Summary Report for the Determination of Conserved Water Associated with the 2009 Webb Tract Water Transfer Pilot Study

Delta Wetlands Properties (DW), the Metropolitan Water District of Southern California (MWD), and the Department of Water Resources (DWR) executed an agreement providing for the conveyance of water made available by idling land on Webb Tract in the Sacramento-San Joaquin Delta in 2009. Due to the significant amount of uncertainty in the quantity of conserved water generated through crop idling in the Delta, the transfer parties agreed to conduct a pilot study. The goal of the Webb Tract pilot study was to determine the amount of water conserved by idling 4,064 acres of land on Webb Tract in 2009. For this pilot study, conserved water is the amount of evapotranspiration (ET) of corn on Webb Tract, based on measured ET of corn on adjacent Twitchell Island, less soil evaporation and weed ET on the pre-determined Webb Tract acreage.

DW contracted with the University of California, Davis (UCD), to conduct the Webb Tract pilot study. ET estimates on Webb Tract were developed using the Surface Renewal (SR) method. Installation of instrumentation and data collection began on May 14 and ended on September 30. Two stations collected ET data on Webb Tract: a base station on Field 23 set up for the duration of the study period and a roving station that moved to different fields throughout the period, including fields that were primarily bare soil, and fields of significant vegetation.

The results of this data collection effort were daily ET values for the area upwind of the instrumentation, approximately 120 meters by 120 meters. DWR used satellite imagery and image processing techniques to correlate the SR station measured ET with the vegetation grown in the same area upwind of the instrumentation. Landsat 5 and Landsat 7 satellite imagery of Webb Tract were available for 16 dates during the study period. DWR used the satellite data to develop a Normalized Difference Vegetation Index (NDVI). NDVI is a common remote sensing index used to help estimate vegetation characteristics, such as leaf area index and canopy cover. DWR staff developed a regression equation for the Landsat 5 and Landsat 7 datasets using the NDVI and ET data. We used the NDVI/ET regression equations to estimate daily ET for each field. From this data set, we calculated monthly ET depths and volumes for the entire 4,064 acres in the Webb Tract pilot study. See the comparison tables below.

During the same period, DWR collected SR derived ET estimates from corn growing on Twitchell Island as part of an ongoing DWR project that is collecting SR and California Irrigation Management Information System (CIMIS) data throughout California. On Twitchell Island, the SR station is located in a cornfield toward the western side of the island and the CIMIS station is located on pasture approximately 0.6 miles to the east. The Twitchell Island cornfield is approximately 4-5 miles to the northwest of Webb Tract. Due to the close proximity, and the analogous topographic and climatic conditions, we used the measured 2009 ET of corn on Twitchell Island to represent the ET of corn had it been planted on Webb Tract in 2009.

It is important to note that conserved water, or “real water”, for transfer is normally based on the Evapotranspiration of Applied Water (ETAW), the amount of crop ET provided by applied irrigation water. ETAW is the total ET minus the amount of irrigation water provided by

precipitation (effective precipitation) and seepage. The goal of the Webb Tract pilot study was to evaluate the difference in total ET between corn grown on Webb Tract and that of the idle fields irrespective of the source of the water consistent with the agreement between DW, MWD, and DWR. The agreement defined the calculation of conserved water for transfer as the difference between crop ET and the evaporation and transpiration from idled land. Effective precipitation and seepage rates are not included in these calculations. There is significant seepage from the surrounding waterways that satisfies a portion of the consumptive use, however, the effective precipitation and seepage estimations are beyond the scope of this pilot study. For this pilot study, we assumed both effective precipitation and seepage were the same for the corn and idled land. The SR measurements of ET account for these assumptions on both Webb Tract and Twitchell Islands. However, this assumption may not be correct, as effective precipitation and seepage rates vary throughout the Delta. The seepage component of crop water use in the Delta lowlands is uncertain, resulting in a limitation for using ETAW to calculate real water savings from future crop idling transfer proposals in this region. We recommend that future transfers from property within the Delta lowlands would then necessarily rely on accepted direct measurement techniques, such as the surface renewal method employed on Webb Tract and Twitchell Island, to calculate the amount of conserved water made available.

The following tables contain the monthly ET, not ETAW, for corn measured on Twitchell Island and applied to the idled acreage on Webb Tract, the ET measured from the idled land on Webb Tract Island, and the difference, being conserved water, by month. The totals covering the entire study period are included (top table is total volume in acre-feet; bottom table is depth as acre-feet/acre).

Comparison of Twitchell Corn ET Applied to Webb Idled Acreages and Webb Idle ET (acre-feet) 1_/

Month	Twitch Corn ET (AF)	Webb Idled Land ET (AF)	Conserved Water (AF) 2_/
May	487.7	690.8	-203.1
June	1,706.8	1,178.5	528.3
July	2,722.8	1,544.2	1,178.6
August	2,478.9	1,584.9	894.0
September	1,747.4	1,381.7	365.7
Total	**9,143.6**	**6,380.1**	**2,763.5**

1_/ Values are evaportranspiration (ET), not evaportranspiration of applied water (ETAW).
2_/ The conserved water in May was negative because Twitchell was weed free with corn seedlings, lower ET, and Webb Tract's soil had a rougher surface with varying amounts of vegetation (higher ET).

