Identifying changes in tropical vegetation coverage productivity at Cueva Dos Ojos, Puerto Rico using IKONOS, ETM+, and OLI Sensors and CIR aerial photography

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Abstract.- Stable isotopes (C and O) in speleothems are used in conjunction with U/Th dating techniques to reconstruct past climates. Identifying changes in tropical vegetation productivity at Cueva Dos Ojos, Puerto Rico could aid in the evaluation of the carbon isotope signature. Normalized Difference Vegetation Indices (NDVI) were calculated using ENVI software and images from IKONOS, ETM+, and OLI sensors and CIR (color infrared) aerial photography from 2001 to 2013 in order to assess changes in productivity at Cueva Dos Ojos over a 12 year period. Differences in pixel sizes were accounted for by converting all sensor images to 15m pixels and using a projection of NAD 1983, zone 52. NDVI was calculated using IKONOS images at 0.3 m, 1 m and 15 m pixel resolutions to evaluate the impact of pixel conversion on mean NDVI statistics and this process had a negligible effect on the results (<0.01 for the 0.3 to 30 m pixel conversion.) Throughout the 12 year period studied, mean NDVI displayed a significant range from 0.21 (2010) to (0.72) in 2013, however, NDVI calculations from different sensors cannot be regarded as equivalent. The relationship between mean NDVI and annual precipitation recorded at Arecibo National Observatory is statistically significant, where a linear regression reveals an r^2 value of 17.41% and 51.76%. This study suggests that (1) NDVI effectively evaluates changes in tropical ecosystem productivity at Cueva Dos Ojos, Puerto Rico, (2) mean NDVI has changed significantly during the selected time period, displaying a minimum range of at least 0.06 to 0.29, and (3) precipitation could help explain mean NDVI variance.

Keywords.- NDVI, Puerto Rico, precipitation, sensors, aerial photography

INTRODUCTION

The use of speleothems for paleoclimate research has increased over the past decade due to recent advancements in U-series dating techniques. Speleothems offer the advantage of being highly resolved archives that effectively record terrestrial changes in climate and precipitation (via O and C stable isotopes) and are widely available in the Neotropics where paleoclimate archives have been historically limited to sediment cores, corals, and schlerosponges. In the tropics, the 'amount effect' has a predominant effect on the speleothem δ^{18} O signature, where increased rainfall corresponds to lighter isotopes due to Rayleigh distillation processes (see figure 1). The isotopic signature of Carbon in speleothems is more difficult to interpret because it is integral in each phase of speleothem formation processes from the soil zone to the cave. It also incorporates multiple sources including vegetation, soil and bedrock, and thus, does not behave consistently in speloethem precipitation processes (see figure 2). In some circumstances, Carbon isotopes have been shown to reflect seasonality. Presently, field monitoring at Cueva Dos Ojos suggests that seasonality may be expressed in cave dynamics. The primary

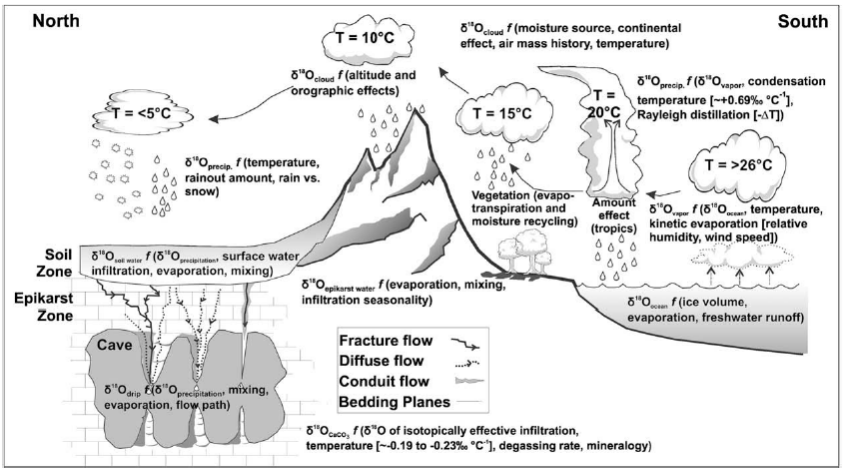


Figure 1: Diagram illustrating the primary processes related to d18O variations relevant to speleothem paleoclimatology by Lachniet (2009). Processes and phase changes in the ocean, atmosphere, hydrosphere, soil and epikarst zones influence the δ^{18} O composition of the precipitated speleothem. Note the amount effect is dominant in the tropics.

objective of this research is to assess changes in vegetation productivity of the karst area surrounding Cueva Dos Ojos.

Normalized Difference Vegetation Index (NDVI) is used in remote sensing studies to assess vegetation productivity and distribution. NDVI is a product of band ratios and is defined as:

$$NDVI = (NIR-red)/(NIR+red)$$

This approach is effective because chlorophyll in green vegetation absorbs red light and reflects a small proportion of red light, while mesophyll reflects a large proportion of near infrared light (NIR). The calculated ratio is converted to pixel brightness as NDVI.

In this study, NDVI is used to assess changes in tropical vegetation primary productivity from 2001/2002 to 2013 using five images (2001/2002, 2004, 2007, 2010, and 2013) obtained from 3 different remote sensors and a highly resolved aerial photograph. NDVI results are compared with regional annual precipitation. Impacts of variance in spatial resolution on NDVI calculations are also assessed.

MATERIALS AND METHODS

Site Description

Cueva Dos Ojos lies in a well-developed mogote/holokarst terrain of the Lares Limestone, in northwestern Puerto Rico in the northwest at an elevation of ~ 330 a.s.l. (see figure 3). Vegetation is biologically diverse and consists mainly of trees and shrubs. Mean annual temperature of the site area is between 23 and 25 ° C and average precipitation ranges from 2000 – 2500 mm per year (Daly et al., 2002).

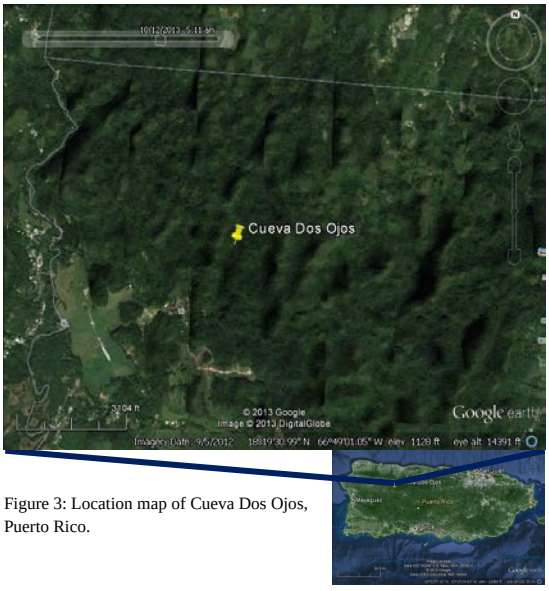


Figure 3: Location map of Cueva Dos Ojos, Puerto Rico.

Image Selection

Five images with the lowest amount of cloud cover were selected for this study. These include: one 2001/2002 IKONOS sensor image (0.3 m pixel, NAD 1983 projection), two ETM+ sensor images from April 2004 and November 2007 (30 m pixel, NAD 1983), one OLI sensor image from May 2013 (30 m pixel, NAD 1983) and one CIR (color infrared) aerial photograph obtained in 2010 (0.3 m pixel, NAD 1983 projection).

Image Preprocessing

ETM+, OLI, and IKONOS sensor band images were obtained individually. Layer stacking was utilized in order to combine all bandwidths associated with each specific sensor into one file. After layer stacking was completed, four IKONOS files were mosaicked into a single archive. Subsets were applied to reduce the size of all sensor images and an atmospheric correction was applied using the dark substract, band minimum correction method.

Image Processing

After images were 'preprocessed,' the CIR aerial photograph was converted to a 15 m pixel, NAD 1983 projection in order to serve as a base subset for subsequent images. This was done by calculating the corresponding x and y output coefficient (e.g. 0.02) and entered into the ENVI resize data parameters screen. Next, ETM+, OLI and IKONOS images were converted to 15 m pixels, NAD 1983 projection. The IKONOS sensor image was georeferenced to the CIR aerial photograph using image to image georeferencing and ten ground control points evenly distributed throughout the CIR aerial photograph. The resulting IKONOS sensor image was used to create a base subset [subset 1 (see figure 4)]. The other images and displays were linked and dynamic overlay was utilized in order to affirm the integrity of the created subsets. The NDVI was calculated for each image and color mapping was applied and inverted so that darker green corresponds to higher NDVI and vice versa. Masks were created and applied to images that had considerable amounts of cloud cover (e.g. November 2007).

Finally, a small subset (subset 2) was created and applied to all NDVI unmasked images so that the resulting images were cloudless and contained vegetation characteristic of karst tropical forest (trees and shrubs) with farmland, pastures, and urbanized areas excluded to serve as a control image (see figure 4).

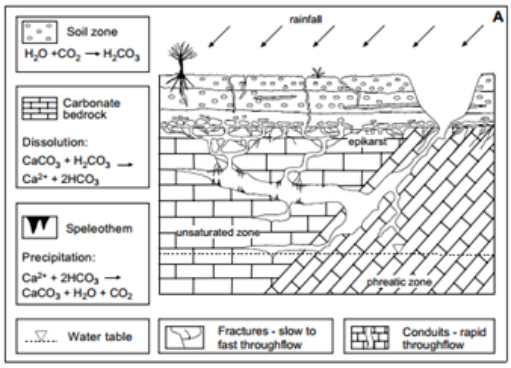


Figure 2: Diagram illustrating processes involved in speleothem formation (Fairchild, 2012). Note the various sources of carbon (soil and bedrock) as well as the integration of carbon in each process involved in speleothem formation.

Spatial Resolution

In order to assess the effects of changes in spatial resolution on NDVI calculations two general methods were applied: (1) decreasing pixel resolution of the CIR aerial photograph and (2) fusing low (15 m) spectral resolution of the April 2004 ETM+ image with high (0.3 m) image resolution of the CIR aerial photograph.

The CIR aerial photograph was converted from a 0.3 m pixel to 1 m and 15 m pixels. NDVI was calculated for the resulting three images and color mapping was applied and

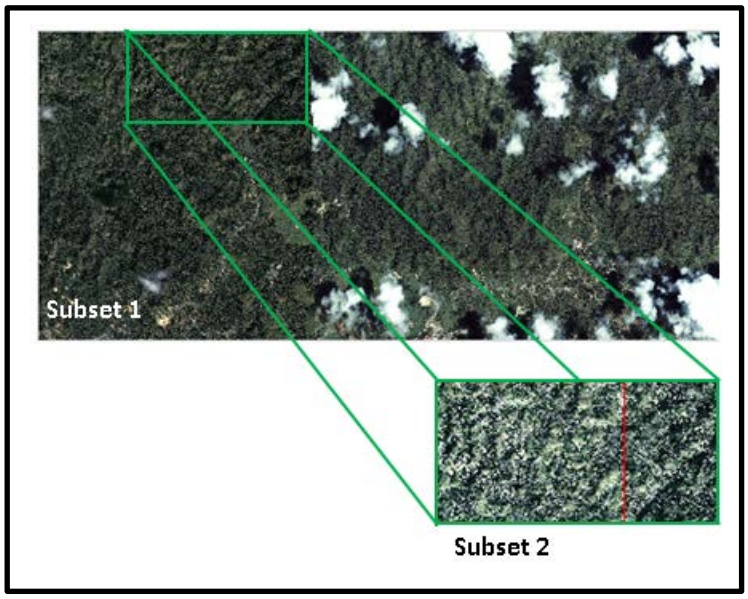


Figure 4: IKONOS 15 m base subsets 1 and 2.

inverted so that darker green colors correspond to higher NDVI.

In order to fuse spectral ETM+ 2004 spectral data with CIR spatial resolution, the 15 m ETM+ 2004 image was georeferenced to the CIR 0.3 m image using the image to image method and ten ground control points. This enabled creation of a ETM+ infrared archive with 0.3 m pixels. Last, the transform>image sharpening>HSV method was employed. The ETM+ infrared image was input into the RGB values and the CIR file was used to enhance image clarity. NDVI was calculated for the resulting file and color mapping was applied as described above.

Masking

Masks were created for NDVI images (15 m pixel) using values of -1 to 0 to filter out the effects of clouds, roads and developed areas. One exception is the November 2007 image that contained a hazy and transparent cloud that covered the southern portion of the initial subset analyzed. In this case, a region of interest was used to create a mask (see figure 5).

Precipitation

Precipitation data collected at Arecibo National Observatory (approximately 7 km from Cueva Dos Ojos) was used for this analysis. The IKONOS image was taken in either 2001 or 2002 so mean precipitation was calculated for the two year period. Precipitation amounts for the calendar year were summed for 2004, 2007, and 2010 in order to compare with the corresponding ETM+ and CIR images. Finally, annual precipitation was calculated from June 1, 2012 to May 31, 2013 for comparison with the OLI May 2013 image.

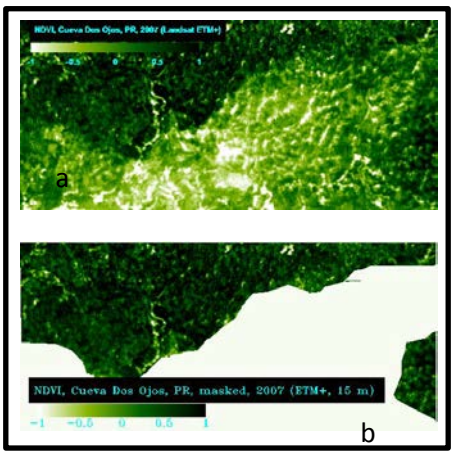
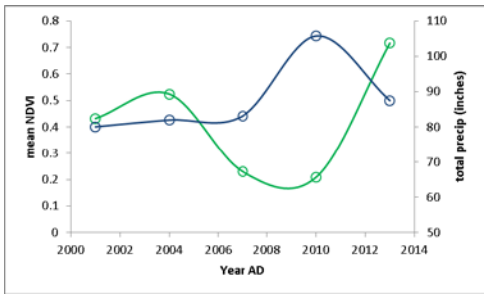


Figure 5: (a) ETM+ 2007 unmasked image. (b) ETM+ 2007 ROI masked image.

RESULTS

Four different sets of results were processed and are presented. These are: (1) An NDVI time series (subset 1) including 5 images at 15m resolution. Subset 1 includes well developed holokarst terrain containing trees and shrubs, the Camuy river valley, farmland, and a minor number of inhabited areas. (2) An NDVI time series of subset 2, also incorporating the same 5 sensor images at a 15m resolution. Subset 2 was selected on the basis of being cloudless and limited to holokarst terrain predominantly hosting trees and shrubs. (3) CIR aerial photos compared at 0.3 m, 1 m, and 15 m pixels to assess the effects of changes in decreasing pixel resolution on NDVI statistics. (4) ETM+ 15 m spectral data fused with CIR 0.3 m spatial data to assess the effects of increasing pixel resolution on NDVI statistics.

a



b

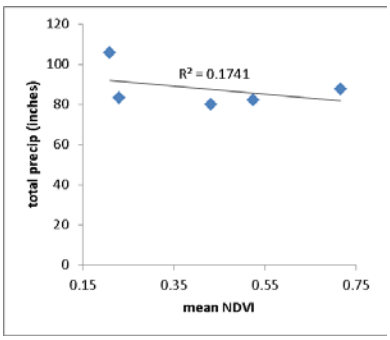


Figure 6a and b: (a) Graph illustrating trends in mean NDVI (green) and annual precipitation (blue). (b) Linear regression between mean NDVI and annual precipitation.

NDVI Time Series

NDVI was calculated for each image at a 15 m pixel size and resulting images are shown in figure 7. Mean NDVI shows an increasing trend from 2001/2002 to 2004 A.D. and from

Figure 7: NDVI time series at 15 m pixel resolution.

2010 to 2013 A.D. Mean NDVI decreases from 2004 – 2010 A.D. The increase in mean NDVI from 2010 – 2013 A.D. also coincides with the overall range in the data set from 0.21 in 2010 (CIR aerial photograph) to 0.72 in 2013 (OLI). Mean NDVI is compared with annual precipitation recorded at Arecibo National Observatory and appears to have an inverse relationship (figure 6a). A linear regression between mean NDVI and total precipitation is statistically significant at 17.41% (figure 6b.)

NDVI images generated for subset 2 are displayed in figure 8 and display similar trends as subset 1. Mean NDVI remains relatively steady from 2001/2002 to 2007, then shows a decrease in 2010, followed by a sharp increase in mean NDVI values in 2013. Similar to subset1, the range of mean NDVI also coincides with the 2010 – 2013 increase in NDVI from 0.20 (CIR aerial photograph) to 0.79 (OLI). Correlation of annual precipitation to mean NDVI appears to be more constrained from 2001/2002 to 2007, and then displays an inverse relationship in 2010 and 2013 (figure 9a). Linear regression shows a good correlation between mean NDVI and total rainfall at 51.76% (figure 9b.)

Resolution differences

NDVI was calculated for CIR aerial 2010 images at 0.3 m, 1 m and 15 m pixel resolution in order to evaluate the impact of decreasing pixel resolution on NDVI statistics. The resulting images are shown in figure 9. In summary, decreasing pixel resolution does not have a significant effect on NDVI statistics. The difference between mean NDVI at 0.3 m and 1 m pixel resolution is 0.000215. Converting 0.3 m pixels to 15 m pixels yields a difference of 0.008233 in mean NDVI.

Similarly, the effects of increasing pixel resolution on NDVI statistics needed to be

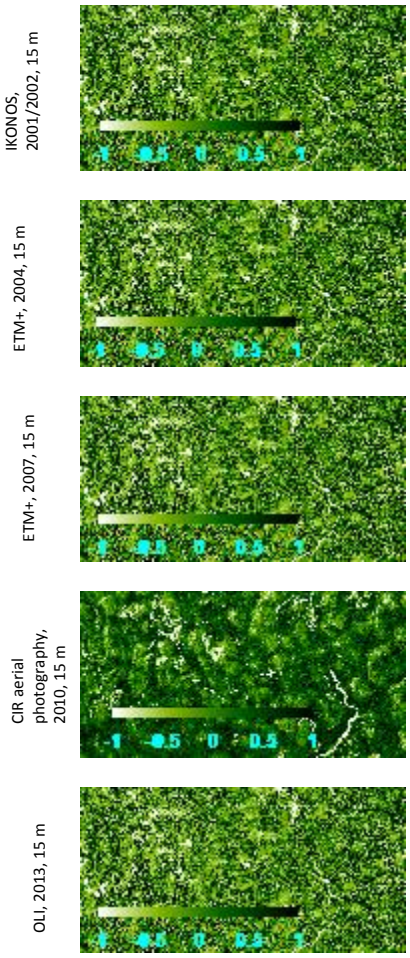


Figure 8: NDVI time series of subset 2 at 15 m pixel resolution.

assessed. In order to do so, 15 m spectral data from the ETM+ 2004 image was fused with the 0.3 spatial resolution of the 2010 CIR aerial photograph. This considerably impacted NDVI statistics and distribution (figure 10). Comparing mean NDVI values for both images yielded a difference of 0.06.

Discussion

Gross NDVI statistics were used in this analysis in order to assess the extent of change in primary production of the tropical ecosystem at the Cueva Dos Ojos area over a 12 year period. In this study, gross statistics were used versus pixel to pixel comparison because gross statistics more accurately represent overall terrestrial change as well as changes in carbon

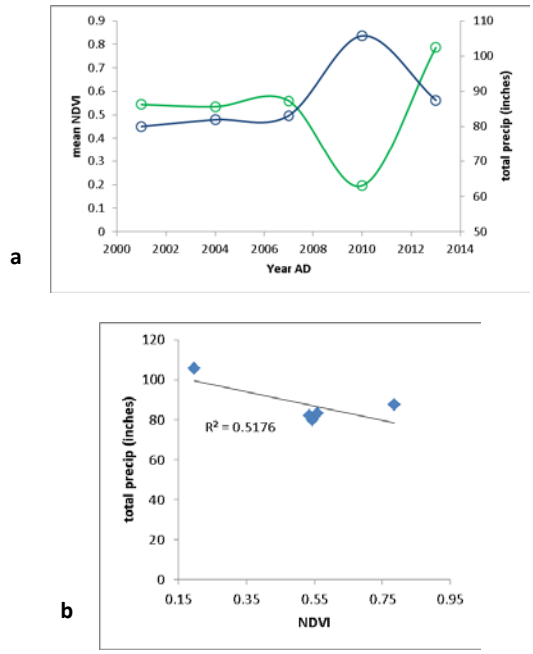


Figure 9a and b: Graph illustrating trends in mean NDVI (green) and annual precipitation (blue) of subset 2. (b) Linear regression between mean NDVI and annual precipitation of subset 2.

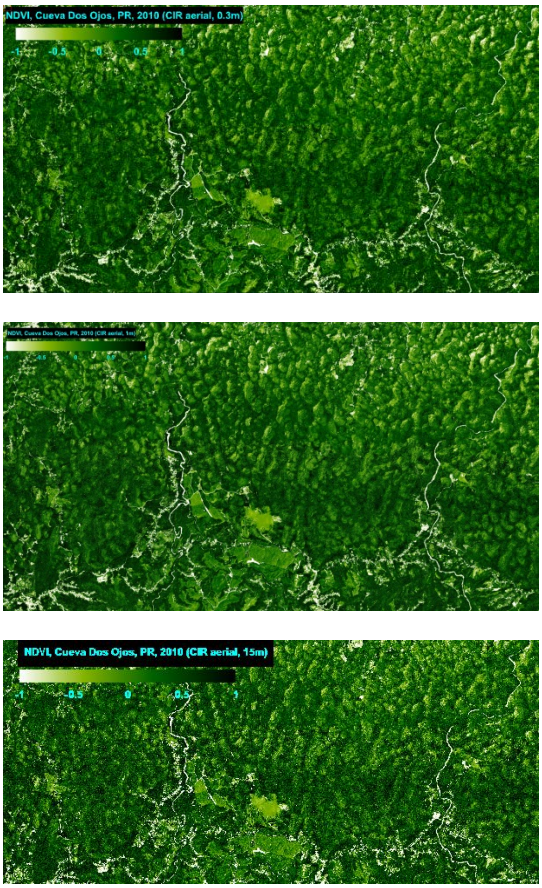


Figure 9: NDVI images using CIR aerial photograph at 0.3 m (top), 1 m (middle) and 15 m (bottom) pixel resolution.

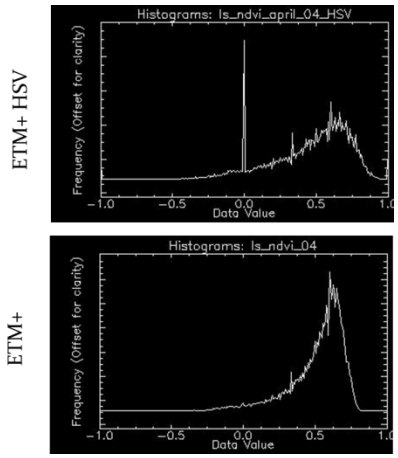


Figure 10: Histogram of NDVI values for fused data (top) and original data (bottom).

inputs which could potentially influence aquifer and drip water composition. Furthermore, it was noted that due to the high resolution of the CIR aerial photograph, NDVI pixel values displayed variability due to changes texture and the presence of shadows. Manual selection of pixels, therefore, could skew results.

The CIR aerial photograph was used to assess changes in NDVI calculations at 0.3 m, 1 m and 15 m resolutions. The results of this assessment were that decreasing pixel resolution had a limited effect on NDVI statistics, and that the integrity of data is maintained throughout the pixel size conversion process. Therefore, this is a viable approach that can be used in order to generate a time series analysis using images generated from different sensors at different resolutions.

Conversely, the effects of fusing low resolution spectral data with high resolution image data were assessed as an alternative approach to generate time series analysis at the best resolution possible. The result of this pilot test indicated that process considerably affected NDVI calculations. Consequently, this process was not used to generate a time series analysis in this study. It is likely that the primary influence on changes in NDVI statistics occurred during georeferencing. Ground control points (GCPs)

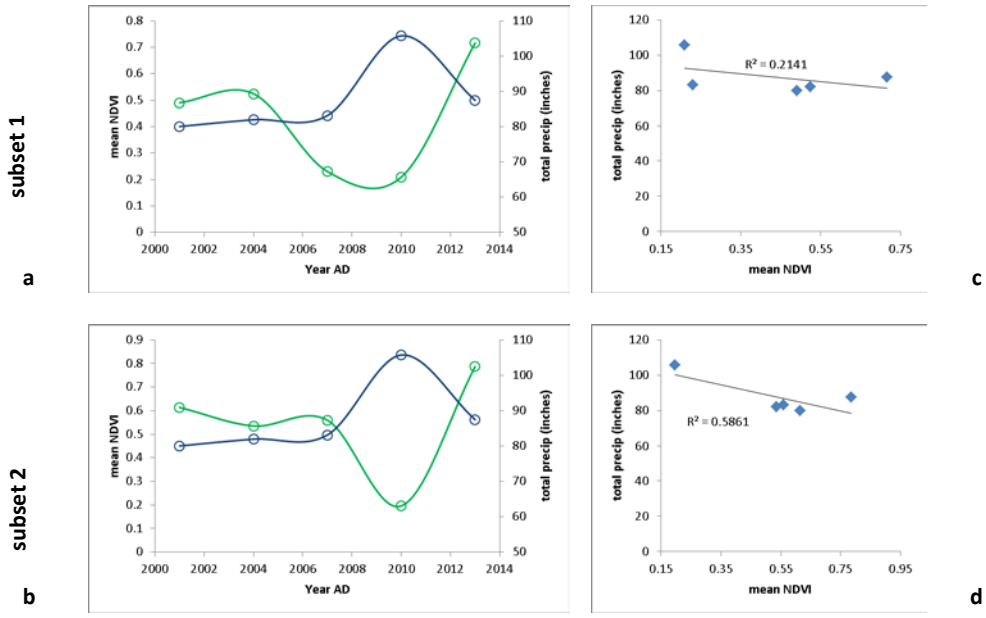


Figure 11a, b, c, and d: (a) Graph illustrating trends in mean NDVI (green) and annual precipitation (blue) of subset 1. (b) : Graph illustrating trends in mean NDVI (green) and annual precipitation (blue) of subset 2. (c) Linear regression between mean NDVI and annual precipitation of subset 1. (d) Linear regression between mean NDVI and annual precipitation of subset

used in image to image processing must be accurate and evenly distributed throughout the image. Poor selection and lack of distribution can lead to image distortion. Because this process changes pixel size of the lower resolution image to pixel size of the higher resolution image, this can have a significant effect on the results. Results could be improved by more careful selection of GCPs or an alternative method of data fusion (i.e. starting with images that cover the exact same area).

Both subsets 1 and 2 show a considerable range in mean NDVI over the 12 year period of 0.51 and 0.56 respectively. The largest range in values in subsets 1 and 2 occur between the CIR 2010 aerial photograph and OLI 2013 sensor image. In subsets 1 and 2, NDVI values are more constrained from 2001/2002 to 2007 and display a range of 0.29 and 0.02 respectively From 2001/2002 range distribution did not coincide with the use of different sensor images.

Spectral characteristics of each sensor used are listed in table 1. When considering the ratio of NIR to red light, OLI and CIR photos both incorporate a ratio of 1:1, however the CIR image incorporates a wider spectrum of wavelength (0.05 compared to 0.03). ETM+ NIR:red light ratios is ~ 2:1 and IKONOS is ~3:1. In 2003, Steven et al. investigated the relationship between NDVI analysis using 16 different sensors. The authors concluded that vegetation indices derived from different sensors cannot be regarded as directly equivalent. However, equivalence with precision of up to 0.02 could be achieved by applying corrections.

A correction (Steven et al., 2003) was applied to calibrate the measured IKONOS mean NDVI to referenced ETM+ data using the equation:

$$NDVI_{reference\ ETM+} = a + b * NDVI_{measured\ IKONOS}$$

where a = 0.016 and b = 1.099

Applying this correction to the IKONOS data improved results where mean NDVI increased by 0.06 for subsets 1 and 2. This also coincided with an improved correlation between NDVI

and annual precipitation for both subsets 1 and 2 of 21.6% and 60.12% respectively (figure 11). CIR and OLI data could not be calibrated because these sensor images were not incorporated in the 2003 study.

Corrected mean NDVI ranges of 2001/2002 – 2007 data set for subsets 1 and 2 are 0.29 and 0.06 respectively. Total annual precipitation during this time period displays a range of 1.16, which represents only 4.5% of the total range in rainfall from 2001/2002 – 2013 (25.7 inches). Although the maximum range of 0.59 in NDVI values does not accurately represent the extent of NDVI variability, the data suggests that the minimum range in NDVI values is between 0.06 and 0.29, and is coincident with minimal change in rainfall. Because the relationship between NDVI is statistically significant for both subsets, it is reasonable to assume that the total change in NDVI for the 2001/2002 to 2013 time period is greater than 0.29, however, the appearance of an inverse relationship between these variables is most likely a product of NDVI values relative to their specific sensor.

