6698

1920.00 303.0118
1921.00 303.3534
1922.00 303.6944
1923.00 304.0346
1924.00 304.3738
1925.00 304.7117
1926.00 305.0478
1927.00 305.3814
1928.00 305.7115
JTO-062635

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1929.00 306.0370
1930.00 306.3568
1931.00 306.6682
1932.00 306.9685
1933.00 307.2551
1934.00 307.5260
1935.00 307.7799
1936.00 308.0169
1937.00 308.2373
1938.00 308.4411
1939.00 308.6285
1940.00 308.8013
1941.00 308.9624
1942.00 309.1160
1943.00 309.2665
1944.00 309.4184
1945.00 309.5761
1946.00 309.7442
1947.00 309.9274
1948.00 310.1304
1949.00 310.3580
1950.00 310.6157
1951.00 310.9093
1952.00 311.2443
1953.00 311.6264
1954.00 312.0614
1955.00 312.5555
1956.00 313.1169
1957.00 313.7543
1958.00 314.4745
1959.00 315.2509
1960.00 316.0386
1961.00 316.8094
1962.00 317.5579
1963.00 318.2925
1964.00 319.0301
1965.00 319.7862
1966.00 320.5830
1967.00 321.4308
1968.00 322.3288
1969.00 323.2809
1970.00 324.2854
1971.00 325.3325
1972.00 326.4206
1973.00 327.5491
1974.00 328.7101
1975.00 329.9035
1976.00 331.1458
1977.00 332.4506
1978.00 333.8181
1979.00 335.2335

1980.00 336.6862
1981.00 338.1677
1982.00 339.6704
JTO-062636

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1983.00 341.1889
1984.00 342.7189
1985.00 344.2564
1986.00 345.7980
1987.00 347.3407
1988.00 348.8821
1989.00 350.4203
1990.00 351.9549
1991.00 353.4883
1992.00 355.0253
1993.00 356.5725
1994.00 358.1378
1995.00 359.7282
1996.00 361.3491
1997.00 363.0046
1998.00 364.6974
1999.00 366.4288
2000.00 368.1988
2001.00 370.0077

```
#####  
# NOTE: DATA FROM YEAR 850 TO 1000 ARE ARTIFICIAL (MIRROR OF DATA FROM yr 1001 to 1150)  
# USE 850 to 1000 AD data only for initialisaton  
#####  
#  
#RADIATIVE FORCING BY VOLCANOES AFTER CROWLEY, Science, 2000  
#-----  
#  
# NOTE: RADIATIVE FORCING IN THIS FILE INCLUDES ALBEDO EFFECT.  
# IN THE NUMBERS BELOW AN ALBEDO OF 30% HAS BEEN FACTORED IN.  
# IF THE MODEL ACCOUNTS FOR ALBEDO THEN THE NUMBERS NEED TO BE MULTIPLIED BY 1./0.7  
#  
# file modified by  
# Fortunat Joos  
# Climate and Environmental Physics  
# Sidlerstr. 5, CH-3012 Bern  
# joos@climate.unibe.ch  
# ORIGINAL MESSAGE FROM CROWLEY:  
# -----  
#  
# Hi All,  
#  
# some of you have requested the forcing time series used in last years  
# Science paper. I referred you to a NOAA website. But I now realize there  
# may be incomplete information in the explanations, in the sense that the  
# solar and tropospheric aerosol forcing was listed as net radiative forcing  
# after accounting for the 30% albedo of the earths atmosphere. some 1D ebm  
# do not explicitly consider the albedo term, but virtually all other models  
# so.  
#  
# In order to ensure that everyone is on the same page with respect to  
# evaluating the forcing terms I use I am sending each of you an ftp address  
# where you can download estimates of volcano, solar, greenhouse gas,and  
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```

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```
# tropospheric (1000-1998) using total forcing prior to accounting for the
# planetary albedo.
#
# The ftp address is:
#
# anonymous FTP to stommel.tamu.edu
# cd incoming/FORCING
# get forc-total-4.12.01.txt
#
# a few other comments -
#
# all units are in W/m**2
#
# hl in volc time series refers to the fact that eruptions of unknown origin
# have been assigned a high latitude (hl) origin. There are "tails" to most
# of the large eruptions that were determined based on the estimated
# e-folding time of the aerosols as being about 1 year
#
# Sol.Be10 refers to the Beryllium 10 measurements of Bard et al but scaled
# by me to the Lean et al changes over the last 400 years. After further
# reflection I think the Be10 may be the most reliable of the solar indices.
#
# GHG refers to greenhouse gases
#
# Aer refers to tropospheric aerosols
#
# sorry about any confusion the prior data may have caused, regards, Tom
#
# Thomas J. Crowley
# Dept. of Oceanography
# Texas A&M University
# College Station, TX 77843-3146
# 979-845-0795
# 979-847-8879 (fax)
# 979-845-6331 (alternate fax)
#
#####
# NOTE: DATA FROM YEAR 850 TO 1000 ARE ARTIFICIAL (MIRROR OF DATA FROM yr 1001 to 1150)
# USE 850 to 1000 AD data only for initialisaton
#####
# HERE converted from original file: forc-total-4.12.01.txt
# WITH Planetary Albedo factored in: volc multiplied by 0.7
#####
#Year Vol.hl.cct
850.50 0.0000
851.50 0.0000
852.50 0.0000
853.50 0.0000
854.50 0.0000
855.50 0.0000
856.50 0.0000
857.50 0.0000
858.50 0.0000
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859.50 0.0000
```

860.50 0.0000
861.50 0.0000
862.50 0.0000
863.50 0.0000
864.50 0.0000
865.50 0.0000
866.50 0.0000
867.50 0.0000
868.50 0.0000
869.50 0.0000
870.50 0.0000
871.50 0.0000
872.50 0.0000
873.50 0.0000
874.50 0.0000
875.50 0.0000
876.50 0.0000
877.50 0.0000
878.50 0.0000
879.50 0.0000
880.50 0.0000
881.50 0.0000
882.50 0.0000
883.50 0.0000
884.50 0.0000
885.50 0.0000
886.50 0.0000
887.50 0.0000
888.50 0.0000
889.50 0.0000
890.50 0.0000
891.50 0.0000
892.50 0.0000
893.50 0.0000
894.50 0.0000
895.50 0.0000
896.50 0.0000
897.50 0.0000
898.50 0.0000
899.50 0.0000
900.50 0.0000
901.50 0.0000
902.50 -0.4900
903.50 -1.2950
904.50 0.0000
905.50 0.0000
906.50 0.0000
907.50 0.0000
908.50 0.0000
909.50 0.0000
910.50 0.0000
911.50 0.0000
912.50 0.0000
JTO-062639

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913.50 0.0000
914.50 0.0000
915.50 0.0000
916.50 0.0000
917.50 0.0000
918.50 0.0000
919.50 -0.2100

920.50 -0.5600
921.50 0.0000
922.50 0.0000
923.50 0.0000
924.50 0.0000
925.50 0.0000
926.50 0.0000
927.50 0.0000
928.50 0.0000
929.50 0.0000
930.50 0.0000
931.50 0.0000
932.50 0.0000
933.50 0.0000
934.50 0.0000
935.50 0.0000
936.50 0.0000
937.50 -0.2800
938.50 -0.8400
939.50 0.0000
940.50 0.0000
941.50 -1.1900
942.50 -3.1570
943.50 0.0000
944.50 0.0000
945.50 0.0000
946.50 0.0000
947.50 0.0000
948.50 0.0000
949.50 0.0000
950.50 0.0000
951.50 0.0000
952.50 0.0000
953.50 0.0000
954.50 0.0000
955.50 0.0000
956.50 0.0000
957.50 0.0000
958.50 0.0000
959.50 0.0000
960.50 0.0000
961.50 0.0000
962.50 0.0000
963.50 0.0000
964.50 0.0000
965.50 0.0000
966.50 0.0000
JTO-062640

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967.50 0.0000
968.50 0.0000
969.50 0.0000
970.50 0.0000
971.50 0.0000
972.50 0.0000
973.50 -0.8400
974.50 -2.2890
975.50 0.0000
976.50 0.0000
977.50 0.0000
978.50 0.0000
979.50 0.0000

980.50 0.0000
981.50 0.0000
982.50 0.0000
983.50 0.0000
984.50 -0.7000
985.50 -1.9530
986.50 0.0000
987.50 0.0000
988.50 0.0000
989.50 0.0000
990.50 0.0000
991.50 0.0000
992.50 0.0000
993.50 0.0000
994.50 0.0000
995.50 -0.2100
996.50 -0.5600
997.50 0.0000
998.50 0.0000
999.50 0.0000
1000.50 0.0000
1001.50 0.0000
1002.50 0.0000
1003.50 0.0000
1004.50 -0.5600
1005.50 -0.2100
1006.50 0.0000
1007.50 0.0000
1008.50 0.0000
1009.50 0.0000
1010.50 0.0000
1011.50 0.0000
1012.50 0.0000
1013.50 0.0000
1014.50 0.0000
1015.50 -1.9530
1016.50 -0.7000
1017.50 0.0000
1018.50 0.0000
1019.50 0.0000
1020.50 0.0000
JTO-062641

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1021.50 0.0000
1022.50 0.0000
1023.50 0.0000
1024.50 0.0000
1025.50 0.0000
1026.50 -2.2890
1027.50 -0.8400
1028.50 0.0000
1029.50 0.0000
1030.50 0.0000
1031.50 0.0000
1032.50 0.0000
1033.50 0.0000
1034.50 0.0000
1035.50 0.0000
1036.50 0.0000
1037.50 0.0000
1038.50 0.0000
1039.50 0.0000

1040.50 0.0000
1041.50 0.0000
1042.50 0.0000
1043.50 0.0000
1044.50 0.0000
1045.50 0.0000
1046.50 0.0000
1047.50 0.0000
1048.50 0.0000
1049.50 0.0000
1050.50 0.0000
1051.50 0.0000
1052.50 0.0000
1053.50 0.0000
1054.50 0.0000
1055.50 0.0000
1056.50 0.0000
1057.50 0.0000
1058.50 -3.1570
1059.50 -1.1900
1060.50 0.0000
1061.50 0.0000
1062.50 -0.8400
1063.50 -0.2800
1064.50 0.0000
1065.50 0.0000
1066.50 0.0000
1067.50 0.0000
1068.50 0.0000
1069.50 0.0000
1070.50 0.0000
1071.50 0.0000
1072.50 0.0000
1073.50 0.0000
1074.50 0.0000
JTO-062642

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1075.50 0.0000
1076.50 0.0000
1077.50 0.0000
1078.50 0.0000
1079.50 0.0000
1080.50 -0.5600
1081.50 -0.2100
1082.50 0.0000
1083.50 0.0000
1084.50 0.0000
1085.50 0.0000
1086.50 0.0000
1087.50 0.0000
1088.50 0.0000
1089.50 0.0000
1090.50 0.0000
1091.50 0.0000
1092.50 0.0000
1093.50 0.0000
1094.50 0.0000
1095.50 0.0000
1096.50 0.0000
1097.50 -1.2950
1098.50 -0.4900
1099.50 0.0000