Comparison of Twitchell Corn ET Applied to Webb Idled Acreages and Webb Idle ET (acre-feet/acre) 1_/

Month	Twitch Corn ET (AF/A)	Webb Idled Land ET (AF/A)	Conserved Water (AF/A) 2_/
May	0.12	0.17	-0.05
June	0.42	0.29	0.13
July	0.67	0.38	0.30
August	0.61	0.39	0.21
September	0.43	0.34	0.09
Total	**2.25**	**1.57**	**0.68**

1_/ Values are evaportranspiration (ET), not evaportranspiration of applied water (ETAW).
2_/ The conserved water in May was negative because Twitchell was weed free with corn seedlings, lower ET, and Webb Tract's soil had a rougher surface with varying amounts of vegetation (higher ET).

It is important to note that the above data are for the duration that surface renewal stations operated on Webb Tract, May 15 to September 30, 2009. The conserved water for the period stipulated in the pilot study agreement between DW, MWD, and DWR as potentially transferable, July 1, 2009 through September 30, 2009, is 2438.3 acre-feet or 0.60 acre-feet/acre for the pre-determined 4,063.79 acres fallowed. This report relates to the data and methods employed in the calculation of conserved water. Issues of transferability and export of the conserved water are beyond the scope of this report, but can be found in DWR's pending comprehensive assessment document covering the 2009 Webb Tract crop idling pilot study outcome and recommendations for future Delta crop fallowing water transfers.

Date	ETo (mm)	ETo (in)	ETo (AF/A)	ETo (AF)	ETc (mm)	ETc (in)	ETc (AF/A)	ETc (AF)	Kc
5/15/2009	6.63	0.261024	0.021752	88.395432	2.263756	0.089124	0.007427	30.18186	0.341441
5/16/2009	6.48	0.255118	0.0212598	86.395535	2.21254	0.087108	0.007259	29.499012	0.341441
5/17/2009	6.91	0.272047	0.0226706	92.128573	2.35936	0.092888	0.0077407	31.456509	0.341441
5/18/2009	7.28	0.286614	0.0238845	97.061651	2.485693	0.097862	0.0081552	33.140866	0.341441
5/19/2009	6.85	0.269685	0.0224738	91.328614	2.338874	0.092082	0.0076735	31.18337	0.341441
5/20/2009	6.18	0.243307	0.0202756	82.395742	2.110108	0.083075	0.0069229	28.133317	0.341441
5/21/2009	6.41	0.252362	0.0210302	85.46225	2.188639	0.086167	0.0071806	29.18035	0.341441
5/22/2009	6.04	0.237795	0.0198163	80.529172	2.062306	0.081193	0.0067661	27.495993	0.341441
5/23/2009	5.41	0.212992	0.0177493	72.129606	1.847198	0.072724	0.0060604	24.628033	0.341441
5/24/2009	4.98	0.196063	0.0163386	66.396569	1.700378	0.066944	0.0055787	22.670537	0.341441
5/25/2009	5.8	0.228346	0.0190289	77.329337	1.98036	0.077967	0.0064972	26.403437	0.341441
5/26/2009	6.64	0.261417	0.0217848	88.528759	2.267171	0.089259	0.0074382	30.227383	0.341441
5/27/2009	7.25	0.285433	0.0237861	96.661672	2.232857	0.087908	0.0073256	30.227383	0.30798
5/28/2009	6.89	0.27126	0.022605	91.86192	1.595632	0.06282	0.005235	30.227383	0.231587
5/29/2009	6.18	0.243307	0.0202756	82.395742	1.908136	0.075123	0.0062603	30.227383	0.30876
5/30/2009	5.81	0.22874	0.0190617	77.462664	2.472461	0.097341	0.0081117	30.227383	0.425553
5/31/2009	5.55	0.218504	0.0182087	73.996176	2.404967	0.094684	0.0078903	32.064576	0.433327
Average	**6.311176**	**0.248472**	**0.020706**	**84.144671**	**2.142967**	**0.084369**	**0.0070307**	**29.245575**	**0.341441**
Sum	**107.29**	**4.224016**	**0.3520013**	**1430.4594**	**36.43044**	**1.434269**	**0.1195224**	**497.17477**	

Notes:
The cells highlighted in light blue indicate Surface Renewal estimated ETc.
The cells highlighted in yellow are ETc values estimated using an average Kc value from 5/27 - 5/31 (0.341441) and the daily ETo value. ETc = ETo * Kc
The cells highlited in orange distinguish the ETc totals from ETo and Kc.