	NIR	Red	Ratio (NIR:R)
IKONOS	757 853 nm	632 - 698 nm	3:1'
ETM+	770 - 900 nm	630 - 690 nm	2:1'
CIR	835 - 885 nm	610 - 660 nm	1:1'
OLI	850 - 880 nm	640 - 670 nm	1:1'

Table 1: NIR and red electromagnetic spectral characteristics of sensors used in this study.

CONCLUSIONS

In summary, significant change in primary production of the tropical ecosystem surrounding Cueva Dos Ojos occurred between 2001/2002 and 2013. Although the true range of NDVI values cannot be truly assessed due to differences in sensor bandwidths as well as variations introduced by different solar and viewing angles, the relationship between mean NDVI and annual precipitation is statistically significant. Atmospheric corrections and cloud removal require application of image processing techniques. Reducing pixel resolution does not have an adverse effect on NDVI statistics and is a viable approach that can be used in order to compare images of various resolutions. The integrity of NDVI statistics can be decreased by increasing pixel resolution using data fusion techniques. Finally, NDVI is an effective tool to measure terrestrial change in primary biological productivity over time.

FURTHER RESEARCH

This research could be improved by selecting images from sensors that have known correction factors in order to create a time series of NDVI. Also, increased temporal resolution (bimonthly imaging) is necessary to further investigate and/or verify the relationship between precipitation and NDVI. Additionally, unsupervised/supervised classification should be utilized to distinguish different coverage types (e.g. grasses, forest) and their effects on NDVI. Finally, a wider variety of analytical methods should be employed to verify the integrity of generated results.

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Appendix

CIR 2010 0.3 m pixel statistics

Filename: I:\Remote sensing final project\Final project\NDVI_CIR\ndvi_CIR_0.3
Dims: Full Scene (555,633,882 points)

Basic Stats	Min	Max	Mean	Stdev
Band 1	-0.991342	0.988764	0.200466	0.188027

Histogram	DN	Npts	Total	Percent	Acc Pct
Band 1	-0.991342	1225	1225	0.0002	0.0002
Bin=0.00776	-0.983577	5194	6419	0.0009	0.0012
	-0.975812	11469	17888	0.0021	0.0032
	-0.968047	16883	34771	0.0030	0.0063
	-0.960282	18582	53353	0.0033	0.0096
	-0.952516	19274	72627	0.0035	0.0131
	-0.944751	18973	91600	0.0034	0.0165
	-0.936986	13989	105589	0.0025	0.0190
	-0.929221	14637	120226	0.0026	0.0216
	-0.921456	11284	131510	0.0020	0.0237
	-0.913691	14200	145710	0.0026	0.0262
	-0.905926	14802	160512	0.0027	0.0289
	-0.898161	15043	175555	0.0027	0.0316
	-0.890395	18120	193675	0.0033	0.0349
	-0.882630	29570	223245	0.0053	0.0402
	-0.874865	18610	241855	0.0033	0.0435
	-0.867100	26045	267900	0.0047	0.0482
	-0.859335	30680	298580	0.0055	0.0537
	-0.851570	30382	328962	0.0055	0.0592
	-0.843805	30607	359569	0.0055	0.0647
	-0.836040	31595	391164	0.0057	0.0704
	-0.828274	30348	421512	0.0055	0.0759
	-0.820509	33117	454629	0.0060	0.0818
	-0.812744	30627	485256	0.0055	0.0873
	-0.804979	33625	518881	0.0061	0.0934
	-0.797214	35251	554132	0.0063	0.0997
	-0.789449	28946	583078	0.0052	0.1049
	-0.781684	42440	625518	0.0076	0.1126
	-0.773919	39160	664678	0.0070	0.1196
	-0.766153	46378	711056	0.0083	0.1280
	-0.758388	46259	757315	0.0083	0.1363
	-0.750623	65598	822913	0.0118	0.1481
	-0.742858	47310	870223	0.0085	0.1566
	-0.735093	39727	909950	0.0071	0.1638
	-0.727328	46968	956918	0.0085	0.1722

-0.719563	49357	1006275	0.0089	0.1811
-0.711798	36861	1043136	0.0066	0.1877
-0.704033	47823	1090959	0.0086	0.1963
-0.696267	41783	1132742	0.0075	0.2039
-0.688502	41472	1174214	0.0075	0.2113
-0.680737	44983	1219197	0.0081	0.2194
-0.672972	60497	1279694	0.0109	0.2303
-0.665207	34329	1314023	0.0062	0.2365
-0.657442	52865	1366888	0.0095	0.2460
-0.649677	51909	1418797	0.0093	0.2553
-0.641912	58607	1477404	0.0105	0.2659
-0.634146	55166	1532570	0.0099	0.2758
-0.626381	72153	1604723	0.0130	0.2888
-0.618616	63501	1668224	0.0114	0.3002
-0.610851	55382	1723606	0.0100	0.3102
-0.603086	108239	1831845	0.0195	0.3297
-0.595321	75997	1907842	0.0137	0.3434
-0.587556	96144	2003986	0.0173	0.3607
-0.579791	102684	2106670	0.0185	0.3791
-0.572025	130492	2237162	0.0235	0.4026
-0.564260	99408	2336570	0.0179	0.4205
-0.556495	142901	2479471	0.0257	0.4462
-0.548730	147150	2626621	0.0265	0.4727
-0.540965	154195	2780816	0.0278	0.5005
-0.533200	144433	2925249	0.0260	0.5265
-0.525435	176270	3101519	0.0317	0.5582
-0.517670	185251	3286770	0.0333	0.5915
-0.509904	141848	3428618	0.0255	0.6171
-0.502139	267753	3696371	0.0482	0.6653
-0.494374	201856	3898227	0.0363	0.7016
-0.486609	217534	4115761	0.0392	0.7407
-0.478844	255292	4371053	0.0459	0.7867
-0.471079	266353	4637406	0.0479	0.8346
-0.463314	232087	4869493	0.0418	0.8764
-0.455549	297825	5167318	0.0536	0.9300
-0.447783	264483	5431801	0.0476	0.9776
-0.440018	293174	5724975	0.0528	1.0304
-0.432253	329917	6054892	0.0594	1.0897
-0.424488	271218	6326110	0.0488	1.1385
-0.416723	353728	6679838	0.0637	1.2022
-0.408958	294226	6974064	0.0530	1.2552
-0.401193	362251	7336315	0.0652	1.3204
-0.393428	312789	7649104	0.0563	1.3766
-0.385663	358033	8007137	0.0644	1.4411

-0.377897	387246	8394383	0.0697	1.5108
-0.370132	400564	8794947	0.0721	1.5829
-0.362367	393109	9188056	0.0707	1.6536
-0.354602	387991	9576047	0.0698	1.7234
-0.346837	317037	9893084	0.0571	1.7805
-0.339072	761320	10654404	0.1370	1.9175
-0.331307	289899	10944303	0.0522	1.9697
-0.323542	447340	11391643	0.0805	2.0502
-0.315776	449643	11841286	0.0809	2.1311
-0.308011	509676	12350962	0.0917	2.2229
-0.300246	667210	13018172	0.1201	2.3429
-0.292481	564964	13583136	0.1017	2.4446
-0.284716	549865	14133001	0.0990	2.5436
-0.276951	623264	14756265	0.1122	2.6558
-0.269186	678184	15434449	0.1221	2.7778
-0.261421	644532	16078981	0.1160	2.8938
-0.253655	722097	16801078	0.1300	3.0238
-0.245890	628577	17429655	0.1131	3.1369
-0.238125	912462	18342117	0.1642	3.3011
-0.230360	606529	18948646	0.1092	3.4103
-0.222595	957349	19905995	0.1723	3.5826
-0.214830	792245	20698240	0.1426	3.7252
-0.207065	1183366	21881606	0.2130	3.9381
-0.199300	505539	22387145	0.0910	4.0291
-0.191534	872131	23259276	0.1570	4.1861
-0.183769	1168927	24428203	0.2104	4.3965
-0.176004	802120	25230323	0.1444	4.5408
-0.168239	1000475	26230798	0.1801	4.7209
-0.160474	1156252	27387050	0.2081	4.9290
-0.152709	854113	28241163	0.1537	5.0827
-0.144944	1312458	29553621	0.2362	5.3189
-0.137179	1174937	30728558	0.2115	5.5304
-0.129413	1207234	31935792	0.2173	5.7476
-0.121648	1196674	33132466	0.2154	5.9630
-0.113883	1449989	34582455	0.2610	6.2240
-0.106118	1488818	36071273	0.2679	6.4919
-0.098353	1753333	37824606	0.3156	6.8075
-0.090588	1412871	39237477	0.2543	7.0618
-0.082823	1600370	40837847	0.2880	7.3498
-0.075058	1624785	42462632	0.2924	7.6422
-0.067293	1861391	44324023	0.3350	7.9772
-0.059527	2154877	46478900	0.3878	8.3650
-0.051762	2097634	48576534	0.3775	8.7425
-0.043997	2703089	51279623	0.4865	9.2290

-0.036232	2377725	53657348	0.4279 9.6570
-0.028467	2582402	56239750	0.4648 10.1217
-0.020702	2769522	59009272	0.4984 10.6202
-0.012937	1714780	60724052	0.3086 10.9288
-0.005172	5835684	66559736	1.0503 11.9791
0.002594	1826606	68386342	0.3287 12.3078
0.010359	2900845	71287187	0.5221 12.8299
0.018124	3969575	75256762	0.7144 13.5443
0.025889	3562946	78819708	0.6412 14.1855
0.033654	4392628	83212336	0.7906 14.9761
0.041419	4624607	87836943	0.8323 15.8084
0.049184	4455246	92292189	0.8018 16.6103
0.056949	4854878	97147067	0.8738 17.4840
0.064715	5319158	102466225	0.9573 18.4413
0.072480	5387427	107853652	0.9696 19.4109
0.080245	5929375	113783027	1.0671 20.4781
0.088010	6009482	119792509	1.0816 21.5596
0.095775	6892349	126684858	1.2404 22.8001
0.103540	7466104	134150962	1.3437 24.1438
0.111305	6236271	140387233	1.1224 25.2661
0.119070	7596034	147983267	1.3671 26.6332
0.126836	7982548	155965815	1.4367 28.0699
0.134601	7197592	163163407	1.2954 29.3653
0.142366	9808144	172971551	1.7652 31.1305
0.150131	9720210	182691761	1.7494 32.8799
0.157896	8741973	191433734	1.5733 34.4532
0.165661	10060419	201494153	1.8106 36.2638
0.173426	10098318	211592471	1.8174 38.0813
0.181191	10721447	222313918	1.9296 40.0109
0.188957	10825702	233139620	1.9484 41.9592
0.196722	11459242	244598862	2.0624 44.0216
0.204487	11702361	256301223	2.1061 46.1277
0.212252	11740456	268041679	2.1130 48.2407
0.220017	11999571	280041250	2.1596 50.4003
0.227782	12271574	292312824	2.2086 52.6089
0.235547	12578207	304891031	2.2638 54.8726
0.243312	12450253	317341284	2.2407 57.1134
0.251077	12034073	329375357	2.1658 59.2792
0.258843	12118786	341494143	2.1811 61.4603
0.266608	12737290	354231433	2.2924 63.7527
0.274373	12292602	366524035	2.2124 65.9650
0.282138	11669294	378193329	2.1002 68.0652
0.289903	11692516	389885845	2.1044 70.1696
0.297668	11308633	401194478	2.0353 72.2048

0.305433	11080150	412274628	1.9941 74.1990
0.313198	10681636	422956264	1.9224 76.1214
0.320964	9985276	432941540	1.7971 77.9185
0.328729	10496712	443438252	1.8891 79.8076
0.336494	8240380	451678632	1.4831 81.2907
0.344259	8915341	460593973	1.6045 82.8952
0.352024	8117261	468711234	1.4609 84.3561
0.359789	7873374	476584608	1.4170 85.7731
0.367554	7334970	483919578	1.3201 87.0932
0.375319	6442024	490361602	1.1594 88.2526
0.383085	6123406	496485008	1.1021 89.3547
0.390850	5741837	502226845	1.0334 90.3881
0.398615	5205703	507432548	0.9369 91.3250
0.406380	4791375	512223923	0.8623 92.1873
0.414145	4322642	516546565	0.7780 92.9653
0.421910	4122058	520668623	0.7419 93.7071
0.429675	3264366	523932989	0.5875 94.2946
0.437440	3349072	527282061	0.6027 94.8974
0.445206	2885359	530167420	0.5193 95.4167
0.452971	2647834	532815254	0.4765 95.8932
0.460736	2334217	535149471	0.4201 96.3133
0.468501	2154574	537304045	0.3878 96.7011
0.476266	1890992	539195037	0.3403 97.0414
0.484031	1646617	540841654	0.2963 97.3378
0.491796	1068009	541909663	0.1922 97.5300
0.499561	1776319	543685982	0.3197 97.8497
0.507326	1158697	544844679	0.2085 98.0582
0.515092	1120075	545964754	0.2016 98.2598
0.522857	966355	546931109	0.1739 98.4337
0.530622	755370	547686479	0.1359 98.5697
0.538387	855376	548541855	0.1539 98.7236
0.546152	668369	549210224	0.1203 98.8439
0.553917	624073	549834297	0.1123 98.9562
0.561682	541228	550375525	0.0974 99.0536
0.569447	482315	550857840	0.0868 99.1404
0.577213	444241	551302081	0.0800 99.2204
0.584978	389644	551691725	0.0701 99.2905
0.592743	439396	552131121	0.0791 99.3696
0.600508	216763	552347884	0.0390 99.4086
0.608273	285641	552633525	0.0514 99.4600
0.616038	252054	552885579	0.0454 99.5054
0.623803	218661	553104240	0.0394 99.5447
0.631568	211561	553315801	0.0381 99.5828
0.639334	211352	553527153	0.0380 99.6208

0.647099	145290	553672443	0.0261	99.6470
0.654864	155092	553827535	0.0279	99.6749
0.662629	144325	553971860	0.0260	99.7009
0.670394	122544	554094404	0.0221	99.7229
0.678159	116361	554210765	0.0209	99.7439
0.685924	105339	554316104	0.0190	99.7628
0.693689	92348554408452		0.0166	99.7795
0.701455	89860554498312		0.0162	99.7956
0.709220	81559554579871		0.0147	99.8103
0.716985	70120554649991		0.0126	99.8229
0.724750	63252554713243		0.0114	99.8343
0.732515	65291554778534		0.0118	99.8461
0.740280	50598554829132		0.0091	99.8552
0.748045	56018554885150		0.0101	99.8652
0.755810	47632554932782		0.0086	99.8738
0.763576	42519554975301		0.0077	99.8815
0.771341	48780555024081		0.0088	99.8903
0.779106	32574555056655		0.0059	99.8961
0.786871	33899555090554		0.0061	99.9022
0.794636	34951555125505		0.0063	99.9085
0.802401	30065555155570		0.0054	99.9139
0.810166	20403555175973		0.0037	99.9176
0.817931	31506555207479		0.0057	99.9233
0.825696	32591555240070		0.0059	99.9291
0.833462	15788555255858		0.0028	99.9320
0.841227	23133555278991		0.0042	99.9361
0.848992	15899555294890		0.0029	99.9390
0.856757	23847555318737		0.0043	99.9433
0.864522	18789555337526		0.0034	99.9467
0.872287	19606555357132		0.0035	99.9502
0.880052	16790555373922		0.0030	99.9532
0.887817	21817555395739		0.0039	99.9571
0.895583	15338555411077		0.0028	99.9599
0.903348	20172555431249		0.0036	99.9635
0.911113	18478555449727		0.0033	99.9669
0.918878	24106555473833		0.0043	99.9712
0.926643	21633555495466		0.0039	99.9751
0.934408	25904555521370		0.0047	99.9798
0.942173	26841555548211		0.0048	99.9846
0.949938	32848555581059		0.0059	99.9905
0.957704	26434555607493		0.0048	99.9953
0.965469	19437555626930		0.0035	99.9987
0.973234	6593	555633523	0.0012	99.9999
0.980999	358	555633881	0.0001	100

CIR 2010 1 m pixel statistics

Filename: I:\Remote sensing final project\Final project\ndvi_CIR_1meter

Dims: Full Scene (50,007,867 points)

Basic Stats	Min	Max	Mean	Stdev
Band 1	-0.989474	0.984848	0.200681	0.188020

Histogram	DN	Npts	Total	Percent	Acc Pct	
Band 1	-0.989474	173	173	0.0003	0.0003	
Bin=0.00774	-0.981731	588	761	0.0012	0.0015	
	-0.973989	1134	1895	0.0023	0.0038	
	-0.966246	1633	3528	0.0033	0.0071	
	-0.958504	1865	5393	0.0037	0.0108	
	-0.950762	1507	6900	0.0030	0.0138	
	-0.943019	1880	8780	0.0038	0.0176	
	-0.935277	1161	9941	0.0023	0.0199	
	-0.927534	1413	11354	0.0028	0.0227	
	-0.919792	1073	12427	0.0021	0.0249	
	-0.912049	1301	13728	0.0026	0.0275	
	-0.904307	959	14687	0.0019	0.0294	
	-0.896564	1882	16569	0.0038	0.0331	
	-0.888822	1619	18188	0.0032	0.0364	
	-0.881080	2209	20397	0.0044	0.0408	
	-0.873337	2256	22653	0.0045	0.0453	
	-0.865595	1917	24570	0.0038	0.0491	
	-0.857852	2795	27365	0.0056	0.0547	
	-0.850110	2865	30230	0.0057	0.0605	
	-0.842367	2569	32799	0.0051	0.0656	
	-0.834625	2910	35709	0.0058	0.0714	
	-0.826882	2506	38215	0.0050	0.0764	
	-0.819140	3153	41368	0.0063	0.0827	
	-0.811398	2796	44164	0.0056	0.0883	
	-0.803655	2990	47154	0.0060	0.0943	
	-0.795913	2829	49983	0.0057	0.1000	
	-0.788170	2847	52830	0.0057	0.1056	
	-0.780428	3757	56587	0.0075	0.1132	
	-0.772685	3159	59746	0.0063	0.1195	
	-0.764943	5559	65305	0.0111	0.1306	
	-0.757201	5965	71270	0.0119	0.1425	
	-0.749458	3291	74561	0.0066	0.1491	
	-0.741716	3639	78200	0.0073	0.1564	
	-0.733973	4412	82612	0.0088	0.1652	
	-0.726231	3548	86160	0.0071	0.1723	
	-0.718488	4256	90416	0.0085	0.1808	

-0.710746	3755	94171	0.0075	0.1883
-0.703003	4003	98174	0.0080	0.1963
-0.695261	3612	101786	0.0072	0.2035
-0.687519	4591	106377	0.0092	0.2127
-0.679776	3536	109913	0.0071	0.2198
-0.672034	5127	115040	0.0103	0.2300
-0.664291	3647	118687	0.0073	0.2373
-0.656549	4395	123082	0.0088	0.2461
-0.648806	4433	127515	0.0089	0.2550
-0.641064	5419	132934	0.0108	0.2658
-0.633321	4663	137597	0.0093	0.2752
-0.625579	6441	144038	0.0129	0.2880
-0.617837	5709	149747	0.0114	0.2994
-0.610094	4769	154516	0.0095	0.3090
-0.602352	10010	164526	0.0200	0.3290
-0.594609	6678	171204	0.0134	0.3424
-0.586867	8428	179632	0.0169	0.3592
-0.579124	12198	191830	0.0244	0.3836
-0.571382	8945	200775	0.0179	0.4015
-0.563640	8507	209282	0.0170	0.4185
-0.555897	14320	223602	0.0286	0.4471
-0.548155	11932	235534	0.0239	0.4710
-0.540412	13872	249406	0.0277	0.4987
-0.532670	13604	263010	0.0272	0.5259
-0.524927	17095	280105	0.0342	0.5601
-0.517185	14609	294714	0.0292	0.5893
-0.509442	12706	307420	0.0254	0.6147
-0.501700	25064	332484	0.0501	0.6649
-0.493958	17887	350371	0.0358	0.7006
-0.486215	18982	369353	0.0380	0.7386
-0.478473	23220	392573	0.0464	0.7850
-0.470730	23598	416171	0.0472	0.8322
-0.462988	21102	437273	0.0422	0.8744
-0.455245	27140	464413	0.0543	0.9287
-0.447503	27186	491599	0.0544	0.9830
-0.439760	22720	514319	0.0454	1.0285
-0.432018	29728	544047	0.0594	1.0879
-0.424276	28424	572471	0.0568	1.1448
-0.416533	27700	600171	0.0554	1.2002
-0.408791	26321	626492	0.0526	1.2528
-0.401048	32272	658764	0.0645	1.3173
-0.393306	28220	686984	0.0564	1.3738
-0.385563	31793	718777	0.0636	1.4373
-0.377821	35004	753781	0.0700	1.5073

-0.370079	35960	789741	0.0719	1.5792
-0.362336	35020	824761	0.0700	1.6493
-0.354594	34669	859430	0.0693	1.7186
-0.346851	28079	887509	0.0561	1.7747
-0.339109	68893	956402	0.1378	1.9125
-0.331366	25723	982125	0.0514	1.9639
-0.323624	36475	1018600	0.0729	2.0369
-0.315881	42929	1061529	0.0858	2.1227
-0.308139	45929	1107458	0.0918	2.2146
-0.300397	60208	1167666	0.1204	2.3350
-0.292654	50827	1218493	0.1016	2.4366
-0.284912	48572	1267065	0.0971	2.5337
-0.277169	54621	1321686	0.1092	2.6430
-0.269427	61899	1383585	0.1238	2.7667
-0.261684	57475	1441060	0.1149	2.8817
-0.253942	63666	1504726	0.1273	3.0090
-0.246199	58333	1563059	0.1166	3.1256
-0.238457	82656	1645715	0.1653	3.2909
-0.230715	52827	1698542	0.1056	3.3965
-0.222972	85937	1784479	0.1718	3.5684
-0.215230	71056	1855535	0.1421	3.7105
-0.207487	108806	1964341	0.2176	3.9281
-0.199745	42852	2007193	0.0857	4.0138
-0.192002	77402	2084595	0.1548	4.1685
-0.184260	79337	2163932	0.1586	4.3272
-0.176518	97476	2261408	0.1949	4.5221
-0.168775	88928	2350336	0.1778	4.6999
-0.161033	103871	2454207	0.2077	4.9076
-0.153290	75825	2530032	0.1516	5.0593
-0.145548	112049	2642081	0.2241	5.2833
-0.137805	112030	2754111	0.2240	5.5074
-0.130063	95256	2849367	0.1905	5.6978
-0.122320	117651	2967018	0.2353	5.9331
-0.114578	120016	3087034	0.2400	6.1731
-0.106836	143192	3230226	0.2863	6.4594
-0.099093	100828	3331054	0.2016	6.6611
-0.091351	153274	3484328	0.3065	6.9676
-0.083608	172156	3656484	0.3443	7.3118
-0.075866	145509	3801993	0.2910	7.6028
-0.068123	165412	3967405	0.3308	7.9336
-0.060381	149553	4116958	0.2991	8.2326
-0.052638	226923	4343881	0.4538	8.6864
-0.044896	213839	4557720	0.4276	9.1140
-0.037154	230067	4787787	0.4601	9.5741

-0.029411	225942 5013729	0.4518 10.0259
-0.021669	258236 5271965	0.5164 10.5423
-0.013926	165111 5437076	0.3302 10.8724
-0.006184	540315 5977391	1.0805 11.9529
0.001559	135399 6112790	0.2708 12.2237
0.009301	251435 6364225	0.5028 12.7264
0.017043	343912 6708137	0.6877 13.4142
0.024786	330806 7038943	0.6615 14.0757
0.032528	394739 7433682	0.7894 14.8650
0.040271	400471 7834153	0.8008 15.6658
0.048013	392660 8226813	0.7852 16.4510
0.055756	428638 8655451	0.8571 17.3082
0.063498	443162 9098613	0.8862 18.1944
0.071241	516140 9614753	1.0321 19.2265
0.078983	51856610133319	1.0370 20.2634
0.086725	55298010686299	1.1058 21.3692
0.094468	57294911259248	1.1457 22.5150
0.102210	57283611832084	1.1455 23.6604
0.109953	68985812521942	1.3795 25.0399
0.117695	67722213199164	1.3542 26.3942
0.125438	67443913873603	1.3487 27.7428
0.133180	73524114608844	1.4703 29.2131
0.140923	79320115402045	1.5862 30.7992
0.148665	82205716224102	1.6439 32.4431
0.156407	83175817055860	1.6633 34.1064
0.164150	88484017940700	1.7694 35.8758
0.171892	92633118867031	1.8524 37.7281
0.179635	92295819789989	1.8456 39.5738
0.187377	98503720775026	1.9698 41.5435
0.195120	1034348 21809374	2.0684 43.6119
0.202862	1028534 22837908	2.0567 45.6686
0.210604	1046118 23884026	2.0919 47.7605
0.218347	1094720 24978746	2.1891 49.9496
0.226089	1072877 26051623	2.1454 52.0950
0.233832	1131971 27183594	2.2636 54.3586
0.241574	1043452 28227046	2.0866 56.4452
0.249317	1137964 29365010	2.2756 58.7208
0.257059	1141990 30507000	2.2836 61.0044
0.264802	1012452 31519452	2.0246 63.0290
0.272544	1197001 32716453	2.3936 65.4226
0.280286	1051548 33768001	2.1028 67.5254
0.288029	1040199 34808200	2.0801 69.6054
0.295771	1038114 35846314	2.0759 71.6813
0.303514	992018 36838332	1.9837 73.6651

0.311256	96795237806284	1.9356 75.6007
0.318999	91785138724135	1.8354 77.4361
0.326741	109385939817994	2.1874 79.6235
0.334484	61954540437539	1.2389 80.8624
0.342226	77495541212494	1.5497 82.4120
0.349968	77335141985845	1.5465 83.9585
0.357711	69992542685770	1.3996 85.3581
0.365453	66236143348131	1.3245 86.6826
0.373196	58812343936254	1.1761 87.8587
0.380938	57533844511592	1.1505 89.0092
0.388681	52777245039364	1.0554 90.0646
0.396423	46880645508170	0.9375 91.0020
0.404165	47147445979644	0.9428 91.9448
0.411908	38148746361131	0.7629 92.7077
0.419650	34297746704108	0.6858 93.3935
0.427393	34811247052220	0.6961 94.0896
0.435135	30088447353104	0.6017 94.6913
0.442878	26973347622837	0.5394 95.2307
0.450620	24611447868951	0.4922 95.7228
0.458363	20849748077448	0.4169 96.1398
0.466105	21209048289538	0.4241 96.5639
0.473847	17286748462405	0.3457 96.9096
0.481590	14793148610336	0.2958 97.2054
0.489332	13771048748046	0.2754 97.4808
0.497075	13306248881108	0.2661 97.7468
0.504817	11257848993686	0.2251 97.9720
0.512560	10351449097200	0.2070 98.1790
0.520302	87541 49184741	0.1751 98.3540
0.528045	82779 49267520	0.1655 98.5195
0.535787	70956 49338476	0.1419 98.6614
0.543529	64568 49403044	0.1291 98.7905
0.551272	56245 49459289	0.1125 98.9030
0.559014	52372 49511661	0.1047 99.0077
0.566757	46748 49558409	0.0935 99.1012
0.574499	39697 49598106	0.0794 99.1806
0.582242	37234 49635340	0.0745 99.2551
0.589984	29923 49665263	0.0598 99.3149
0.597726	32420 49697683	0.0648 99.3797
0.605469	27201 49724884	0.0544 99.4341
0.613211	23589 49748473	0.0472 99.4813
0.620954	21711 49770184	0.0434 99.5247
0.628696	22582 49792766	0.0452 99.5699
0.636439	14656 49807422	0.0293 99.5992
0.644181	15072 49822494	0.0301 99.6293

0.651924	15701	49838195	0.0314	99.6607
0.659666	16064	49854259	0.0321	99.6928
0.667408	8516	49862775	0.0170	99.7099
0.675151	10894	49873669	0.0218	99.7316
0.682893	9970	49883639	0.0199	99.7516
0.690636	9056	49892695	0.0181	99.7697
0.698378	8515	49901210	0.0170	99.7867
0.706121	5239	49906449	0.0105	99.7972
0.713863	9083	49915532	0.0182	99.8154
0.721606	6321	49921853	0.0126	99.8280
0.729348	5931	49927784	0.0119	99.8399
0.737090	5313	49933097	0.0106	99.8505
0.744833	4973	49938070	0.0099	99.8604
0.752575	4642	49942712	0.0093	99.8697
0.760318	3725	49946437	0.0074	99.8772
0.768060	3756	49950193	0.0075	99.8847
0.775803	3743	49953936	0.0075	99.8922
0.783545	3295	49957231	0.0066	99.8987
0.791287	2497	49959728	0.0050	99.9037
0.799030	3501	49963229	0.0070	99.9107
0.806772	2551	49965780	0.0051	99.9158
0.814515	2756	49968536	0.0055	99.9214
0.822257	2135	49970671	0.0043	99.9256
0.830000	1994	49972665	0.0040	99.9296
0.837742	1798	49974463	0.0036	99.9332
0.845485	2202	49976665	0.0044	99.9376
0.853227	1927	49978592	0.0039	99.9415
0.860969	1829	49980421	0.0037	99.9451
0.868712	1756	49982177	0.0035	99.9486
0.876454	1662	49983839	0.0033	99.9520
0.884197	1587	49985426	0.0032	99.9551
0.891939	1328	49986754	0.0027	99.9578
0.899682	1933	49988687	0.0039	99.9616
0.907424	1756	49990443	0.0035	99.9652
0.915167	1567	49992010	0.0031	99.9683
0.922909	2127	49994137	0.0043	99.9725
0.930651	2426	49996563	0.0049	99.9774
0.938394	2620	49999183	0.0052	99.9826
0.946136	2506	50001689	0.0050	99.9876
0.953879	2692	50004381	0.0054	99.9930
0.961621	2150	50006531	0.0043	99.9973
0.969364	1118	50007649	0.0022	99.9996
0.977106	217	50007866	0.0004	100.0000
0.984848	1	50007867	0.0000	100.0000