1100.50 0.0000
1101.50 0.0000
1102.50 0.0000
1103.50 0.0000
1104.50 0.0000
1105.50 0.0000
1106.50 0.0000
1107.50 0.0000
1108.50 0.0000
1109.50 0.0000
1110.50 0.0000
1111.50 0.0000
1112.50 0.0000
1113.50 0.0000
1114.50 0.0000
1115.50 0.0000
1116.50 0.0000
1117.50 0.0000
1118.50 0.0000
1119.50 0.0000
1120.50 0.0000
1121.50 0.0000
1122.50 0.0000
1123.50 0.0000
1124.50 0.0000
1125.50 0.0000
1126.50 0.0000
1127.50 0.0000
1128.50 0.0000

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1129.50 0.0000
1130.50 0.0000
1131.50 0.0000
1132.50 0.0000
1133.50 0.0000
1134.50 0.0000
1135.50 0.0000
1136.50 0.0000
1137.50 0.0000
1138.50 0.0000
1139.50 0.0000
1140.50 0.0000
1141.50 0.0000
1142.50 0.0000
1143.50 0.0000
1144.50 0.0000
1145.50 0.0000
1146.50 0.0000
1147.50 0.0000
1148.50 0.0000
1149.50 0.0000
1150.50 0.0000
1151.50 0.0000
1152.50 0.0000
1153.50 0.0000
1154.50 0.0000
1155.50 0.0000
1156.50 0.0000
1157.50 0.0000
1158.50 0.0000
1159.50 0.0000

1160.50 0.0000
1161.50 0.0000
1162.50 0.0000
1163.50 0.0000
1164.50 0.0000
1165.50 0.0000
1166.50 -0.7700
1167.50 -0.2800
1168.50 0.0000
1169.50 0.0000
1170.50 0.0000
1171.50 0.0000
1172.50 0.0000
1173.50 0.0000
1174.50 0.0000
1175.50 -4.8580
1176.50 -1.8200
1177.50 -0.7000
1178.50 0.0000
1179.50 0.0000
1180.50 0.0000
1181.50 0.0000
1182.50 0.0000
JTO-062644

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1183.50 0.0000
1184.50 0.0000
1185.50 0.0000
1186.50 0.0000
1187.50 0.0000
1188.50 0.0000
1189.50 0.0000
1190.50 0.0000
1191.50 0.0000
1192.50 0.0000
1193.50 0.0000
1194.50 -1.6940
1195.50 -0.6300
1196.50 0.0000
1197.50 0.0000
1198.50 0.0000
1199.50 0.0000
1200.50 0.0000
1201.50 0.0000
1202.50 0.0000
1203.50 0.0000
1204.50 0.0000
1205.50 -0.9100
1206.50 -0.3500
1207.50 0.0000
1208.50 0.0000
1209.50 0.0000
1210.50 0.0000
1211.50 0.0000
1212.50 0.0000
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1216.50 0.0000
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1220.50 0.0000
1221.50 0.0000
1222.50 0.0000
1223.50 0.0000
1224.50 0.0000
1225.50 0.0000
1226.50 0.0000
1227.50 -0.5600
1228.50 -0.2100
1229.50 -3.5630
1230.50 -1.3300
1231.50 -0.4900
1232.50 0.0000
1233.50 0.0000
1234.50 0.0000
1235.50 0.0000
1236.50 0.0000
JTO-062645

**CONFIDENTIAL -
IN CAMERA REVIEW ONLY
Pima County Superior Ct. C2013-4963**

1237.50 0.0000
1238.50 0.0000
1239.50 0.0000
1240.50 0.0000
1241.50 0.0000
1242.50 0.0000
1243.50 0.0000
1244.50 0.0000
1245.50 0.0000
1246.50 0.0000
1247.50 0.0000
1248.50 0.0000
1249.50 0.0000
1250.50 0.0000
1251.50 0.0000
1252.50 0.0000
1253.50 0.0000
1254.50 0.0000
1255.50 0.0000
1256.50 0.0000
1257.50 0.0000
1258.50 0.0000
1259.50 -8.2740
1260.50 -3.0800
1261.50 -1.1200
1262.50 0.0000
1263.50 0.0000
1264.50 0.0000
1265.50 0.0000
1266.50 0.0000
1267.50 0.0000
1268.50 0.0000
1269.50 0.0000
1270.50 0.0000
1271.50 0.0000
1272.50 0.0000
1273.50 0.0000
1274.50 0.0000
1275.50 -2.0650
1276.50 -0.7700
1277.50 0.0000
1278.50 0.0000
1279.50 0.0000

1280.50 0.0000
1281.50 0.0000
1282.50 0.0000
1283.50 0.0000
1284.50 0.0000
1285.50 -2.6250
1286.50 -0.9800
1287.50 0.0000
1288.50 0.0000
1289.50 0.0000
1290.50 0.0000
JTO-062646

**CONFIDENTIAL -
IN CAMERA REVIEW ONLY
Pima County Superior Ct. C2013-4963**

1291.50 0.0000
1292.50 0.0000
1293.50 0.0000
1294.50 0.0000
1295.50 -2.5410
1296.50 -0.9100
1297.50 0.0000
1298.50 0.0000
1299.50 0.0000
1300.50 0.0000
1301.50 0.0000
1302.50 0.0000
1303.50 0.0000
1304.50 0.0000
1305.50 0.0000
1306.50 0.0000
1307.50 0.0000
1308.50 0.0000
1309.50 0.0000
1310.50 0.0000
1311.50 0.0000
1312.50 0.0000
1313.50 0.0000
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1315.50 0.0000
1316.50 0.0000
1317.50 0.0000
1318.50 0.0000
1319.50 0.0000
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1321.50 0.0000
1322.50 0.0000
1323.50 0.0000
1324.50 0.0000
1325.50 0.0000
1326.50 0.0000
1327.50 0.0000
1328.50 0.0000
1329.50 -2.1910
1330.50 -0.7700
1331.50 0.0000
1332.50 0.0000
1333.50 0.0000
1334.50 0.0000
1335.50 0.0000
1336.50 0.0000
1337.50 0.0000
1338.50 0.0000
1339.50 0.0000

1340.50 0.0000
1341.50 0.0000
1342.50 0.0000
1343.50 0.0000
1344.50 0.0000
JTO-062647

**CONFIDENTIAL -
IN CAMERA REVIEW ONLY
Pima County Superior Ct. C2013-4963**

1345.50 -1.8550
1346.50 -0.7000
1347.50 0.0000
1348.50 0.0000
1349.50 0.0000
1350.50 0.0000
1351.50 0.0000
1352.50 0.0000
1353.50 0.0000
1354.50 0.0000
1355.50 0.0000
1356.50 0.0000
1357.50 0.0000
1358.50 0.0000
1359.50 0.0000
1360.50 0.0000
1361.50 0.0000
1362.50 0.0000
1363.50 0.0000
1364.50 0.0000
1365.50 0.0000
1366.50 0.0000
1367.50 0.0000
1368.50 0.0000
1369.50 0.0000
1370.50 0.0000
1371.50 0.0000
1372.50 0.0000
1373.50 0.0000
1374.50 0.0000
1375.50 -0.7700
1376.50 -0.2800
1377.50 0.0000
1378.50 0.0000
1379.50 0.0000
1380.50 0.0000
1381.50 0.0000
1382.50 0.0000
1383.50 0.0000
1384.50 0.0000
1385.50 0.0000
1386.50 0.0000
1387.50 -0.7700
1388.50 -0.2800
1389.50 0.0000
1390.50 0.0000
1391.50 0.0000
1392.50 0.0000
1393.50 0.0000
1394.50 0.0000
1395.50 0.0000
1396.50 0.0000
1397.50 0.0000
1398.50 0.0000
JTO-062648

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IN CAMERA REVIEW ONLY
Pima County Superior Ct. C2013-4963**

1399.50 0.0000
1400.50 0.0000
1401.50 0.0000
1402.50 0.0000
1403.50 0.0000
1404.50 0.0000
1405.50 0.0000
1406.50 0.0000
1407.50 0.0000
1408.50 -0.7000
1409.50 -0.2800
1410.50 0.0000
1411.50 0.0000
1412.50 0.0000
1413.50 0.0000
1414.50 0.0000
1415.50 0.0000
1416.50 0.0000
1417.50 0.0000
1418.50 0.0000
1419.50 0.0000
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1421.50 0.0000
1422.50 0.0000
1423.50 0.0000
1424.50 0.0000
1425.50 0.0000
1426.50 0.0000
1427.50 0.0000
1428.50 0.0000
1429.50 0.0000
1430.50 0.0000
1431.50 0.0000
1432.50 0.0000
1433.50 0.0000
1434.50 -0.4900
1435.50 -0.1400
1436.50 0.0000
1437.50 0.0000
1438.50 0.0000
1439.50 0.0000
1440.50 0.0000
1441.50 0.0000
1442.50 0.0000
1443.50 0.0000
1444.50 0.0000
1445.50 0.0000
1446.50 0.0000
1447.50 0.0000
1448.50 0.0000
1449.50 0.0000
1450.50 0.0000
1451.50 0.0000
1452.50 0.0000
JTO-062649

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Pima County Superior Ct. C2013-4963

1453.50 -3.0800
1454.50 -1.1200
1455.50 0.0000
1456.50 0.0000
1457.50 0.0000
1458.50 0.0000
1459.50 -2.9400
1460.50 -3.1710
1461.50 -1.1900
1462.50 0.0000
1463.50 0.0000
1464.50 0.0000
1465.50 0.0000
1466.50 -0.7700
1467.50 -0.2800
1468.50 0.0000
1469.50 0.0000
1470.50 0.0000
1471.50 0.0000
1472.50 0.0000
1473.50 0.0000
1474.50 0.0000
1475.50 0.0000
1476.50 0.0000
1477.50 0.0000
1478.50 0.0000
1479.50 0.0000
1480.50 0.0000
1481.50 -0.7000
1482.50 0.0000
1483.50 -0.9800
1484.50 0.0000
1485.50 0.0000
1486.50 0.0000
1487.50 0.0000
1488.50 0.0000
1489.50 0.0000
1490.50 0.0000
1491.50 0.0000
1492.50 0.0000
1493.50 0.0000
1494.50 0.0000
1495.50 -0.8400
1496.50 -0.2800
1497.50 0.0000
1498.50 0.0000
1499.50 0.0000
1500.50 0.0000
1501.50 0.0000
1502.50 0.0000
1503.50 0.0000
1504.50 -0.7000
1505.50 -0.2800
1506.50 0.0000
JTO-062650

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Pima County Superior Ct. C2013-4963