Date	ETo (mm)	ETo (in)	ETo (AF/A)	ETo (AF)	ETc (mm)	ETc (in)	ETc (AF/A)	ETc (AF)	Kc
6/1/2009	5.23	0.205906	0.017158793	69.72972999	2.259296	0.088949	0.007412389	30.12239213	0.431988
6/2/2009	5.51	0.216929	0.018077428	73.46287041	1.806733	0.071131	0.0059276	24.08852195	0.327901
6/3/2009	5.57	0.219291	0.018274278	74.26282907	2.460744	0.09688	0.008073308	32.80822642	0.441785
6/4/2009	5.12	0.201575	0.0167979	68.26313911	4.059545	0.159825	0.013318719	54.12447618	0.79288
6/5/2009	5.34	0.210236	0.017519685	71.19632087	2.72093	0.107123	0.008926936	36.27719458	0.509537
6/6/2009	5.86	0.230709	0.019225722	78.12929593	2.657419	0.104623	0.008718566	35.43042178	0.453484
6/7/2009	6.19	0.243701	0.020308399	82.52906857	2.692876	0.106019	0.008834896	35.90316295	0.435037
6/8/2009	6.49	0.255512	0.021292651	86.52886188	2.61346	0.102892	0.008574344	34.84433516	0.40269
6/9/2009	5.86	0.230709	0.019225722	78.12929593	2.439687	0.096051	0.008004223	32.52748224	0.416329
6/10/2009	5.85	0.230315	0.019192913	77.99596949	2.68552	0.105729	0.008810761	35.80508155	0.459063
6/11/2009	6.08	0.23937	0.019947507	81.06247769	2.76181	0.108733	0.009061057	36.82223394	0.454245
6/12/2009	5.34	0.210236	0.017519685	71.19632087	2.32159	0.091401	0.007616764	30.95292762	0.434755
6/13/2009	6.33	0.249213	0.020767717	84.39563878	2.868078	0.112916	0.009409705	38.23906623	0.453093
6/14/2009	6.33	0.249213	0.020767717	84.39563878	3.194819	0.12578	0.010481688	42.59537915	0.504711
6/15/2009	4.87	0.191732	0.01597769	64.92997802	2.466672	0.097113	0.008092757	32.8872658	0.506504
6/16/2009	6.05	0.238189	0.019849081	80.66249836	3.484027	0.137166	0.011430534	46.45129143	0.575872
6/17/2009	6.21	0.244488	0.020374016	82.79572146	3.926621	0.154591	0.012882613	52.35223591	0.632306
6/18/2009	7.5	0.295276	0.024606299	99.99483268	5.584021	0.219843	0.018320279	74.44976635	0.744536
6/19/2009	8.59	0.338189	0.028182415	114.527415	5.489237	0.216112	0.018009309	73.18605116	0.639026
6/20/2009	6.84	0.269291	0.022440945	91.1952874	4.225939	0.166376	0.013864628	56.34293653	0.617827
6/21/2009	6.85	0.269685	0.022473753	91.32861385	4.78531	0.188398	0.015699835	63.80083055	0.698585
6/22/2009	7.87	0.309843	0.02582021	104.9279111	5.891045	0.231931	0.019327575	78.54320688	0.748544
6/23/2009	7.46	0.293701	0.024475066	99.4615269	6.072414	0.239071	0.019922617	80.96133215	0.813996
6/24/2009	8.01	0.315354	0.026279528	106.7944813	5.74112	0.226028	0.018835694	76.54430471	0.716744
6/25/2009	7.24	0.285039	0.023753281	96.52834514	5.264948	0.207281	0.01727345	70.19567486	0.727203
6/26/2009	6.28	0.247244	0.020603675	83.72900656	5.781969	0.227637	0.018969715	77.08893655	0.920696
6/27/2009	7.41	0.291732	0.024311024	98.79489469	7.229599	0.28463	0.023719155	96.38966664	0.975654
6/28/2009	7.99	0.314567	0.026213911	106.5278284	8.843396	0.348165	0.029013766	117.9058528	1.106808
6/29/2009	8.79	0.346063	0.028838583	117.1939439	9.073688	0.357232	0.029769319	120.9762608	1.032274
6/30/2009	6.84	0.269291	0.022440945	91.1952874	7.357702	0.289673	0.024139442	98.09762266	1.075687
Average	**6.53**	**0.257087**	**0.021423885**	**87.06216765**	**4.292007**	**0.168977**	**0.014081388**	**57.22380459**	**0.634992**
Sum	**195.9**	**7.712598**	**0.642716535**	**2611.86503**	**128.7602**	**5.0693**	**0.422441646**	**1716.714138**	

Notes:
The cells highlighted in light blue indicate Surface Renewal estimated ETc.
The cells highlighted in salmon are sonic derived ETc values.
The cells highlited in orange distinguish the ETc totals from ETo and Kc.