CIR 2010 15m pixel statistics

Filename: I:\Remote sensing final project\Final project\NDVI_CIR\ndvi_CIR_15m_sub

Dims: Full Scene (174,220 points)

Basic Stats	Min	Max	Mean	Stdev
Band 1	-0.982609	0.976190	0.208699	0.181353

Histogram	DN	Npts	Total	Percent	Acc Pct	
Band 1	-0.982609	1	1	0.0006	0.0006	
Bin=0.00768	-0.974927	6	7	0.0034	0.0040	
	-0.967246	4	11	0.0023	0.0063	
	-0.959564	2	13	0.0011	0.0075	
	-0.951882	7	20	0.0040	0.0115	
	-0.944201	3	23	0.0017	0.0132	
	-0.936519	3	26	0.0017	0.0149	
	-0.928838	2	28	0.0011	0.0161	
	-0.921156	3	31	0.0017	0.0178	
	-0.913475	4	35	0.0023	0.0201	
	-0.905793	5	40	0.0029	0.0230	
	-0.898111	2	42	0.0011	0.0241	
	-0.890430	6	48	0.0034	0.0276	
	-0.882748	6	54	0.0034	0.0310	
	-0.875067	11	65	0.0063	0.0373	
	-0.867385	12	77	0.0069	0.0442	
	-0.859704	6	83	0.0034	0.0476	
	-0.852022	10	93	0.0057	0.0534	
	-0.844341	9	102	0.0052	0.0585	
	-0.836659	12	114	0.0069	0.0654	
	-0.828977	9	123	0.0052	0.0706	
	-0.821296	9	132	0.0052	0.0758	
	-0.813614	11	143	0.0063	0.0821	
	-0.805933	14	157	0.0080	0.0901	
	-0.798251	14	171	0.0080	0.0982	
	-0.790570	12	183	0.0069	0.1050	
	-0.782888	16	199	0.0092	0.1142	
	-0.775206	11	210	0.0063	0.1205	
	-0.767525	17	227	0.0098	0.1303	
	-0.759843	18	245	0.0103	0.1406	
	-0.752162	21	266	0.0121	0.1527	
	-0.744480	13	279	0.0075	0.1601	
	-0.736799	15	294	0.0086	0.1688	
	-0.729117	9	303	0.0052	0.1739	
	-0.721435	12	315	0.0069	0.1808	
	-0.713754	6	321	0.0034	0.1842	

-0.706072	23	344	0.0132	0.1975
-0.698391	15	359	0.0086	0.2061
-0.690709	15	374	0.0086	0.2147
-0.683028	13	387	0.0075	0.2221
-0.675346	5	392	0.0029	0.2250
-0.667665	14	406	0.0080	0.2330
-0.659983	12	418	0.0069	0.2399
-0.652301	9	427	0.0052	0.2451
-0.644620	15	442	0.0086	0.2537
-0.636938	19	461	0.0109	0.2646
-0.629257	14	475	0.0080	0.2726
-0.621575	18	493	0.0103	0.2830
-0.613894	18	511	0.0103	0.2933
-0.606212	32	543	0.0184	0.3117
-0.598530	17	560	0.0098	0.3214
-0.590849	30	590	0.0172	0.3387
-0.583167	29	619	0.0166	0.3553
-0.575486	34	653	0.0195	0.3748
-0.567804	36	689	0.0207	0.3955
-0.560123	32	721	0.0184	0.4138
-0.552441	32	753	0.0184	0.4322
-0.544759	38	791	0.0218	0.4540
-0.537078	41	832	0.0235	0.4776
-0.529396	56	888	0.0321	0.5097
-0.521715	51	939	0.0293	0.5390
-0.514033	54	993	0.0310	0.5700
-0.506352	65	1058	0.0373	0.6073
-0.498670	38	1096	0.0218	0.6291
-0.490989	74	1170	0.0425	0.6716
-0.483307	42	1212	0.0241	0.6957
-0.475625	61	1273	0.0350	0.7307
-0.467944	53	1326	0.0304	0.7611
-0.460262	70	1396	0.0402	0.8013
-0.452581	71	1467	0.0408	0.8420
-0.444899	76	1543	0.0436	0.8857
-0.437218	62	1605	0.0356	0.9212
-0.429536	100	1705	0.0574	0.9786
-0.421854	79	1784	0.0453	1.0240
-0.414173	80	1864	0.0459	1.0699
-0.406491	89	1953	0.0511	1.1210
-0.398810	78	2031	0.0448	1.1658
-0.391128	83	2114	0.0476	1.2134
-0.383447	81	2195	0.0465	1.2599
-0.375765	104	2299	0.0597	1.3196

-0.368083	92	2391	0.0528	1.3724
-0.360402	98	2489	0.0563	1.4287
-0.352720	96	2585	0.0551	1.4838
-0.345039	79	2664	0.0453	1.5291
-0.337357	150	2814	0.0861	1.6152
-0.329676	74	2888	0.0425	1.6577
-0.321994	92	2980	0.0528	1.7105
-0.314313	123	3103	0.0706	1.7811
-0.306631	135	3238	0.0775	1.8586
-0.298949	157	3395	0.0901	1.9487
-0.291268	149	3544	0.0855	2.0342
-0.283586	148	3692	0.0850	2.1192
-0.275905	167	3859	0.0959	2.2150
-0.268223	145	4004	0.0832	2.2982
-0.260542	167	4171	0.0959	2.3941
-0.252860	171	4342	0.0982	2.4923
-0.245178	212	4554	0.1217	2.6139
-0.237497	196	4750	0.1125	2.7264
-0.229815	203	4953	0.1165	2.8430
-0.222134	173	5126	0.0993	2.9423
-0.214452	217	5343	0.1246	3.0668
-0.206771	296	5639	0.1699	3.2367
-0.199089	149	5788	0.0855	3.3222
-0.191407	216	6004	0.1240	3.4462
-0.183726	319	6323	0.1831	3.6293
-0.176044	219	6542	0.1257	3.7550
-0.168363	270	6812	0.1550	3.9100
-0.160681	343	7155	0.1969	4.1069
-0.153000	254	7409	0.1458	4.2527
-0.145318	322	7731	0.1848	4.4375
-0.137637	346	8077	0.1986	4.6361
-0.129955	306	8383	0.1756	4.8117
-0.122273	372	8755	0.2135	5.0253
-0.114592	352	9107	0.2020	5.2273
-0.106910	460	9567	0.2640	5.4913
-0.099229	318	9885	0.1825	5.6739
-0.091547	480	10365	0.2755	5.9494
-0.083866	542	10907	0.3111	6.2605
-0.076184	438	11345	0.2514	6.5119
-0.068502	539	11884	0.3094	6.8213
-0.060821	534	12418	0.3065	7.1278
-0.053139	683	13101	0.3920	7.5198
-0.045458	762	13863	0.4374	7.9572
-0.037776	739	14602	0.4242	8.3814

-0.030095	683	15285	0.3920	8.7734
-0.022413	893	16178	0.5126	9.2860
-0.014731	560	16738	0.3214	9.6074
-0.007050	1929	18667	1.1072	10.7146
0.000632	350	19017	0.2009	10.9155
0.008313	736	19753	0.4225	11.3380
0.015995	1161	20914	0.6664	12.0044
0.023676	1025	21939	0.5883	12.5927
0.031358	1256	23195	0.7209	13.3136
0.039039	1377	24572	0.7904	14.1040
0.046721	1277	25849	0.7330	14.8370
0.054403	1402	27251	0.8047	15.6417
0.062084	1488	28739	0.8541	16.4958
0.069766	1920	30659	1.1021	17.5979
0.077447	1618	32277	0.9287	18.5266
0.085129	1827	34104	1.0487	19.5752
0.092810	1888	35992	1.0837	20.6589
0.100492	2046	38038	1.1744	21.8333
0.108174	2201	40239	1.2633	23.0967
0.115855	2217	42456	1.2725	24.3692
0.123537	2413	44869	1.3850	25.7542
0.131218	2518	47387	1.4453	27.1995
0.138900	2551	49938	1.4642	28.6638
0.146581	2807	52745	1.6112	30.2749
0.154263	2904	55649	1.6669	31.9418
0.161945	2920	58569	1.6760	33.6178
0.169626	3178	61747	1.8241	35.4420
0.177308	3130	64877	1.7966	37.2385
0.184989	3455	68332	1.9831	39.2217
0.192671	4078	72410	2.3407	41.5624
0.200352	2897	75307	1.6628	43.2252
0.208034	3733	79040	2.1427	45.3679
0.215715	3582	82622	2.0560	47.4239
0.223397	4045	86667	2.3218	49.7457
0.231079	3631	90298	2.0841	51.8299
0.238760	3912	94210	2.2454	54.0753
0.246442	3809	98019	2.1863	56.2616
0.254123	4029	102048	2.3126	58.5742
0.261805	4035	106083	2.3160	60.8903
0.269486	3845	109928	2.2070	63.0972
0.277168	3704	113632	2.1260	65.2233
0.284850	3851	117483	2.2104	67.4337
0.292531	3951	121434	2.2678	69.7015
0.300213	3542	124976	2.0331	71.7346

0.307894	3451	128427	1.9808	73.7154
0.315576	3470	131897	1.9917	75.7072
0.323257	2851	134748	1.6364	77.3436
0.330939	3499	138247	2.0084	79.3520
0.338621	2924	141171	1.6783	81.0303
0.346302	2894	144065	1.6611	82.6914
0.353984	2518	146583	1.4453	84.1367
0.361665	2452	149035	1.4074	85.5441
0.369347	2375	151410	1.3632	86.9074
0.377028	2281	153691	1.3093	88.2166
0.384710	1831	155522	1.0510	89.2676
0.392391	2074	157596	1.1904	90.4580
0.400073	1499	159095	0.8604	91.3184
0.407755	1510	160605	0.8667	92.1852
0.415436	1419	162024	0.8145	92.9997
0.423118	1252	163276	0.7186	93.7183
0.430799	1173	164449	0.6733	94.3916
0.438481	1024	165473	0.5878	94.9793
0.446162	889	166362	0.5103	95.4896
0.453844	829	167191	0.4758	95.9654
0.461526	775	167966	0.4448	96.4103
0.469207	690	168656	0.3961	96.8063
0.476889	641	169297	0.3679	97.1743
0.484570	533	169830	0.3059	97.4802
0.492252	275	170105	0.1578	97.6380
0.499933	583	170688	0.3346	97.9727
0.507615	374	171062	0.2147	98.1873
0.515297	323	171385	0.1854	98.3727
0.522978	310	171695	0.1779	98.5507
0.530660	234	171929	0.1343	98.6850
0.538341	256	172185	0.1469	98.8319
0.546023	203	172388	0.1165	98.9485
0.553704	169	172557	0.0970	99.0455
0.561386	149	172706	0.0855	99.1310
0.569067	117	172823	0.0672	99.1981
0.576749	124	172947	0.0712	99.2693
0.584431	116	173063	0.0666	99.3359
0.592112	63	173126	0.0362	99.3721
0.599794	96	173222	0.0551	99.4272
0.607475	91	173313	0.0522	99.4794
0.615157	74	173387	0.0425	99.5219
0.622838	41	173428	0.0235	99.5454
0.630520	52	173480	0.0298	99.5752
0.638202	50	173530	0.0287	99.6039

0.645883	54	173584	0.0310	99.6349
0.653565	49	173633	0.0281	99.6631
0.661246	50	173683	0.0287	99.6918
0.668928	37	173720	0.0212	99.7130
0.676609	38	173758	0.0218	99.7348
0.684291	30	173788	0.0172	99.7520
0.691973	42	173830	0.0241	99.7761
0.699654	34	173864	0.0195	99.7957
0.707336	22	173886	0.0126	99.8083
0.715017	20	173906	0.0115	99.8198
0.722699	18	173924	0.0103	99.8301
0.730380	19	173943	0.0109	99.8410
0.738062	18	173961	0.0103	99.8513
0.745743	14	173975	0.0080	99.8594
0.753425	22	173997	0.0126	99.8720
0.761107	19	174016	0.0109	99.8829
0.768788	7	174023	0.0040	99.8869
0.776470	19	174042	0.0109	99.8978
0.784151	11	174053	0.0063	99.9041
0.791833	10	174063	0.0057	99.9099
0.799514	7	174070	0.0040	99.9139
0.807196	6	174076	0.0034	99.9173
0.814878	11	174087	0.0063	99.9237
0.822559	11	174098	0.0063	99.9300
0.830241	6	174104	0.0034	99.9334
0.837922	6	174110	0.0034	99.9369
0.845604	4	174114	0.0023	99.9392
0.853285	4	174118	0.0023	99.9415
0.860967	6	174124	0.0034	99.9449
0.868649	8	174132	0.0046	99.9495
0.876330	2	174134	0.0011	99.9506
0.884012	7	174141	0.0040	99.9547
0.891693	5	174146	0.0029	99.9575
0.899375	3	174149	0.0017	99.9592
0.907056	6	174155	0.0034	99.9627
0.914738	5	174160	0.0029	99.9656
0.922419	8	174168	0.0046	99.9702
0.930101	5	174173	0.0029	99.9730
0.937783	11	174184	0.0063	99.9793
0.945464	10	174194	0.0057	99.9851
0.953146	11	174205	0.0063	99.9914
0.960827	9	174214	0.0052	99.9966
0.968509	5	174219	0.0029	99.9994
0.976190	1	174220	0.0006	100.0000

HSV 2004/CIR 2010 statistics

Filename: I:\Remote sensing final project\Final project\NDVI_Landsat\ls_ndvi_april_04_HSV
Dims: Full Scene (540,160,227 points)

Basic Stats	Min	Max	Mean	Stdev
Band 1	-1.000000	1.000000	0.463804	0.290261

Histogram	DN	Npts	Total	Percent	Acc Pct
Band 1	-1.000000	2620388	2620388	0.4851	0.4851
Bin=0.00784	-0.992157	0	2620388	0.0000	0.4851
	-0.984314	0	2620388	0.0000	0.4851
	-0.976471	0	2620388	0.0000	0.4851
	-0.968627	12	2620400	0.0000	0.4851
	-0.960784	283	2620683	0.0001	0.4852
	-0.952941	402	2621085	0.0001	0.4852
	-0.945098	5000	2626085	0.0009	0.4862
	-0.937255	13775	2639860	0.0026	0.4887
	-0.929412	12868	2652728	0.0024	0.4911
	-0.921569	5688	2658416	0.0011	0.4922
	-0.913725	8821	2667237	0.0016	0.4938
	-0.905882	144	2667381	0.0000	0.4938
	-0.898039	671	2668052	0.0001	0.4939
	-0.890196	1117	2669169	0.0002	0.4941
	-0.882353	64	2669233	0.0000	0.4942
	-0.874510	1309	2670542	0.0002	0.4944
	-0.866667	1636	2672178	0.0003	0.4947
	-0.858824	7458	2679636	0.0014	0.4961
	-0.850980	9094	2688730	0.0017	0.4978
	-0.843137	1794	2690524	0.0003	0.4981
	-0.835294	5308	2695832	0.0010	0.4991
	-0.827451	14879	2710711	0.0028	0.5018
	-0.819608	12464	2723175	0.0023	0.5041
	-0.811765	3430	2726605	0.0006	0.5048
	-0.803922	6998	2733603	0.0013	0.5061
	-0.796078	3338	2736941	0.0006	0.5067
	-0.788235	977	2737918	0.0002	0.5069
	-0.780392	7718	2745636	0.0014	0.5083
	-0.772549	18257	2763893	0.0034	0.5117
	-0.764706	8792	2772685	0.0016	0.5133
	-0.756863	9375	2782060	0.0017	0.5150
	-0.749020	16799	2798859	0.0031	0.5182
	-0.741176	14807	2813666	0.0027	0.5209
	-0.733333	11580	2825246	0.0021	0.5230
	-0.725490	2555	2827801	0.0005	0.5235

-0.717647	9468	2837269	0.0018	0.5253
-0.709804	26810	2864079	0.0050	0.5302
-0.701961	8490	2872569	0.0016	0.5318
-0.694118	877	2873446	0.0002	0.5320
-0.686275	2531	2875977	0.0005	0.5324
-0.678431	734	2876711	0.0001	0.5326
-0.670588	15705	2892416	0.0029	0.5355
-0.662745	5545	2897961	0.0010	0.5365
-0.654902	6901	2904862	0.0013	0.5378
-0.647059	5903	2910765	0.0011	0.5389
-0.639216	14706	2925471	0.0027	0.5416
-0.631373	31035	2956506	0.0057	0.5473
-0.623529	3005	2959511	0.0006	0.5479
-0.615686	13107	2972618	0.0024	0.5503
-0.607843	20750	2993368	0.0038	0.5542
-0.600000	11138	3004506	0.0021	0.5562
-0.592157	20012	3024518	0.0037	0.5599
-0.584314	19465	3043983	0.0036	0.5635
-0.576471	39153	3083136	0.0072	0.5708
-0.568627	16978	3100114	0.0031	0.5739
-0.560784	35770	3135884	0.0066	0.5805
-0.552941	30519	3166403	0.0056	0.5862
-0.545098	41976	3208379	0.0078	0.5940
-0.537255	40363	3248742	0.0075	0.6014
-0.529412	45035	3293777	0.0083	0.6098
-0.521569	13927	3307704	0.0026	0.6124
-0.513725	23956	3331660	0.0044	0.6168
-0.505882	32602	3364262	0.0060	0.6228
-0.498039	24343	3388605	0.0045	0.6273
-0.490196	40073	3428678	0.0074	0.6348
-0.482353	47465	3476143	0.0088	0.6435
-0.474510	16250	3492393	0.0030	0.6465
-0.466667	30314	3522707	0.0056	0.6522
-0.458824	37118	3559825	0.0069	0.6590
-0.450980	28809	3588634	0.0053	0.6644
-0.443137	45091	3633725	0.0083	0.6727
-0.435294	87759	3721484	0.0162	0.6890
-0.427451	78756	3800240	0.0146	0.7035
-0.419608	72797	3873037	0.0135	0.7170
-0.411765	91701	3964738	0.0170	0.7340
-0.403922	14854	4113281	0.0275	0.7615
-0.396078	67670	4180951	0.0125	0.7740
-0.388235	94097	4275048	0.0174	0.7914
-0.380392	74274	4349322	0.0138	0.8052

-0.372549	128799	4478121	0.0238	0.8290
-0.364706	88773	4566894	0.0164	0.8455
-0.356863	114246	4681140	0.0212	0.8666
-0.349020	123178	4804318	0.0228	0.8894
-0.341176	436597	5240915	0.0808	0.9703
-0.333333	77059	5317974	0.0143	0.9845
-0.325490	182657	5500631	0.0338	1.0183
-0.317647	301904	5802535	0.0559	1.0742
-0.309804	205906	6008441	0.0381	1.1123
-0.301961	310140	6318581	0.0574	1.1698
-0.294118	274863	6593444	0.0509	1.2206
-0.286275	250358	6843802	0.0463	1.2670
-0.278431	302674	7146476	0.0560	1.3230
-0.270588	286743	7433219	0.0531	1.3761
-0.262745	256600	7689819	0.0475	1.4236
-0.254902	365829	8055648	0.0677	1.4913
-0.247059	477074	8532722	0.0883	1.5797
-0.239216	279449	8812171	0.0517	1.6314
-0.231373	461315	9273486	0.0854	1.7168
-0.223529	367166	9640652	0.0680	1.7848
-0.215686	398536	10039188	0.0738	1.8586
-0.207843	730685	10769873	0.1353	1.9938
-0.200000	367176	11137049	0.0680	2.0618
-0.192157	544975	11682024	0.1009	2.1627
-0.184314	607192	12289216	0.1124	2.2751
-0.176471	497646	12786862	0.0921	2.3672
-0.168627	613461	13400323	0.1136	2.4808
-0.160784	510069	13910392	0.0944	2.5752
-0.152941	729343	14639735	0.1350	2.7103
-0.145098	933934	15573669	0.1729	2.8832
-0.137255	661239	16234908	0.1224	3.0056
-0.129412	937248	17172156	0.1735	3.1791
-0.121569	814681	17986837	0.1508	3.3299
-0.113725	1226691	19213528	0.2271	3.5570
-0.105882	1149338	20362866	0.2128	3.7698
-0.098039	1309132	21671998	0.2424	4.0121
-0.090196	983161	22655159	0.1820	4.1942
-0.082353	1185926	23841085	0.2196	4.4137
-0.074510	1324887	25165972	0.2453	4.6590
-0.066667	1115089	26281061	0.2064	4.8654
-0.058824	1033203	27314264	0.1913	5.0567
-0.050980	1208615	28522879	0.2238	5.2804
-0.043137	1201739	29724618	0.2225	5.5029
-0.035294	1051422	30776040	0.1947	5.6976

-0.027451	1238653	32014693	0.2293	5.9269
-0.019608	1145427	33160120	0.2121	6.1389
-0.011765	1081558	34241678	0.2002	6.3392
-0.003922	20420287	54661965	3.7804	10.1196
0.003922	1021857	55683822	0.1892	10.3088
0.011765	1204501	56888323	0.2230	10.5317
0.019608	1158542	58046865	0.2145	10.7462
0.027451	1246245	59293110	0.2307	10.9769
0.035294	1036435	60329545	0.1919	11.1688
0.043137	1314377	61643922	0.2433	11.4122
0.050980	1223318	62867240	0.2265	11.6386
0.058824	1353063	64220303	0.2505	11.8891
0.066667	1629340	65849643	0.3016	12.1908
0.074510	1621925	67471568	0.3003	12.4910
0.082353	1469130	68940698	0.2720	12.7630
0.090196	1724291	70664989	0.3192	13.0822
0.098039	1886180	72551169	0.3492	13.4314
0.105882	1796396	74347565	0.3326	13.7640
0.113725	1992310	76339875	0.3688	14.1328
0.121569	1635704	77975579	0.3028	14.4356
0.129412	1737799	79713378	0.3217	14.7574
0.137255	2247803	81961181	0.4161	15.1735
0.145098	1641141	83602322	0.3038	15.4773
0.152941	2061895	85664217	0.3817	15.8590
0.160784	2210551	87874768	0.4092	16.2683
0.168627	1941726	89816494	0.3595	16.6278
0.176471	2424143	92240637	0.4488	17.0765
0.184314	2349727	94590364	0.4350	17.5115
0.192157	1532174	96122538	0.2837	17.7952
0.200000	3060529	99183067	0.5666	18.3618
0.207843	2162134	101345201	0.4003	18.7621
0.215686	2581780	103926981	0.4780	19.2400
0.223529	2594161	106521142	0.4803	19.7203
0.231373	2712468	109233610	0.5022	20.2224
0.239216	2404887	111638497	0.4452	20.6677
0.247059	3184531	114823028	0.5896	21.2572
0.254902	2811734	117634762	0.5205	21.7778
0.262745	2626225	120260987	0.4862	22.2639
0.270588	3063246	123324233	0.5671	22.8310
0.278431	2806336	126130569	0.5195	23.3506
0.286275	3152095	129282664	0.5835	23.9341
0.294118	3144519	132427183	0.5821	24.5163
0.301961	2562230	134989413	0.4743	24.9906
0.309804	3259093	138248506	0.6034	25.5940

0.317647	3044833	141293339	0.5637	26.1577
0.325490	2110016	143403355	0.3906	26.5483
0.333333	6834612	150237967	1.2653	27.8136
0.341176	3373460	153611427	0.6245	28.4381
0.349020	3768309	157379736	0.6976	29.1358
0.356863	3079589	160459325	0.5701	29.7059
0.364706	3699660	164158985	0.6849	30.3908
0.372549	3928222	168087207	0.7272	31.1180
0.380392	3821670	171908877	0.7075	31.8255
0.388235	4047765	175956642	0.7494	32.5749
0.396078	4491446	180448088	0.8315	33.4064
0.403922	3545725	183993813	0.6564	34.0628
0.411765	4538016	188531829	0.8401	34.9029
0.419608	4609419	193141248	0.8533	35.7563
0.427451	5948002	199089250	1.1012	36.8574
0.435294	4793451	203882701	0.8874	37.7449
0.443137	5457782	209340483	1.0104	38.7553
0.450980	5850842	215191325	1.0832	39.8384
0.458824	4266093	219457418	0.7898	40.6282
0.466667	5739567	225196985	1.0626	41.6908
0.474510	5694740	230891725	1.0543	42.7450
0.482353	5575946	236467671	1.0323	43.7773
0.490196	4845687	241313358	0.8971	44.6744
0.498039	7375448	248688806	1.3654	46.0398
0.505882	5493716	254182522	1.0171	47.0569
0.513725	5363792	259546314	0.9930	48.0499
0.521569	6157144	265703458	1.1399	49.1897
0.529412	6368361	272071819	1.1790	50.3687
0.537255	7141050	279212869	1.3220	51.6907
0.545098	6758151	285971020	1.2511	52.9419
0.552941	7185397	293156417	1.3302	54.2721
0.560784	7065914	300222331	1.3081	55.5802
0.568627	7430763	307653094	1.3757	56.9559
0.576471	5526081	313179175	1.0230	57.9789
0.584314	8483828	321663003	1.5706	59.5496
0.592157	5783829	327446832	1.0708	60.6203
0.600000	11359109	338805941	2.1029	62.7232
0.607843	8311853	347117794	1.5388	64.2620
0.615686	7162131	354279925	1.3259	65.5879
0.623529	8358892	362638817	1.5475	67.1354
0.631373	9122951	371761768	1.6889	68.8244
0.639216	7084712	378846480	1.3116	70.1359
0.647059	8304008	387150488	1.5373	71.6733
0.654902	7861758	395012246	1.4554	73.1287

0.662745	9777813	404790059	1.8102 74.9389
0.670588	7105960	411896019	1.3155 76.2544
0.678431	8292713	420188732	1.5352 77.7896
0.686275	7368158	427556890	1.3641 79.1537
0.694118	7341836	434898726	1.3592 80.5129
0.701961	7962444	442861170	1.4741 81.9870
0.709804	8532270	451393440	1.5796 83.5666
0.717647	6911749	458305189	1.2796 84.8462
0.725490	5253442	463558631	0.9726 85.8187
0.733333	7420170	470978801	1.3737 87.1924
0.741176	5986131	476964932	1.1082 88.3006
0.749020	6226489	483191421	1.1527 89.4534
0.756863	4857720	488049141	0.8993 90.3527
0.764706	4665515	492714656	0.8637 91.2164
0.772549	6606780	499321436	1.2231 92.4395
0.780392	4066657	503388093	0.7529 93.1924
0.788235	4130895	507518988	0.7648 93.9571
0.796078	4246638	511765626	0.7862 94.7433
0.803922	3177087	514942713	0.5882 95.3315
0.811765	3640886	518583599	0.6740 96.0055
0.819608	2666526	521250125	0.4937 96.4992
0.827451	2085468	523335593	0.3861 96.8853
0.835294	1853606	525189199	0.3432 97.2284
0.843137	1922016	527111215	0.3558 97.5842
0.850980	1479585	528590800	0.2739 97.8581
0.858824	898323	529489123	0.1663 98.0245
0.866667	1002913	530492036	0.1857 98.2101
0.874510	571123	531063159	0.1057 98.3159
0.882353	961216	532024375	0.1780 98.4938
0.890196	591315	532615690	0.1095 98.6033
0.898039	383478	532999168	0.0710 98.6743
0.905882	410335	533409503	0.0760 98.7502
0.913725	278760	533688263	0.0516 98.8018
0.921569	210886	533899149	0.0390 98.8409
0.929412	142159	534041308	0.0263 98.8672
0.937255	111985	534153293	0.0207 98.8879
0.945098	69656	534222949	0.0129 98.9008
0.952941	41532	534264481	0.0077 98.9085
0.960784	33321	534297802	0.0062 98.9147
0.968627	14972	534312774	0.0028 98.9175
0.976471	3044	534315818	0.0006 98.9180
0.984314	0	534315818	0.0000 98.9180
0.992157	0	534315818	0.0000 98.9180
1.000000	5844409	540160227	1.0820100.0000