1507.50 0.0000
1508.50 0.0000
1509.50 0.0000

1510.50 0.0000
1511.50 0.0000
1512.50 0.0000
1513.50 0.0000
1514.50 0.0000
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1516.50 0.0000
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1518.50 0.0000
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1521.50 0.0000
1522.50 0.0000
1523.50 0.0000
1524.50 0.0000
1525.50 0.0000
1526.50 0.0000
1527.50 -1.9530
1528.50 -0.7000
1529.50 0.0000
1530.50 0.0000
1531.50 0.0000
1532.50 0.0000
1533.50 0.0000
1534.50 0.0000
1535.50 0.0000
1536.50 0.0000
1537.50 0.0000
1538.50 0.0000
1539.50 0.0000
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1552.50 0.0000
1553.50 0.0000
1554.50 0.0000
1555.50 0.0000
1556.50 0.0000
1557.50 0.0000
1558.50 0.0000
1559.50 0.0000
1560.50 0.0000
JTO-062651

**CONFIDENTIAL -
IN CAMERA REVIEW ONLY
Pima County Superior Ct. C2013-4963**

1561.50 0.0000
1562.50 0.0000
1563.50 0.0000
1564.50 -1.8340
1565.50 -0.7000
1566.50 0.0000
1567.50 0.0000
1568.50 0.0000
1569.50 0.0000

1570.50 -0.4900
1571.50 -0.1400
1572.50 0.0000
1573.50 0.0000
1574.50 0.0000
1575.50 0.0000
1576.50 0.0000
1577.50 0.0000
1578.50 0.0000
1579.50 0.0000
1580.50 0.0000
1581.50 0.0000
1582.50 0.0000
1583.50 0.0000
1584.50 0.0000
1585.50 0.0000
1586.50 0.0000
1587.50 -3.1290
1588.50 -2.2120
1589.50 -0.8400
1590.50 0.0000
1591.50 0.0000
1592.50 0.0000
1593.50 0.0000
1594.50 0.0000
1595.50 0.0000
1596.50 0.0000
1597.50 0.0000
1598.50 0.0000
1599.50 0.0000
1600.50 0.0000
1601.50 -3.8010
1602.50 -1.4000
1603.50 -0.4900
1604.50 0.0000
1605.50 0.0000
1606.50 0.0000
1607.50 0.0000
1608.50 0.0000
1609.50 0.0000
1610.50 0.0000
1611.50 0.0000
1612.50 0.0000
1613.50 -1.9530
1614.50 -0.7000
JTO-062652

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Pima County Superior Ct. C2013-4963**

1615.50 0.0000
1616.50 0.0000
1617.50 0.0000
1618.50 0.0000
1619.50 0.0000
1620.50 0.0000
1621.50 0.0000
1622.50 -2.1700
1623.50 -0.7700
1624.50 0.0000
1625.50 0.0000
1626.50 0.0000
1627.50 0.0000
1628.50 0.0000
1629.50 0.0000

1630.50 0.0000
1631.50 0.0000
1632.50 0.0000
1633.50 0.0000
1634.50 0.0000
1635.50 0.0000
1636.50 0.0000
1637.50 0.0000
1638.50 0.0000
1639.50 0.0000
1640.50 0.0000
1641.50 -3.8500
1642.50 -1.4000
1643.50 -0.5600
1644.50 0.0000
1645.50 -0.2800
1646.50 -0.0700
1647.50 0.0000
1648.50 0.0000
1649.50 0.0000
1650.50 0.0000
1651.50 0.0000
1652.50 0.0000
1653.50 0.0000
1654.50 0.0000
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1656.50 0.0000
1657.50 0.0000
1658.50 0.0000
1659.50 0.0000
1660.50 0.0000
1661.50 0.0000
1662.50 0.0000
1663.50 0.0000
1664.50 0.0000
1665.50 0.0000
1666.50 0.0000
1667.50 -1.6940
1668.50 -0.6300

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Pima County Superior Ct. C2013-4963**

1669.50 0.0000
1670.50 0.0000
1671.50 0.0000
1672.50 0.0000
1673.50 0.0000
1674.50 -2.3590
1675.50 -0.8400
1676.50 0.0000
1677.50 0.0000
1678.50 0.0000
1679.50 0.0000
1680.50 0.0000
1681.50 -1.9530
1682.50 -0.7000
1683.50 0.0000
1684.50 0.0000
1685.50 0.0000
1686.50 0.0000
1687.50 0.0000
1688.50 0.0000
1689.50 -0.5250

1690.50 0.0000
1691.50 0.0000
1692.50 0.0000
1693.50 0.0000
1694.50 0.0000
1695.50 -2.4500
1696.50 -0.9100
1697.50 0.0000
1698.50 0.0000
1699.50 0.0000
1700.50 0.0000
1701.50 0.0000
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1703.50 0.0000
1704.50 0.0000
1705.50 0.0000
1706.50 0.0000
1707.50 0.0000
1708.50 0.0000
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1712.50 0.0000
1713.50 0.0000
1714.50 0.0000
1715.50 0.0000
1716.50 0.0000
1717.50 0.0000
1718.50 0.0000
1719.50 0.0000
1720.50 0.0000
1721.50 0.0000
1722.50 0.0000

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Pima County Superior Ct. C2013-4963**

1723.50 0.0000
1724.50 0.0000
1725.50 0.0000
1726.50 0.0000
1727.50 0.0000
1728.50 0.0000
1729.50 -2.3240
1730.50 0.0000
1731.50 0.0000
1732.50 0.0000
1733.50 0.0000
1734.50 0.0000
1735.50 0.0000
1736.50 0.0000
1737.50 0.0000
1738.50 0.0000
1739.50 -0.9100
1740.50 0.0000
1741.50 0.0000
1742.50 0.0000
1743.50 0.0000
1744.50 0.0000
1745.50 0.0000
1746.50 0.0000
1747.50 0.0000
1748.50 0.0000
1749.50 0.0000

1750.50 0.0000
1751.50 0.0000
1752.50 0.0000
1753.50 0.0000
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1756.50 0.0000
1757.50 0.0000
1758.50 0.0000
1759.50 0.0000
1760.50 0.0000
1761.50 0.0000
1762.50 0.0000
1763.50 0.0000
1764.50 0.0000
1765.50 0.0000
1766.50 0.0000
1767.50 0.0000
1768.50 0.0000
1769.50 0.0000
1770.50 0.0000
1771.50 0.0000
1772.50 0.0000
1773.50 0.0000
1774.50 0.0000
1775.50 0.0000
1776.50 0.0000

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1777.50 0.0000
1778.50 0.0000
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1780.50 0.0000
1781.50 0.0000
1782.50 0.0000
1783.50 -2.3590
1784.50 0.0000
1785.50 0.0000
1786.50 0.0000
1787.50 0.0000
1788.50 0.0000
1789.50 -0.8400
1790.50 -0.2800
1791.50 0.0000
1792.50 0.0000
1793.50 0.0000
1794.50 0.0000
1795.50 0.0000
1796.50 0.0000
1797.50 0.0000
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1799.50 0.0000
1800.50 0.0000
1801.50 0.0000
1802.50 0.0000
1803.50 0.0000
1804.50 0.0000
1805.50 0.0000
1806.50 0.0000
1807.50 0.0000
1808.50 0.0000
1809.50 -3.8500

1810.50 -1.4000
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1812.50 0.0000
1813.50 0.0000
1814.50 0.0000
1815.50 -4.1860
1816.50 -1.5400
1817.50 -0.5600
1818.50 0.0000
1819.50 0.0000
1820.50 0.0000
1821.50 0.0000
1822.50 0.0000
1823.50 0.0000
1824.50 0.0000
1825.50 0.0000
1826.50 0.0000
1827.50 0.0000
1828.50 0.0000
1829.50 0.0000
1830.50 -0.8400
JTO-062656

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Pima County Superior Ct. C2013-4963**

1831.50 -3.4020
1832.50 -1.2600
1833.50 0.0000
1834.50 0.0000
1835.50 -2.0650
1836.50 -0.7700
1837.50 0.0000
1838.50 0.0000
1839.50 0.0000
1840.50 -0.7000
1841.50 -0.2800
1842.50 0.0000
1843.50 -1.0500
1844.50 -0.4200
1845.50 0.0000
1846.50 0.0000
1847.50 0.0000
1848.50 0.0000
1849.50 0.0000
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1851.50 0.0000
1852.50 0.0000
1853.50 0.0000
1854.50 -0.5600
1855.50 0.0000
1856.50 0.0000
1857.50 0.0000
1858.50 0.0000
1859.50 0.0000
1860.50 0.0000
1861.50 0.0000
1862.50 0.0000
1863.50 0.0000
1864.50 0.0000
1865.50 0.0000
1866.50 0.0000
1867.50 0.0000
1868.50 0.0000
1869.50 0.0000

1870.50 0.0000
1871.50 0.0000
1872.50 0.0000
1873.50 0.0000
1874.50 0.0000
1875.50 0.0000
1876.50 0.0000
1877.50 0.0000
1878.50 0.0000
1879.50 0.0000
1880.50 0.0000
1881.50 0.0000
1882.50 0.0000
1883.50 -2.5900
1884.50 -0.9800
JTO-062657

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IN CAMERA REVIEW ONLY
Pima County Superior Ct. C2013-4963**

1885.50 0.0000
1886.50 0.0000
1887.50 0.0000
1888.50 0.0000
1889.50 0.0000
1890.50 0.0000
1891.50 0.0000
1892.50 0.0000
1893.50 0.0000
1894.50 0.0000
1895.50 0.0000
1896.50 0.0000
1897.50 0.0000
1898.50 0.0000
1899.50 0.0000
1900.50 0.0000
1901.50 0.0000
1902.50 -2.5200
1903.50 -0.9100
1904.50 0.0000
1905.50 0.0000
1906.50 0.0000
1907.50 -0.2590
1908.50 0.0000
1909.50 0.0000
1910.50 0.0000
1911.50 0.0000
1912.50 -1.4560
1913.50 -0.5600
1914.50 -0.5600
1915.50 0.0000
1916.50 0.0000
1917.50 0.0000
1918.50 0.0000
1919.50 0.0000
1920.50 0.0000
1921.50 0.0000
1922.50 0.0000
1923.50 0.0000
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1925.50 -0.3500
1926.50 0.0000
1927.50 0.0000
1928.50 0.0000
1929.50 0.0000

1930.50 0.0000
1931.50 0.0000
1932.50 0.0000
1933.50 0.0000
1934.50 0.0000
1935.50 0.0000
1936.50 0.0000
1937.50 0.0000
1938.50 0.0000
JTO-062658

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IN CAMERA REVIEW ONLY
Pima County Superior Ct. C2013-4963**