Date	ETo (mm)	ETo (in)	ETo (AF/A)	ETo (AF)	ETc (mm)	ETc (in)	ETc (AF/A)	ETc (AF)	Kc
7/1/2009	7.48	0.294488	0.024540682	99.72817979	6.75577	0.265975	0.0221646	90.07228009	0.903178
7/2/2009	7.62	0.3	0.025	101.59475	6.968308	0.274343	0.022861904	92.90597763	0.914476
7/3/2009	7.24	0.285039	0.023753281	96.52834514	7.083099	0.278862	0.023238514	94.43644099	0.978329
7/4/2009	7.17	0.282283	0.023523622	95.59506004	5.558828	0.218852	0.018237626	74.11388096	0.77529
7/5/2009	6.58	0.259055	0.021587927	87.72879987	4.896701	0.192784	0.016065292	65.28597401	0.744179
7/6/2009	7.43	0.29252	0.02437664	99.06154757	6.493869	0.255664	0.021305345	86.58044594	0.874007
7/7/2009	6.88	0.270866	0.022572178	91.72859318	5.994957	0.236022	0.019668493	79.92862652	0.87136
7/8/2009	7.42	0.292126	0.024343832	98.92822113	7.308992	0.287756	0.023979631	97.4481862	0.985039
7/9/2009	7.22	0.284252	0.023687664	96.26169226	6.489032	0.255474	0.021289474	86.51595251	0.898758
7/10/2009	7.05	0.277559	0.023129921	93.99514272	6.222359	0.244975	0.020414564	82.9604991	0.882604
7/11/2009	6.18	0.243307	0.020275591	82.39574213	5.301209	0.208709	0.017392417	70.6791309	0.857801
7/12/2009	8.42	0.331496	0.027624672	112.2608655	7.215155	0.284061	0.023671768	96.19709257	0.856907
7/13/2009	7.83	0.308268	0.025688976	104.3946053	7.793661	0.306837	0.025569754	103.91011	0.995359
7/14/2009	8.21	0.323228	0.026935696	109.4610102	9.037551	0.355809	0.029650756	120.4944471	1.100798
7/15/2009	7.83	0.308268	0.025688976	104.3946053	8.438893	0.33224	0.027686657	112.5127602	1.077764
7/16/2009	7.29	0.287008	0.023917323	97.19497736	8.09232	0.318595	0.026549607	107.8920258	1.110058
7/17/2009	7.45	0.293307	0.024442257	99.32820046	8.749531	0.34447	0.028705811	116.6543896	1.174434
7/18/2009	7.29	0.287008	0.023917323	97.19497736	8.233131	0.324139	0.027011584	109.769403	1.129373
7/19/2009	7.59	0.298819	0.024901575	101.1947707	8.859818	0.348812	0.029067645	118.1248059	1.167301
7/20/2009	8.08	0.31811	0.026509186	107.7277664	7.215993	0.284094	0.023674519	96.2082736	0.893068
7/21/2009	7.16	0.28189	0.023490814	95.4617336	6.410961	0.2524	0.021033336	85.47505985	0.895386
7/22/2009	6.98	0.274803	0.022900262	93.06185761	6.263658	0.246601	0.020550059	83.51112426	0.897372
7/23/2009	6.49	0.255512	0.021292651	86.52886188	6.066669	0.238845	0.01990377	80.88474103	0.934772
7/24/2009	6.17	0.242913	0.020242782	82.26241568	4.640973	0.182715	0.015226288	61.87643658	0.752184
7/25/2009	6.3	0.248031	0.020669291	83.99565945	6.399272	0.25194	0.020994986	85.31921229	1.015757
7/26/2009	6.77	0.266535	0.022211286	90.2620023	7.283384	0.286747	0.023895616	97.10676386	1.075832
7/27/2009	7.39	0.290945	0.024245407	98.5282418	7.464928	0.293895	0.024491234	99.52723188	1.010139
7/28/2009	6.58	0.259055	0.021587927	87.72879987	4.861231	0.191387	0.015948921	64.81306717	0.738789
7/29/2009	6.06	0.238583	0.01988189	80.7958248	4.111552	0.161872	0.013489344	54.81786061	0.678474
7/30/2009	6	0.23622	0.019685039	79.99586614	4.172341	0.164265	0.013688783	55.62834066	0.69539
7/31/2009	6.61	0.260236	0.021686352	88.1287792	5.253282	0.206822	0.017235177	70.04013845	0.794748
Average	**7.121613**	**0.280378**	**0.023364872**	**94.94993209**	**6.633465**	**0.26116**	**0.021763338**	**88.44163482**	**0.925127**
Sum	**220.77**	**8.691732**	**0.724311024**	**2943.447895**	**205.6374**	**8.095962**	**0.674663474**	**2741.690679**	

Notes:
The cells highlighted in salmon are sonic derived ETc values.
The cells highlited in orange distinguish the ETc totals from ETo and Kc.

Date	ETo (mm)	ETo (in)	ETo (AF/A)	ETo (AF)	ETc (mm)	ETc (in)	ETc (AF/A)	ETc (AF)	Kc
8/1/2009	6.92	0.272441	0.022703412	92.26189895	5.613892	0.221019	0.01841828	74.84802181	0.811256
8/2/2009	6.24	0.245669	0.020472441	83.19570079	4.548801	0.179087	0.014923887	60.64754364	0.728974
8/3/2009	5.92	0.233071	0.019422572	78.92925459	4.543345	0.178872	0.014905988	60.57480485	0.767457
8/4/2009	6.1	0.240157	0.020013123	81.32913058	5.353049	0.21075	0.017562497	71.37029953	0.877549
8/5/2009	6.59	0.259449	0.021620735	87.86212631	5.030974	0.19807	0.016505821	67.07619042	0.763426
8/6/2009	5.85	0.230315	0.019192913	77.99596949	4.53786	0.178656	0.014887992	60.5016716	0.775703
8/7/2009	5.72	0.225197	0.018766404	76.26272572	5.60855	0.220809	0.018400753	74.77679806	0.980516
8/8/2009	6.15	0.242126	0.020177165	81.9957628	6.840724	0.26932	0.022443321	91.20494476	1.112313
8/9/2009	6.28	0.247244	0.020603675	83.72900656	6.774138	0.266698	0.022224863	90.31717721	1.078684
8/10/2009	6.47	0.254724	0.021227034	86.26220899	7.072258	0.278435	0.023202945	94.29189631	1.093085
8/11/2009	6.65	0.261811	0.021817585	88.66208497	5.894057	0.232049	0.019337457	78.58336443	0.886324
8/12/2009	7.17	0.282283	0.023523622	95.59506004	7.799122	0.307052	0.025587669	103.9829152	1.087744
8/13/2009	8.47	0.333465	0.027788714	112.9274977	8.141548	0.320533	0.026711115	108.5483632	0.961222
8/14/2009	7.21	0.283858	0.023654856	96.12836581	6.624837	0.26082	0.021735028	88.32658947	0.91884
8/15/2009	6.63	0.261024	0.021751969	88.39543209	7.1125	0.28002	0.023334973	94.82842955	1.072775
8/16/2009	6.59	0.259449	0.021620735	87.86212631	7.363654	0.289908	0.024158969	98.17697526	1.117398
8/17/2009	6.46	0.254331	0.021194226	86.12888255	6.703037	0.263899	0.021991592	89.36921259	1.037622
8/18/2009	5.93	0.233465	0.019455381	79.06258104	5.926999	0.233346	0.019445536	79.02257298	0.999494
8/19/2009	6.33	0.249213	0.020767717	84.39563878	4.780557	0.188211	0.015684241	63.73746074	0.755222
8/20/2009	5.72	0.225197	0.018766404	76.26272572	4.087855	0.160939	0.013411597	54.50191464	0.71466
8/21/2009	6.01	0.236614	0.019717848	80.12919259	6.246678	0.245932	0.020494351	83.28474046	1.039381
8/22/2009	6.96	0.274016	0.022834646	92.79520472	6.462235	0.254419	0.02120156	86.15868717	0.928482
8/23/2009	5.86	0.230709	0.019225722	78.12929593	4.33842	0.170804	0.014233661	57.84260867	0.740345
8/24/2009	5.93	0.233465	0.019455381	79.06258104	5.312159	0.20914	0.017428343	70.82512492	0.895811
8/25/2009	5.65	0.222441	0.018536745	75.32944062	5.961818	0.234717	0.019559771	79.48680372	1.055189
8/26/2009	6.08	0.23937	0.019947507	81.06247769	6.092597	0.239866	0.019988835	81.23042833	1.002072
8/27/2009	6.42	0.252756	0.021062992	85.59557677	5.856428	0.230568	0.019214001	78.0816655	0.912216
8/28/2009	5.82	0.229134	0.019094488	77.59599016	5.390478	0.212224	0.017685296	71.86932739	0.926199
8/29/2009	7.41	0.291732	0.024311024	98.79489469	8.330408	0.327969	0.027330733	111.066361	1.124212
8/30/2009	6.84	0.269291	0.022440945	91.1952874	6.229581	0.245259	0.020438258	83.05678694	0.910757
8/31/2009	5.47	0.215354	0.017946194	72.92956463	4.016983	0.158149	0.013179077	53.55700156	0.734366
Average	**6.382258**	**0.25127**	**0.020939167**	**85.09237697**	**5.954695**	**0.234437**	**0.0195364**	**79.39182845**	**0.929332**
Sum	**197.85**	**7.78937**	**0.649114173**	**2637.863686**	**184.5955**	**7.267541**	**0.605628411**	**2461.146682**	