IKONOS 2001/2002 1 m pixel statistics

Filename: I:\Remote sensing final project\Final project\NDVI_Landsat\ls_ndvi_april_04_HSV

Dims: Full Scene (540,160,227 points)

Basic Stats	Min	Max	Mean	Stdev
Band 1	-1.000000	1.000000	0.463804	0.290261

Histogram	DN	Npts	Total	Percent	Acc Pct
Band 1	-1.000000	2620388	2620388	0.4851	0.4851
Bin=0.00784	-0.992157	0	2620388	0.0000	0.4851
	-0.984314	0	2620388	0.0000	0.4851
	-0.976471	0	2620388	0.0000	0.4851
	-0.968627	12	2620400	0.0000	0.4851
	-0.960784	283	2620683	0.0001	0.4852
	-0.952941	402	2621085	0.0001	0.4852
	-0.945098	5000	2626085	0.0009	0.4862
	-0.937255	13775	2639860	0.0026	0.4887
	-0.929412	12868	2652728	0.0024	0.4911
	-0.921569	5688	2658416	0.0011	0.4922
	-0.913725	8821	2667237	0.0016	0.4938
	-0.905882	144	2667381	0.0000	0.4938
	-0.898039	671	2668052	0.0001	0.4939
	-0.890196	1117	2669169	0.0002	0.4941
	-0.882353	64	2669233	0.0000	0.4942
	-0.874510	1309	2670542	0.0002	0.4944
	-0.866667	1636	2672178	0.0003	0.4947
	-0.858824	7458	2679636	0.0014	0.4961
	-0.850980	9094	2688730	0.0017	0.4978
	-0.843137	1794	2690524	0.0003	0.4981
	-0.835294	5308	2695832	0.0010	0.4991
	-0.827451	14879	2710711	0.0028	0.5018
	-0.819608	12464	2723175	0.0023	0.5041
	-0.811765	3430	2726605	0.0006	0.5048
	-0.803922	6998	2733603	0.0013	0.5061
	-0.796078	3338	2736941	0.0006	0.5067
	-0.788235	977	2737918	0.0002	0.5069
	-0.780392	7718	2745636	0.0014	0.5083
	-0.772549	18257	2763893	0.0034	0.5117
	-0.764706	8792	2772685	0.0016	0.5133
	-0.756863	9375	2782060	0.0017	0.5150
	-0.749020	16799	2798859	0.0031	0.5182
	-0.741176	14807	2813666	0.0027	0.5209
	-0.733333	11580	2825246	0.0021	0.5230
	-0.725490	2555	2827801	0.0005	0.5235

-0.717647	9468	2837269	0.0018	0.5253
-0.709804	26810	2864079	0.0050	0.5302
-0.701961	8490	2872569	0.0016	0.5318
-0.694118	877	2873446	0.0002	0.5320
-0.686275	2531	2875977	0.0005	0.5324
-0.678431	734	2876711	0.0001	0.5326
-0.670588	15705	2892416	0.0029	0.5355
-0.662745	5545	2897961	0.0010	0.5365
-0.654902	6901	2904862	0.0013	0.5378
-0.647059	5903	2910765	0.0011	0.5389
-0.639216	14706	2925471	0.0027	0.5416
-0.631373	31035	2956506	0.0057	0.5473
-0.623529	3005	2959511	0.0006	0.5479
-0.615686	13107	2972618	0.0024	0.5503
-0.607843	20750	2993368	0.0038	0.5542
-0.600000	11138	3004506	0.0021	0.5562
-0.592157	20012	3024518	0.0037	0.5599
-0.584314	19465	3043983	0.0036	0.5635
-0.576471	39153	3083136	0.0072	0.5708
-0.568627	16978	3100114	0.0031	0.5739
-0.560784	35770	3135884	0.0066	0.5805
-0.552941	30519	3166403	0.0056	0.5862
-0.545098	41976	3208379	0.0078	0.5940
-0.537255	40363	3248742	0.0075	0.6014
-0.529412	45035	3293777	0.0083	0.6098
-0.521569	13927	3307704	0.0026	0.6124
-0.513725	23956	3331660	0.0044	0.6168
-0.505882	32602	3364262	0.0060	0.6228
-0.498039	24343	3388605	0.0045	0.6273
-0.490196	40073	3428678	0.0074	0.6348
-0.482353	47465	3476143	0.0088	0.6435
-0.474510	16250	3492393	0.0030	0.6465
-0.466667	30314	3522707	0.0056	0.6522
-0.458824	37118	3559825	0.0069	0.6590
-0.450980	28809	3588634	0.0053	0.6644
-0.443137	45091	3633725	0.0083	0.6727
-0.435294	87759	3721484	0.0162	0.6890
-0.427451	78756	3800240	0.0146	0.7035
-0.419608	72797	3873037	0.0135	0.7170
-0.411765	91701	3964738	0.0170	0.7340
-0.403922	14854	4113281	0.0275	0.7615
-0.396078	67670	4180951	0.0125	0.7740
-0.388235	94097	4275048	0.0174	0.7914
-0.380392	74274	4349322	0.0138	0.8052

-0.372549	128799	4478121	0.0238	0.8290
-0.364706	88773	4566894	0.0164	0.8455
-0.356863	114246	4681140	0.0212	0.8666
-0.349020	123178	4804318	0.0228	0.8894
-0.341176	436597	5240915	0.0808	0.9703
-0.333333	77059	5317974	0.0143	0.9845
-0.325490	182657	5500631	0.0338	1.0183
-0.317647	301904	5802535	0.0559	1.0742
-0.309804	205906	6008441	0.0381	1.1123
-0.301961	310140	6318581	0.0574	1.1698
-0.294118	274863	6593444	0.0509	1.2206
-0.286275	250358	6843802	0.0463	1.2670
-0.278431	302674	7146476	0.0560	1.3230
-0.270588	286743	7433219	0.0531	1.3761
-0.262745	256600	7689819	0.0475	1.4236
-0.254902	365829	8055648	0.0677	1.4913
-0.247059	477074	8532722	0.0883	1.5797
-0.239216	279449	8812171	0.0517	1.6314
-0.231373	461315	9273486	0.0854	1.7168
-0.223529	367166	9640652	0.0680	1.7848
-0.215686	398536	10039188	0.0738	1.8586
-0.207843	730685	10769873	0.1353	1.9938
-0.200000	367176	11137049	0.0680	2.0618
-0.192157	544975	11682024	0.1009	2.1627
-0.184314	607192	12289216	0.1124	2.2751
-0.176471	497646	12786862	0.0921	2.3672
-0.168627	613461	13400323	0.1136	2.4808
-0.160784	510069	13910392	0.0944	2.5752
-0.152941	729343	14639735	0.1350	2.7103
-0.145098	933934	15573669	0.1729	2.8832
-0.137255	661239	16234908	0.1224	3.0056
-0.129412	937248	17172156	0.1735	3.1791
-0.121569	814681	17986837	0.1508	3.3299
-0.113725	1226691	19213528	0.2271	3.5570
-0.105882	1149338	20362866	0.2128	3.7698
-0.098039	1309132	21671998	0.2424	4.0121
-0.090196	983161	22655159	0.1820	4.1942
-0.082353	1185926	23841085	0.2196	4.4137
-0.074510	1324887	25165972	0.2453	4.6590
-0.066667	1115089	26281061	0.2064	4.8654
-0.058824	1033203	27314264	0.1913	5.0567
-0.050980	1208615	28522879	0.2238	5.2804
-0.043137	1201739	29724618	0.2225	5.5029
-0.035294	1051422	30776040	0.1947	5.6976

-0.027451	1238653	32014693	0.2293	5.9269
-0.019608	1145427	33160120	0.2121	6.1389
-0.011765	1081558	34241678	0.2002	6.3392
-0.003922	20420287	54661965	3.7804	10.1196
0.003922	1021857	55683822	0.1892	10.3088
0.011765	1204501	56888323	0.2230	10.5317
0.019608	1158542	58046865	0.2145	10.7462
0.027451	1246245	59293110	0.2307	10.9769
0.035294	1036435	60329545	0.1919	11.1688
0.043137	1314377	61643922	0.2433	11.4122
0.050980	1223318	62867240	0.2265	11.6386
0.058824	1353063	64220303	0.2505	11.8891
0.066667	1629340	65849643	0.3016	12.1908
0.074510	1621925	67471568	0.3003	12.4910
0.082353	1469130	68940698	0.2720	12.7630
0.090196	1724291	70664989	0.3192	13.0822
0.098039	1886180	72551169	0.3492	13.4314
0.105882	1796396	74347565	0.3326	13.7640
0.113725	1992310	76339875	0.3688	14.1328
0.121569	1635704	77975579	0.3028	14.4356
0.129412	1737799	79713378	0.3217	14.7574
0.137255	2247803	81961181	0.4161	15.1735
0.145098	1641141	83602322	0.3038	15.4773
0.152941	2061895	85664217	0.3817	15.8590
0.160784	2210551	87874768	0.4092	16.2683
0.168627	1941726	89816494	0.3595	16.6278
0.176471	2424143	92240637	0.4488	17.0765
0.184314	2349727	94590364	0.4350	17.5115
0.192157	1532174	96122538	0.2837	17.7952
0.200000	3060529	99183067	0.5666	18.3618
0.207843	2162134	101345201	0.4003	18.7621
0.215686	2581780	103926981	0.4780	19.2400
0.223529	2594161	106521142	0.4803	19.7203
0.231373	2712468	109233610	0.5022	20.2224
0.239216	2404887	111638497	0.4452	20.6677
0.247059	3184531	114823028	0.5896	21.2572
0.254902	2811734	117634762	0.5205	21.7778
0.262745	2626225	120260987	0.4862	22.2639
0.270588	3063246	123324233	0.5671	22.8310
0.278431	2806336	126130569	0.5195	23.3506
0.286275	3152095	129282664	0.5835	23.9341
0.294118	3144519	132427183	0.5821	24.5163
0.301961	2562230	134989413	0.4743	24.9906
0.309804	3259093	138248506	0.6034	25.5940

0.317647	3044833	141293339	0.5637 26.1577
0.325490	2110016	143403355	0.3906 26.5483
0.333333	6834612	150237967	1.2653 27.8136
0.341176	3373460	153611427	0.6245 28.4381
0.349020	3768309	157379736	0.6976 29.1358
0.356863	3079589	160459325	0.5701 29.7059
0.364706	3699660	164158985	0.6849 30.3908
0.372549	3928222	168087207	0.7272 31.1180
0.380392	3821670	171908877	0.7075 31.8255
0.388235	4047765	175956642	0.7494 32.5749
0.396078	4491446	180448088	0.8315 33.4064
0.403922	3545725	183993813	0.6564 34.0628
0.411765	4538016	188531829	0.8401 34.9029
0.419608	4609419	193141248	0.8533 35.7563
0.427451	5948002	199089250	1.1012 36.8574
0.435294	4793451	203882701	0.8874 37.7449
0.443137	5457782	209340483	1.0104 38.7553
0.450980	5850842	215191325	1.0832 39.8384
0.458824	4266093	219457418	0.7898 40.6282
0.466667	5739567	225196985	1.0626 41.6908
0.474510	5694740	230891725	1.0543 42.7450
0.482353	5575946	236467671	1.0323 43.7773
0.490196	4845687	241313358	0.8971 44.6744
0.498039	7375448	248688806	1.3654 46.0398
0.505882	5493716	254182522	1.0171 47.0569
0.513725	5363792	259546314	0.9930 48.0499
0.521569	6157144	265703458	1.1399 49.1897
0.529412	6368361	272071819	1.1790 50.3687
0.537255	7141050	279212869	1.3220 51.6907
0.545098	6758151	285971020	1.2511 52.9419
0.552941	7185397	293156417	1.3302 54.2721
0.560784	7065914	300222331	1.3081 55.5802
0.568627	7430763	307653094	1.3757 56.9559
0.576471	5526081	313179175	1.0230 57.9789
0.584314	8483828	321663003	1.5706 59.5496
0.592157	5783829	327446832	1.0708 60.6203
0.600000	11359109	338805941	2.1029 62.7232
0.607843	8311853	347117794	1.5388 64.2620
0.615686	7162131	354279925	1.3259 65.5879
0.623529	8358892	362638817	1.5475 67.1354
0.631373	9122951	371761768	1.6889 68.8244
0.639216	7084712	378846480	1.3116 70.1359
0.647059	8304008	387150488	1.5373 71.6733
0.654902	7861758	395012246	1.4554 73.1287

0.662745	9777813	404790059	1.8102 74.9389
0.670588	7105960	411896019	1.3155 76.2544
0.678431	8292713	420188732	1.5352 77.7896
0.686275	7368158	427556890	1.3641 79.1537
0.694118	7341836	434898726	1.3592 80.5129
0.701961	7962444	442861170	1.4741 81.9870
0.709804	8532270	451393440	1.5796 83.5666
0.717647	6911749	458305189	1.2796 84.8462
0.725490	5253442	463558631	0.9726 85.8187
0.733333	7420170	470978801	1.3737 87.1924
0.741176	5986131	476964932	1.1082 88.3006
0.749020	6226489	483191421	1.1527 89.4534
0.756863	4857720	488049141	0.8993 90.3527
0.764706	4665515	492714656	0.8637 91.2164
0.772549	6606780	499321436	1.2231 92.4395
0.780392	4066657	503388093	0.7529 93.1924
0.788235	4130895	507518988	0.7648 93.9571
0.796078	4246638	511765626	0.7862 94.7433
0.803922	3177087	514942713	0.5882 95.3315
0.811765	3640886	518583599	0.6740 96.0055
0.819608	2666526	521250125	0.4937 96.4992
0.827451	2085468	523335593	0.3861 96.8853
0.835294	1853606	525189199	0.3432 97.2284
0.843137	1922016	527111215	0.3558 97.5842
0.850980	1479585	528590800	0.2739 97.8581
0.858824	898323	529489123	0.1663 98.0245
0.866667	1002913	530492036	0.1857 98.2101
0.874510	571123	531063159	0.1057 98.3159
0.882353	961216	532024375	0.1780 98.4938
0.890196	591315	532615690	0.1095 98.6033
0.898039	383478	532999168	0.0710 98.6743
0.905882	410335	533409503	0.0760 98.7502
0.913725	278760	533688263	0.0516 98.8018
0.921569	210886	533899149	0.0390 98.8409
0.929412	142159	534041308	0.0263 98.8672
0.937255	111985	534153293	0.0207 98.8879
0.945098	69656	534222949	0.0129 98.9008
0.952941	41532	534264481	0.0077 98.9085
0.960784	33321	534297802	0.0062 98.9147
0.968627	14972	534312774	0.0028 98.9175
0.976471	3044	534315818	0.0006 98.9180
0.984314	0	534315818	0.0000 98.9180
0.992157	0	534315818	0.0000 98.9180
1.000000	5844409	540160227	1.0820100.0000

IKONOS 2001/2002 15m pixel statistics

Filename: I:\Remote sensing final project\Final project\NDVI ikonos\ikonos_ndvi_do_georef_15m_sub

Dims: Full Scene (174,220 points)

Basic Stats	Min	Max	Mean	Stdev
Band 1	-0.970149	0.997419	0.431665	0.264719

Histogram	DN	Npts	Total	Percent	Acc Pct	
Band 1	-0.970149	1	1	0.0006	0.0006	
Bin=0.00771	-0.962433	0	1	0.0000	0.0006	
	-0.954717	0	1	0.0000	0.0006	
	-0.947001	0	1	0.0000	0.0006	
	-0.939285	0	1	0.0000	0.0006	
	-0.931570	0	1	0.0000	0.0006	
	-0.923854	0	1	0.0000	0.0006	
	-0.916138	1	2	0.0006	0.0011	
	-0.908422	0	2	0.0000	0.0011	
	-0.900706	0	2	0.0000	0.0011	
	-0.892990	0	2	0.0000	0.0011	
	-0.885274	1	3	0.0006	0.0017	
	-0.877558	0	3	0.0000	0.0017	
	-0.869842	0	3	0.0000	0.0017	
	-0.862126	0	3	0.0000	0.0017	
	-0.854410	0	3	0.0000	0.0017	
	-0.846694	0	3	0.0000	0.0017	
	-0.838978	0	3	0.0000	0.0017	
	-0.831262	1	4	0.0006	0.0023	
	-0.823546	0	4	0.0000	0.0023	
	-0.815830	0	4	0.0000	0.0023	
	-0.808114	0	4	0.0000	0.0023	
	-0.800398	0	4	0.0000	0.0023	
	-0.792682	0	4	0.0000	0.0023	
	-0.784966	1	5	0.0006	0.0029	
	-0.777250	0	5	0.0000	0.0029	
	-0.769534	0	5	0.0000	0.0029	
	-0.761818	0	5	0.0000	0.0029	
	-0.754103	0	5	0.0000	0.0029	
	-0.746387	1	6	0.0006	0.0034	
	-0.738671	1	7	0.0006	0.0040	
	-0.730955	1	8	0.0006	0.0046	
	-0.723239	0	8	0.0000	0.0046	
	-0.715523	1	9	0.0006	0.0052	
	-0.707807	1	10	0.0006	0.0057	

-0.700091	2	12	0.0011	0.0069
-0.692375	1	13	0.0006	0.0075
-0.684659	2	15	0.0011	0.0086
-0.676943	1	16	0.0006	0.0092
-0.669227	1	17	0.0006	0.0098
-0.661511	1	18	0.0006	0.0103
-0.653795	4	22	0.0023	0.0126
-0.646079	2	24	0.0011	0.0138
-0.638363	2	26	0.0011	0.0149
-0.630647	3	29	0.0017	0.0166
-0.622931	3	32	0.0017	0.0184
-0.615215	5	37	0.0029	0.0212
-0.607499	7	44	0.0040	0.0253
-0.599783	2	46	0.0011	0.0264
-0.592067	7	53	0.0040	0.0304
-0.584352	3	56	0.0017	0.0321
-0.576636	2	58	0.0011	0.0333
-0.568920	4	62	0.0023	0.0356
-0.561204	6	68	0.0034	0.0390
-0.553488	4	72	0.0023	0.0413
-0.545772	4	76	0.0023	0.0436
-0.538056	3	79	0.0017	0.0453
-0.530340	3	82	0.0017	0.0471
-0.522624	6	88	0.0034	0.0505
-0.514908	9	97	0.0052	0.0557
-0.507192	4	101	0.0023	0.0580
-0.499476	7	108	0.0040	0.0620
-0.491760	5	113	0.0029	0.0649
-0.484044	10	123	0.0057	0.0706
-0.476328	3	126	0.0017	0.0723
-0.468612	6	132	0.0034	0.0758
-0.460896	7	139	0.0040	0.0798
-0.453180	4	143	0.0023	0.0821
-0.445464	7	150	0.0040	0.0861
-0.437748	5	155	0.0029	0.0890
-0.430032	2	157	0.0011	0.0901
-0.422316	7	164	0.0040	0.0941
-0.414600	8	172	0.0046	0.0987
-0.406885	10	182	0.0057	0.1045
-0.399169	5	187	0.0029	0.1073
-0.391453	11	198	0.0063	0.1136
-0.383737	8	206	0.0046	0.1182
-0.376021	12	218	0.0069	0.1251
-0.368305	8	226	0.0046	0.1297

-0.360589	14	240	0.0080	0.1378
-0.352873	10	250	0.0057	0.1435
-0.345157	12	262	0.0069	0.1504
-0.337441	14	276	0.0080	0.1584
-0.329725	10	286	0.0057	0.1642
-0.322009	19	305	0.0109	0.1751
-0.314293	19	324	0.0109	0.1860
-0.306577	14	338	0.0080	0.1940
-0.298861	20	358	0.0115	0.2055
-0.291145	25	383	0.0143	0.2198
-0.283429	21	404	0.0121	0.2319
-0.275713	25	429	0.0143	0.2462
-0.267997	21	450	0.0121	0.2583
-0.260281	28	478	0.0161	0.2744
-0.252565	41	519	0.0235	0.2979
-0.244849	42	561	0.0241	0.3220
-0.237134	50	611	0.0287	0.3507
-0.229418	38	649	0.0218	0.3725
-0.221702	47	696	0.0270	0.3995
-0.213986	53	749	0.0304	0.4299
-0.206270	57	806	0.0327	0.4626
-0.198554	66	872	0.0379	0.5005
-0.190838	71	943	0.0408	0.5413
-0.183122	77	1020	0.0442	0.5855
-0.175406	105	1125	0.0603	0.6457
-0.167690	132	1257	0.0758	0.7215
-0.159974	187	1444	0.1073	0.8288
-0.152258	252	1696	0.1446	0.9735
-0.144542	285	1981	0.1636	1.1371
-0.136826	391	2372	0.2244	1.3615
-0.129110	476	2848	0.2732	1.6347
-0.121394	617	3465	0.3541	1.9889
-0.113678	765	4230	0.4391	2.4280
-0.105962	1093	5323	0.6274	3.0553
-0.098246	1115	6438	0.6400	3.6953
-0.090530	1164	7602	0.6681	4.3634
-0.082814	1158	8760	0.6647	5.0281
-0.075098	966	9726	0.5545	5.5826
-0.067382	802	10528	0.4603	6.0429
-0.059667	779	11307	0.4471	6.4901
-0.051951	684	11991	0.3926	6.8827
-0.044235	651	12642	0.3737	7.2563
-0.036519	765	13407	0.4391	7.6954
-0.028803	735	14142	0.4219	8.1173

-0.021087	552	14694	0.3168	8.4342
-0.013371	448	15142	0.2571	8.6913
-0.005655	440	15582	0.2526	8.9439
0.002061	402	15984	0.2307	9.1746
0.009777	345	16329	0.1980	9.3726
0.017493	392	16721	0.2250	9.5976
0.025209	364	17085	0.2089	9.8066
0.032925	352	17437	0.2020	10.0086
0.040641	348	17785	0.1997	10.2084
0.048357	351	18136	0.2015	10.4098
0.056073	370	18506	0.2124	10.6222
0.063789	358	18864	0.2055	10.8277
0.071505	396	19260	0.2273	11.0550
0.079221	399	19659	0.2290	11.2840
0.086937	364	20023	0.2089	11.4929
0.094653	401	20424	0.2302	11.7231
0.102369	400	20824	0.2296	11.9527
0.110084	418	21242	0.2399	12.1926
0.117800	465	21707	0.2669	12.4595
0.125516	509	22216	0.2922	12.7517
0.133232	489	22705	0.2807	13.0324
0.140948	554	23259	0.3180	13.3504
0.148664	572	23831	0.3283	13.6787
0.156380	592	24423	0.3398	14.0185
0.164096	683	25106	0.3920	14.4105
0.171812	683	25789	0.3920	14.8025
0.179528	723	26512	0.4150	15.2175
0.187244	782	27294	0.4489	15.6664
0.194960	852	28146	0.4890	16.1554
0.202676	864	29010	0.4959	16.6514
0.210392	932	29942	0.5350	17.1863
0.218108	1033	30975	0.5929	17.7792
0.225824	1185	32160	0.6802	18.4594
0.233540	1197	33357	0.6871	19.1465
0.241256	1363	34720	0.7823	19.9288
0.248972	1399	36119	0.8030	20.7318
0.256688	1445	37564	0.8294	21.5612
0.264404	1612	39176	0.9253	22.4865
0.272120	1709	40885	0.9809	23.4675
0.279836	1790	42675	1.0274	24.4949
0.287551	1906	44581	1.0940	25.5889
0.295267	1918	46499	1.1009	26.6898
0.302983	2035	48534	1.1681	27.8579
0.310699	2162	50696	1.2410	29.0988

0.318415	2173	52869	1.2473	30.3461
0.326131	2381	55250	1.3667	31.7128
0.333847	2282	57532	1.3098	33.0226
0.341563	2415	59947	1.3862	34.4088
0.349279	2401	62348	1.3781	35.7869
0.356995	2483	64831	1.4252	37.2121
0.364711	2409	67240	1.3827	38.5949
0.372427	2531	69771	1.4528	40.0476
0.380143	2487	72258	1.4275	41.4751
0.387859	2611	74869	1.4987	42.9738
0.395575	2517	77386	1.4447	44.4186
0.403291	2595	79981	1.4895	45.9080
0.411007	2511	82492	1.4413	47.3493
0.418723	2426	84918	1.3925	48.7418
0.426439	2626	87544	1.5073	50.2491
0.434155	2514	90058	1.4430	51.6921
0.441871	2459	92517	1.4114	53.1035
0.449587	2470	94987	1.4177	54.5213
0.457302	2459	97446	1.4114	55.9327
0.465018	2319	99765	1.3311	57.2638
0.472734	2373	102138	1.3621	58.6259
0.480450	2268	104406	1.3018	59.9277
0.488166	2340	106746	1.3431	61.2708
0.495882	2242	108988	1.2869	62.5577
0.503598	2104	111092	1.2077	63.7654
0.511314	2058	113150	1.1813	64.9466
0.519030	2003	115153	1.1497	66.0963
0.526746	1978	117131	1.1353	67.2317
0.534462	2020	119151	1.1595	68.3911
0.542178	1915	121066	1.0992	69.4903
0.549894	1822	122888	1.0458	70.5361
0.557610	1750	124638	1.0045	71.5406
0.565326	1744	126382	1.0010	72.5416
0.573042	1670	128052	0.9586	73.5002
0.580758	1640	129692	0.9413	74.4415
0.588474	1643	131335	0.9431	75.3846
0.596190	1597	132932	0.9167	76.3012
0.603906	1542	134474	0.8851	77.1863
0.611622	1496	135970	0.8587	78.0450
0.619338	1409	137379	0.8087	78.8537
0.627053	1413	138792	0.8110	79.6648
0.634769	1342	140134	0.7703	80.4351
0.642485	1290	141424	0.7404	81.1755
0.650201	1227	142651	0.7043	81.8798

0.657917	1180	143831	0.6773	82.5571
0.665633	1112	144943	0.6383	83.1954
0.673349	1057	146000	0.6067	83.8021
0.681065	1010	147010	0.5797	84.3818
0.688781	970	147980	0.5568	84.9386
0.696497	961	148941	0.5516	85.4902
0.704213	899	149840	0.5160	86.0062
0.711929	856	150696	0.4913	86.4975
0.719645	894	151590	0.5131	87.0107
0.727361	828	152418	0.4753	87.4859
0.735077	756	153174	0.4339	87.9199
0.742793	744	153918	0.4270	88.3469
0.750509	665	154583	0.3817	88.7286
0.758225	696	155279	0.3995	89.1281
0.765941	684	155963	0.3926	89.5207
0.773657	607	156570	0.3484	89.8691
0.781373	651	157221	0.3737	90.2428
0.789089	593	157814	0.3404	90.5832
0.796805	622	158436	0.3570	90.9402
0.804520	563	158999	0.3232	91.2633
0.812236	598	159597	0.3432	91.6066
0.819952	590	160187	0.3387	91.9452
0.827668	581	160768	0.3335	92.2787
0.835384	533	161301	0.3059	92.5847
0.843100	537	161838	0.3082	92.8929
0.850816	522	162360	0.2996	93.1925
0.858532	542	162902	0.3111	93.5036
0.866248	597	163499	0.3427	93.8463
0.873964	589	164088	0.3381	94.1844
0.881680	637	164725	0.3656	94.5500
0.889396	609	165334	0.3496	94.8996
0.897112	580	165914	0.3329	95.2325
0.904828	616	166530	0.3536	95.5860
0.912544	572	167102	0.3283	95.9144
0.920260	555	167657	0.3186	96.2329
0.927976	551	168208	0.3163	96.5492
0.935692	513	168721	0.2945	96.8436
0.943408	403	169124	0.2313	97.0750
0.951124	449	169573	0.2577	97.3327
0.958840	419	169992	0.2405	97.5732
0.966556	364	170356	0.2089	97.7821
0.974271	397	170753	0.2279	98.0100
0.981987	748	171501	0.4293	98.4393
0.989703	2718	174219	1.5601	99.9994

0.997419 1 174220 0.0006100.0000

ETM+ 2004 15m pixel statistics

Filename: I:\Remote sensing final project\Final project\NDVI_Landsat\ls_ndvi_04
Dims: Full Scene (175,122 points)