1939.50 0.0000
1940.50 0.0000
1941.50 0.0000
1942.50 0.0000
1943.50 0.0000
1944.50 0.0000
1945.50 0.0000
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1953.50 0.0000
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1955.50 0.0000
1956.50 -0.2870
1957.50 0.0000
1958.50 0.0000
1959.50 0.0000
1960.50 0.0000
1961.50 -0.2800
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1963.50 -0.4480
1964.50 -0.8330
1965.50 -0.7070
1966.50 -0.4620
1967.50 -0.3080
1968.50 -0.5950
1969.50 -0.7420
1970.50 -0.3570
1971.50 -0.1400
1972.50 -0.0770
1973.50 -0.1610
1974.50 -0.2660
1975.50 -0.6300
1976.50 -0.2870
1977.50 -0.1050
1978.50 -0.1540
1979.50 -0.1890
1980.50 -0.1120
1981.50 -0.1120
1982.50 -1.6870
1983.50 -2.1420
1984.50 -0.8260
1985.50 -0.2730
1986.50 -0.3080
1987.50 -0.2310
1988.50 -0.1400
1989.50 -0.1120

1990.50 -0.1120
1991.50 -1.1200
1992.50 -2.6110
JTO-062659

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Pima County Superior Ct. C2013-4963**