Notes:
The cells highlighted in salmon are sonic derived ETc values.
The cells highlited in orange distinguish the ETc totals from ETo and Kc.

Date	ETo (mm)	ETo (in)	ETo (AF/A)	ETo (AF)	ETc (mm)	ETc (in)	ETc (AF/A)	ETc (AF)	Kc
9/1/2009	5.46	0.214961	0.017913386	72.79623819	5.567689	0.2192	0.018266695	74.23201087	1.019723
9/2/2009	5.59	0.220079	0.018339895	74.52948196	6.525241	0.256899	0.021408272	86.99872104	1.167306
9/3/2009	7.63	0.300394	0.025032808	101.7280764	8.40969	0.33109	0.027590846	112.1234035	1.102187
9/4/2009	6.92	0.272441	0.022703412	92.26189895	5.934514	0.233642	0.019470189	79.12276123	0.857589
9/5/2009	5.97	0.235039	0.019586614	79.59588681	4.085071	0.16083	0.013402465	54.46480329	0.684267
9/6/2009	5.86	0.230709	0.019225722	78.12929593	5.206586	0.204984	0.017081975	69.41755892	0.888496
9/7/2009	5.86	0.230709	0.019225722	78.12929593	5.926166	0.233314	0.019442803	79.01146819	1.011291
9/8/2009	5.34	0.210236	0.017519685	71.19632087	5.539665	0.218097	0.018174754	73.85838414	1.03739
9/9/2009	5.59	0.220079	0.018339895	74.52948196	5.191419	0.204387	0.017032216	69.21534974	0.928698
9/10/2009	5.38	0.211811	0.017650919	71.72962664	5.335058	0.210042	0.017503472	71.13043378	0.991647
9/11/2009	5.82	0.229134	0.019094488	77.59599016	5.827587	0.229433	0.019119379	77.69713932	1.001304
9/12/2009	3.98	0.156693	0.013057743	53.06392454	2.819481	0.111003	0.009250267	37.59114186	0.708412
9/13/2009	3.55	0.139764	0.011646982	47.33088747	2.859948	0.112596	0.009383033	38.13067522	0.805619
9/14/2009	4.71	0.185433	0.015452756	62.79675492	3.859009	0.151929	0.01266079	51.45079244	0.819322
9/15/2009	4.80	0.188976	0.015748031	63.99669291	4.782898	0.188303	0.015691924	63.76868431	0.996437
9/16/2009	5.37	0.211417	0.01761811	71.5963002	4.51216	0.177644	0.014803674	60.15902077	0.840253
9/17/2009	5.10	0.200815	0.016734582	68.00582887	3.851416	0.151631	0.012635879	51.34955896	0.755076
9/18/2009	5.07	0.199421	0.016618394	67.53366217	4.852991	0.191063	0.015921885	64.70319761	0.958088
9/19/2009	5.25	0.206587	0.017215557	69.96040767	3.874916	0.152556	0.012712978	51.66287186	0.738459
9/20/2009	5.92	0.233188	0.019432312	78.96883355	4.051995	0.159527	0.013293947	54.02380789	0.684116
9/21/2009	6.32	0.248873	0.020739391	84.28052887	4.380363	0.172455	0.014371271	58.40182841	0.692946
9/22/2009	5.42	0.213386	0.017782152	72.26293241	4.451635	0.175261	0.014605101	59.35206449	0.821335
9/23/2009	6.05	0.238189	0.019849081	80.66249836	4.381062	0.172483	0.014373561	58.41113517	0.724142
9/24/2009	5.72	0.225197	0.018766404	76.26272572	3.530867	0.139011	0.011584209	47.07579174	0.617284
9/25/2009	4.43	0.174409	0.014534121	59.0636145	3.148329	0.12395	0.010329164	41.97555479	0.710684
9/26/2009	4.45	0.175197	0.014599738	59.33026739	2.963157	0.11666	0.009721645	39.50672416	0.665878
9/27/2009	4.70	0.185039	0.015419948	62.66342848	3.362	0.132362	0.011030183	44.82434688	0.715319
9/28/2009	5.56	0.218898	0.01824147	74.12950262	2.082679	0.081995	0.006832936	27.76761583	0.374583
9/29/2009	5.56	0.218898	0.01824147	74.12950262	1.810514	0.07128	0.005940007	24.13894075	0.325632
9/30/2009	4.45	0.175197	0.014599738	59.33026739	2.425185	0.09548	0.007956643	32.33412546	0.544985
Average	**5.394254**	**0.212372**	**0.017697684**	**71.91967182**	**4.384976**	**0.172637**	**0.014386405**	**58.46333042**	**0.806282**
Sum	**161.8276**	**6.371166**	**0.530930524**	**2157.590155**	**131.5493**	**5.179106**	**0.431592162**	**1753.899913**	