Basic Stats	Min	Max	Mean	Stdev
Band 1	-1.000000	1.000000	0.524369	0.185148

Histogram	DN	Npts	Total	Percent	Acc Pct
Band 1	-1.000000	4	4	0.0023	0.0023
Bin=0.00784	-0.992157	0	4	0.0000	0.0023
	-0.984314	0	4	0.0000	0.0023
	-0.976471	0	4	0.0000	0.0023
	-0.968627	0	4	0.0000	0.0023
	-0.960784	0	4	0.0000	0.0023
	-0.952941	0	4	0.0000	0.0023
	-0.945098	0	4	0.0000	0.0023
	-0.937255	0	4	0.0000	0.0023
	-0.929412	0	4	0.0000	0.0023
	-0.921569	0	4	0.0000	0.0023
	-0.913725	0	4	0.0000	0.0023
	-0.905882	0	4	0.0000	0.0023
	-0.898039	0	4	0.0000	0.0023
	-0.890196	0	4	0.0000	0.0023
	-0.882353	0	4	0.0000	0.0023
	-0.874510	0	4	0.0000	0.0023
	-0.866667	0	4	0.0000	0.0023
	-0.858824	0	4	0.0000	0.0023
	-0.850980	0	4	0.0000	0.0023
	-0.843137	0	4	0.0000	0.0023
	-0.835294	0	4	0.0000	0.0023
	-0.827451	0	4	0.0000	0.0023
	-0.819608	0	4	0.0000	0.0023
	-0.811765	0	4	0.0000	0.0023
	-0.803922	0	4	0.0000	0.0023
	-0.796078	0	4	0.0000	0.0023
	-0.788235	0	4	0.0000	0.0023
	-0.780392	0	4	0.0000	0.0023
	-0.772549	0	4	0.0000	0.0023
	-0.764706	0	4	0.0000	0.0023
	-0.756863	0	4	0.0000	0.0023
	-0.749020	0	4	0.0000	0.0023
	-0.741176	0	4	0.0000	0.0023
	-0.733333	0	4	0.0000	0.0023

-0.725490	0	4	0.0000	0.0023
-0.717647	0	4	0.0000	0.0023
-0.709804	0	4	0.0000	0.0023
-0.701961	0	4	0.0000	0.0023
-0.694118	0	4	0.0000	0.0023
-0.686275	0	4	0.0000	0.0023
-0.678431	0	4	0.0000	0.0023
-0.670588	0	4	0.0000	0.0023
-0.662745	0	4	0.0000	0.0023
-0.654902	0	4	0.0000	0.0023
-0.647059	0	4	0.0000	0.0023
-0.639216	0	4	0.0000	0.0023
-0.631373	0	4	0.0000	0.0023
-0.623529	0	4	0.0000	0.0023
-0.615686	0	4	0.0000	0.0023
-0.607843	0	4	0.0000	0.0023
-0.600000	0	4	0.0000	0.0023
-0.592157	0	4	0.0000	0.0023
-0.584314	0	4	0.0000	0.0023
-0.576471	0	4	0.0000	0.0023
-0.568627	0	4	0.0000	0.0023
-0.560784	0	4	0.0000	0.0023
-0.552941	0	4	0.0000	0.0023
-0.545098	0	4	0.0000	0.0023
-0.537255	0	4	0.0000	0.0023
-0.529412	0	4	0.0000	0.0023
-0.521569	0	4	0.0000	0.0023
-0.513725	0	4	0.0000	0.0023
-0.505882	4	8	0.0023	0.0046
-0.498039	0	8	0.0000	0.0046
-0.490196	0	8	0.0000	0.0046
-0.482353	0	8	0.0000	0.0046
-0.474510	0	8	0.0000	0.0046
-0.466667	0	8	0.0000	0.0046
-0.458824	0	8	0.0000	0.0046
-0.450980	0	8	0.0000	0.0046
-0.443137	0	8	0.0000	0.0046
-0.435294	0	8	0.0000	0.0046
-0.427451	0	8	0.0000	0.0046
-0.419608	0	8	0.0000	0.0046
-0.411765	0	8	0.0000	0.0046
-0.403922	0	8	0.0000	0.0046
-0.396078	0	8	0.0000	0.0046
-0.388235	4	12	0.0023	0.0069

-0.380392	12	24	0.0069	0.0137
-0.372549	4	28	0.0023	0.0160
-0.364706	4	32	0.0023	0.0183
-0.356863	0	32	0.0000	0.0183
-0.349020	12	44	0.0069	0.0251
-0.341176	28	72	0.0160	0.0411
-0.333333	12	84	0.0069	0.0480
-0.325490	8	92	0.0046	0.0525
-0.317647	12	104	0.0069	0.0594
-0.309804	12	116	0.0069	0.0662
-0.301961	12	128	0.0069	0.0731
-0.294118	12	140	0.0069	0.0799
-0.286275	4	144	0.0023	0.0822
-0.278431	12	156	0.0069	0.0891
-0.270588	12	168	0.0069	0.0959
-0.262745	12	180	0.0069	0.1028
-0.254902	30	210	0.0171	0.1199
-0.247059	28	238	0.0160	0.1359
-0.239216	32	270	0.0183	0.1542
-0.231373	40	310	0.0228	0.1770
-0.223529	44	354	0.0251	0.2021
-0.215686	54	408	0.0308	0.2330
-0.207843	102	510	0.0582	0.2912
-0.200000	66	576	0.0377	0.3289
-0.192157	102	678	0.0582	0.3872
-0.184314	108	786	0.0617	0.4488
-0.176471	98	884	0.0560	0.5048
-0.168627	82	966	0.0468	0.5516
-0.160784	88	1054	0.0503	0.6019
-0.152941	134	1188	0.0765	0.6784
-0.145098	128	1316	0.0731	0.7515
-0.137255	114	1430	0.0651	0.8166
-0.129412	130	1560	0.0742	0.8908
-0.121569	122	1682	0.0697	0.9605
-0.113725	174	1856	0.0994	1.0598
-0.105882	144	2000	0.0822	1.1421
-0.098039	172	2172	0.0982	1.2403
-0.090196	176	2348	0.1005	1.3408
-0.082353	166	2514	0.0948	1.4356
-0.074510	196	2710	0.1119	1.5475
-0.066667	154	2864	0.0879	1.6354
-0.058824	156	3020	0.0891	1.7245
-0.050980	178	3198	0.1016	1.8262
-0.043137	186	3384	0.1062	1.9324

-0.035294	130	3514	0.0742	2.0066
-0.027451	152	3666	0.0868	2.0934
-0.019608	180	3846	0.1028	2.1962
-0.011765	256	4102	0.1462	2.3424
-0.003922	316	4418	0.1804	2.5228
0.003922	220	4638	0.1256	2.6484
0.011765	200	4838	0.1142	2.7626
0.019608	196	5034	0.1119	2.8746
0.027451	208	5242	0.1188	2.9933
0.035294	256	5498	0.1462	3.1395
0.043137	304	5802	0.1736	3.3131
0.050980	176	5978	0.1005	3.4136
0.058824	264	6242	0.1508	3.5644
0.066667	270	6512	0.1542	3.7186
0.074510	302	6814	0.1725	3.8910
0.082353	292	7106	0.1667	4.0577
0.090196	284	7390	0.1622	4.2199
0.098039	310	7700	0.1770	4.3969
0.105882	338	8038	0.1930	4.5899
0.113725	314	8352	0.1793	4.7692
0.121569	366	8718	0.2090	4.9782
0.129412	342	9060	0.1953	5.1735
0.137255	368	9428	0.2101	5.3837
0.145098	330	9758	0.1884	5.5721
0.152941	462	10220	0.2638	5.8359
0.160784	410	10630	0.2341	6.0701
0.168627	388	11018	0.2216	6.2916
0.176471	418	11436	0.2387	6.5303
0.184314	460	11896	0.2627	6.7930
0.192157	394	12290	0.2250	7.0180
0.200000	624	12914	0.3563	7.3743
0.207843	508	13422	0.2901	7.6644
0.215686	506	13928	0.2889	7.9533
0.223529	540	14468	0.3084	8.2617
0.231373	490	14958	0.2798	8.5415
0.239216	510	15468	0.2912	8.8327
0.247059	702	16170	0.4009	9.2336
0.254902	476	16646	0.2718	9.5054
0.262745	664	17310	0.3792	9.8845
0.270588	772	18082	0.4408	10.3254
0.278431	698	18780	0.3986	10.7240
0.286275	722	19502	0.4123	11.1362
0.294118	890	20392	0.5082	11.6445
0.301961	740	21132	0.4226	12.0670

0.309804	756	21888	0.4317	12.4987
0.317647	836	22724	0.4774	12.9761
0.325490	694	23418	0.3963	13.3724
0.333333	1580	24998	0.9022	14.2746
0.341176	816	25814	0.4660	14.7406
0.349020	1160	26974	0.6624	15.4030
0.356863	1104	28078	0.6304	16.0334
0.364706	1264	29342	0.7218	16.7552
0.372549	1288	30630	0.7355	17.4907
0.380392	1320	31950	0.7538	18.2444
0.388235	1210	33160	0.6909	18.9354
0.396078	1472	34632	0.8406	19.7759
0.403922	1258	35890	0.7184	20.4943
0.411765	1544	37434	0.8817	21.3760
0.419608	1344	38778	0.7675	22.1434
0.427451	1860	40638	1.0621	23.2055
0.435294	1708	42346	0.9753	24.1809
0.443137	1628	43974	0.9296	25.1105
0.450980	1983	45957	1.1324	26.2428
0.458824	1766	47723	1.0084	27.2513
0.466667	2120	49843	1.2106	28.4619
0.474510	2038	51881	1.1638	29.6256
0.482353	2180	54061	1.2448	30.8705
0.490196	2260	56321	1.2905	32.1610
0.498039	2862	59183	1.6343	33.7953
0.505882	2366	61549	1.3511	35.1464
0.513725	2834	64383	1.6183	36.7647
0.521569	2696	67079	1.5395	38.3042
0.529412	3262	70341	1.8627	40.1669
0.537255	3146	73487	1.7965	41.9633
0.545098	2998	76485	1.7119	43.6753
0.552941	3604	80089	2.0580	45.7333
0.560784	3480	83569	1.9872	47.7204
0.568627	3718	87287	2.1231	49.8435
0.576471	4368	91655	2.4943	52.3378
0.584314	4140	95795	2.3641	54.7019
0.592157	3134	98929	1.7896	56.4915
0.600000	5750	104679	3.2834	59.7749
0.607843	5139	109818	2.9345	62.7094
0.615686	4590	114408	2.6210	65.3305
0.623529	5226	119634	2.9842	68.3147
0.631373	4978	124612	2.8426	71.1573
0.639216	4304	128916	2.4577	73.6150
0.647059	5082	133998	2.9020	76.5169

0.654902	4642	138640	2.6507	79.1677
0.662745	4512	143152	2.5765	81.7442
0.670588	4104	147256	2.3435	84.0877
0.678431	3642	150898	2.0797	86.1674
0.686275	3546	154444	2.0249	88.1922
0.694118	3250	157694	1.8558	90.0481
0.701961	2812	160506	1.6057	91.6538
0.709804	2548	163054	1.4550	93.1088
0.717647	2008	165062	1.1466	94.2554
0.725490	2032	167094	1.1603	95.4158
0.733333	1964	169058	1.1215	96.5373
0.741176	1490	170548	0.8508	97.3881
0.749020	1380	171928	0.7880	98.1761
0.756863	1008	172936	0.5756	98.7517
0.764706	838	173774	0.4785	99.2303
0.772549	518	174292	0.2958	99.5260
0.780392	342	174634	0.1953	99.7213
0.788235	238	174872	0.1359	99.8572
0.796078	120	174992	0.0685	99.9258
0.803922	68	175060	0.0388	99.9646
0.811765	30	175090	0.0171	99.9817
0.819608	16	175106	0.0091	99.9909
0.827451	8	175114	0.0046	99.9954
0.835294	0	175114	0.0000	99.9954
0.843137	0	175114	0.0000	99.9954
0.850980	0	175114	0.0000	99.9954
0.858824	0	175114	0.0000	99.9954
0.866667	0	175114	0.0000	99.9954
0.874510	0	175114	0.0000	99.9954
0.882353	0	175114	0.0000	99.9954
0.890196	0	175114	0.0000	99.9954
0.898039	0	175114	0.0000	99.9954
0.905882	0	175114	0.0000	99.9954
0.913725	0	175114	0.0000	99.9954
0.921569	0	175114	0.0000	99.9954
0.929412	0	175114	0.0000	99.9954
0.937255	0	175114	0.0000	99.9954
0.945098	0	175114	0.0000	99.9954
0.952941	0	175114	0.0000	99.9954
0.960784	0	175114	0.0000	99.9954
0.968627	0	175114	0.0000	99.9954
0.976471	0	175114	0.0000	99.9954
0.984314	0	175114	0.0000	99.9954
0.992157	0	175114	0.0000	99.9954

1.000000 8 175122 0.0046100.0000

ETM+ 2007 15 m pixel statitics

Filename: I:\Remote sensing final project\Final project\NDVI_Landsat\ls_ndvi_04
Dims: Full Scene (175,122 points)

Basic Stats	Min	Max	Mean	Stdev
Band 1	-1.000000	1.000000	0.524369	0.185148

Histogram	DN	Npts	Total	Percent	Acc Pct
Band 1	-1.000000	4	4	0.0023	0.0023
Bin=0.00784	-0.992157	0	4	0.0000	0.0023
	-0.984314	0	4	0.0000	0.0023
	-0.976471	0	4	0.0000	0.0023
	-0.968627	0	4	0.0000	0.0023
	-0.960784	0	4	0.0000	0.0023
	-0.952941	0	4	0.0000	0.0023
	-0.945098	0	4	0.0000	0.0023
	-0.937255	0	4	0.0000	0.0023
	-0.929412	0	4	0.0000	0.0023
	-0.921569	0	4	0.0000	0.0023
	-0.913725	0	4	0.0000	0.0023
	-0.905882	0	4	0.0000	0.0023
	-0.898039	0	4	0.0000	0.0023
	-0.890196	0	4	0.0000	0.0023
	-0.882353	0	4	0.0000	0.0023
	-0.874510	0	4	0.0000	0.0023
	-0.866667	0	4	0.0000	0.0023
	-0.858824	0	4	0.0000	0.0023
	-0.850980	0	4	0.0000	0.0023
	-0.843137	0	4	0.0000	0.0023
	-0.835294	0	4	0.0000	0.0023
	-0.827451	0	4	0.0000	0.0023
	-0.819608	0	4	0.0000	0.0023
	-0.811765	0	4	0.0000	0.0023
	-0.803922	0	4	0.0000	0.0023
	-0.796078	0	4	0.0000	0.0023
	-0.788235	0	4	0.0000	0.0023
	-0.780392	0	4	0.0000	0.0023
	-0.772549	0	4	0.0000	0.0023
	-0.764706	0	4	0.0000	0.0023
	-0.756863	0	4	0.0000	0.0023
	-0.749020	0	4	0.0000	0.0023
	-0.741176	0	4	0.0000	0.0023
	-0.733333	0	4	0.0000	0.0023

-0.725490	0	4	0.0000	0.0023
-0.717647	0	4	0.0000	0.0023
-0.709804	0	4	0.0000	0.0023
-0.701961	0	4	0.0000	0.0023
-0.694118	0	4	0.0000	0.0023
-0.686275	0	4	0.0000	0.0023
-0.678431	0	4	0.0000	0.0023
-0.670588	0	4	0.0000	0.0023
-0.662745	0	4	0.0000	0.0023
-0.654902	0	4	0.0000	0.0023
-0.647059	0	4	0.0000	0.0023
-0.639216	0	4	0.0000	0.0023
-0.631373	0	4	0.0000	0.0023
-0.623529	0	4	0.0000	0.0023
-0.615686	0	4	0.0000	0.0023
-0.607843	0	4	0.0000	0.0023
-0.600000	0	4	0.0000	0.0023
-0.592157	0	4	0.0000	0.0023
-0.584314	0	4	0.0000	0.0023
-0.576471	0	4	0.0000	0.0023
-0.568627	0	4	0.0000	0.0023
-0.560784	0	4	0.0000	0.0023
-0.552941	0	4	0.0000	0.0023
-0.545098	0	4	0.0000	0.0023
-0.537255	0	4	0.0000	0.0023
-0.529412	0	4	0.0000	0.0023
-0.521569	0	4	0.0000	0.0023
-0.513725	0	4	0.0000	0.0023
-0.505882	4	8	0.0023	0.0046
-0.498039	0	8	0.0000	0.0046
-0.490196	0	8	0.0000	0.0046
-0.482353	0	8	0.0000	0.0046
-0.474510	0	8	0.0000	0.0046
-0.466667	0	8	0.0000	0.0046
-0.458824	0	8	0.0000	0.0046
-0.450980	0	8	0.0000	0.0046
-0.443137	0	8	0.0000	0.0046
-0.435294	0	8	0.0000	0.0046
-0.427451	0	8	0.0000	0.0046
-0.419608	0	8	0.0000	0.0046
-0.411765	0	8	0.0000	0.0046
-0.403922	0	8	0.0000	0.0046
-0.396078	0	8	0.0000	0.0046
-0.388235	4	12	0.0023	0.0069

-0.380392	12	24	0.0069	0.0137
-0.372549	4	28	0.0023	0.0160
-0.364706	4	32	0.0023	0.0183
-0.356863	0	32	0.0000	0.0183
-0.349020	12	44	0.0069	0.0251
-0.341176	28	72	0.0160	0.0411
-0.333333	12	84	0.0069	0.0480
-0.325490	8	92	0.0046	0.0525
-0.317647	12	104	0.0069	0.0594
-0.309804	12	116	0.0069	0.0662
-0.301961	12	128	0.0069	0.0731
-0.294118	12	140	0.0069	0.0799
-0.286275	4	144	0.0023	0.0822
-0.278431	12	156	0.0069	0.0891
-0.270588	12	168	0.0069	0.0959
-0.262745	12	180	0.0069	0.1028
-0.254902	30	210	0.0171	0.1199
-0.247059	28	238	0.0160	0.1359
-0.239216	32	270	0.0183	0.1542
-0.231373	40	310	0.0228	0.1770
-0.223529	44	354	0.0251	0.2021
-0.215686	54	408	0.0308	0.2330
-0.207843	102	510	0.0582	0.2912
-0.200000	66	576	0.0377	0.3289
-0.192157	102	678	0.0582	0.3872
-0.184314	108	786	0.0617	0.4488
-0.176471	98	884	0.0560	0.5048
-0.168627	82	966	0.0468	0.5516
-0.160784	88	1054	0.0503	0.6019
-0.152941	134	1188	0.0765	0.6784
-0.145098	128	1316	0.0731	0.7515
-0.137255	114	1430	0.0651	0.8166
-0.129412	130	1560	0.0742	0.8908
-0.121569	122	1682	0.0697	0.9605
-0.113725	174	1856	0.0994	1.0598
-0.105882	144	2000	0.0822	1.1421
-0.098039	172	2172	0.0982	1.2403
-0.090196	176	2348	0.1005	1.3408
-0.082353	166	2514	0.0948	1.4356
-0.074510	196	2710	0.1119	1.5475
-0.066667	154	2864	0.0879	1.6354
-0.058824	156	3020	0.0891	1.7245
-0.050980	178	3198	0.1016	1.8262
-0.043137	186	3384	0.1062	1.9324

-0.035294	130	3514	0.0742	2.0066
-0.027451	152	3666	0.0868	2.0934
-0.019608	180	3846	0.1028	2.1962
-0.011765	256	4102	0.1462	2.3424
-0.003922	316	4418	0.1804	2.5228
0.003922	220	4638	0.1256	2.6484
0.011765	200	4838	0.1142	2.7626
0.019608	196	5034	0.1119	2.8746
0.027451	208	5242	0.1188	2.9933
0.035294	256	5498	0.1462	3.1395
0.043137	304	5802	0.1736	3.3131
0.050980	176	5978	0.1005	3.4136
0.058824	264	6242	0.1508	3.5644
0.066667	270	6512	0.1542	3.7186
0.074510	302	6814	0.1725	3.8910
0.082353	292	7106	0.1667	4.0577
0.090196	284	7390	0.1622	4.2199
0.098039	310	7700	0.1770	4.3969
0.105882	338	8038	0.1930	4.5899
0.113725	314	8352	0.1793	4.7692
0.121569	366	8718	0.2090	4.9782
0.129412	342	9060	0.1953	5.1735
0.137255	368	9428	0.2101	5.3837
0.145098	330	9758	0.1884	5.5721
0.152941	462	10220	0.2638	5.8359
0.160784	410	10630	0.2341	6.0701
0.168627	388	11018	0.2216	6.2916
0.176471	418	11436	0.2387	6.5303
0.184314	460	11896	0.2627	6.7930
0.192157	394	12290	0.2250	7.0180
0.200000	624	12914	0.3563	7.3743
0.207843	508	13422	0.2901	7.6644
0.215686	506	13928	0.2889	7.9533
0.223529	540	14468	0.3084	8.2617
0.231373	490	14958	0.2798	8.5415
0.239216	510	15468	0.2912	8.8327
0.247059	702	16170	0.4009	9.2336
0.254902	476	16646	0.2718	9.5054
0.262745	664	17310	0.3792	9.8845
0.270588	772	18082	0.4408	10.3254
0.278431	698	18780	0.3986	10.7240
0.286275	722	19502	0.4123	11.1362
0.294118	890	20392	0.5082	11.6445
0.301961	740	21132	0.4226	12.0670

0.309804	756	21888	0.4317	12.4987
0.317647	836	22724	0.4774	12.9761
0.325490	694	23418	0.3963	13.3724
0.333333	1580	24998	0.9022	14.2746
0.341176	816	25814	0.4660	14.7406
0.349020	1160	26974	0.6624	15.4030
0.356863	1104	28078	0.6304	16.0334
0.364706	1264	29342	0.7218	16.7552
0.372549	1288	30630	0.7355	17.4907
0.380392	1320	31950	0.7538	18.2444
0.388235	1210	33160	0.6909	18.9354
0.396078	1472	34632	0.8406	19.7759
0.403922	1258	35890	0.7184	20.4943
0.411765	1544	37434	0.8817	21.3760
0.419608	1344	38778	0.7675	22.1434
0.427451	1860	40638	1.0621	23.2055
0.435294	1708	42346	0.9753	24.1809
0.443137	1628	43974	0.9296	25.1105
0.450980	1983	45957	1.1324	26.2428
0.458824	1766	47723	1.0084	27.2513
0.466667	2120	49843	1.2106	28.4619
0.474510	2038	51881	1.1638	29.6256
0.482353	2180	54061	1.2448	30.8705
0.490196	2260	56321	1.2905	32.1610
0.498039	2862	59183	1.6343	33.7953
0.505882	2366	61549	1.3511	35.1464
0.513725	2834	64383	1.6183	36.7647
0.521569	2696	67079	1.5395	38.3042
0.529412	3262	70341	1.8627	40.1669
0.537255	3146	73487	1.7965	41.9633
0.545098	2998	76485	1.7119	43.6753
0.552941	3604	80089	2.0580	45.7333
0.560784	3480	83569	1.9872	47.7204
0.568627	3718	87287	2.1231	49.8435
0.576471	4368	91655	2.4943	52.3378
0.584314	4140	95795	2.3641	54.7019
0.592157	3134	98929	1.7896	56.4915
0.600000	5750	104679	3.2834	59.7749
0.607843	5139	109818	2.9345	62.7094
0.615686	4590	114408	2.6210	65.3305
0.623529	5226	119634	2.9842	68.3147
0.631373	4978	124612	2.8426	71.1573
0.639216	4304	128916	2.4577	73.6150
0.647059	5082	133998	2.9020	76.5169

0.654902	4642	138640	2.6507	79.1677
0.662745	4512	143152	2.5765	81.7442
0.670588	4104	147256	2.3435	84.0877
0.678431	3642	150898	2.0797	86.1674
0.686275	3546	154444	2.0249	88.1922
0.694118	3250	157694	1.8558	90.0481
0.701961	2812	160506	1.6057	91.6538
0.709804	2548	163054	1.4550	93.1088
0.717647	2008	165062	1.1466	94.2554
0.725490	2032	167094	1.1603	95.4158
0.733333	1964	169058	1.1215	96.5373
0.741176	1490	170548	0.8508	97.3881
0.749020	1380	171928	0.7880	98.1761
0.756863	1008	172936	0.5756	98.7517
0.764706	838	173774	0.4785	99.2303
0.772549	518	174292	0.2958	99.5260
0.780392	342	174634	0.1953	99.7213
0.788235	238	174872	0.1359	99.8572
0.796078	120	174992	0.0685	99.9258
0.803922	68	175060	0.0388	99.9646
0.811765	30	175090	0.0171	99.9817
0.819608	16	175106	0.0091	99.9909
0.827451	8	175114	0.0046	99.9954
0.835294	0	175114	0.0000	99.9954
0.843137	0	175114	0.0000	99.9954
0.850980	0	175114	0.0000	99.9954
0.858824	0	175114	0.0000	99.9954
0.866667	0	175114	0.0000	99.9954
0.874510	0	175114	0.0000	99.9954
0.882353	0	175114	0.0000	99.9954
0.890196	0	175114	0.0000	99.9954
0.898039	0	175114	0.0000	99.9954
0.905882	0	175114	0.0000	99.9954
0.913725	0	175114	0.0000	99.9954
0.921569	0	175114	0.0000	99.9954
0.929412	0	175114	0.0000	99.9954
0.937255	0	175114	0.0000	99.9954
0.945098	0	175114	0.0000	99.9954
0.952941	0	175114	0.0000	99.9954
0.960784	0	175114	0.0000	99.9954
0.968627	0	175114	0.0000	99.9954
0.976471	0	175114	0.0000	99.9954
0.984314	0	175114	0.0000	99.9954
0.992157	0	175114	0.0000	99.9954

1.000000 8 175122 0.0046100.0000

ETM+ 2007 15 m pixel with MASK statistics

Filename: I:\Remote sensing final project\Final project\NDVI_Landsat\ls_ndvi_04
Dims: Full Scene (175,122 points)

Basic Stats	Min	Max	Mean	Stdev
Band 1	-1.000000	1.000000	0.524369	0.185148

Histogram	DN	Npts	Total	Percent	Acc Pct
Band 1	-1.000000	4	4	0.0023	0.0023
Bin=0.00784	-0.992157	0	4	0.0000	0.0023
	-0.984314	0	4	0.0000	0.0023
	-0.976471	0	4	0.0000	0.0023
	-0.968627	0	4	0.0000	0.0023
	-0.960784	0	4	0.0000	0.0023
	-0.952941	0	4	0.0000	0.0023
	-0.945098	0	4	0.0000	0.0023
	-0.937255	0	4	0.0000	0.0023
	-0.929412	0	4	0.0000	0.0023
	-0.921569	0	4	0.0000	0.0023
	-0.913725	0	4	0.0000	0.0023
	-0.905882	0	4	0.0000	0.0023
	-0.898039	0	4	0.0000	0.0023
	-0.890196	0	4	0.0000	0.0023
	-0.882353	0	4	0.0000	0.0023
	-0.874510	0	4	0.0000	0.0023
	-0.866667	0	4	0.0000	0.0023
	-0.858824	0	4	0.0000	0.0023
	-0.850980	0	4	0.0000	0.0023
	-0.843137	0	4	0.0000	0.0023
	-0.835294	0	4	0.0000	0.0023
	-0.827451	0	4	0.0000	0.0023
	-0.819608	0	4	0.0000	0.0023
	-0.811765	0	4	0.0000	0.0023
	-0.803922	0	4	0.0000	0.0023
	-0.796078	0	4	0.0000	0.0023
	-0.788235	0	4	0.0000	0.0023
	-0.780392	0	4	0.0000	0.0023
	-0.772549	0	4	0.0000	0.0023
	-0.764706	0	4	0.0000	0.0023
	-0.756863	0	4	0.0000	0.0023
	-0.749020	0	4	0.0000	0.0023
	-0.741176	0	4	0.0000	0.0023
	-0.733333	0	4	0.0000	0.0023

-0.725490	0	4	0.0000	0.0023
-0.717647	0	4	0.0000	0.0023
-0.709804	0	4	0.0000	0.0023
-0.701961	0	4	0.0000	0.0023
-0.694118	0	4	0.0000	0.0023
-0.686275	0	4	0.0000	0.0023
-0.678431	0	4	0.0000	0.0023
-0.670588	0	4	0.0000	0.0023
-0.662745	0	4	0.0000	0.0023
-0.654902	0	4	0.0000	0.0023
-0.647059	0	4	0.0000	0.0023
-0.639216	0	4	0.0000	0.0023
-0.631373	0	4	0.0000	0.0023
-0.623529	0	4	0.0000	0.0023
-0.615686	0	4	0.0000	0.0023
-0.607843	0	4	0.0000	0.0023
-0.600000	0	4	0.0000	0.0023
-0.592157	0	4	0.0000	0.0023
-0.584314	0	4	0.0000	0.0023
-0.576471	0	4	0.0000	0.0023
-0.568627	0	4	0.0000	0.0023
-0.560784	0	4	0.0000	0.0023
-0.552941	0	4	0.0000	0.0023
-0.545098	0	4	0.0000	0.0023
-0.537255	0	4	0.0000	0.0023
-0.529412	0	4	0.0000	0.0023
-0.521569	0	4	0.0000	0.0023
-0.513725	0	4	0.0000	0.0023
-0.505882	4	8	0.0023	0.0046
-0.498039	0	8	0.0000	0.0046
-0.490196	0	8	0.0000	0.0046
-0.482353	0	8	0.0000	0.0046
-0.474510	0	8	0.0000	0.0046
-0.466667	0	8	0.0000	0.0046
-0.458824	0	8	0.0000	0.0046
-0.450980	0	8	0.0000	0.0046
-0.443137	0	8	0.0000	0.0046
-0.435294	0	8	0.0000	0.0046
-0.427451	0	8	0.0000	0.0046
-0.419608	0	8	0.0000	0.0046
-0.411765	0	8	0.0000	0.0046
-0.403922	0	8	0.0000	0.0046
-0.396078	0	8	0.0000	0.0046
-0.388235	4	12	0.0023	0.0069