1993.50 -0.9730
1994.50 -0.3920
1995.50 -0.1820
1996.50 -0.1260
1997.50 -0.0980
1998.50 -0.0490

```
#  
# -----  
# Radiative forcing by non-CO2 agents  
# for industrial period in W/m2  
# -----  
##  
# Date: 13/10/2005  
# Time: 17.30  
##  
# prepared by  
# Fortunat Joos  
# Climate and Environmental Physics  
# Sidlerstr. 5, CH-3012 Bern  
# joos@climate.unibe.ch  
#  
# with fortran code: nonco2_radforc.f  
# Version March 2001  
# Code for future concentrations  
# provided by Michael Prather  
##  
# components included:  
# CH4, N2O, Stratospheric O3, Tropospheric O3,  
# direct and indirect sulfate aerosol,  
# direct fossil and biomass burning aerosols (BC+OC),  
# CFC-11,CFC-12,CFC-113,CFC-114,CFC-115,CCl4,CH3CCl3,  
# HFC-22,HCFC-141b,HCFC-142b,HCFC-123,CF3Br,CF2BrCl,  
# CF4 C2F6 C4F10 SF6 HFC-23 HFC-32 HFC-125 HFC-134a,  
# HFC-143a HFC-152a HFC-227ea HFC-245ca HFC-43-10mee  
# stratospheric H2O from CH4  
#  
# original file:  
# ~/ipcc_tar/sres/radforc_sres_apr01/output/ghg+rf_all_1765_2100_1yr_13oct05.out  
#  
# extended with zero values from 850 to 1765  
# fj januar 06  
#  
# year RF nonCO2 W/m2  
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Pima County Superior Ct. C2013-4963

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1665.50 0.0000
1666.50 0.0000
JTO-062675

**CONFIDENTIAL -
IN CAMERA REVIEW ONLY
Pima County Superior Ct. C2013-4963**

1667.50 0.0000
1668.50 0.0000
1669.50 0.0000
1670.50 0.0000
1671.50 0.0000
1672.50 0.0000
1673.50 0.0000
1674.50 0.0000
1675.50 0.0000
1676.50 0.0000
1677.50 0.0000
1678.50 0.0000
1679.50 0.0000
1680.50 0.0000
1681.50 0.0000
1682.50 0.0000
1683.50 0.0000
1684.50 0.0000
1685.50 0.0000

1686.50 0.0000
1687.50 0.0000
1688.50 0.0000
1689.50 0.0000
1690.50 0.0000
1691.50 0.0000
1692.50 0.0000
1693.50 0.0000
1694.50 0.0000
1695.50 0.0000
1696.50 0.0000
1697.50 0.0000
1698.50 0.0000
1699.50 0.0000
1700.50 0.0000
1701.50 0.0000
1702.50 0.0000
1703.50 0.0000
1704.50 0.0000
1705.50 0.0000
1706.50 0.0000
1707.50 0.0000
1708.50 0.0000
1709.50 0.0000
1710.50 0.0000
1711.50 0.0000
1712.50 0.0000
1713.50 0.0000
1714.50 0.0000
1715.50 0.0000
1716.50 0.0000
1717.50 0.0000
1718.50 0.0000
1719.50 0.0000
1720.50 0.0000
JTO-062676

**CONFIDENTIAL -
IN CAMERA REVIEW ONLY
Pima County Superior Ct. C2013-4963**

1721.50 0.0000
1722.50 0.0000
1723.50 0.0000
1724.50 0.0000
1725.50 0.0000
1726.50 0.0000
1727.50 0.0000
1728.50 0.0000
1729.50 0.0000
1730.50 0.0000
1731.50 0.0000
1732.50 0.0000
1733.50 0.0000
1734.50 0.0000
1735.50 0.0000
1736.50 0.0000
1737.50 0.0000
1738.50 0.0000
1739.50 0.0000
1740.50 0.0000
1741.50 0.0000
1742.50 0.0000
1743.50 0.0000
1744.50 0.0000
1745.50 0.0000

1746.50 0.0000
1747.50 0.0000
1748.50 0.0000
1749.50 0.0000
1750.50 0.0000
1751.50 0.0000
1752.50 0.0000
1753.50 0.0000
1754.50 0.0000
1755.50 0.0000
1756.50 0.0000
1757.50 0.0000
1758.50 0.0000
1759.50 0.0000
1760.50 0.0000
1761.50 0.0000
1762.50 0.0000
1763.50 0.0000
1764.50 0.0000
1765.50 -0.0009
1766.50 -0.0005
1767.50 -0.0001
1768.50 0.0003
1769.50 0.0007
1770.50 0.0011
1771.50 0.0015
1772.50 0.0019
1773.50 0.0022
1774.50 0.0026
JTO-062677

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IN CAMERA REVIEW ONLY
Pima County Superior Ct. C2013-4963**

1775.50 0.0030
1776.50 0.0034
1777.50 0.0037
1778.50 0.0041
1779.50 0.0045
1780.50 0.0048
1781.50 0.0052
1782.50 0.0056
1783.50 0.0059
1784.50 0.0063
1785.50 0.0066
1786.50 0.0070
1787.50 0.0074
1788.50 0.0078
1789.50 0.0082
1790.50 0.0085
1791.50 0.0090
1792.50 0.0094
1793.50 0.0098
1794.50 0.0102
1795.50 0.0107
1796.50 0.0111
1797.50 0.0116
1798.50 0.0121
1799.50 0.0126
1800.50 0.0131
1801.50 0.0136
1802.50 0.0142
1803.50 0.0147
1804.50 0.0153
1805.50 0.0159

1806.50 0.0165
1807.50 0.0172
1808.50 0.0178
1809.50 0.0185
1810.50 0.0191
1811.50 0.0199
1812.50 0.0206
1813.50 0.0213
1814.50 0.0220
1815.50 0.0227
1816.50 0.0235
1817.50 0.0242
1818.50 0.0250
1819.50 0.0257
1820.50 0.0265
1821.50 0.0273
1822.50 0.0280
1823.50 0.0288
1824.50 0.0296
1825.50 0.0304
1826.50 0.0312
1827.50 0.0319
1828.50 0.0327
JTO-062678

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Pima County Superior Ct. C2013-4963**

1829.50 0.0335
1830.50 0.0343
1831.50 0.0351
1832.50 0.0358
1833.50 0.0366
1834.50 0.0374
1835.50 0.0381
1836.50 0.0389
1837.50 0.0396
1838.50 0.0404
1839.50 0.0411
1840.50 0.0418
1841.50 0.0425
1842.50 0.0432
1843.50 0.0438
1844.50 0.0445
1845.50 0.0452
1846.50 0.0459
1847.50 0.0466
1848.50 0.0473
1849.50 0.0480
1850.50 0.0487
1851.50 0.0451
1852.50 0.0415
1853.50 0.0380
1854.50 0.0345
1855.50 0.0301
1856.50 0.0267
1857.50 0.0233
1858.50 0.0199
1859.50 0.0166
1860.50 0.0133
1861.50 0.0123
1862.50 0.0113
1863.50 0.0103
1864.50 0.0093
1865.50 0.0073

1866.50 0.0064
1867.50 0.0054
1868.50 0.0045
1869.50 0.0036
1870.50 0.0027
1871.50 0.0002
1872.50 -0.0022
1873.50 -0.0046
1874.50 -0.0080
1875.50 -0.0104
1876.50 -0.0128
1877.50 -0.0151
1878.50 -0.0174
1879.50 -0.0197
1880.50 -0.0219
1881.50 -0.0260
1882.50 -0.0301
JTO-062679

**CONFIDENTIAL -
IN CAMERA REVIEW ONLY
Pima County Superior Ct. C2013-4963**

1883.50 -0.0352
1884.50 -0.0392
1885.50 -0.0431
1886.50 -0.0470
1887.50 -0.0509
1888.50 -0.0547
1889.50 -0.0585
1890.50 -0.0622
1891.50 -0.0688
1892.50 -0.0753
1893.50 -0.0828
1894.50 -0.0891
1895.50 -0.0954
1896.50 -0.1016
1897.50 -0.1077
1898.50 -0.1137
1899.50 -0.1196
1900.50 -0.1255
1901.50 -0.1354
1902.50 -0.1452
1903.50 -0.1539
1904.50 -0.1635
1905.50 -0.1719
1906.50 -0.1812
1907.50 -0.1903
1908.50 -0.1984
1909.50 -0.2073
1910.50 -0.2151
1911.50 -0.2149
1912.50 -0.2148
1913.50 -0.2136
1914.50 -0.2133
1915.50 -0.2120
1916.50 -0.2178
1917.50 -0.2235
1918.50 -0.2281
1919.50 -0.2336
1920.50 -0.2380
1921.50 -0.2349
1922.50 -0.2317
1923.50 -0.2275
1924.50 -0.2242
1925.50 -0.2200

1926.50 -0.2226
1927.50 -0.2251
1928.50 -0.2266
1929.50 -0.2289
1930.50 -0.2299
1931.50 -0.2181
1932.50 -0.2062
1933.50 -0.1933
1934.50 -0.1812
1935.50 -0.1680
1936.50 -0.1890

JTO-062680

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IN CAMERA REVIEW ONLY
Pima County Superior Ct. C2013-4963**

1937.50 -0.2095
1938.50 -0.2286
1939.50 -0.2483
1940.50 -0.2666
1941.50 -0.2470
1942.50 -0.2272
1943.50 -0.2061
1944.50 -0.1859
1945.50 -0.1644
1946.50 -0.1859
1947.50 -0.2068
1948.50 -0.2262
1949.50 -0.2462
1950.50 -0.2656
1951.50 -0.2636
1952.50 -0.2623
1953.50 -0.2610
1954.50 -0.2594
1955.50 -0.2577
1956.50 -0.2733
1957.50 -0.2893
1958.50 -0.3055
1959.50 -0.3213
1960.50 -0.3175
1961.50 -0.3102
1962.50 -0.3181
1963.50 -0.3256
1964.50 -0.3273
1965.50 -0.3298
1966.50 -0.3194
1967.50 -0.3078
1968.50 -0.3083
1969.50 -0.3086
1970.50 -0.3208
1971.50 -0.3324
1972.50 -0.3287
1973.50 -0.3248
1974.50 -0.3179
1975.50 -0.3109
1976.50 -0.3114
1977.50 -0.3117
1978.50 -0.2831
1979.50 -0.2892
1980.50 -0.2607
1981.50 -0.2204
1982.50 -0.2151
1983.50 -0.1983
1984.50 -0.2162
1985.50 -0.2227

1986.50 -0.2267
1987.50 -0.2195
1988.50 -0.2238
1989.50 -0.2281
1990.50 -0.2321
JTO-062681

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Pima County Superior Ct. C2013-4963**

1991.50 -0.2201
1992.50 -0.2081
1993.50 -0.1961
1994.50 -0.1842
1995.50 -0.1724
1996.50 -0.1586
1997.50 -0.1448
1998.50 -0.1310
1999.50 -0.1173
2000.50 -0.1037
2001.50 -0.1181

#Fri Jul 29 17:56:43 2005

#Total Solar Irradiance consistent with Wang et al (ApJ, 2005)

#Background component used in Lean (GRL, 2000) is reduced by 0.27

Year 11yr Cycle 11yr+background

1610.50 -0.0793
1611.50 -0.0823
1612.50 -0.0126
1613.50 0.0070
1614.50 0.0200
1615.50 -0.0295
1616.50 -0.1024
1617.50 -0.1244
1618.50 -0.1263
1619.50 -0.1105
1620.50 -0.1112
1621.50 -0.1119
1622.50 -0.1126
1623.50 -0.1132
1624.50 -0.1204
1625.50 -0.0822
1626.50 -0.1017
1627.50 -0.1152
1628.50 -0.1134
1629.50 -0.1239
1630.50 -0.1500
1631.50 -0.1485
1632.50 -0.1543
1633.50 -0.1372
1634.50 -0.1512
1635.50 -0.1503
1636.50 -0.1561
1637.50 -0.1567
1638.50 -0.0751
1639.50 -0.0658
1640.50 -0.1411
1641.50 -0.1607
1642.50 -0.1049
1643.50 -0.1431
1644.50 -0.1527
1645.50 -0.1671
1646.50 -0.1671
1647.50 -0.1672
JTO-062682

**CONFIDENTIAL -
IN CAMERA REVIEW ONLY
Pima County Superior Ct. C2013-4963**

1648.50 -0.1676
1649.50 -0.1680
1650.50 -0.1682
1651.50 -0.1683
1652.50 -0.1635
1653.50 -0.1673
1654.50 -0.1687
1655.50 -0.1704
1656.50 -0.1706
1657.50 -0.1715
1658.50 -0.1725
1659.50 -0.1728
1660.50 -0.1705
1661.50 -0.1719
1662.50 -0.1728
1663.50 -0.1728
1664.50 -0.1728
1665.50 -0.1728
1666.50 -0.1728
1667.50 -0.1728
1668.50 -0.1729
1669.50 -0.1729
1670.50 -0.1729
1671.50 -0.1718
1672.50 -0.1724
1673.50 -0.1729
1674.50 -0.1726
1675.50 -0.1729
1676.50 -0.1708
1677.50 -0.1727
1678.50 -0.1728
1679.50 -0.1730
1680.50 -0.1720
1681.50 -0.1730
1682.50 -0.1730
1683.50 -0.1730
1684.50 -0.1713
1685.50 -0.1730
1686.50 -0.1722
1687.50 -0.1728
1688.50 -0.1722
1689.50 -0.1724
1690.50 -0.1725
1691.50 -0.1723
1692.50 -0.1720
1693.50 -0.1719
1694.50 -0.1719
1695.50 -0.1717
1696.50 -0.1719
1697.50 -0.1719
1698.50 -0.1719
1699.50 -0.1718
1700.50 -0.1712
1701.50 -0.1709
JTO-062683

**CONFIDENTIAL -
IN CAMERA REVIEW ONLY**

Pima County Superior Ct. C2013-4963

1702.50 -0.1703
1703.50 -0.1672
1704.50 -0.1646
1705.50 -0.1618
1706.50 -0.1639
1707.50 -0.1610
1708.50 -0.1635
1709.50 -0.1643
1710.50 -0.1639
1711.50 -0.1621
1712.50 -0.1610
1713.50 -0.1599
1714.50 -0.1571
1715.50 -0.1524
1716.50 -0.1454
1717.50 -0.1349
1718.50 -0.1451
1719.50 -0.1150
1720.50 -0.1250
1721.50 -0.1246
1722.50 -0.1363
1723.50 -0.1429
1724.50 -0.1281
1725.50 -0.1300
1726.50 -0.1002
1727.50 -0.0993
1728.50 -0.0659
1729.50 -0.1141
1730.50 -0.0594
1731.50 -0.1433
1732.50 -0.1209
1733.50 -0.1403
1734.50 -0.1385
1735.50 -0.1157
1736.50 -0.0790
1737.50 -0.1080
1738.50 -0.1160
1739.50 -0.0736
1740.50 -0.1258
1741.50 -0.0681
1742.50 -0.1182
1743.50 -0.1278
1744.50 -0.1376
1745.50 -0.1371
1746.50 -0.1361
1747.50 -0.1347
1748.50 -0.0604
1749.50 -0.0569
1750.50 -0.0633
1751.50 -0.0931
1752.50 -0.0980
1753.50 -0.1011
1754.50 -0.1164
1755.50 -0.1187

JTO-062684

CONFIDENTIAL -

IN CAMERA REVIEW ONLY

Pima County Superior Ct. C2013-4963

1756.50 -0.1137
1757.50 -0.0922
1758.50 -0.0723

1759.50 -0.0612
1760.50 -0.0656
1761.50 -0.0368
1762.50 -0.0610
1763.50 -0.0733
1764.50 -0.0775
1765.50 -0.1039
1766.50 -0.1092
1767.50 -0.0732
1768.50 -0.0289
1769.50 0.0034
1770.50 0.0038
1771.50 -0.0148
1772.50 -0.0274
1773.50 -0.0657
1774.50 -0.0724
1775.50 -0.0964
1776.50 -0.0868
1777.50 -0.0585
1778.50 -0.0183
1779.50 -0.0082
1780.50 -0.0393
1781.50 -0.0198
1782.50 -0.0662
1783.50 -0.0825
1784.50 -0.1056
1785.50 -0.0952
1786.50 -0.0406
1787.50 -0.0116
1788.50 -0.0210
1789.50 -0.0246
1790.50 -0.0419
1791.50 -0.0682
1792.50 -0.0707
1793.50 -0.0743
1794.50 -0.0907
1795.50 -0.1112
1796.50 -0.1164
1797.50 -0.1257
1798.50 -0.1301
1799.50 -0.1290
1800.50 -0.1219
1801.50 -0.0743
1802.50 -0.0955
1803.50 -0.1187
1804.50 -0.1180
1805.50 -0.1162
1806.50 -0.1333
1807.50 -0.1451
1808.50 -0.1495
1809.50 -0.1544
JTO-062685