Notes:
The cells highlighted in salmon are sonic derived ETc values.
The cells highlited in orange distinguish the ETc totals from ETo and Kc.

Month	ETo (mm)	ETo (in)	ETo (AF/A)	ETo (AF)	ETc (mm)	ETc (in)	ETc (AF/A)	ETc (AF)
May	107.29	4.224016	0.3520013	1430.459	36.43044	1.434269	0.1195224	497.1748
June	195.9	7.712598	0.6427165	2611.865	128.7602	5.0693	0.4224416	1716.714
July	220.77	8.691732	0.724311	2943.448	205.6374	8.095962	0.6746635	2741.691
August	197.85	7.78937	0.6491142	2637.864	184.5955	7.267541	0.6056284	2461.147
September	161.8276	6.371166	0.5309305	2157.59	131.5493	5.179106	0.4315922	1753.9
Total	883.6376	34.78888	2.8990736	11781.23	686.9729	27.04618	2.2538481	9170.626

Date	ETo (mm)	ETc (mm)	Kc
5/14/2009	6.74	3.38	0.50
5/15/2009	6.63	3.05	0.46
5/16/2009	6.48	2.82	0.44
5/17/2009	6.91	3.07	0.44
5/18/2009	7.28	4.02	0.55
5/19/2009	6.85	4.11	0.60
5/20/2009	6.18	2.49	0.40
5/21/2009	6.41	2.37	0.37
5/22/2009	6.04	2.18	0.36
5/23/2009	5.41	2.36	0.44
5/24/2009	4.98	2.21	0.44
5/25/2009	5.80	2.30	0.40
5/26/2009	6.64	2.30	0.35
5/27/2009	7.25	2.28	0.31
5/28/2009	6.89	2.64	0.38
5/29/2009	6.18	2.63	0.43
5/30/2009	5.81	2.64	0.45
5/31/2009	5.55	2.31	0.42
6/1/2009	5.23	1.87	0.36
6/2/2009	5.51	2.04	0.37
6/3/2009	5.57	1.83	0.33
6/4/2009	5.12		
6/5/2009	5.34	2.33	0.44
6/6/2009	5.86	2.68	0.46
6/7/2009	6.19	2.47	0.40
6/8/2009	6.49	2.53	0.39
6/9/2009	5.86	2.54	0.43
6/10/2009	5.85	2.25	0.38
6/11/2009	6.08	2.39	0.39
6/12/2009	5.34	2.19	0.41
6/13/2009	6.33	2.39	0.38
6/14/2009	6.33	2.47	0.39
6/15/2009	4.87	2.01	0.41
6/16/2009	6.05	2.50	0.41
6/17/2009	6.21	2.83	0.46
6/18/2009	7.50	3.45	0.46
6/19/2009	8.59	3.56	0.41
6/20/2009	6.84	3.24	0.47
6/21/2009	6.85	3.70	0.54
6/22/2009	7.87	4.52	0.57
6/23/2009	7.46	4.82	0.65
6/24/2009	8.01	4.66	0.58
6/25/2009	7.24	4.63	0.64
6/26/2009	6.28	5.00	0.80
6/27/2009	7.41	6.02	0.81
6/28/2009	7.99	6.77	0.85
6/29/2009	8.79	6.24	0.71
6/30/2009	6.84	3.94	0.58
7/1/2009	7.48	3.01	0.40
7/2/2009	7.62	2.85	0.37
7/3/2009	7.24	2.60	0.36
7/4/2009	7.17	2.60	0.36
7/5/2009	6.58	2.65	0.40
7/6/2009	7.43	2.48	0.33
7/7/2009	6.88	2.13	0.31
7/8/2009	7.42	2.02	0.27
7/9/2009	7.22	2.25	0.31
7/10/2009	7.05	2.24	0.32
7/11/2009	6.18	1.68	0.27
7/12/2009	8.42	2.42	0.29
7/13/2009	7.83	2.62	0.34

	5/15	5/23	5/31	6/8	6/16	6/24	7/2	7/10	7/18	7/26	8/3	8/11	8/19	8/27	9/4	9/20
ETo (mm)	6.81	5.92	5.82	5.95	6.55	7.30	7.39	7.29	7.53	6.54	6.32	6.91	6.29	6.31	6.18	5.59
ETc (mm)	3.27	2.31	2.28	2.46	2.74	4.77	3.41	2.20	2.96	3.12	3.06	4.48	4.98	5.22	3.04	2.88
Kc	0.48	0.39	0.39	0.41	0.42	0.66	0.46	0.30	0.39	0.48	0.49	0.65	0.79	0.83	0.51	0.52

Notes:

Columns A through D contain the daily ETo (mm), ETc (mm), and Kc values.