-0.380392	12	24	0.0069	0.0137
-0.372549	4	28	0.0023	0.0160
-0.364706	4	32	0.0023	0.0183
-0.356863	0	32	0.0000	0.0183
-0.349020	12	44	0.0069	0.0251
-0.341176	28	72	0.0160	0.0411
-0.333333	12	84	0.0069	0.0480
-0.325490	8	92	0.0046	0.0525
-0.317647	12	104	0.0069	0.0594
-0.309804	12	116	0.0069	0.0662
-0.301961	12	128	0.0069	0.0731
-0.294118	12	140	0.0069	0.0799
-0.286275	4	144	0.0023	0.0822
-0.278431	12	156	0.0069	0.0891
-0.270588	12	168	0.0069	0.0959
-0.262745	12	180	0.0069	0.1028
-0.254902	30	210	0.0171	0.1199
-0.247059	28	238	0.0160	0.1359
-0.239216	32	270	0.0183	0.1542
-0.231373	40	310	0.0228	0.1770
-0.223529	44	354	0.0251	0.2021
-0.215686	54	408	0.0308	0.2330
-0.207843	102	510	0.0582	0.2912
-0.200000	66	576	0.0377	0.3289
-0.192157	102	678	0.0582	0.3872
-0.184314	108	786	0.0617	0.4488
-0.176471	98	884	0.0560	0.5048
-0.168627	82	966	0.0468	0.5516
-0.160784	88	1054	0.0503	0.6019
-0.152941	134	1188	0.0765	0.6784
-0.145098	128	1316	0.0731	0.7515
-0.137255	114	1430	0.0651	0.8166
-0.129412	130	1560	0.0742	0.8908
-0.121569	122	1682	0.0697	0.9605
-0.113725	174	1856	0.0994	1.0598
-0.105882	144	2000	0.0822	1.1421
-0.098039	172	2172	0.0982	1.2403
-0.090196	176	2348	0.1005	1.3408
-0.082353	166	2514	0.0948	1.4356
-0.074510	196	2710	0.1119	1.5475
-0.066667	154	2864	0.0879	1.6354
-0.058824	156	3020	0.0891	1.7245
-0.050980	178	3198	0.1016	1.8262
-0.043137	186	3384	0.1062	1.9324

-0.035294	130	3514	0.0742	2.0066
-0.027451	152	3666	0.0868	2.0934
-0.019608	180	3846	0.1028	2.1962
-0.011765	256	4102	0.1462	2.3424
-0.003922	316	4418	0.1804	2.5228
0.003922	220	4638	0.1256	2.6484
0.011765	200	4838	0.1142	2.7626
0.019608	196	5034	0.1119	2.8746
0.027451	208	5242	0.1188	2.9933
0.035294	256	5498	0.1462	3.1395
0.043137	304	5802	0.1736	3.3131
0.050980	176	5978	0.1005	3.4136
0.058824	264	6242	0.1508	3.5644
0.066667	270	6512	0.1542	3.7186
0.074510	302	6814	0.1725	3.8910
0.082353	292	7106	0.1667	4.0577
0.090196	284	7390	0.1622	4.2199
0.098039	310	7700	0.1770	4.3969
0.105882	338	8038	0.1930	4.5899
0.113725	314	8352	0.1793	4.7692
0.121569	366	8718	0.2090	4.9782
0.129412	342	9060	0.1953	5.1735
0.137255	368	9428	0.2101	5.3837
0.145098	330	9758	0.1884	5.5721
0.152941	462	10220	0.2638	5.8359
0.160784	410	10630	0.2341	6.0701
0.168627	388	11018	0.2216	6.2916
0.176471	418	11436	0.2387	6.5303
0.184314	460	11896	0.2627	6.7930
0.192157	394	12290	0.2250	7.0180
0.200000	624	12914	0.3563	7.3743
0.207843	508	13422	0.2901	7.6644
0.215686	506	13928	0.2889	7.9533
0.223529	540	14468	0.3084	8.2617
0.231373	490	14958	0.2798	8.5415
0.239216	510	15468	0.2912	8.8327
0.247059	702	16170	0.4009	9.2336
0.254902	476	16646	0.2718	9.5054
0.262745	664	17310	0.3792	9.8845
0.270588	772	18082	0.4408	10.3254
0.278431	698	18780	0.3986	10.7240
0.286275	722	19502	0.4123	11.1362
0.294118	890	20392	0.5082	11.6445
0.301961	740	21132	0.4226	12.0670

0.309804	756	21888	0.4317	12.4987
0.317647	836	22724	0.4774	12.9761
0.325490	694	23418	0.3963	13.3724
0.333333	1580	24998	0.9022	14.2746
0.341176	816	25814	0.4660	14.7406
0.349020	1160	26974	0.6624	15.4030
0.356863	1104	28078	0.6304	16.0334
0.364706	1264	29342	0.7218	16.7552
0.372549	1288	30630	0.7355	17.4907
0.380392	1320	31950	0.7538	18.2444
0.388235	1210	33160	0.6909	18.9354
0.396078	1472	34632	0.8406	19.7759
0.403922	1258	35890	0.7184	20.4943
0.411765	1544	37434	0.8817	21.3760
0.419608	1344	38778	0.7675	22.1434
0.427451	1860	40638	1.0621	23.2055
0.435294	1708	42346	0.9753	24.1809
0.443137	1628	43974	0.9296	25.1105
0.450980	1983	45957	1.1324	26.2428
0.458824	1766	47723	1.0084	27.2513
0.466667	2120	49843	1.2106	28.4619
0.474510	2038	51881	1.1638	29.6256
0.482353	2180	54061	1.2448	30.8705
0.490196	2260	56321	1.2905	32.1610
0.498039	2862	59183	1.6343	33.7953
0.505882	2366	61549	1.3511	35.1464
0.513725	2834	64383	1.6183	36.7647
0.521569	2696	67079	1.5395	38.3042
0.529412	3262	70341	1.8627	40.1669
0.537255	3146	73487	1.7965	41.9633
0.545098	2998	76485	1.7119	43.6753
0.552941	3604	80089	2.0580	45.7333
0.560784	3480	83569	1.9872	47.7204
0.568627	3718	87287	2.1231	49.8435
0.576471	4368	91655	2.4943	52.3378
0.584314	4140	95795	2.3641	54.7019
0.592157	3134	98929	1.7896	56.4915
0.600000	5750	104679	3.2834	59.7749
0.607843	5139	109818	2.9345	62.7094
0.615686	4590	114408	2.6210	65.3305
0.623529	5226	119634	2.9842	68.3147
0.631373	4978	124612	2.8426	71.1573
0.639216	4304	128916	2.4577	73.6150
0.647059	5082	133998	2.9020	76.5169

0.654902	4642	138640	2.6507	79.1677
0.662745	4512	143152	2.5765	81.7442
0.670588	4104	147256	2.3435	84.0877
0.678431	3642	150898	2.0797	86.1674
0.686275	3546	154444	2.0249	88.1922
0.694118	3250	157694	1.8558	90.0481
0.701961	2812	160506	1.6057	91.6538
0.709804	2548	163054	1.4550	93.1088
0.717647	2008	165062	1.1466	94.2554
0.725490	2032	167094	1.1603	95.4158
0.733333	1964	169058	1.1215	96.5373
0.741176	1490	170548	0.8508	97.3881
0.749020	1380	171928	0.7880	98.1761
0.756863	1008	172936	0.5756	98.7517
0.764706	838	173774	0.4785	99.2303
0.772549	518	174292	0.2958	99.5260
0.780392	342	174634	0.1953	99.7213
0.788235	238	174872	0.1359	99.8572
0.796078	120	174992	0.0685	99.9258
0.803922	68	175060	0.0388	99.9646
0.811765	30	175090	0.0171	99.9817
0.819608	16	175106	0.0091	99.9909
0.827451	8	175114	0.0046	99.9954
0.835294	0	175114	0.0000	99.9954
0.843137	0	175114	0.0000	99.9954
0.850980	0	175114	0.0000	99.9954
0.858824	0	175114	0.0000	99.9954
0.866667	0	175114	0.0000	99.9954
0.874510	0	175114	0.0000	99.9954
0.882353	0	175114	0.0000	99.9954
0.890196	0	175114	0.0000	99.9954
0.898039	0	175114	0.0000	99.9954
0.905882	0	175114	0.0000	99.9954
0.913725	0	175114	0.0000	99.9954
0.921569	0	175114	0.0000	99.9954
0.929412	0	175114	0.0000	99.9954
0.937255	0	175114	0.0000	99.9954
0.945098	0	175114	0.0000	99.9954
0.952941	0	175114	0.0000	99.9954
0.960784	0	175114	0.0000	99.9954
0.968627	0	175114	0.0000	99.9954
0.976471	0	175114	0.0000	99.9954
0.984314	0	175114	0.0000	99.9954
0.992157	0	175114	0.0000	99.9954

1.000000	8	175122	0.004610	0.0000	

OLI 2013 15m pixel statistics

Filename: I:\Remote sensing final project\Final project\NDVI_Landsat\ls_ndvi_04
Dims: Full Scene (175,122 points)

Basic Stats	Min	Max	Mean	Stdev
Band 1	-1.000000	1.000000	0.524369	0.185148

Histogram	DN	Npts	Total	Percent	Acc Pct
Band 1	-1.000000	4	4	0.0023	0.0023
Bin=0.00784	-0.992157	0	4	0.0000	0.0023
	-0.984314	0	4	0.0000	0.0023
	-0.976471	0	4	0.0000	0.0023
	-0.968627	0	4	0.0000	0.0023
	-0.960784	0	4	0.0000	0.0023
	-0.952941	0	4	0.0000	0.0023
	-0.945098	0	4	0.0000	0.0023
	-0.937255	0	4	0.0000	0.0023
	-0.929412	0	4	0.0000	0.0023
	-0.921569	0	4	0.0000	0.0023
	-0.913725	0	4	0.0000	0.0023
	-0.905882	0	4	0.0000	0.0023
	-0.898039	0	4	0.0000	0.0023
	-0.890196	0	4	0.0000	0.0023
	-0.882353	0	4	0.0000	0.0023
	-0.874510	0	4	0.0000	0.0023
	-0.866667	0	4	0.0000	0.0023
	-0.858824	0	4	0.0000	0.0023
	-0.850980	0	4	0.0000	0.0023
	-0.843137	0	4	0.0000	0.0023
	-0.835294	0	4	0.0000	0.0023
	-0.827451	0	4	0.0000	0.0023
	-0.819608	0	4	0.0000	0.0023
	-0.811765	0	4	0.0000	0.0023
	-0.803922	0	4	0.0000	0.0023
	-0.796078	0	4	0.0000	0.0023
	-0.788235	0	4	0.0000	0.0023
	-0.780392	0	4	0.0000	0.0023
	-0.772549	0	4	0.0000	0.0023
	-0.764706	0	4	0.0000	0.0023
	-0.756863	0	4	0.0000	0.0023
	-0.749020	0	4	0.0000	0.0023
	-0.741176	0	4	0.0000	0.0023
	-0.733333	0	4	0.0000	0.0023

-0.725490	0	4	0.0000	0.0023
-0.717647	0	4	0.0000	0.0023
-0.709804	0	4	0.0000	0.0023
-0.701961	0	4	0.0000	0.0023
-0.694118	0	4	0.0000	0.0023
-0.686275	0	4	0.0000	0.0023
-0.678431	0	4	0.0000	0.0023
-0.670588	0	4	0.0000	0.0023
-0.662745	0	4	0.0000	0.0023
-0.654902	0	4	0.0000	0.0023
-0.647059	0	4	0.0000	0.0023
-0.639216	0	4	0.0000	0.0023
-0.631373	0	4	0.0000	0.0023
-0.623529	0	4	0.0000	0.0023
-0.615686	0	4	0.0000	0.0023
-0.607843	0	4	0.0000	0.0023
-0.600000	0	4	0.0000	0.0023
-0.592157	0	4	0.0000	0.0023
-0.584314	0	4	0.0000	0.0023
-0.576471	0	4	0.0000	0.0023
-0.568627	0	4	0.0000	0.0023
-0.560784	0	4	0.0000	0.0023
-0.552941	0	4	0.0000	0.0023
-0.545098	0	4	0.0000	0.0023
-0.537255	0	4	0.0000	0.0023
-0.529412	0	4	0.0000	0.0023
-0.521569	0	4	0.0000	0.0023
-0.513725	0	4	0.0000	0.0023
-0.505882	4	8	0.0023	0.0046
-0.498039	0	8	0.0000	0.0046
-0.490196	0	8	0.0000	0.0046
-0.482353	0	8	0.0000	0.0046
-0.474510	0	8	0.0000	0.0046
-0.466667	0	8	0.0000	0.0046
-0.458824	0	8	0.0000	0.0046
-0.450980	0	8	0.0000	0.0046
-0.443137	0	8	0.0000	0.0046
-0.435294	0	8	0.0000	0.0046
-0.427451	0	8	0.0000	0.0046
-0.419608	0	8	0.0000	0.0046
-0.411765	0	8	0.0000	0.0046
-0.403922	0	8	0.0000	0.0046
-0.396078	0	8	0.0000	0.0046
-0.388235	4	12	0.0023	0.0069

-0.380392	12	24	0.0069	0.0137
-0.372549	4	28	0.0023	0.0160
-0.364706	4	32	0.0023	0.0183
-0.356863	0	32	0.0000	0.0183
-0.349020	12	44	0.0069	0.0251
-0.341176	28	72	0.0160	0.0411
-0.333333	12	84	0.0069	0.0480
-0.325490	8	92	0.0046	0.0525
-0.317647	12	104	0.0069	0.0594
-0.309804	12	116	0.0069	0.0662
-0.301961	12	128	0.0069	0.0731
-0.294118	12	140	0.0069	0.0799
-0.286275	4	144	0.0023	0.0822
-0.278431	12	156	0.0069	0.0891
-0.270588	12	168	0.0069	0.0959
-0.262745	12	180	0.0069	0.1028
-0.254902	30	210	0.0171	0.1199
-0.247059	28	238	0.0160	0.1359
-0.239216	32	270	0.0183	0.1542
-0.231373	40	310	0.0228	0.1770
-0.223529	44	354	0.0251	0.2021
-0.215686	54	408	0.0308	0.2330
-0.207843	102	510	0.0582	0.2912
-0.200000	66	576	0.0377	0.3289
-0.192157	102	678	0.0582	0.3872
-0.184314	108	786	0.0617	0.4488
-0.176471	98	884	0.0560	0.5048
-0.168627	82	966	0.0468	0.5516
-0.160784	88	1054	0.0503	0.6019
-0.152941	134	1188	0.0765	0.6784
-0.145098	128	1316	0.0731	0.7515
-0.137255	114	1430	0.0651	0.8166
-0.129412	130	1560	0.0742	0.8908
-0.121569	122	1682	0.0697	0.9605
-0.113725	174	1856	0.0994	1.0598
-0.105882	144	2000	0.0822	1.1421
-0.098039	172	2172	0.0982	1.2403
-0.090196	176	2348	0.1005	1.3408
-0.082353	166	2514	0.0948	1.4356
-0.074510	196	2710	0.1119	1.5475
-0.066667	154	2864	0.0879	1.6354
-0.058824	156	3020	0.0891	1.7245
-0.050980	178	3198	0.1016	1.8262
-0.043137	186	3384	0.1062	1.9324

-0.035294	130	3514	0.0742	2.0066
-0.027451	152	3666	0.0868	2.0934
-0.019608	180	3846	0.1028	2.1962
-0.011765	256	4102	0.1462	2.3424
-0.003922	316	4418	0.1804	2.5228
0.003922	220	4638	0.1256	2.6484
0.011765	200	4838	0.1142	2.7626
0.019608	196	5034	0.1119	2.8746
0.027451	208	5242	0.1188	2.9933
0.035294	256	5498	0.1462	3.1395
0.043137	304	5802	0.1736	3.3131
0.050980	176	5978	0.1005	3.4136
0.058824	264	6242	0.1508	3.5644
0.066667	270	6512	0.1542	3.7186
0.074510	302	6814	0.1725	3.8910
0.082353	292	7106	0.1667	4.0577
0.090196	284	7390	0.1622	4.2199
0.098039	310	7700	0.1770	4.3969
0.105882	338	8038	0.1930	4.5899
0.113725	314	8352	0.1793	4.7692
0.121569	366	8718	0.2090	4.9782
0.129412	342	9060	0.1953	5.1735
0.137255	368	9428	0.2101	5.3837
0.145098	330	9758	0.1884	5.5721
0.152941	462	10220	0.2638	5.8359
0.160784	410	10630	0.2341	6.0701
0.168627	388	11018	0.2216	6.2916
0.176471	418	11436	0.2387	6.5303
0.184314	460	11896	0.2627	6.7930
0.192157	394	12290	0.2250	7.0180
0.200000	624	12914	0.3563	7.3743
0.207843	508	13422	0.2901	7.6644
0.215686	506	13928	0.2889	7.9533
0.223529	540	14468	0.3084	8.2617
0.231373	490	14958	0.2798	8.5415
0.239216	510	15468	0.2912	8.8327
0.247059	702	16170	0.4009	9.2336
0.254902	476	16646	0.2718	9.5054
0.262745	664	17310	0.3792	9.8845
0.270588	772	18082	0.4408	10.3254
0.278431	698	18780	0.3986	10.7240
0.286275	722	19502	0.4123	11.1362
0.294118	890	20392	0.5082	11.6445
0.301961	740	21132	0.4226	12.0670

0.309804	756	21888	0.4317	12.4987
0.317647	836	22724	0.4774	12.9761
0.325490	694	23418	0.3963	13.3724
0.333333	1580	24998	0.9022	14.2746
0.341176	816	25814	0.4660	14.7406
0.349020	1160	26974	0.6624	15.4030
0.356863	1104	28078	0.6304	16.0334
0.364706	1264	29342	0.7218	16.7552
0.372549	1288	30630	0.7355	17.4907
0.380392	1320	31950	0.7538	18.2444
0.388235	1210	33160	0.6909	18.9354
0.396078	1472	34632	0.8406	19.7759
0.403922	1258	35890	0.7184	20.4943
0.411765	1544	37434	0.8817	21.3760
0.419608	1344	38778	0.7675	22.1434
0.427451	1860	40638	1.0621	23.2055
0.435294	1708	42346	0.9753	24.1809
0.443137	1628	43974	0.9296	25.1105
0.450980	1983	45957	1.1324	26.2428
0.458824	1766	47723	1.0084	27.2513
0.466667	2120	49843	1.2106	28.4619
0.474510	2038	51881	1.1638	29.6256
0.482353	2180	54061	1.2448	30.8705
0.490196	2260	56321	1.2905	32.1610
0.498039	2862	59183	1.6343	33.7953
0.505882	2366	61549	1.3511	35.1464
0.513725	2834	64383	1.6183	36.7647
0.521569	2696	67079	1.5395	38.3042
0.529412	3262	70341	1.8627	40.1669
0.537255	3146	73487	1.7965	41.9633
0.545098	2998	76485	1.7119	43.6753
0.552941	3604	80089	2.0580	45.7333
0.560784	3480	83569	1.9872	47.7204
0.568627	3718	87287	2.1231	49.8435
0.576471	4368	91655	2.4943	52.3378
0.584314	4140	95795	2.3641	54.7019
0.592157	3134	98929	1.7896	56.4915
0.600000	5750	104679	3.2834	59.7749
0.607843	5139	109818	2.9345	62.7094
0.615686	4590	114408	2.6210	65.3305
0.623529	5226	119634	2.9842	68.3147
0.631373	4978	124612	2.8426	71.1573
0.639216	4304	128916	2.4577	73.6150
0.647059	5082	133998	2.9020	76.5169

0.654902	4642	138640	2.6507	79.1677
0.662745	4512	143152	2.5765	81.7442
0.670588	4104	147256	2.3435	84.0877
0.678431	3642	150898	2.0797	86.1674
0.686275	3546	154444	2.0249	88.1922
0.694118	3250	157694	1.8558	90.0481
0.701961	2812	160506	1.6057	91.6538
0.709804	2548	163054	1.4550	93.1088
0.717647	2008	165062	1.1466	94.2554
0.725490	2032	167094	1.1603	95.4158
0.733333	1964	169058	1.1215	96.5373
0.741176	1490	170548	0.8508	97.3881
0.749020	1380	171928	0.7880	98.1761
0.756863	1008	172936	0.5756	98.7517
0.764706	838	173774	0.4785	99.2303
0.772549	518	174292	0.2958	99.5260
0.780392	342	174634	0.1953	99.7213
0.788235	238	174872	0.1359	99.8572
0.796078	120	174992	0.0685	99.9258
0.803922	68	175060	0.0388	99.9646
0.811765	30	175090	0.0171	99.9817
0.819608	16	175106	0.0091	99.9909
0.827451	8	175114	0.0046	99.9954
0.835294	0	175114	0.0000	99.9954
0.843137	0	175114	0.0000	99.9954
0.850980	0	175114	0.0000	99.9954
0.858824	0	175114	0.0000	99.9954
0.866667	0	175114	0.0000	99.9954
0.874510	0	175114	0.0000	99.9954
0.882353	0	175114	0.0000	99.9954
0.890196	0	175114	0.0000	99.9954
0.898039	0	175114	0.0000	99.9954
0.905882	0	175114	0.0000	99.9954
0.913725	0	175114	0.0000	99.9954
0.921569	0	175114	0.0000	99.9954
0.929412	0	175114	0.0000	99.9954
0.937255	0	175114	0.0000	99.9954
0.945098	0	175114	0.0000	99.9954
0.952941	0	175114	0.0000	99.9954
0.960784	0	175114	0.0000	99.9954
0.968627	0	175114	0.0000	99.9954
0.976471	0	175114	0.0000	99.9954
0.984314	0	175114	0.0000	99.9954
0.992157	0	175114	0.0000	99.9954

1.000000 8 175122 0.0046100.0000

OLI 2013 15m pixel with mask statistics

Filename: F:\Remote sensing final project\Final project\NDVI OLI\oli_ndvi_may_2013_with mask
Dims: Full Scene (175,122 points)

Basic Stats	Min	Max	Mean	Stdev
Band 1	0.000000	0.925076	0.715937	0.195144

Histogram	DN	Npts	Total	Percent	Acc Pct
Band 1	0.000000	86	86	0.0491	0.0491
Bin=0.00362	0.003628	0	86	0.0000	0.0491
	0.007256	0	86	0.0000	0.0491
	0.010883	0	86	0.0000	0.0491
	0.014511	0	86	0.0000	0.0491
	0.018139	0	86	0.0000	0.0491
	0.021767	0	86	0.0000	0.0491
	0.025394	0	86	0.0000	0.0491
	0.029022	0	86	0.0000	0.0491
	0.032650	4	90	0.0023	0.0514
	0.036278	4	94	0.0023	0.0537
	0.039905	0	94	0.0000	0.0537
	0.043533	8	102	0.0046	0.0582
	0.047161	8	110	0.0046	0.0628
	0.050789	4	114	0.0023	0.0651
	0.054416	0	114	0.0000	0.0651
	0.058044	0	114	0.0000	0.0651
	0.061672	4	118	0.0023	0.0674
	0.065300	4	122	0.0023	0.0697
	0.068927	4	126	0.0023	0.0719
	0.072555	8	134	0.0046	0.0765
	0.076183	4	138	0.0023	0.0788
	0.079811	16	154	0.0091	0.0879
	0.083438	28	182	0.0160	0.1039
	0.087066	24	206	0.0137	0.1176
	0.090694	52	258	0.0297	0.1473
	0.094322	24	282	0.0137	0.1610
	0.097949	76	358	0.0434	0.2044
	0.101577	70	428	0.0400	0.2444
	0.105205	56	484	0.0320	0.2764
	0.108833	112	596	0.0640	0.3403
	0.112460	80	676	0.0457	0.3860
	0.116088	108	784	0.0617	0.4477
	0.119716	106	890	0.0605	0.5082
	0.123344	112	1002	0.0640	0.5722

0.126971	104	1106	0.0594	0.6316
0.130599	186	1292	0.1062	0.7378
0.134227	170	1462	0.0971	0.8348
0.137855	162	1624	0.0925	0.9274
0.141482	166	1790	0.0948	1.0221
0.145110	212	2002	0.1211	1.1432
0.148738	180	2182	0.1028	1.2460
0.152366	188	2370	0.1074	1.3533
0.155993	214	2584	0.1222	1.4755
0.159621	172	2756	0.0982	1.5738
0.163249	174	2930	0.0994	1.6731
0.166877	194	3124	0.1108	1.7839
0.170504	234	3358	0.1336	1.9175
0.174132	210	3568	0.1199	2.0374
0.177760	218	3786	0.1245	2.1619
0.181388	222	4008	0.1268	2.2887
0.185015	226	4234	0.1291	2.4177
0.188643	220	4454	0.1256	2.5434
0.192271	166	4620	0.0948	2.6382
0.195899	204	4824	0.1165	2.7547
0.199526	220	5044	0.1256	2.8803
0.203154	202	5246	0.1153	2.9956
0.206782	174	5420	0.0994	3.0950
0.210410	202	5622	0.1153	3.2103
0.214037	210	5832	0.1199	3.3302
0.217665	186	6018	0.1062	3.4365
0.221293	218	6236	0.1245	3.5609
0.224921	142	6378	0.0811	3.6420
0.228548	254	6632	0.1450	3.7871
0.232176	222	6854	0.1268	3.9138
0.235804	214	7068	0.1222	4.0360
0.239432	176	7244	0.1005	4.1365
0.243059	184	7428	0.1051	4.2416
0.246687	188	7616	0.1074	4.3490
0.250315	214	7830	0.1222	4.4712
0.253943	256	8086	0.1462	4.6174
0.257570	212	8298	0.1211	4.7384
0.261198	240	8538	0.1370	4.8755
0.264826	286	8824	0.1633	5.0388
0.268454	206	9030	0.1176	5.1564
0.272081	220	9250	0.1256	5.2820
0.275709	232	9482	0.1325	5.4145
0.279337	192	9674	0.1096	5.5241
0.282965	212	9886	0.1211	5.6452

0.286592	256	10142	0.1462	5.7914
0.290220	282	10424	0.1610	5.9524
0.293848	258	10682	0.1473	6.0997
0.297476	254	10936	0.1450	6.2448
0.301103	256	11192	0.1462	6.3910
0.304731	234	11426	0.1336	6.5246
0.308359	256	11682	0.1462	6.6708
0.311987	282	11964	0.1610	6.8318
0.315614	264	12228	0.1508	6.9826
0.319242	296	12524	0.1690	7.1516
0.322870	208	12732	0.1188	7.2704
0.326498	308	13040	0.1759	7.4462
0.330125	250	13290	0.1428	7.5890
0.333753	218	13508	0.1245	7.7135
0.337381	302	13810	0.1725	7.8859
0.341009	284	14094	0.1622	8.0481
0.344636	248	14342	0.1416	8.1897
0.348264	270	14612	0.1542	8.3439
0.351892	262	14874	0.1496	8.4935
0.355520	298	15172	0.1702	8.6637
0.359147	324	15496	0.1850	8.8487
0.362775	252	15748	0.1439	8.9926
0.366403	282	16030	0.1610	9.1536
0.370031	294	16324	0.1679	9.3215
0.373658	242	16566	0.1382	9.4597
0.377286	270	16836	0.1542	9.6139
0.380914	228	17064	0.1302	9.7441
0.384542	326	17390	0.1862	9.9302
0.388169	256	17646	0.1462	10.0764
0.391797	230	17876	0.1313	10.2077
0.395425	266	18142	0.1519	10.3596
0.399053	254	18396	0.1450	10.5047
0.402680	290	18686	0.1656	10.6703
0.406308	262	18948	0.1496	10.8199
0.409936	306	19254	0.1747	10.9946
0.413564	287	19541	0.1639	11.1585
0.417191	314	19855	0.1793	11.3378
0.420819	322	20177	0.1839	11.5217
0.424447	278	20455	0.1587	11.6804
0.428075	306	20761	0.1747	11.8552
0.431702	288	21049	0.1645	12.0196
0.435330	310	21359	0.1770	12.1966
0.438958	356	21715	0.2033	12.3999
0.442586	274	21989	0.1565	12.5564