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Pima County Superior Ct. C2013-4963**

1810.50 -0.1559
1811.50 -0.1536
1812.50 -0.1465
1813.50 -0.1380
1814.50 -0.1338
1815.50 -0.1241
1816.50 -0.1073
1817.50 -0.1120
1818.50 -0.1204

1819.50 -0.1231
1820.50 -0.1328
1821.50 -0.1366
1822.50 -0.1324
1823.50 -0.1315
1824.50 -0.1244
1825.50 -0.1115
1826.50 -0.0935
1827.50 -0.0740
1828.50 -0.0587
1829.50 -0.0556
1830.50 -0.0484
1831.50 -0.0773
1832.50 -0.0951
1833.50 -0.1118
1834.50 -0.1056
1835.50 -0.0599
1836.50 0.0069
1837.50 0.0197
1838.50 -0.0176
1839.50 -0.0320
1840.50 -0.0524
1841.50 -0.0789
1842.50 -0.0886
1843.50 -0.1009
1844.50 -0.0955
1845.50 -0.0731
1846.50 -0.0559
1847.50 -0.0382
1848.50 -0.0038
1849.50 -0.0054
1850.50 -0.0403
1851.50 -0.0395
1852.50 -0.0534
1853.50 -0.0727
1854.50 -0.0943
1855.50 -0.1080
1856.50 -0.1076
1857.50 -0.0884
1858.50 -0.0547
1859.50 -0.0166
1860.50 -0.0049
1861.50 -0.0241
1862.50 -0.0504
1863.50 -0.0650
JTO-062686

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Pima County Superior Ct. C2013-4963**

1864.50 -0.0759
1865.50 -0.0918
1866.50 -0.1029
1867.50 -0.1121
1868.50 -0.0841
1869.50 -0.0428
1870.50 -0.0010
1871.50 -0.0115
1872.50 -0.0197
1873.50 -0.0548
1874.50 -0.0773
1875.50 -0.1033
1876.50 -0.1121
1877.50 -0.1121
1878.50 -0.1171

1879.50 -0.1132
1880.50 -0.0875
1881.50 -0.0622
1882.50 -0.0582
1883.50 -0.0499
1884.50 -0.0671
1885.50 -0.0863
1886.50 -0.1152
1887.50 -0.1228
1888.50 -0.1290
1889.50 -0.1340
1890.50 -0.1279
1891.50 -0.0839
1892.50 -0.0667
1893.50 -0.0420
1894.50 -0.0253
1895.50 -0.0457
1896.50 -0.0773
1897.50 -0.1028
1898.50 -0.1068
1899.50 -0.1158
1900.50 -0.1212
1901.50 -0.1349
1902.50 -0.1334
1903.50 -0.0966
1904.50 -0.0493
1905.50 -0.0824
1906.50 -0.0480
1907.50 -0.0683
1908.50 -0.0569
1909.50 -0.0763
1910.50 -0.0996
1911.50 -0.1142
1912.50 -0.1223
1913.50 -0.1194
1914.50 -0.1077
1915.50 -0.0544
1916.50 -0.0177
1917.50 0.0084

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Pima County Superior Ct. C2013-4963**

1918.50 0.0017
1919.50 -0.0385
1920.50 -0.0669
1921.50 -0.0853
1922.50 -0.1059
1923.50 -0.1004
1924.50 -0.0948
1925.50 -0.0591
1926.50 -0.0414
1927.50 -0.0093
1928.50 -0.0307
1929.50 -0.0379
1930.50 -0.0410
1931.50 -0.0624
1932.50 -0.0811
1933.50 -0.1023
1934.50 -0.0827
1935.50 -0.0448
1936.50 0.0233
1937.50 0.0118
1938.50 0.0005

1939.50 -0.0023
1940.50 -0.0133
1941.50 -0.0271
1942.50 -0.0452
1943.50 -0.0728
1944.50 -0.0675
1945.50 -0.0208
1946.50 -0.0037
1947.50 0.0382
1948.50 0.0611
1949.50 0.0447
1950.50 0.0023
1951.50 -0.0391
1952.50 -0.0407
1953.50 -0.0650
1954.50 -0.0601
1955.50 -0.0390
1956.50 0.0544
1957.50 0.1169
1958.50 0.1107
1959.50 0.0670
1960.50 0.0484
1961.50 -0.0140
1962.50 -0.0440
1963.50 -0.0531
1964.50 -0.0529
1965.50 -0.0465
1966.50 -0.0144
1967.50 0.0200
1968.50 0.0288
1969.50 0.0433
1970.50 0.0425
1971.50 -0.0073
JTO-062688

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Pima County Superior Ct. C2013-4963**

1972.50 0.0092
1973.50 -0.0352
1974.50 -0.0478
1975.50 -0.0815
1976.50 -0.0621
1977.50 -0.0292
1978.50 0.0481
1979.50 0.1111
1980.50 0.1134
1981.50 0.1216
1982.50 0.0500
1983.50 0.0349
1984.50 -0.0332
1985.50 -0.0627
1986.50 -0.0634
1987.50 -0.0368
1988.50 0.0145
1989.50 0.1134
1990.50 0.0968
1991.50 0.0780
1992.50 0.0529
1993.50 0.0050
1994.50 -0.0355
1995.50 -0.0526
1996.50 -0.0679
1997.50 -0.0455
1998.50 0.0179

1999.50 0.0674
2000.50 0.1164
2001.50 0.1054
2002.50 0.1191
2003.50 0.0431
2004.50 0.0117
#Fri Jul 29 17:56:43 2005
#Total Solar Irradiance consistent with Wang et al (ApJ, 2005)
#Background component used in Lean (GRL, 2000) is reduced by 0.27
Year 11yr+background
1610.50 1365.5469
1611.50 1365.5300
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#6 JTO Exemplar

[JTO-062727]

Attachment converted: Macintosh HD:Wild etal JGR 2003.pdf

[JTO-062728]

Subject: RE: chapter 10 for discussion

Date: Thu, 19 Jan 2006 10:31:36 -0500

From: "Michael Oppenheimer" <omichael@Princeton.EDU>

To: "Jonathan Gregory" <j.m.gregory@reading.ac.uk>

Cc: "Jonathan Overpeck"

Jonathan:

There is actually a rather extensive literature now on this point. The Wild et al that I sent you uses the -2C summer isotherm, and that is where we got it from originally; see the beginning and end of section 4 of that paper in particular for the justification for using summer mean temperature. Also take a careful look at the discussion in Oppenheimer and Alley 2004 on p.6 which discusses why melting may begin below 0C, and also look at the Scambos references noted there. Also relevant is van den Broeke, **GEOPHYSICAL RESEARCH LETTERS**, VOL. 32, L12815, oi:10.1029/2005GL023247, 2005, which uses daily maximum temperature above zero as a melting benchmark. The latter measure obviously corresponds to a lower mean summer temperature than zero. (We have also discussed melting with Ted Scambos and Doug MacAyeal so I feel fairly confident about it).

The use of the -5 annual mean isotherm goes back to Mercer (1978) and is not a very refined way to look at the problem for the large ice shelves. More recent modeling and observation now allows use of summer temperature which is, after all, more directly related to the actual physical processes. Whatever relation exists between the annual and summer means on the Antartic Peninsula (where the -5 was originally applied) may simply be irrelevant to the larger ice shelves. It is far preferable to use summer temperature as the measure.

But aside from the question of where melting precisely begins, we can [JTO-062729] look at the question from a different perspective. The model used by Huybrechts and de Wolde indicates a threshold for largescale loss of WAIS ice somewhere between 8C and 10C LOCAL annual average warming (which is clearly a proxy for summer warming). In those simulations, the ice shelves are clearly lost. So even the rather poor existing models support the idea that ice shelves would disappear with roughly the same amount of warming that I propose. But in that model, the ice shelf loss (and we

now know that ice shelf loss can occur rapidly at least for the smaller ones) doesn't cause the dynamical response that destroys the ice sheet, which I believe is largely the result of the height-temperature feedback in their model. This is a slow process in the model. As you know, our argument is that the ice shelves would decay quickly (century scale, not controversial once melting begins) and that a fast dynamical response may then occur, resulting in loss of the grounded ice.

I hope this clears things up. I am happy to continue the dialogue.
Michael

-----Original Message-----

From: Jonathan Gregory [mailto:jonathan@met.reading.ac.uk] On Behalf Of Jonathan Gregory
Sent: Thursday, January 19, 2006 3:31 AM
To: Michael Oppenheimer
Cc: Jonathan Overpeck; d.vaughan@bas.ac.uk; A.J.Payne@bristol.ac.uk; ralley@essc.psu.edu
Subject: Re: chapter 10 for discussion

Dear Michael

Thanks for your email. Actually if this is an error, it is not a careless one, as I tried to clarify this by looking at some papers. For instance Cook et al. (Nature, 2005) and David's paper Vaughan and Doake (Nature, 1996) refer to annual average temperature, which is approximated by temperature at 10 m depth in the ice. The criterion for ice-shelf viability that they suggest is, as I understand it, -5degC in annual average temperature. That's what I wrote in the 1st draft and nobody commented on it except you. There must be other papers which you have in mind that suggest the criterion of -2degC in summer. Could you give me the refs, please? For instance, Oppenheimer and Alley (2004) say "ice shelves become vulnerable when surface temperature exceeds the melting point for a significant part of the summer", but you don't give any literature reference for this. I have been wondering where it comes from - that was part of the reason for my drawing attention to it in my email yesterday.

Obviously this criterion could be assessed from the AR4 models as well, as you suggest. I suppose there might be some difficulty in knowing what the summer average temperature over the ice shelves currently is. You couldn't use the 10 m temperature and I guess that surface temperature measurements are more sparse. But I am not an expert on any of this, of course! I wrote to David yesterday in fact to ask about the just the same point, but I think he's away at present.

[JTO-062730]

Best wishes
Jonathan

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#7 JTO Exemplar

[JTO-062751]

Date: Fri, 20 Jan 2006 12:03:18 +0100

From: Eva Bauer bauer@pik-potsdam.de

To: Fortunat Joos <joos@climate.unibe.ch>

Cc: Jonathan Overpeck <jto@u.arizona.edu>,

Stefan Rahmstorf <rahmstorf@ozean-klima.de>,

Anders Levermann <levermann@pik-potsdam.de>,

Eva Bauer <eva.bauer@pik-potsdam.de>, plattner@climate.unibe.ch,

Eystein Jansen <eystein.jansen@geo.uib.no>,

Keith Briffa <k.briffa@uea.ac.uk>

Subject: Re: Millennium Simulations

Dear all,

Thanks for the message and also for the forcing data series. We will start the simulations today.

We were thinking already about a control run.

Since we suggested to account for the Milankovitch forcing in the [JTO-062752] CLIMBER2/3a runs we would produce a control run with Milankovitch only. We will provide from all simulations global and NH mean surface temp. Then temperature anomalies with respect to the control run can be considered as response to the different forcing data series.

I hope you think that's ok.

Kind regards,

Eva

Fortunat Joos wrote:

> Dear all,

>

> Please find attached an update of the simulation protocol and input data
> description.

>

> Kasper Plattner pointed out that I forgot the obvious. We need of course
> a control run to correct for potential model drift. The readme file has

> been modified accordingly adding a brief description on how the control
> should be done.
>
> I am looking forward to any additional comments. Hope everything is clear.
>
>Kasper is currently working to perform the simulation with the Bern2.5CC.
>
> Regards, Fortunat
>
> Fortunat Joos wrote:
>
>> Dear all,
>>
>> I have now compiled the input data set and written a protocol how to
>> perform the runs. It seems to me that it would make sense if we
>> perform the simulations first with the Bern Model and with the Climber
>> 2 model. We can then still decide if we need Climber 3.
>>
>> Please let me know if there are any questions.
>>
>> I could also provide files where the radiative forcing of solar,
>> volcanoes and non-CO2-anthropogenic has been added together.
>>
>> With best wishes,
>>
>> Fortunat
>>
>>
>>
>> Jonathan Overpeck wrote:
>>
>>> Dear Eva and Fortunat - thanks for working on getting things moving.
>>> It seems that the detailed forcing recommendations laid out below by
>>> Fortunat build nicely on what Eva first suggested, and that going [*JTO-062753*]
>>> with the forcing series suggested below by Foortunat (and the 6