The orange highlighted cell indicates a day when precipitation occurred and ETc values were effected by wet sensors: **Precipitation, no ETc**

Columns F through V contain the seven day ETc average for a Landsat image date.

The red highlighted cell indicates a period when the ETc average was only five days: **5 Day Average (5/14-5/18)**

7/14/2009	8.21	3.27	0.40
7/15/2009	7.83	2.88	0.37
7/16/2009	7.29	3.48	0.48
7/17/2009	7.45	2.72	0.37
7/18/2009	7.29	2.85	0.39
7/19/2009	7.59	3.96	0.52
7/20/2009	8.08	2.55	0.32
7/21/2009	7.16	2.25	0.31
7/22/2009	6.98	2.27	0.33
7/23/2009	6.49	2.97	0.46
7/24/2009	6.17	2.82	0.46
7/25/2009	6.30	3.52	0.56
7/26/2009	6.77	4.04	0.60
7/27/2009	7.39	3.09	0.42
7/28/2009	6.58	2.53	0.38
7/29/2009	6.06	2.90	0.48
7/30/2009	6.00	3.22	0.54
7/31/2009	6.61	3.10	0.47
8/1/2009	6.92	2.72	0.39
8/2/2009	6.24	2.52	0.40
8/3/2009	5.92	2.93	0.50
8/4/2009	6.10	3.27	0.54
8/5/2009	6.59	3.38	0.51
8/6/2009	5.85	3.50	0.60
8/7/2009	5.72	4.06	0.71
8/8/2009	6.15	4.42	0.72
8/9/2009	6.28	4.67	0.74
8/10/2009	6.47	4.62	0.71
8/11/2009	6.65	3.84	0.58
8/12/2009	7.17	4.63	0.65
8/13/2009	8.47	4.62	0.54
8/14/2009	7.21	4.53	0.63
8/15/2009	6.63	4.88	0.74
8/16/2009	6.59	5.29	0.80
8/17/2009	6.46	4.76	0.74
8/18/2009	5.93	4.64	0.78
8/19/2009	6.33	4.55	0.72
8/20/2009	5.72	4.60	0.80
8/21/2009	6.01	5.61	0.93
8/22/2009	6.96	5.37	0.77
8/23/2009	5.86	4.79	0.82
8/24/2009	5.93	4.88	0.82
8/25/2009	5.65	5.11	0.90
8/26/2009	6.08	4.90	0.81
8/27/2009	6.42	5.41	0.84
8/28/2009	5.82	5.67	0.97
8/29/2009	7.41	5.41	0.73
8/30/2009	6.84	5.17	0.76
8/31/2009	5.47	4.93	0.90
9/1/2009	5.46	4.86	0.89
9/2/2009	5.59	4.55	0.81
9/3/2009	7.63	2.46	0.32
9/4/2009	6.92	1.99	0.29
9/5/2009	5.97	2.31	0.39
9/6/2009	5.86	2.58	0.44
9/7/2009	5.86	2.54	0.43
9/8/2009	5.34	3.83	0.72
9/9/2009	5.59	2.45	0.44
9/10/2009	5.38	4.00	0.74
9/11/2009	5.82	3.07	0.53
9/12/2009	3.98	1.77	0.44
9/13/2009	3.55	2.20	0.62

9/14/2009	4.71	2.89	0.61
9/15/2009	4.80	3.71	0.77
9/16/2009	5.37	2.11	0.39
9/17/2009	5.10	2.87	0.56
9/18/2009	5.07	3.89	0.77
9/19/2009	5.25	2.25	0.43
9/20/2009	5.92	2.82	0.48
9/21/2009	6.32	2.98	0.47
9/22/2009	5.42	3.09	0.57
9/23/2009	6.05	2.24	0.37
9/24/2009	5.72	1.88	0.33
9/25/2009	4.43	3.31	0.75
9/26/2009	4.45	3.30	0.74
9/27/2009	4.70	3.10	0.66
9/28/2009	5.56	1.49	0.27
9/29/2009	4.45	1.23	0.28
9/30/2009	5.30	1.52	0.29

Date	ETo (mm)	ETc (mm)	Kc
6/24/2009	8.01	2.16	0.27
6/25/2009	7.24	2.13	0.29
6/26/2009	6.28	3.61	0.57
6/27/2009	7.41	4.39	0.59
6/28/2009	7.99	4.18	0.52
6/29/2009	8.79	3.18	0.36
6/30/2009	6.84	3.68	0.54
7/1/2009	7.48	2.69	0.36
7/2/2009	7.62	2.60	0.34
7/3/2009	7.24	3.14	0.43
7/4/2009	7.17	2.05	0.29
7/5/2009	6.58	2.22	0.34
7/6/2009	7.43	2.16	0.29
7/7/2009	6.88	2.30	0.33
7/8/2009	7.42	2.81	0.38
7/9/2009	7.22	2.71	0.38
7/10/2009	7.05	2.52	0.36
7/11/2009	6.18	2.02	0.33
7/12/2009	8.42	2.22	0.26
7/13/2009	7.83	4.03	0.51

	6/24	7/2	7/10
ETo (mm)	7.24	7.39	7.29
ETc (mm)	3.08	2.79	2.66
Kc	0.43	0.38	0.36

Notes:

Columns A through D contain the daily ETo (mm), ETc (mm), and Kc values.