0.446213	318	22307	0.1816	12.7380
0.449841	330	22637	0.1884	12.9264
0.453469	350	22987	0.1999	13.1263
0.457097	318	23305	0.1816	13.3079
0.460724	348	23653	0.1987	13.5066
0.464352	318	23971	0.1816	13.6882
0.467980	392	24363	0.2238	13.9120
0.471608	252	24615	0.1439	14.0559
0.475235	302	24917	0.1725	14.2284
0.478863	382	25299	0.2181	14.4465
0.482491	284	25583	0.1622	14.6087
0.486119	334	25917	0.1907	14.7994
0.489746	410	26327	0.2341	15.0335
0.493374	356	26683	0.2033	15.2368
0.497002	374	27057	0.2136	15.4504
0.500630	434	27491	0.2478	15.6982
0.504257	322	27813	0.1839	15.8821
0.507885	334	28147	0.1907	16.0728
0.511513	440	28587	0.2513	16.3240
0.515141	298	28885	0.1702	16.4942
0.518768	392	29277	0.2238	16.7181
0.522396	336	29613	0.1919	16.9099
0.526024	378	29991	0.2158	17.1258
0.529652	328	30319	0.1873	17.3131
0.533279	378	30697	0.2158	17.5289
0.536907	392	31089	0.2238	17.7528
0.540535	356	31445	0.2033	17.9561
0.544163	396	31841	0.2261	18.1822
0.547790	336	32177	0.1919	18.3740
0.551418	406	32583	0.2318	18.6059
0.555046	400	32983	0.2284	18.8343
0.558674	496	33479	0.2832	19.1175
0.562301	404	33883	0.2307	19.3482
0.565929	394	34277	0.2250	19.5732
0.569557	398	34675	0.2273	19.8005
0.573185	470	35145	0.2684	20.0689
0.576812	388	35533	0.2216	20.2904
0.580440	434	35967	0.2478	20.5383
0.584068	392	36359	0.2238	20.7621
0.587696	526	36885	0.3004	21.0625
0.591323	440	37325	0.2513	21.3137
0.594951	414	37739	0.2364	21.5501
0.598579	456	38195	0.2604	21.8105
0.602207	510	38705	0.2912	22.1017

0.605834	408	39113	0.2330	22.3347
0.609462	486	39599	0.2775	22.6122
0.613090	550	40149	0.3141	22.9263
0.616718	520	40669	0.2969	23.2232
0.620345	462	41131	0.2638	23.4871
0.623973	638	41769	0.3643	23.8514
0.627601	554	42323	0.3164	24.1677
0.631229	588	42911	0.3358	24.5035
0.634856	532	43443	0.3038	24.8073
0.638484	632	44075	0.3609	25.1682
0.642112	658	44733	0.3757	25.5439
0.645740	516	45249	0.2947	25.8386
0.649367	580	45829	0.3312	26.1698
0.652995	682	46511	0.3894	26.5592
0.656623	664	47175	0.3792	26.9384
0.660251	662	47837	0.3780	27.3164
0.663878	668	48505	0.3814	27.6978
0.667506	724	49229	0.4134	28.1113
0.671134	800	50029	0.4568	28.5681
0.674762	826	50855	0.4717	29.0398
0.678389	676	51531	0.3860	29.4258
0.682017	816	52347	0.4660	29.8917
0.685645	778	53125	0.4443	30.3360
0.689273	816	53941	0.4660	30.8020
0.692900	824	54765	0.4705	31.2725
0.696528	878	55643	0.5014	31.7738
0.700156	934	56577	0.5333	32.3072
0.703784	942	57519	0.5379	32.8451
0.707411	900	58419	0.5139	33.3590
0.711039	926	59345	0.5288	33.8878
0.714667	936	60281	0.5345	34.4223
0.718295	1018	61299	0.5813	35.0036
0.721922	954	62253	0.5448	35.5484
0.725550	994	63247	0.5676	36.1160
0.729178	1126	64373	0.6430	36.7589
0.732806	976	65349	0.5573	37.3163
0.736433	1112	66461	0.6350	37.9513
0.740061	1210	67671	0.6909	38.6422
0.743689	1080	68751	0.6167	39.2589
0.747317	1128	69879	0.6441	39.9030
0.750944	1210	71089	0.6909	40.5940
0.754572	1230	72319	0.7024	41.2964
0.758200	1078	73397	0.6156	41.9119
0.761828	1118	74515	0.6384	42.5503

0.765455	1400	75915	0.7994	43.3498
0.769083	1434	77349	0.8189	44.1686
0.772711	1402	78751	0.8006	44.9692
0.776339	1486	80237	0.8486	45.8178
0.779966	1548	81785	0.8840	46.7017
0.783594	1368	83153	0.7812	47.4829
0.787222	1520	84673	0.8680	48.3509
0.790850	1604	86277	0.9159	49.2668
0.794477	1682	87959	0.9605	50.2273
0.798105	1846	89805	1.0541	51.2814
0.801733	1750	91555	0.9993	52.2807
0.805361	2058	93613	1.1752	53.4559
0.808988	1834	95447	1.0473	54.5031
0.812616	1914	97361	1.0930	55.5961
0.816244	2082	99443	1.1889	56.7850
0.819872	2252	101695	1.2860	58.0709
0.823499	2416	104111	1.3796	59.4506
0.827127	2300	106411	1.3134	60.7639
0.830755	2610	109021	1.4904	62.2543
0.834383	2772	111793	1.5829	63.8372
0.838010	2846	114639	1.6252	65.4624
0.841638	3282	117921	1.8741	67.3365
0.845266	3486	121407	1.9906	69.3271
0.848894	3563	124970	2.0346	71.3617
0.852521	3888	128858	2.2202	73.5818
0.856149	4032	132890	2.3024	75.8842
0.859777	4308	137198	2.4600	78.3442
0.863405	4446	141644	2.5388	80.8830
0.867032	4408	146052	2.5171	83.4001
0.870660	4678	150730	2.6713	86.0714
0.874288	4362	155092	2.4908	88.5623
0.877916	4432	159524	2.5308	91.0931
0.881543	3660	163184	2.0900	93.1830
0.885171	3270	166454	1.8673	95.0503
0.888799	2658	169112	1.5178	96.5681
0.892427	2154	171266	1.2300	97.7981
0.896054	1498	172764	0.8554	98.6535
0.899682	1052	173816	0.6007	99.2542
0.903310	666	174482	0.3803	99.6345
0.906938	308	174790	0.1759	99.8104
0.910565	208	174998	0.1188	99.9292
0.914193	72	175070	0.0411	99.9703
0.917821	28	175098	0.0160	99.9863
0.921449	20	175118	0.0114	99.9977

0.925076 4 175122 0.0023100.0000

Arecibo weather station recorded precipitation (inches)

Date	precip (in)	Total	Date	precip (in)	Total	Date	precip (in)
1/1/2001	0	precip	1/1/2004	0.1	precip	1/1/2007	0.08
1/2/2001	0	80.035	1/2/2004	0.05	81.95	1/2/2007	0.1
1/3/2001	0		1/3/2004	0.05		1/3/2007	0
1/4/2001	0		1/4/2004	0		1/4/2007	0
1/5/2001	0		1/5/2004	0		1/5/2007	0
1/6/2001	0		1/6/2004	0		1/6/2007	0
1/7/2001	0		1/7/2004	0.16		1/7/2007	0.05
1/8/2001	0		1/8/2004	0		1/8/2007	0.15
1/9/2001	0		1/9/2004	0		1/9/2007	0.02
1/10/2001	0		1/10/2004	0		1/10/2007	0.58
1/11/2001	0		1/11/2004	0		1/11/2007	0
1/12/2001	0.01		1/12/2004	0.53		1/12/2007	0.11
1/13/2001	0.03		1/13/2004	0.02		1/13/2007	0.18
1/14/2001	0		1/14/2004	0		1/14/2007	0.24
1/15/2001	0.25		1/15/2004	0		1/15/2007	0.07
1/16/2001	0		1/16/2004	0.15		1/16/2007	0
1/17/2001	0		1/17/2004	0		1/17/2007	0.02
1/18/2001	0		1/18/2004	0		1/18/2007	0.61
1/19/2001	0		1/19/2004	0		1/19/2007	0.18
1/20/2001	0		1/20/2004	0		1/20/2007	0.19
1/21/2001	0		1/21/2004	0.1		1/21/2007	0.01
1/22/2001	0		1/22/2004	0		1/22/2007	0
1/23/2001	0		1/23/2004	0		1/23/2007	0
1/24/2001	0		1/24/2004	0.02		1/24/2007	0
1/25/2001	0		1/25/2004	0		1/25/2007	0
1/26/2001	0.12		1/26/2004	0		1/26/2007	0
1/27/2001	0.1		1/27/2004	0		1/27/2007	0
1/28/2001	1.85		1/28/2004	0		1/28/2007	0
1/29/2001	0.1		1/29/2004	0		1/29/2007	0
1/30/2001	1.76		1/30/2004	0.1		1/30/2007	0
1/31/2001	0		1/31/2004	0		1/31/2007	0
2/1/2001	0		2/1/2004	0		2/1/2007	0
2/2/2001	0.01		2/2/2004	0		2/2/2007	0
2/3/2001	0		2/3/2004	0		2/3/2007	0
2/4/2001	0		2/4/2004	0		2/4/2007	0
2/5/2001	0		2/5/2004	0		2/5/2007	0
2/6/2001	0		2/6/2004	0		2/6/2007	0.05
2/7/2001	0.96		2/7/2004	0.1		2/7/2007	0
2/8/2001	0		2/8/2004	0		2/8/2007	0

2/9/2001	0	2/9/2004	0	2/9/2007	0
2/10/2001	0	2/10/2004	0	2/10/2007	0
2/11/2001	0.3	2/11/2004	0	2/11/2007	0
2/12/2001	0.05	2/12/2004	0	2/12/2007	0
2/13/2001	0.05	2/13/2004	0	2/13/2007	0
2/14/2001	0	2/14/2004	0	2/14/2007	0
2/15/2001	0.15	2/15/2004	0	2/15/2007	0
2/16/2001	0.22	2/16/2004	0	2/16/2007	1.2
2/17/2001	0.15	2/17/2004	0.29	2/17/2007	0
2/18/2001	0	2/18/2004	0	2/18/2007	0
2/19/2001	0.2	2/19/2004	0	2/19/2007	0
2/20/2001	0	2/20/2004	0	2/20/2007	1.74
2/21/2001	0.05	2/21/2004	0.45	2/21/2007	1.45
2/22/2001	0.27	2/22/2004	0.27	2/22/2007	0.04
2/23/2001	0.12	2/23/2004	0	2/23/2007	0.22
2/24/2001	0	2/24/2004	0	2/24/2007	1.02
2/25/2001	0.4	2/25/2004	0	2/25/2007	0.45
2/26/2001	0.1	2/26/2004	0	2/26/2007	0.75
2/27/2001	0	2/27/2004	0	2/27/2007	0
2/28/2001	0	2/28/2004	0	2/28/2007	0
3/1/2001	0	2/29/2004	0.55	3/1/2007	0.05
3/2/2001	0.06	3/1/2004	0.05	3/2/2007	0
3/3/2001	0	3/2/2004	0.03	3/3/2007	0
3/4/2001	0	3/3/2004	0	3/4/2007	0
3/5/2001	0	3/4/2004	0.28	3/5/2007	0
3/6/2001	0	3/5/2004	0	3/6/2007	0.36
3/7/2001	0	3/6/2004	0	3/7/2007	0.28
3/8/2001	0	3/7/2004	0	3/8/2007	0.04
3/9/2001	0	3/8/2004	0	3/9/2007	0
3/10/2001	0	3/9/2004	0	3/10/2007	0
3/11/2001	0	3/10/2004	0.05	3/11/2007	0
3/12/2001	0	3/11/2004	0	3/12/2007	0
3/13/2001	0	3/12/2004	0	3/13/2007	0.7
3/14/2001	0	3/13/2004	0	3/14/2007	0.78
3/15/2001	0	3/14/2004	0	3/15/2007	0.25
3/16/2001	0	3/15/2004	0.17	3/16/2007	0
3/17/2001	0	3/16/2004	0	3/17/2007	0
3/18/2001	0	3/17/2004	0	3/18/2007	0.3
3/19/2001	0	3/18/2004	0.1	3/19/2007	0
3/20/2001	0	3/19/2004	0.35	3/20/2007	0.58
3/21/2001	0.4	3/20/2004	0.05	3/21/2007	0.48
3/22/2001	0	3/21/2004	0.1	3/22/2007	0.2
3/23/2001	0.92	3/22/2004	0.05	3/23/2007	1.26

3/24/2001	0	3/23/2004	0	3/24/2007	0
3/25/2001	1.95	3/24/2004	0.05	3/25/2007	0.05
3/26/2001	0	3/25/2004	0.58	3/26/2007	0.17
3/27/2001	0.2	3/26/2004	0.45	3/27/2007	1.38
3/28/2001	0	3/27/2004	1.7	3/28/2007	0.03
3/29/2001	0.33	3/28/2004	1.25	3/29/2007	1.15
3/30/2001	0	3/29/2004	0.65	3/30/2007	0.09
3/31/2001	0	3/30/2004	0	3/31/2007	0.38
4/1/2001	0	3/31/2004	0	4/1/2007	0.05
4/2/2001	0	4/1/2004	0.48	4/2/2007	0
4/3/2001	0	4/2/2004	0.28	4/3/2007	0
4/4/2001	0	4/3/2004	0	4/4/2007	0
4/5/2001	0	4/4/2004	0	4/5/2007	0.03
4/6/2001	0.6	4/5/2004	0.3	4/6/2007	0
4/7/2001	1.7	4/6/2004	0	4/7/2007	0
4/8/2001	0	4/7/2004	0	4/8/2007	0
4/9/2001	0.28	4/8/2004	0	4/9/2007	0.15
4/10/2001	0	4/9/2004	0.4	4/10/2007	0
4/11/2001	0.05	4/10/2004	0	4/11/2007	0.05
4/12/2001	0.05	4/11/2004	0	4/12/2007	0
4/13/2001	0	4/12/2004	0	4/13/2007	0
4/14/2001	0	4/13/2004	0	4/14/2007	0
4/15/2001	0	4/14/2004	0	4/15/2007	0.17
4/16/2001	0	4/15/2004	0	4/16/2007	0.65
4/17/2001	0	4/16/2004	0	4/17/2007	0.1
4/18/2001	0	4/17/2004	0	4/18/2007	0.4
4/19/2001	0	4/18/2004	0.06	4/19/2007	0.1
4/20/2001	0	4/19/2004	2.2	4/20/2007	0
4/21/2001	0.15	4/20/2004	0.05	4/21/2007	0
4/22/2001	0.25	4/21/2004	0	4/22/2007	0.12
4/23/2001	0.39	4/22/2004	0	4/23/2007	1.4
4/24/2001	0.12	4/23/2004	0	4/24/2007	2.73
4/25/2001	1.05	4/24/2004	0.02	4/25/2007	0.68
4/26/2001	0.12	4/25/2004	0.05	4/26/2007	0.11
4/27/2001	0.5	4/26/2004	0	4/27/2007	0.95
4/28/2001	0	4/27/2004	0.62	4/28/2007	0.13
4/29/2001	0	4/28/2004	0.15	4/29/2007	0.05
4/30/2001	0	4/29/2004	1.55	4/30/2007	0
5/1/2001	0.45	4/30/2004	0.1	5/1/2007	1.37
5/2/2001	0	5/1/2004	0	5/2/2007	1.28
5/3/2001	0	5/2/2004	0.3	5/3/2007	0.22
5/4/2001	0	5/3/2004	0	5/4/2007	0.01
5/5/2001	0	5/4/2004	0.8	5/5/2007	0.26

5/6/2001	0	5/5/2004	1.15	5/6/2007	0.2
5/7/2001	4.3	5/6/2004	0	5/7/2007	0.88
5/8/2001	0.15	5/7/2004	0.3	5/8/2007	0
5/9/2001	0.9	5/8/2004	0.35	5/9/2007	0
5/10/2001	1.27	5/9/2004	3.67	5/10/2007	0
5/11/2001	0.75	5/10/2004	1.68	5/11/2007	0
5/12/2001	0.1	5/11/2004	0.1	5/12/2007	0
5/13/2001	0	5/12/2004	1.4	5/13/2007	0
5/14/2001	0	5/13/2004	0.3	5/14/2007	0
5/15/2001	0.98	5/14/2004	0.05	5/15/2007	0
5/16/2001	0.5	5/15/2004	0	5/16/2007	0
5/17/2001	0	5/16/2004	0.05	5/17/2007	0
5/18/2001	0.07	5/17/2004	0.45	5/18/2007	0
5/19/2001	0.35	5/18/2004	0.12	5/19/2007	0
5/20/2001	0	5/19/2004	0	5/20/2007	0
5/21/2001	0	5/20/2004	0.2	5/21/2007	0
5/22/2001	0	5/21/2004	0.38	5/22/2007	0.08
5/23/2001	0.35	5/22/2004	0.21	5/23/2007	0.28
5/24/2001	0.4	5/23/2004	0.22	5/24/2007	1.7
5/25/2001	0	5/24/2004	0.3	5/25/2007	1.25
5/26/2001	0.1	5/25/2004	0	5/26/2007	0.7
5/27/2001	0	5/26/2004	0	5/27/2007	0.05
5/28/2001	1.86	5/27/2004	0.77	5/28/2007	2
5/29/2001	0	5/28/2004	0	5/29/2007	0.19
5/30/2001	0	5/29/2004	0	5/30/2007	0.38
5/31/2001	0	5/30/2004	0	5/31/2007	0.03
6/1/2001	0	5/31/2004	0	6/1/2007	0.2
6/2/2001	0	6/1/2004	0.45	6/2/2007	0.8
6/3/2001	0.6	6/2/2004	0	6/3/2007	0
6/4/2001	0	6/3/2004	0	6/4/2007	0
6/5/2001	0	6/4/2004	0.3	6/5/2007	0
6/6/2001	0	6/5/2004	0.2	6/6/2007	0
6/7/2001	0	6/6/2004	0	6/7/2007	0
6/8/2001	0	6/7/2004	0	6/8/2007	0.2
6/9/2001	0	6/8/2004	0	6/9/2007	1.2
6/10/2001	0	6/9/2004	0.4	6/10/2007	0.08
6/11/2001	0	6/10/2004	0	6/11/2007	0
6/12/2001	0	6/11/2004	0	6/12/2007	0.06
6/13/2001	0	6/12/2004	0.05	6/13/2007	0
6/14/2001	2.9	6/13/2004	0	6/14/2007	0
6/15/2001	0	6/14/2004	0	6/15/2007	0
6/16/2001	0	6/15/2004	0	6/16/2007	0
6/17/2001	0	6/16/2004	0	6/17/2007	0

6/18/2001	0.27	6/17/2004	0	6/18/2007	0.56
6/19/2001	0.48	6/18/2004	2.57	6/19/2007	0
6/20/2001	0	6/19/2004	0	6/20/2007	0
6/21/2001	0	6/20/2004	0.05	6/21/2007	0.05
6/22/2001	0	6/21/2004	0	6/22/2007	0
6/23/2001	0	6/22/2004	0.95	6/23/2007	0
6/24/2001	0.45	6/23/2004	0.12	6/24/2007	0.2
6/25/2001	0.7	6/24/2004	0	6/25/2007	1.2
6/26/2001	1.4	6/25/2004	0	6/26/2007	0
6/27/2001	0	6/26/2004	0.28	6/27/2007	0
6/28/2001	0	6/27/2004	0	6/28/2007	0
6/29/2001	0.48	6/28/2004	0.07	6/29/2007	0.65
6/30/2001	0.12	6/29/2004	0	6/30/2007	0
7/1/2001	0.87	6/30/2004	0.1	7/1/2007	0.05
7/2/2001	0.31	7/1/2004	0	7/2/2007	0
7/3/2001	0	7/2/2004	0	7/3/2007	0
7/4/2001	0.18	7/3/2004	0	7/4/2007	0
7/5/2001	0.9	7/4/2004	0	7/5/2007	0.15
7/6/2001	0	7/5/2004	0.1	7/6/2007	0
7/7/2001	0	7/6/2004	0	7/7/2007	0
7/8/2001	0	7/7/2004	0.06	7/8/2007	0
7/9/2001	0	7/8/2004	0.6	7/9/2007	0.28
7/10/2001	0	7/9/2004	0	7/10/2007	0
7/11/2001	0	7/10/2004	0	7/11/2007	0
7/12/2001	1.2	7/11/2004	0	7/12/2007	0
7/13/2001	0	7/12/2004	0.3	7/13/2007	0
7/14/2001	0	7/13/2004	0	7/14/2007	0
7/15/2001	0.83	7/14/2004	0	7/15/2007	0
7/16/2001	0	7/15/2004	0	7/16/2007	0
7/17/2001	0	7/16/2004	0.1	7/17/2007	0
7/18/2001	0	7/17/2004	0.05	7/18/2007	0
7/19/2001	0.17	7/18/2004	0	7/19/2007	0
7/20/2001	0.06	7/19/2004	1.5	7/20/2007	0.08
7/21/2001	0	7/20/2004	0	7/21/2007	0
7/22/2001	0	7/21/2004	0	7/22/2007	0
7/23/2001	0.27	7/22/2004	0	7/23/2007	0.08
7/24/2001	0.8	7/23/2004	0.4	7/24/2007	0
7/25/2001	0.06	7/24/2004	0	7/25/2007	0.7
7/26/2001	0	7/25/2004	0.88	7/26/2007	0
7/27/2001	0	7/26/2004	0	7/27/2007	0.58
7/28/2001	0	7/27/2004	0	7/28/2007	0.05
7/29/2001	0	7/28/2004	0	7/29/2007	0.8
7/30/2001	0.45	7/29/2004	0.1	7/30/2007	0

7/31/2001	0.09	7/30/2004	0	7/31/2007	0.07
8/1/2001	0	7/31/2004	0.05	8/1/2007	0.02
8/2/2001	0	8/1/2004	0	8/2/2007	0
8/3/2001	0.15	8/2/2004	0	8/3/2007	0
8/4/2001	0.1	8/3/2004	0	8/4/2007	0
8/5/2001	1.05	8/4/2004	3.05	8/5/2007	0
8/6/2001	0	8/5/2004	0	8/6/2007	1.1
8/7/2001	0.16	8/6/2004	0	8/7/2007	2.1
8/8/2001	0	8/7/2004	0	8/8/2007	0.02
8/9/2001	0	8/8/2004	0	8/9/2007	0
8/10/2001	0	8/9/2004	0	8/10/2007	2.05
8/11/2001	0.15	8/10/2004	0	8/11/2007	0
8/12/2001	0	8/11/2004	0	8/12/2007	0
8/13/2001	0	8/12/2004	0	8/13/2007	0
8/14/2001	0	8/13/2004	0	8/14/2007	0
8/15/2001	0	8/14/2004	0	8/15/2007	0.7
8/16/2001	0	8/15/2004	0.05	8/16/2007	0.23
8/17/2001	0.05	8/16/2004	0	8/17/2007	0
8/18/2001	0.3	8/17/2004	0.4	8/18/2007	0.03
8/19/2001	1.27	8/18/2004	0	8/19/2007	0.3
8/20/2001	0	8/19/2004	0.5	8/20/2007	0.42
8/21/2001	0	8/20/2004	0.5	8/21/2007	0
8/22/2001	0	8/21/2004	0	8/22/2007	1.7
8/23/2001	1.05	8/22/2004	0	8/23/2007	0.65
8/24/2001	0.03	8/23/2004	0.05	8/24/2007	0
8/25/2001	0	8/24/2004	0.12	8/25/2007	0.3
8/26/2001	0.1	8/25/2004	0.72	8/26/2007	0.48
8/27/2001	2.55	8/26/2004	0	8/27/2007	0.07
8/28/2001	0	8/27/2004	0	8/28/2007	0
8/29/2001	0	8/28/2004	0	8/29/2007	0
8/30/2001	0	8/29/2004	2.28	8/30/2007	0.02
8/31/2001	0	8/30/2004	0.75	8/31/2007	0
9/1/2001	0	8/31/2004	0.4	9/1/2007	0
9/2/2001	0	9/1/2004	0.05	9/2/2007	0
9/3/2001	0.78	9/2/2004	0	9/3/2007	0
9/4/2001	0	9/3/2004	0.43	9/4/2007	0
9/5/2001	0	9/4/2004	1.6	9/5/2007	1.44
9/6/2001	0	9/5/2004	0	9/6/2007	0.52
9/7/2001	0	9/6/2004	0.3	9/7/2007	0.2
9/8/2001	0	9/7/2004	0.94	9/8/2007	0.17
9/9/2001	0	9/8/2004	0	9/9/2007	0.13
9/10/2001	0	9/9/2004	0.4	9/10/2007	0.77
9/11/2001	0	9/10/2004	0	9/11/2007	0

9/12/2001	0	9/11/2004	0	9/12/2007	0.02
9/13/2001	0	9/12/2004	0.75	9/13/2007	0
9/14/2001	0	9/13/2004	0.88	9/14/2007	0.05
9/15/2001	0	9/14/2004	0.55	9/15/2007	0.55
9/16/2001	0	9/15/2004	0.98	9/16/2007	0.25
9/17/2001	0.12	9/16/2004	4.85	9/17/2007	0.09
9/18/2001	0.79	9/17/2004	0.18	9/18/2007	0
9/19/2001	0	9/18/2004	0.08	9/19/2007	0.4
9/20/2001	0	9/19/2004	0	9/20/2007	0.86
9/21/2001	0.1	9/20/2004	0	9/21/2007	0.54
9/22/2001	0.55	9/21/2004	0	9/22/2007	0
9/23/2001	0	9/22/2004	0	9/23/2007	0
9/24/2001	1.18	9/23/2004	0	9/24/2007	0
9/25/2001	0.12	9/24/2004	0	9/25/2007	0
9/26/2001	0	9/25/2004	0	9/26/2007	0.08
9/27/2001	0.48	9/26/2004	0	9/27/2007	0.03
9/28/2001	0	9/27/2004	0.3	9/28/2007	0
9/29/2001	0	9/28/2004	0	9/29/2007	0.38
9/30/2001	0	9/29/2004	0	9/30/2007	0.04
10/1/2001	0	9/30/2004	0	10/1/2007	0.2
10/2/2001	0	10/1/2004	0.36	10/2/2007	0
10/3/2001	0	10/2/2004	0	10/3/2007	0
10/4/2001	1.1	10/3/2004	0.05	10/4/2007	0.38
10/5/2001	0.3	10/4/2004	0.05	10/5/2007	0
10/6/2001	0	10/5/2004	0	10/6/2007	0.1
10/7/2001	0	10/6/2004	0.32	10/7/2007	0.38
10/8/2001	0	10/7/2004	0.15	10/8/2007	0
10/9/2001	1.04	10/8/2004	0	10/9/2007	0
10/10/2001	0	10/9/2004	0	#########	0
10/11/2001	1.05	10/10/2004	0.06	#########	0.19
10/12/2001	0.85	10/11/2004	0.52	#########	0
10/13/2001	0.45	10/12/2004	0.06	#########	0
10/14/2001	0.05	10/13/2004	1.35	#########	0
10/15/2001	0	10/14/2004	0.1	#########	0.48
10/16/2001	0	10/15/2004	0	#########	0
10/17/2001	0	10/16/2004	0	#########	0
10/18/2001	0	10/17/2004	0	#########	0
10/19/2001	0.05	10/18/2004	0.08	#########	0.17
10/20/2001	0	10/19/2004	0.07	#########	0.18
10/21/2001	0	10/20/2004	0	#########	0.01
10/22/2001	0	10/21/2004	0.09	#########	0.1
10/23/2001	0.02	10/22/2004	0	#########	0
10/24/2001	0	10/23/2004	0.05	#########	0

10/25/2001	0	10/24/2004	0.15	#########	0.02
10/26/2001	0	10/25/2004	0.05	#########	0.8
10/27/2001	0	10/26/2004	0	#########	0.25
10/28/2001	0.95	10/27/2004	0	#########	0.45
10/29/2001	2.37	10/28/2004	0	#########	1.17
10/30/2001	0.2	10/29/2004	0	#########	0.25
10/31/2001	0.1	10/30/2004	0	#########	0
11/1/2001	0.17	10/31/2004	0.85	11/1/2007	0
11/2/2001	0.55	11/1/2004	0.12	11/2/2007	0
11/3/2001	0	11/2/2004	0	11/3/2007	0
11/4/2001	0.1	11/3/2004	0.75	11/4/2007	0.15
11/5/2001	0.23	11/4/2004	0.07	11/5/2007	0
11/6/2001	0	11/5/2004	0	11/6/2007	0.08
11/7/2001	1.1	11/6/2004	0	11/7/2007	0.9
11/8/2001	3.1	11/7/2004	0	11/8/2007	0
11/9/2001	2.31	11/8/2004	0.43	11/9/2007	0.04
11/10/2001	1.87	11/9/2004	1.72	#########	0
11/11/2001	0	11/10/2004	0.2	#########	0.3
11/12/2001	0	11/11/2004	0.1	#########	0
11/13/2001	0	11/12/2004	0.66	#########	1.48
11/14/2001	0	11/13/2004	3	#########	0.1
11/15/2001	0.2	11/14/2004	1.31	#########	0
11/16/2001	0	11/15/2004	2.02	#########	0
11/17/2001	0	11/16/2004	0.85	#########	0.09
11/18/2001	0	11/17/2004	0.5	#########	0
11/19/2001	0	11/18/2004	0	#########	0
11/20/2001	0	11/19/2004	0	#########	0.39
11/21/2001	0	11/20/2004	0.3	#########	0.06
11/22/2001	0	11/21/2004	2.1	#########	2.1
11/23/2001	0	11/22/2004	0.25	#########	0
11/24/2001	0	11/23/2004	0.05	#########	0
11/25/2001	0.3	11/24/2004	0	#########	0.05
11/26/2001	0	11/25/2004	0	#########	0
11/27/2001	0	11/26/2004	0.03	#########	0
11/28/2001	0.35	11/27/2004	0.09	#########	0
11/29/2001	0.25	11/28/2004	0	#########	0.03
11/30/2001	0.19	11/29/2004	0	#########	0.46
12/1/2001	0	11/30/2004	0	12/1/2007	0.68
12/2/2001	0	12/1/2004	0	12/2/2007	1.77
12/3/2001	0	12/2/2004	0.05	12/3/2007	1.1
12/4/2001	1.1	12/3/2004	0.02	12/4/2007	0
12/5/2001	0.85	12/4/2004	0	12/5/2007	0.3
12/6/2001	0	12/5/2004	0	12/6/2007	0