>>> simulations) is going to be just right for the IPCC AR4 Chap 6 needs.
>>> Does everyone agree?
>>>
>>> Thanks Fortunat for preparing/sharing the standard forcing series.
>>>
>>> Best, peck
>>>
>>>> Dear Eva,
>>>>
>>>> We are working on the forcing series and they should be ready by the
>>>> end of the week. Stefan assured us that you can run this within a

>>>> few hours.

>>>>

>>>> What we are preparing are the following series of radiative forcing

>>>> in W/m²:

>>>>

>>>> a) RF from atmospheric constituents (well-mixed GHGs (CO₂, CH₄, N₂O,
>>>> many Halocarbons) tropo and strato Ozone, various anthropogenic
>>>> aerosols) as used in the Bern CC TAR version and the TAR (see Joos
>>>> et al., GBC, 2001; pdf is on my homepage and TAR appendix).

>>>> b) volcanic from Crowley, Sci, 2000

>>>> c) solar based on Lean and Bard et al.

>>>>

>>>> For the solar we will prepare 3 combinations:

>>>>

>>>>>>>> c1) original serie from Lean (2005) provided to you already

>>>> c2) Bard et al., Be-10 record linearly scaled to match the Maunder

>>>> Minimum Average of Lean-AR4

>>>> c3) Bard et al., Be-10 scaled to a MM reduction of 0.25 permil,

>>>> i.e. the low case in the Bard et, Tellus, publication corresponding

>>>> to the Lean et al, 1995 scaling

>>>>

>>>> For the RF by atmospheric components two cases are foreseen:

>>>> a1) standard case with reconstructed evolution over past 1150 years

>>>> a2) RF kept at 1765 value after 1765, i.e. a simulation with natural

>>>> forcings only.

>>>>

>>>> This will yield in total 6 simulations 3 over the full length from

>>>> 850 AD to 2000 and 3 brach-off simulatons from 1765 with natural

>>>> only forcing.

>>>>

>>>> An important point in IPCC is that things are published, consistent

>>>> among chapters, and it helps if approaches are tracable to earlier

>>>> accepted and approved IPCC work. The arguments for these series are

>>>> as follows:

>>>>

>>>> a) Considering as many components relevant for RF as possible (more
>>>> than just CO₂). The series are fully compatible with TAR and that

>>>> the setup is tracable to the TAR for the industrial era increase.

>>>> The same series will be used in the projection chapter 10 for the

>>>> SRES calculation

>>>>

>>>> b) volcanic: a widely cited record [*JTO-062754*]

>>>>

>>>> c) solar: c1) and c3) are published series; c2 follows the same

>>>> approach and spirit as used to derive c3, i.e. scaling the Be-10

>>>> serie linearly with a given Maunder Minimum reduction. The impact of

>>>> the 11-yr solar cycle can be looked at in the original Lean-AR4 serie.
>>>>
>>>> I hope this help.
>>>>
>>>> With kind regards,
>>>>
>>>> Fortunat
>>>>
>>>> Eva Bauer wrote:
>>>>
>>>>>
>>>>> Dear Jonathan, dear Fortunat:
>>>>>
>>>>> Happy New Year!
>>>>>
>>>>>
>>>>> Stefan, Anders and me just have discussed how to set up our
>>>>> CLIMBER2/3alpha runs, to produce something useful for the IPCC WGI
>>>>> chapter 6. This chapter appears to touch the impact on the NH
>>>>> temperature related to low and high solar forcing.
>>>>>
>>>>> For a reasonable comparison, we think two 1000-year simulations
>>>>> differing only by a low and a high solar forcing, conducted with both
>>>>> CLIMBER models, would be ideal. To do so, we would have to extend the
>>>>> solar forcing time series based on **Lean (GRL, 2000)** and on Wang et
>>>>> al. (2005) distributed in previous e-mails back to the year 1000. This
>>>>> would require some splicing as was done, for instance, by Crowley.
>>>>>
>>>>> I'm thinking of some scaling applied to a series of Crowley (say the
>>>>> data called Be10/Lean splice in Science, 2000) such that the amplitude
>>>>> of the solar variability from the 11-year cycle is conserved after
>>>>> ~1720. I have to check but it appears that the variation in the TSI
>>>>> due to the 11-year cycle contained in the Crowley series agrees
>>>>> perfectly with the 11yr-cycle data in the file based on Lean (2000).
>>>>> Before starting such an exercise I like to ask you what you think
>>>>> about. We would be happy to receive your response quite soon to be
>>>>> able to finish the calculations with our slow model in time for the
>>>>> IPCC report.
>>>>>
>>>>> Could you please also comment on the other forcings we should include,
>>>>> namely the volcanic forcing and the CO2 forcing. For the present study
>>>>> we suggest to use the forcing as in Bauer et al (2000) but omitting
>>>>> the land-use. This means, using the volcanic forcing from Crowley,
>>>>> 2000 and the CO2 forcing based on Etheridge et al 1996 and Keeling and
>>>>> Whorf, 1996. (If you wish we can distribute these data series.)
>>>>>

>>>> Also, thinking beyond the IPCC study, the model results may become
>>>> interesting enough to be discussed in a 3-model comparison study!?

>>>>

>>>> Looking forward to your reply. [JTO-062755]

>>>> Best wishes

>>>>

>>>> Eva

>>>>

>>>>

>>>> --

>>>>

>>>> Climate and Environmental Physics,

>>>> Physics Institute, University of Bern

>>>> Sidlerstr. 5, CH-3012 Bern

>>>> Phone: ++41(0)31 631 44 61 Fax: ++41(0)31 631 87 42

>>>> Internet: <http://www.climate.unibe.ch/~joos/>

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> -----

>

> Last Millennium Simulations for IPCC AR4 WG1 Chap 6

> -----

>

> F. Joos,

> joos@climate.unibe.ch

> 18 Januar 2006

>

> OVERVIEW

> -----

>

> A total of 7 simulations is planned.

>

> A control simulation without any forcing

>

> Two millennium-long simulations with solar forcing following Bard et al. with a
Maunder

Minimum reduction of 0.08 and 0.25 percent in total irradiance and volcanic and
anthropogenic forcing included

>

> A simulation from 1610 to 1998 with solar forcing from Wang et al, 2005 and

- > volcanic and anthropogenic forcing included
- >
- > Three simulations from 1765 to 1998 with only solar and volcanic forcing included, but no anthropogenic forcings. These are branches from the above three simulation.
- >
- > A range of input data files have been prepared. Each contains a header with additional descriptions of the data.
- >
- > Solar irradiance has been taken from Bard et al., Tellus, 1999 and from Wang, Lean, Shirley, JAp, 2005.
- >
- > It is estimated that the Maunder Minimum irradiance is reduce by 0.08 percent [*JTO-062756*]
- > relative to today and that the present irradiance is 1366 W/m² from the Wang et al. data.
- >
- > A case with a Maunder Minimum reduction of 0.08 percent is calculated from the Bard et al. data by scaling the original Bard series appropriately.
- > The original Bard series are offset by 1.3 W/m² in irradiance to bring them to
- > a present irradiance of 1366 W/m². For this excercise we will utilize a Maunder
- > Minimum reduction in irradiance relative to today of 0.08 percent and of 0.25 percent (other cases with high MM reduction are included in the files).
- >
- > Irradiance has been converted to radiative forcing: $RF = (IRR - 1366) / 4 * 0.7$
- >
- > Volcanic forcing is from Crowley Science, 2000, with albedo factored in (e.g. as for solar forcing). To avoid a cold start of the model, the serie is extended to 850 AD by mirroring the Crowley data from 1001 to 1150 to the period 850 to 1000.
- >
- > NonCO₂ forcing is following TAR (updated for an error in tropo O₃ in the TAR).
- >
- > CO₂ is a spline through the Etheridge, JGR, 97 data and the Siegenthaler, TELLus, 2005 data.
- >
- >
- > INPUT FILES DESCRIPTION:
- > -----
- >
- > It is recommended to linearly interpolate between data points.
- >
- > A1: Solar irradiance and radiative forcing following Bard from 850 to 2000
- >
- > (Tag description)
- > solBard08 2. col: Maunder Minimum reduction of 0.08 percent

> solBard25 3. col: Maunder Minimu reduction of 0.25 percent
>
> Note: data from Bard have been linearlz interplated on an annual time step
>
> files:
> bard00tel_solar_RF_IPCC_Chap6_Joos_11jan06.out
> bard00tel_solar_irradiance_offset-13_IPCC_Chap6_Joos_11jan06.out
>
>
> A2: Solar irradiance and radiative forcing following Wang, Lean, Shirley, 2005
> from 1610 to 2004
>
> annual resolution
>[JTO-062757]
> Tag: WLS-05
>
> files:
> wang05jastr_lean_RF_IPCC_chap6_Joos_11jan06.out
> wang05jastr_lean_irradiance_IPCC_chap6_Joos_11jan06.out
>
> A3: CO2 concentration in ppm from 850 to 2000
>
> annual resolution
> Tag: CO2
> file: co2_850-2000_splined_IPCC_Chap6_Joos_11jan06.out
>
> A4: volcanic forcing after Crowley from 1001 to 1998 AD, extended by artificial
> data from 850 to 1000 AD by mirroring the forcing from 1000 to 1150 to the period
> 850 to 1000
>
> Tag: volcCrow
>
> annual resolution
>
> file: crowley00sci_RFvolcanic_IPCC_Chap6_Joos_11jan05.out
>
> A5: radiative forcing by non-CO2 agents
>
> annual resolution
>
> Tag: nonco2
>
> files
> rf_nonco2_1yr_1765_2000_individ_IPCC_Chap6_Joos_11jan06.out
> rf_nonco2_1yr_850_2000_IPCC_Chap6_Joos_11jan06.out
>

>
>
> B) SIMULATIONS
> -----
>
> B1. 2 Long simulations from 850 AD to 1998
>
> -----
>
> Simulation B1.1. tag: bard08_volcCrow_CO2_nonCO2_850-1998
>
> Solar forcing from Bard et al. with MM reduction of 0.08 percent, volcanic forcing and forcing from CO2 and other anthropogenic (non-CO2) agents.
>
> Start of simulation 850 AD
> End of simulation: 1998 AD [*JTO-062758*]
> initial condition: model spinup for year 850 (or similiar)
>
> Analysis period: 1001 AD to 1998 AD
> start-up period: 850 to 1000 with artificial volcanic data
>
> -----
>
> Simulation B1.2 tag: bard25_volcCrow_CO2_nonCO2_850-1998
>
> as B1.1 but with solar forcing from Bard et al. reduced by 0.25 percent for the Maunder Minimum.
>
> Start of simulation 850 AD
> End of simulation: 1998 AD
> initial condition: model spinup for year 850 (or similiar)
>
> Analysis period: 1001 AD to 1998 AD
> start-up period: 850 to 1000 with artificial volcanic data
>
> -----
>
> Simulation B2: A simulation from 1610 to 1998 restarted from bard08_volcCrow_CO2_nonCO2
>
> With solar forcing from Wang et al., 2005, volcanic forcing and forcing from CO2 and other anthropogenic (non-CO2) agents.
>
> B2 tag: WLS-2005_volcCrow_CO2_nonCO2_1610-1998
>

> Start of simulation: 1610 AD
> End of simulation: 1998 AD
> initial condition: restart from simulation B1.1. bard08_volcCrow_CO2_nonCO2
> at year 1610
>
> Analysis period: 1610 AD to 1998 AD
>
>
> -----
>
> B3: 3 Simulations from 1765 to 1998 with natural forcing only
>
> non-CO2 radiative forcing is kept to zero
> (except for volcanoes and solar)
>
> CO2 is kept at its 1765 value.
>
> Simulation B3.1: tag bard08_volcCrow_1765_1998
>
> Start of simulation: 1765 AD
> End of simulation: 1998 AD
> initial condition: restart from simulation B1.1. bard08_volcCrow_CO2_nonCO2
> at year 1765
>
> Analysis period: 1765 to 1998 AD
>
> -----
>
> Simulation B3.2: tag bard25_volcCrow_1765_1998 [JTO-062759]
>
> Start of simulation: 1765 AD
> End of simulation: 1998 AD
> initial condition: restart from simulation B1.2. bard25_volcCrow_CO2_nonCO2