12/7/2001	0.5	12/6/2004	0.08	12/7/2007	0.02
12/8/2001	0	12/7/2004	0.3	12/8/2007	0.1
12/9/2001	0	12/8/2004	0.07	12/9/2007	0.5
12/10/2001	0	12/9/2004	0.06	#########	0.63
12/11/2001	0	12/10/2004	0	#########	2.62
12/12/2001	0	12/11/2004	0	#########	1.55
12/13/2001	0.4	12/12/2004	0	#########	0
12/14/2001	0.33	12/13/2004	0	#########	0.1
12/15/2001	0.05	12/14/2004	1.3	#########	0.02
12/16/2001	0.08	12/15/2004	0.4	#########	0
12/17/2001	1.15	12/16/2004	0	#########	0
12/18/2001	0.6	12/17/2004	0.32	#########	0
12/19/2001	0.15	12/18/2004	0	#########	0
12/20/2001	1	12/19/2004	0	#########	0
12/21/2001	1.4	12/20/2004	0	#########	0.05
12/22/2001	1.55	12/21/2004	0.03	#########	0.3
12/23/2001	0.02	12/22/2004	0.05	#########	0
12/24/2001	0.96	12/23/2004	0	#########	0
12/25/2001	0	12/24/2004	0.1	#########	0
12/26/2001	0	12/25/2004	0	#########	0
12/27/2001	0	12/26/2004	0.01	#########	0
12/28/2001	0	12/27/2004	0.1	#########	0.16
12/29/2001	0	12/28/2004	0	#########	0.08
12/30/2001	0	12/29/2004	0	#########	0
12/31/2001	0	12/30/2004	0.77	#########	0.23
1/1/2002	0	12/31/2004	0.23		
1/2/2002	0	1/1/2005	0.45		
1/3/2002	0				
1/4/2002	0				
1/5/2002	0				
1/6/2002	1.42				
1/7/2002	0.15				
1/8/2002	1.32				
1/9/2002	0				
1/10/2002	0				
1/11/2002	0				
1/12/2002	0				
1/13/2002	0				
1/14/2002	0				
1/15/2002	0				
1/16/2002	0				
1/17/2002	0.15				
1/18/2002	0				

1/19/2002	0
1/20/2002	0
1/21/2002	0
1/22/2002	0
1/23/2002	0
1/24/2002	0.3
1/25/2002	0
1/26/2002	0
1/27/2002	0.01
1/28/2002	0
1/29/2002	0.04
1/30/2002	0
1/31/2002	0
2/1/2002	0
2/2/2002	0
2/3/2002	0
2/4/2002	0
2/5/2002	0
2/6/2002	0
2/7/2002	0.2
2/8/2002	0
2/9/2002	0
2/10/2002	0
2/11/2002	0.05
2/12/2002	0
2/13/2002	0
2/14/2002	0
2/15/2002	0
2/16/2002	0
2/17/2002	0
2/18/2002	0
2/19/2002	0.75
2/20/2002	0.9
2/21/2002	0
2/22/2002	0
2/23/2002	0
2/24/2002	0
2/25/2002	0
2/26/2002	0
2/27/2002	0.17
2/28/2002	0
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3/3/2002	0
3/4/2002	0
3/5/2002	0
3/6/2002	0
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3/8/2002	0.1
3/9/2002	0.17
3/10/2002	0
3/11/2002	0.1
3/12/2002	0.32
3/13/2002	0
3/14/2002	0
3/15/2002	0
3/16/2002	0
3/17/2002	0
3/18/2002	0
3/19/2002	0.2
3/20/2002	0.08
3/21/2002	0
3/22/2002	0
3/23/2002	0
3/24/2002	0
3/25/2002	0
3/26/2002	0
3/27/2002	0
3/28/2002	0.22
3/29/2002	1.67
3/30/2002	0.33
3/31/2002	0
4/1/2002	1.51
4/2/2002	0.1
4/3/2002	0.05
4/4/2002	0.17
4/5/2002	0.07
4/6/2002	1.43
4/7/2002	0.25
4/8/2002	2.25
4/9/2002	1.3
4/10/2002	0.12
4/11/2002	0.11
4/12/2002	0
4/13/2002	0.02
4/14/2002	0.07

4/15/2002	0
4/16/2002	0.18
4/17/2002	0.07
4/18/2002	0.1
4/19/2002	0.2
4/20/2002	1.35
4/21/2002	1.75
4/22/2002	0.08
4/23/2002	0.38
4/24/2002	0.15
4/25/2002	0.27
4/26/2002	0
4/27/2002	0.21
4/28/2002	3.13
4/29/2002	0.06
4/30/2002	0.74
5/1/2002	2.39
5/2/2002	0.82
5/3/2002	0.08
5/4/2002	0
5/5/2002	0
5/6/2002	0.27
5/7/2002	0
5/8/2002	0
5/9/2002	0
5/10/2002	0
5/11/2002	0.22
5/12/2002	0
5/13/2002	0
5/14/2002	0
5/15/2002	0
5/16/2002	0.28
5/17/2002	2.34
5/18/2002	0
5/19/2002	0
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5/21/2002	0
5/22/2002	0
5/23/2002	0
5/24/2002	0
5/25/2002	0
5/26/2002	0
5/27/2002	0.16

5/28/2002	0
5/29/2002	0
5/30/2002	0
5/31/2002	0.87
6/1/2002	0.03
6/2/2002	0
6/3/2002	0.16
6/4/2002	0.28
6/5/2002	0.96
6/6/2002	0.12
6/7/2002	0
6/8/2002	0
6/9/2002	0
6/10/2002	0
6/11/2002	0
6/12/2002	0
6/13/2002	0
6/14/2002	0
6/15/2002	0.03
6/16/2002	0
6/17/2002	0.02
6/18/2002	0.2
6/19/2002	0
6/20/2002	0
6/21/2002	0
6/22/2002	0.41
6/23/2002	0
6/24/2002	0
6/25/2002	0.25
6/26/2002	0
6/27/2002	0
6/28/2002	0.12
6/29/2002	0.03
6/30/2002	0
7/1/2002	0
7/2/2002	0
7/3/2002	0
7/4/2002	0.45
7/5/2002	1.17
7/6/2002	0
7/7/2002	0.9
7/8/2002	0
7/9/2002	0.2

7/10/2002	0.2
7/11/2002	0
7/12/2002	0.03
7/13/2002	0.49
7/14/2002	0
7/15/2002	0.78
7/16/2002	0
7/17/2002	0.16
7/18/2002	0.42
7/19/2002	0.13
7/20/2002	0.03
7/21/2002	0
7/22/2002	0.15
7/23/2002	0.44
7/24/2002	0
7/25/2002	0.1
7/26/2002	0
7/27/2002	0.02
7/28/2002	0.03
7/29/2002	0.48
7/30/2002	0
7/31/2002	0
8/1/2002	0
8/2/2002	0
8/3/2002	0.11
8/4/2002	0
8/5/2002	1.1
8/6/2002	0
8/7/2002	0
8/8/2002	0.1
8/9/2002	0.16
8/10/2002	0.7
8/11/2002	0.97
8/12/2002	1.5
8/13/2002	0.16
8/14/2002	0
8/15/2002	0.22
8/16/2002	0
8/17/2002	0.02
8/18/2002	0
8/19/2002	0.64
8/20/2002	1.95
8/21/2002	0

8/22/2002	0
8/23/2002	0
8/24/2002	0.37
8/25/2002	1.35
8/26/2002	0
8/27/2002	0
8/28/2002	0.71
8/29/2002	0.2
8/30/2002	0.85
8/31/2002	0.74
9/1/2002	0.1
9/2/2002	0.23
9/3/2002	0.23
9/4/2002	0.1
9/5/2002	0.31
9/6/2002	0.97
9/7/2002	0
9/8/2002	0
9/9/2002	0
9/10/2002	0.36
9/11/2002	0.12
9/12/2002	0.8
9/13/2002	0
9/14/2002	0.04
9/15/2002	0.1
9/16/2002	0.6
9/17/2002	0
9/18/2002	0.33
9/19/2002	0.93
9/20/2002	0.1
9/21/2002	0.52
9/22/2002	0
9/23/2002	0
9/24/2002	0
9/25/2002	0.51
9/26/2002	0.13
9/27/2002	0
9/28/2002	0
9/29/2002	0
9/30/2002	0
10/1/2002	0.27
10/2/2002	1.86
10/3/2002	0.34

10/4/2002	1.7
10/5/2002	0
10/6/2002	0
10/7/2002	0
10/8/2002	0.23
10/9/2002	0.17
10/10/2002	0.36
10/11/2002	0.05
10/12/2002	0
10/13/2002	0.23
10/14/2002	0
10/15/2002	0.3
10/16/2002	0
10/17/2002	0
10/18/2002	1.62
10/19/2002	0.14
10/20/2002	0
10/21/2002	0
10/22/2002	0.7
10/23/2002	0
10/24/2002	0.85
10/25/2002	0.02
10/26/2002	0.05
10/27/2002	0.53
10/28/2002	0
10/29/2002	0
10/30/2002	0
10/31/2002	0
11/1/2002	0.52
11/2/2002	0
11/3/2002	0
11/4/2002	0
11/5/2002	0
11/6/2002	0
11/7/2002	0.28
11/8/2002	0
11/9/2002	0
11/10/2002	0
11/11/2002	0.65
11/12/2002	0
11/13/2002	0
11/14/2002	3.1
11/15/2002	0.7

11/16/2002	0.47
11/17/2002	0.2
11/18/2002	0
11/19/2002	0
11/20/2002	0
11/21/2002	0
11/22/2002	0.09
11/23/2002	0
11/24/2002	0
11/25/2002	0
11/26/2002	0
11/27/2002	0.9
11/28/2002	0
11/29/2002	0
11/30/2002	0
12/1/2002	0
12/2/2002	0
12/3/2002	0
12/4/2002	0
12/5/2002	0.4
12/6/2002	0.1
12/7/2002	0
12/8/2002	0
12/9/2002	0.2
12/10/2002	0
12/11/2002	0
12/12/2002	0
12/13/2002	0
12/14/2002	0.03
12/15/2002	0
12/16/2002	0
12/17/2002	0
12/18/2002	0
12/19/2002	0
12/20/2002	0.17
12/21/2002	0.03
12/22/2002	0
12/23/2002	0.38
12/24/2002	0
12/25/2002	0
12/26/2002	0
12/27/2002	0
12/28/2002	0

12/29/2002	0
12/30/2002	0
12/31/2002	0

Total precip		precip (in)	Total precip	Date	precip (in)	Total precip
83.11	1/1/2010	0.2	105.73	6/1/2012	0.03	87.46
	1/2/2010	0		6/2/2012	0	
	1/3/2010	0		6/3/2012	0	
	1/4/2010	0		6/4/2012	0	
	1/5/2010	0.01		6/5/2012	0	
	1/6/2010	0		6/6/2012	0	
	1/7/2010	0.7		6/7/2012	0	
	1/8/2010	1.7		6/8/2012	0	
	1/9/2010	0.06		6/9/2012	0	
	1/10/2010	0		6/10/2012	0	
	1/11/2010	0		6/11/2012	0	
	1/12/2010	0		6/12/2012	0.1	
	1/13/2010	2.7		6/13/2012	0	
	1/14/2010	2.12		6/14/2012	0	
	1/15/2010	1.6		6/15/2012	0	
	1/16/2010	0.85		6/16/2012	0	
	1/17/2010	0.17		6/17/2012	0.15	
	1/18/2010	0		6/18/2012	0.55	
	1/19/2010	0		6/19/2012	0	
	1/20/2010	0		6/20/2012	0	
	1/21/2010	0.06		6/21/2012	0	
	1/22/2010	0.09		6/22/2012	0	
	1/23/2010	0		6/23/2012	0	
	1/24/2010	0.07		6/24/2012	0	
	1/25/2010	0		6/25/2012	0	
	1/26/2010	0.07		6/26/2012	0	
	1/27/2010	0		6/27/2012	0	
	1/28/2010	0		6/28/2012	0	
	1/29/2010	0		6/29/2012	0	
	1/30/2010	0		6/30/2012	1.15	
	1/31/2010	0		7/1/2012	0.6	
	2/1/2010	0		7/2/2012	0	
	2/2/2010	0		7/3/2012	0.13	
	2/3/2010	0		7/4/2012	0	
	2/4/2010	0		7/5/2012	0.84	
	2/5/2010	0		7/6/2012	0	
	2/6/2010	0		7/7/2012	0	

2/7/2010	0	7/8/2012	0
2/8/2010	0	7/9/2012	0
2/9/2010	0	7/10/2012	2.56
2/10/2010	0	7/11/2012	0.02
2/11/2010	0	7/12/2012	0
2/12/2010	0	7/13/2012	0.4
2/13/2010	0	7/14/2012	1.4
2/14/2010	0	7/15/2012	0
2/15/2010	0	7/16/2012	0
2/16/2010	0	7/17/2012	0.05
2/17/2010	0	7/18/2012	0.2
2/18/2010	0	7/19/2012	0.3
2/19/2010	0.7	7/20/2012	0.33
2/20/2010	0.8	7/21/2012	0.25
2/21/2010	0.4	7/22/2012	0.2
2/22/2010	0.05	7/23/2012	0.25
2/23/2010	0.19	7/24/2012	0
2/24/2010	0	7/25/2012	0
2/25/2010	0	7/26/2012	0
2/26/2010	0	7/27/2012	0
2/27/2010	0.4	7/28/2012	0.08
2/28/2010	0	7/29/2012	0
3/1/2010	0	7/30/2012	0
3/2/2010	0	7/31/2012	0.1
3/3/2010	0	8/1/2012	0.16
3/4/2010	0	8/2/2012	0
3/5/2010	0	8/3/2012	0
3/6/2010	0.85	8/4/2012	2.2
3/7/2010	1.1	8/5/2012	0.55
3/8/2010	1.45	8/6/2012	0
3/9/2010	0	8/7/2012	0
3/10/2010	0.05	8/8/2012	0
3/11/2010	0	8/9/2012	0.02
3/12/2010	0	8/10/2012	0.4
3/13/2010	0	8/11/2012	0
3/14/2010	0	8/12/2012	0
3/15/2010	0	8/13/2012	0.1
3/16/2010	0	8/14/2012	0.08
3/17/2010	0.03	8/15/2012	0
3/18/2010	0	8/16/2012	1
3/19/2010	0	8/17/2012	0.63
3/20/2010	0	8/18/2012	0.03
3/21/2010	0	8/19/2012	0

3/22/2010	0.05	8/20/2012	0
3/23/2010	0	8/21/2012	0
3/24/2010	0	8/22/2012	0.8
3/25/2010	0	8/23/2012	0.72
3/26/2010	0	8/24/2012	0.6
3/27/2010	0	8/25/2012	1.75
3/28/2010	0	8/26/2012	0
3/29/2010	0	8/27/2012	0
3/30/2010	0	8/28/2012	0
3/31/2010	0	8/29/2012	0
4/1/2010	0	8/30/2012	0
4/2/2010	0.09	8/31/2012	0
4/3/2010	0	9/1/2012	0
4/4/2010	0	9/2/2012	0
4/5/2010	0.05	9/3/2012	0
4/6/2010	0	9/4/2012	0
4/7/2010	0.02	9/5/2012	0
4/8/2010	0	9/6/2012	0
4/9/2010	0	9/7/2012	0
4/10/2010	0.7	9/8/2012	0
4/11/2010	0	9/9/2012	0
4/12/2010	0	9/10/2012	0
4/13/2010	0.7	9/11/2012	0
4/14/2010	2.43	9/12/2012	0
4/15/2010	2.17	9/13/2012	0
4/16/2010	0.9	9/14/2012	1.4
4/17/2010	0	9/15/2012	0
4/18/2010	0	9/16/2012	1.15
4/19/2010	0.05	9/17/2012	0
4/20/2010	0.05	9/18/2012	0
4/21/2010	0.87	9/19/2012	0
4/22/2010	0.29	9/20/2012	0.08
4/23/2010	0.08	9/21/2012	0
4/24/2010	2.04	9/22/2012	2
4/25/2010	0.48	9/23/2012	0.1
4/26/2010	0	9/24/2012	0
4/27/2010	0	9/25/2012	0
4/28/2010	0	9/26/2012	0.25
4/29/2010	0	9/27/2012	0
4/30/2010	0	9/28/2012	1.35
5/1/2010	0	9/29/2012	0
5/2/2010	0.4	9/30/2012	0
5/3/2010	0.3	10/1/2012	1

5/4/2010	0.2	10/2/2012	0.33
5/5/2010	0	10/3/2012	0.16
5/6/2010	0	10/4/2012	0
5/7/2010	0	10/5/2012	0.06
5/8/2010	0	10/6/2012	0
5/9/2010	5.09	10/7/2012	4.1
5/10/2010	0.4	10/8/2012	0
5/11/2010	0.3	10/9/2012	0.75
5/12/2010	0.5	10/10/2012	0
5/13/2010	0.46	10/11/2012	1.82
5/14/2010	0.19	10/12/2012	0.1
5/15/2010	0.55	10/13/2012	0.3
5/16/2010	0	10/14/2012	0.45
5/17/2010	0	10/15/2012	0.06
5/18/2010	1.5	10/16/2012	0.05
5/19/2010	0.05	10/17/2012	0
5/20/2010	0	10/18/2012	0.94
5/21/2010	1.86	10/19/2012	0.04
5/22/2010	0.05	10/20/2012	0.05
5/23/2010	0.9	10/21/2012	0.04
5/24/2010	0.75	10/22/2012	0.47
5/25/2010	0.8	10/23/2012	0.13
5/26/2010	2.2	10/24/2012	0.01
5/27/2010	0	10/25/2012	0.01
5/28/2010	0.02	10/26/2012	0.67
5/29/2010	0.06	10/27/2012	0.21
5/30/2010	1.05	10/28/2012	0
5/31/2010	0	10/29/2012	0
6/1/2010	0	10/30/2012	0
6/2/2010	1.38	10/31/2012	0.27
6/3/2010	0	11/1/2012	2
6/4/2010	0	11/2/2012	0.01
6/5/2010	0.05	11/3/2012	0
6/6/2010	0.1	11/4/2012	0
6/7/2010	0	11/5/2012	0
6/8/2010	0.05	11/6/2012	0
6/9/2010	1.43	11/7/2012	0.06
6/10/2010	0.27	11/8/2012	0.01
6/11/2010	0	11/9/2012	0
6/12/2010	0.03	11/10/2012	0.01
6/13/2010	0.4	11/11/2012	0.05
6/14/2010	0.6	11/12/2012	0.8
6/15/2010	0.7	11/13/2012	1.45

6/16/2010	0.07	11/14/2012	0.02
6/17/2010	0.14	11/15/2012	0.69
6/18/2010	0	11/16/2012	0.26
6/19/2010	0.1	11/17/2012	0
6/20/2010	0.3	11/18/2012	0.63
6/21/2010	0.1	11/19/2012	0.17
6/22/2010	0	11/20/2012	1.97
6/23/2010	0.56	11/21/2012	0.02
6/24/2010	0.05	11/22/2012	0.8
6/25/2010	0.54	11/23/2012	0.15
6/26/2010	0.5	11/24/2012	0.49
6/27/2010	0.35	11/25/2012	0.85
6/28/2010	0.2	11/26/2012	0.1
6/29/2010	0.05	11/27/2012	0
6/30/2010	0.45	11/28/2012	0
7/1/2010	0	11/29/2012	0.07
7/2/2010	0	11/30/2012	0.12
7/3/2010	0.03	12/1/2012	0.01
7/4/2010	0	12/2/2012	0.03
7/5/2010	0	12/3/2012	0
7/6/2010	0	12/4/2012	0.8
7/7/2010	0.36	12/5/2012	0.78
7/8/2010	0	12/6/2012	0.08
7/9/2010	0	12/7/2012	0.07
7/10/2010	1.45	12/8/2012	0.06
7/11/2010	0	12/9/2012	0
7/12/2010	0	12/10/2012	0
7/13/2010	0	12/11/2012	0
7/14/2010	0.45	12/12/2012	0.3
7/15/2010	0.4	12/13/2012	0.05
7/16/2010	1.45	12/14/2012	0.13
7/17/2010	0.5	12/15/2012	0
7/18/2010	1.08	12/16/2012	0.05
7/19/2010	0.05	12/17/2012	0.01
7/20/2010	0	12/18/2012	0
7/21/2010	0.8	12/19/2012	
7/22/2010	0	12/20/2012	0.07
7/23/2010	0.27	12/21/2012	0.01
7/24/2010	1.33	12/22/2012	0.14
7/25/2010	0	12/23/2012	0.18
7/26/2010	0	12/24/2012	0.32
7/27/2010	0	12/25/2012	0
7/28/2010	0.1	12/26/2012	0.05

7/29/2010	0.26	12/27/2012	0
7/30/2010	0	12/28/2012	0.6
7/31/2010	0	12/29/2012	0
8/1/2010	0	12/30/2012	0
8/2/2010	0.4	12/31/2012	0
8/3/2010	0	1/1/2013	0.05
8/4/2010	0.95	1/2/2013	0
8/5/2010	0	1/3/2013	0
8/6/2010	0	1/4/2013	0.1
8/7/2010	0.1	1/5/2013	0.08
8/8/2010	0	1/6/2013	0.05
8/9/2010	0	1/7/2013	0.01
8/10/2010	0	1/8/2013	0
8/11/2010	2.95	1/9/2013	0.06
8/12/2010	0.12	1/10/2013	0
8/13/2010	0.78	1/11/2013	0.22
8/14/2010	1.85	1/12/2013	0.3
8/15/2010	0.1	1/13/2013	0.45
8/16/2010	0.09	1/14/2013	0.02
8/17/2010	0.22	1/15/2013	0.15
8/18/2010	0	1/16/2013	0.24
8/19/2010	0	1/17/2013	0.01
8/20/2010	0	1/18/2013	0.01
8/21/2010	0	1/19/2013	0
8/22/2010	0	1/20/2013	0
8/23/2010	0	1/21/2013	0.01
8/24/2010	0	1/22/2013	0.03
8/25/2010	0	1/23/2013	0.01
8/26/2010	0.4	1/24/2013	0
8/27/2010	0.35	1/25/2013	0
8/28/2010	0	1/26/2013	0
8/29/2010	0	1/27/2013	0.1
8/30/2010	0.15	1/28/2013	0.1
8/31/2010	2	1/29/2013	0.52
9/1/2010	0.25	1/30/2013	0.03
9/2/2010	0	1/31/2013	0.25
9/3/2010	1.14	2/1/2013	0
9/4/2010	0	2/2/2013	0
9/5/2010	0.05	2/3/2013	0.08
9/6/2010	0.15	2/4/2013	0
9/7/2010	0.05	2/5/2013	0.05
9/8/2010	1.23	2/6/2013	0.7
9/9/2010	0	2/7/2013	0.01

9/10/2010	0	2/8/2013	0.01
9/11/2010	0.7	2/9/2013	0.48
9/12/2010	0.43	2/10/2013	0.01
9/13/2010	0	2/11/2013	0.05
9/14/2010	1.5	2/12/2013	0.4
9/15/2010	0.05	2/13/2013	0.01
9/16/2010	0.06	2/14/2013	0
9/17/2010	0	2/15/2013	0
9/18/2010	0.15	2/16/2013	0
9/19/2010	0	2/17/2013	0
9/20/2010	0	2/18/2013	0
9/21/2010	0.5	2/19/2013	
9/22/2010	0	2/20/2013	0
9/23/2010	0	2/21/2013	0.04
9/24/2010	0	2/22/2013	0.21
9/25/2010	0	2/23/2013	0.01
9/26/2010	0	2/24/2013	0
9/27/2010	1.3	2/25/2013	0
9/28/2010	0.04	2/26/2013	0
9/29/2010	0	2/27/2013	0
9/30/2010	0	2/28/2013	0
10/1/2010	2.14	3/1/2013	0
10/2/2010	0.7	3/2/2013	0
10/3/2010	0.12	3/3/2013	0
10/4/2010	0.1	3/4/2013	0.02
10/5/2010	0.07	3/5/2013	0.02
10/6/2010	1.43	3/6/2013	0.16
10/7/2010	0	3/7/2013	0.02
10/8/2010	1.3	3/8/2013	0.02
10/9/2010	0.3	3/9/2013	0.02
10/10/2010	0	3/10/2013	0.04
10/11/2010	0	3/11/2013	0.08
10/12/2010	0	3/12/2013	0.01
10/13/2010	0	3/13/2013	0
10/14/2010	1.26	3/14/2013	0
10/15/2010	0.7	3/15/2013	0
10/16/2010	0	3/16/2013	0
10/17/2010	0	3/17/2013	4
10/18/2010	0	3/18/2013	0.03
10/19/2010	0	3/19/2013	0.12
10/20/2010	0.25	3/20/2013	0.05
10/21/2010	0	3/21/2013	0.05
10/22/2010	0	3/22/2013	0

10/23/2010	0	3/23/2013	0
10/24/2010	0	3/24/2013	1
10/25/2010	0	3/25/2013	0.2
10/26/2010	0	3/26/2013	0
10/27/2010	0.1	3/27/2013	0
10/28/2010	0.37	3/28/2013	0
10/29/2010	0	3/29/2013	0
10/30/2010	0.05	3/30/2013	0.45
10/31/2010	0.75	3/31/2013	2.01
11/1/2010	1.1	4/1/2013	0.22
11/2/2010	0.85	4/2/2013	0
11/3/2010	0	4/3/2013	0
11/4/2010	0	4/4/2013	0
11/5/2010	0	4/5/2013	0.86
11/6/2010	1.4	4/6/2013	0
11/7/2010	0	4/7/2013	0
11/8/2010	0.85	4/8/2013	0.26
11/9/2010	0	4/9/2013	0
11/10/2010	0	4/10/2013	0
11/11/2010	0	4/11/2013	0
11/12/2010	0.54	4/12/2013	0
11/13/2010	0.13	4/13/2013	0
11/14/2010	0	4/14/2013	0.01
11/15/2010	0	4/15/2013	0.28
11/16/2010	0	4/16/2013	0.28
11/17/2010	0	4/17/2013	1.27
11/18/2010	0	4/18/2013	0.09
11/19/2010	0.16	4/19/2013	0
11/20/2010	0.23	4/20/2013	0.08
11/21/2010	0	4/21/2013	0
11/22/2010	0.13	4/22/2013	0
11/23/2010	0.6	4/23/2013	0
11/24/2010	0.15	4/24/2013	0.4
11/25/2010	0	4/25/2013	0.3
11/26/2010	0	4/26/2013	0.01
11/27/2010	0	4/27/2013	0
11/28/2010	0	4/28/2013	0.1
11/29/2010	0	4/29/2013	1
11/30/2010	0	4/30/2013	0
12/1/2010	0	5/1/2013	1.53
12/2/2010	0	5/2/2013	1.58
12/3/2010	0	5/3/2013	0.01
12/4/2010	0	5/4/2013	0

12/5/2010	0	5/5/2013	0
12/6/2010	0	5/6/2013	0.5
12/7/2010	0	5/7/2013	1.6
12/8/2010	2.4	5/8/2013	2.04
12/9/2010	0.1	5/9/2013	1.31
12/10/2010	0	5/10/2013	0
12/11/2010	0	5/11/2013	2.54
12/12/2010	0	5/12/2013	0.1
12/13/2010	0	5/13/2013	0
12/14/2010	0	5/14/2013	0.01
12/15/2010	1.57	5/15/2013	0.06
12/16/2010	1.25	5/16/2013	0.5
12/17/2010	0.9	5/17/2013	0.02
12/18/2010	0	5/18/2013	2.45
12/19/2010	0	5/19/2013	0.02
12/20/2010	0	5/20/2013	0
12/21/2010	0.7	5/21/2013	0.06
12/22/2010	0.42	5/22/2013	0.01
12/23/2010	0.06	5/23/2013	0.91
12/24/2010	0	5/24/2013	0.01
12/25/2010	0	5/25/2013	0.01
12/26/2010	0.05	5/26/2013	0.3
12/27/2010	0	5/27/2013	1.2
12/28/2010	0.4	5/28/2013	0.09
12/29/2010	1.97	5/29/2013	0.11
12/30/2010	0.1	5/30/2013	0.62
12/31/2010	0	5/31/2013	0