> at year 1765
>
> Analysis period: 1765 to 1998 AD
>
> -----
>
> Simulation B3.1: tag WLS-2005_volcCrow_1765_1998
>
> Start of simulation: 1765 AD
> End of simulation: 1998 AD
> initial condition: restart from simulation B2. WLS-2005_volcCrow_CO2_nonCO2
> at year 1765
>

> Analysis period: 1765 to 1998 AD
>
> -----
>
> Simulation B4: tag ctrl_850-1998
>
> Control simulation without any forcing
>
> Start of simulation 850 AD
> End of simulation: 1998 AD
> initial condition: model spinup for year 850 (or similiar)
>
> Analysis period: 850 to 1998
>
>
> OUTPUT
> -----
>
> I guess minimal output is global and NH mean surface temperature.
--

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#8 JTO Exemplar

[JTO-062793]

Date: Tue, 24 Jan 2006 09:25:42 +0100
To: Stefan Rahmstorf <rahmstorf@ozean-klima.de>
From: Eystein Jansen <Eystein.Jansen@geo.uib.no>
Subject: Fwd: AR4 FAQs Ch. 6
Cc: Jonathan Overpeck <jto@u.arizona.edu>,
IPCC WG1 <ipcc-wg1@al.noaa.gov>

Hi Stefan,
since you is our FAQ guy, could you look though
the enclosed suggestions from Melinda, and follow
up this with her?

One additional aspect as we discussed in
Christchurch is the idea of including figures to
illustrate some points in the FAQs. Have you
thought more on this ?

Best wishes,
Eystein

>Date: Mon, 23 Jan 2006 17:45:55 -0700
>From: IPCC WG1 <ipcc-wg1@al.noaa.gov>
>To: Jonathan Overpeck <jto@u.arizona.edu>,
> Eystein Jansen <eystein.jansen@geo.uib.no>
>CC: Martin Manning <mmanning@al.noaa.gov>,

[JTO-062794]

> Susan Solomon <ssolomon@al.noaa.gov>
>Subject: AR4 FAQs Ch. 6
>

>Dear Jonathan and Eystein,

>>
>I know you're busy working on Chapter 6. Along
>those lines, and in light of the discussion
>among CLAs at the LA3 meeting in Christchurch,
>I'm reviewing the FAQs for each chapter and
>offering suggestions. These are merely
>suggestions. You may handle them as you see fit,
>including ignoring them or passing them to the
>author(s) in your chapter who are dealing with

>your FAQs - with or without your own comments.

>

>Another option is for me to make revisions to
>the FAQs if you wish me to do so. In this case,
>I would ask that you please send me revisions to
>be made by Mon., Feb. 6. This would allow me to
>work with you to ensure that the FAQs are as you
>wish for the SOD, by Feb. 10, when I'll need to
>shift my attention to the Technical Summary. Of
>course, the original deadline for sending the
>SOD (including FAQs) of your chapter to the TSU
>remains March 3.

>

>I've attached your FAQs in a Word document with
>my suggestions showing in "Track Changes."

>

>If my suggestions contain any errors, I apologize.

>

>Best regards,
>Melinda Marquis

>>

--

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#9 JTO Exemplar

[JTO-063111]

Date: Fri, 27 Jan 2006 18:46:40 +0100

To: Jonathan Overpeck <jto@u.arizona.edu>

From: Eystein Jansen <Eystein.Jansen@geo.uib.no>

Subject: Re: new millennium simulations for Chap 6

Hi Peck,

I just sent out the comments document to the LAs and to John and Jean. We still haven't received input from Dick, Stefan and Fortunat. I have urged them to do this. **Deadline** to TSU is Tuesday.

Slowness on my side is due to this: I have been to the doctor and chiropractor today and have been ordered to not work for 2 weeks. I will do things in between as the pains allow. Basically I cannot sit properly and have either to lie down or walk. Will check my back with x-ray and MR on Tuesday and continue treatment. Hopefully this will go quickly over.

Will send email to Dick on sea level fig now.

I will go through the glacier box over the week end and have promised this to Olga. I think we can reduce size, but I think it should be in as there are lots of discussion around the issue about past glacier changes vs current melting

More later,

Eystein

--

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#11 JTO Exemplar

[JTO-094775]

From: David Rind <drind@giss.nasa.gov>
Subject: Key new IPCC relevant paleo-science
Date: April 20, 2009 12:03:17 PM MST
To: Eystein Jansen <Eystein.Jansen@geo.uib.no>
Cc: Tim Osborn <t.osborn@uea.ac.uk>, Fortunat Joos <joos@climate.unibe.ch>, Jonathan Overpeck <jto@u.arizona.edu>, David Rind <drind@giss.nasa.gov>, Stefan Rahmstorf <rahmstorf@ocean-klima.de>, Bette Otto-Bleisner <ottobli@ncar.ucar.edu>, cddhr@giss.nasa.gov, Ricardo Villalba <ricardo@lab.cricyt.edu.ar>, Jouzel@dsm-mail.extra.cea.fr, Valerie Masson-Delmotte <Valerie.Masson@cea.fr>, Dominique Raynaud <raynaud@lgge.obs.ujf-grenoble.fr>, Keith Briffa <k.briffa@uea.ac.uk>, Phil Jones <p.jones@uea.ac.uk>, jean-claude.duplessy@lsce.cnrs-gif.fr, dolago@uonbi.ac.ke, peltier@atmosph.physics.utoronto.ca, rramesh@prl.res.in, olgasolomina@yandex.ru, derzhang@msn.com, Heinz Wanner <wanner@giub.unibe.ch>, Thorsten Kiefer <thorsten.kiefer@pages.unibe.ch>, Eric W Wolff <ewwo@bas.ac.uk>, j.dearing@soton.ac.uk, jerome@lgge.obs.ujf.grenoble.fr, jose_carriquiry@uabc.mx, moha_umero@yahoo.com, Michael Schulz <mschulz@uni-bremen.de>, nakatsuka.takeshi@f.mbox.nagoya-u.ac.jp, Bette Otto-Bliesner <ottobli@ucar.edu>, peter.kershaw@arts.monash.edu.au, pfrancus@ete.inrs.ca, scolman@d.umn.edu, whitlock@montana.edu, zlding@mail.iggcas.ac.cn, Laurent Labeyrie <Laurent.Labeyrie@lsce.ipsl.fr>, Gavin Schmidt <gschmidt@giss.nasa.gov>

Hi Eystein and Jonathan,

With respect to the question of a separate paleo-climate chapter: if paleoclimate is an adjunct to all of the other chapters, what would happen - would there be a paleo-climate person on each of those chapters, just for that component? If so, the person would not carry much influence - and if chapters had to be trimmed (which we know always happens), there's a chance that a lot of the paleoclimate aspect would be the first to go. I'm afraid that little in-depth discussion would survive.

On the other hand: now that there's been a paleoclimate chapter, a lot of the 'introductory' material would not really be needed - just the 'updates', which make for much fewer pages. Perhaps, then, paleoclimate observations could be part of the climate observation chapter; and paleoclimate modeling, part of the modeling chapter. That way, at least several people with paleoclimate heritage could be part of each of these chapters, and allow for a proper representation of the state of our understanding in these areas. It would also allow for better integration of paleoclimates with the current climate. As in the case of present climate, care would have to be taken to ensure that the observations and modeling chapters have strong linkages.

Concerning what new topic should be addressed: there should be a discussion about the use of paleoclimates as analogs for the future. Some scientists (including at least one at GISS) are certain of their utility in this regard. I think the topic should be addressed from all sides.

And as for 'new' paleoclimate work: we have an article about to come out in GRL on stratospheric ozone during the LGM; here's the link:

<http://www.agu.org/journals/gl/papersinpress.shtml#id2009GL037617>

David

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////////////////////////////////////

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#12 JTO Exemplar

[JTO-1]

From: Eystein Jansen <Eystein.Jansen@geo.uib.no>
Subject: Key new IPCC relevant paleo-science
Date: April 12, 2009 8:34:21 AM MST
To: Tim Osborn <t.osborn@uea.ac.uk>, Fortunat Joos <joos@climate.unibe.ch>, Jonathan Overpeck <jto@u.arizona.edu>, David Rind <drind@giss.nasa.gov>, Stefan Rahmstorf <rahmstorf@ozean-klima.de>, Bette Otto-Bleisner <ottobli@ncar.ucar.edu>, cddhr@giss.nasa.gov, Ricardo Villalba <ricardo@lab.cricyt.edu.ar>, Jouzel@dsm-mail.saclay.cea.fr, Valerie Masson-Delmotte <Valerie.Masson@cea.fr>, Dominique Raynaud <raynaud@lgge.obs.ujf-grenoble.fr>, Keith Briffa <k.briffa@uea.ac.uk>, Phil Jones <p.jones@uea.ac.uk>, jean-claude.duplessy@lsce.cnrs-gif.fr, dolago@uonbi.ac.ke, peltier@atmosph.physics.utoronto.ca, rramesh@prl.res.in, olgasolomina@yandex.ru, derzhang@msn.com, Heinz Wanner <wanner@giub.unibe.ch>, Thorsten Kiefer <thorsten.kiefer@pages.unibe.ch>, Eric W Wolff <ewwo@bas.ac.uk>, fatima.abrantes@ineti.pt, j.dearing@soton.ac.uk, jerome@lgge.obs.ujf.grenoble.fr, jose_carriquiry@uabc.mx, moha_umero@yahoo.com, Michael Schulz <mschulz@uni-bremen.de>, nakatsuka.takeshi@f.mbox.nagoya-u.ac.jp, Bette Otto-Bliesner <ottobli@ucar.edu>, peter.kershaw@arts.monash.edu.au, pfrancus@ete.inrs.ca, scolman@d.umn.edu, whitlock@montana.edu, zlding@mail.iggcas.ac.cn
Cc: Laurent Labeyrie <Laurent.Labeyrie@lsce.ipsl.fr>, Gavin Schmidt <gschmidt@giss.nasa.gov>

Dear friends,

The scoping of IPCC AR5 will happen in July this year. In the community there have been opinions raised regarding paleo-science in the next report, e.g. whether to have paleo-science dispersed into various topical chapters, e.g. forcing, model-evaluation, sea level etc., or whether it might be best to do as in AR4 to have a separate Paleo-chapter.

There are good arguments for both options, and it is not the intent of this email to voice a specific opinion. Rather it is important to let the scoping process be aware of all the relevant new paleo-science which would be assessed in AR5, thereby leading to the need for a strong presence of paleoclimate scientists in the LA-team of AR5, particularly in WG1, but also in WG2.

In order to make the case that paleo-science continues to be highly relevant for IPCC, Peck and I have agreed to be the editors of a Slide-series (ppt style) which can be used to make the case in the scoping, and which of course could be a useful product for various outreach activities of PAGES and the paleoclimate community at large. The PAGES office will assist in producing the slides

We therefore send this email to you who worked as LAs in AR4 or who are on SSC or other relevant PAGES panels and ask for your input.

What we hope you can help with is the following:

1. Provide your best examples of key new IPCC (Policy) relevant new results post AR4, i.e. accepted after July 2006, that provide compelling arguments for paleoclimate science as a key contributor to IPCC. Please limit this to the results which are clearly IPCC-relevant
2. Ongoing projects or programmes that are likely to deliver such results in the next 2-3 years can also be included. The information must, however, be specific and compelling to a non-paleo audience.
3. Send PDF of the paper or other material (like ppt slide) to Peck (jto@u.arizona.edu), Myself and Thorsten Kiefer (thorsten.kiefer@pages.unibe.ch) at PAGES, preferably by May 2.

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We think this might become a very useful service to our community and to the climate change communities at large, and will be very rewarding.

[JTO-2]

Hoping to hear back from many of you. Best wishes
Peck and Eystein

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