Columns F through I contain the seven day ETc average for a Landsat image date

The red highlighted cell indicates a period when the ETc average was only four days:

4 Day Average (6/24-

6/27)

Date	ETo (mm)	ETc (mm)	Kc
7/15/2009	7.83	4.89	0.62
7/16/2009	7.29	4.81	0.66
7/17/2009	7.45	5.17	0.69
7/18/2009	7.29	5.09	0.70
7/19/2009	7.59	5.36	0.71
7/20/2009	8.08	4.32	0.54
7/21/2009	7.16	4.28	0.60
7/22/2009	6.98	4.32	0.62
7/23/2009	6.49	4.45	0.69
7/24/2009	6.17	4.07	0.66
7/25/2009	6.30	4.64	0.74
7/26/2009	6.77	5.37	0.79
7/27/2009	7.39	5.30	0.72
7/28/2009	6.58	4.25	0.65
7/29/2009	6.06	4.12	0.68
7/30/2009	6.00	4.21	0.70

	7/18	7/26
ETo (mm)	7.53	6.54
ETc (mm)	4.85	4.60
Kc	0.65	0.70

Notes:

Columns A through D contain the daily ETo (mm), ETc (mm), and Kc values.

Columns F through H contain the seven day ETc average for a Landsat image date.

Date	ETo (mm)	ETc (mm)	Kc
8/1/2009	6.92	3.47	0.50
8/2/2009	6.24	3.37	0.54
8/3/2009	5.92	3.27	0.55
8/4/2009	6.10	3.40	0.56
8/5/2009	6.59	3.51	0.53
8/6/2009	5.85	3.20	0.55
8/7/2009	5.72	3.12	0.55
8/8/2009	6.15	3.31	0.54
8/9/2009	6.28	3.21	0.51
8/10/2009	6.47	3.43	0.53
8/11/2009	6.65	3.33	0.50
8/12/2009	7.17	3.85	0.54
8/13/2009	8.47	3.96	0.47
8/14/2009	7.21	3.58	0.50
8/15/2009	6.63	3.51	0.53
8/16/2009	6.59	3.46	0.52
8/17/2009	6.46	3.36	0.52
8/18/2009	5.93	3.32	0.56
8/19/2009	6.33	3.35	0.53
8/20/2009	5.72	3.25	0.57
8/21/2009	6.01	3.46	0.58
8/22/2009	6.96	3.34	0.48
8/23/2009	5.86	3.22	0.55
8/24/2009	5.93	3.36	0.57
8/25/2009	5.65	3.51	0.62
8/26/2009	6.08	3.43	0.56

	8/3	8/11	8/19	8/27
ETo (mm)	6.27	6.91	6.29	5.89
ETc (mm)	3.37	3.52	3.36	3.43
Kc	0.54	0.51	0.54	0.58

Notes:

Columns A through D contain the daily ETo (mm), ETc (mm), and Kc values.

Columns F through J contain the seven day ETc average for a Landsat image date

The red highlighted cell indicates a period when the ETc average was only six days: **6 Day Average (8/1-8/**

The green highlighted cell indicates a period when the ETc average was only three days: **3 Day Average (8/24-**

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Date	ETo (mm)	ETc (mm)	Kc
8/28/2009	5.82	5.62	0.97
8/29/2009	7.41	6.75	0.91
8/30/2009	6.84	5.83	0.85
8/31/2009	5.47	4.84	0.88
9/1/2009	5.46	5.51	1.01
9/2/2009	5.59	5.94	1.06
9/3/2009	7.63	6.72	0.88
9/4/2009	6.92	5.39	0.78
9/5/2009	5.97	4.35	0.73
9/6/2009	5.86	5.07	0.87
9/7/2009	5.86	5.10	0.87
9/8/2009	5.34	4.81	0.90
9/9/2009	5.59	5.23	0.94
9/10/2009	5.38	5.09	0.95
9/11/2009	5.82	5.24	0.90
9/12/2009	3.98	3.24	0.81
9/13/2009	3.55	3.40	0.96
9/14/2009	4.71	4.74	1.01
9/15/2009	4.80	4.97	1.03
9/16/2009	5.37	4.61	0.86
9/17/2009	5.10	4.59	0.90
9/18/2009	5.07	4.69	0.93
9/19/2009	5.25	4.26	0.81
9/20/2009	5.92	4.79	0.81
9/21/2009	6.32	5.00	0.79
9/22/2009	5.42	5.10	0.94
9/23/2009	6.05	5.18	0.86
9/24/2009	5.72	4.75	0.83
9/25/2009	4.43	4.38	0.99
9/26/2009	4.45	4.17	0.94
9/27/2009	4.70	4.47	0.95
9/28/2009	5.56	3.89	0.70
9/29/2009	4.45	3.18	0.71
9/30/2009	5.30	3.63	0.69

	8/27	9/4	9/20
ETo (mm)	6.69	6.18	5.59
ETc (mm)	6.07	5.44	4.80
Kc	0.91	0.89	0.86

Notes:

Columns A through D contain the daily ETo (mm), ETc (mm), and Kc values.

Columns F through I contain the seven day ETc average for a Landsat image date

The red highlighted cell indicates a period when the ETc average was only three days:

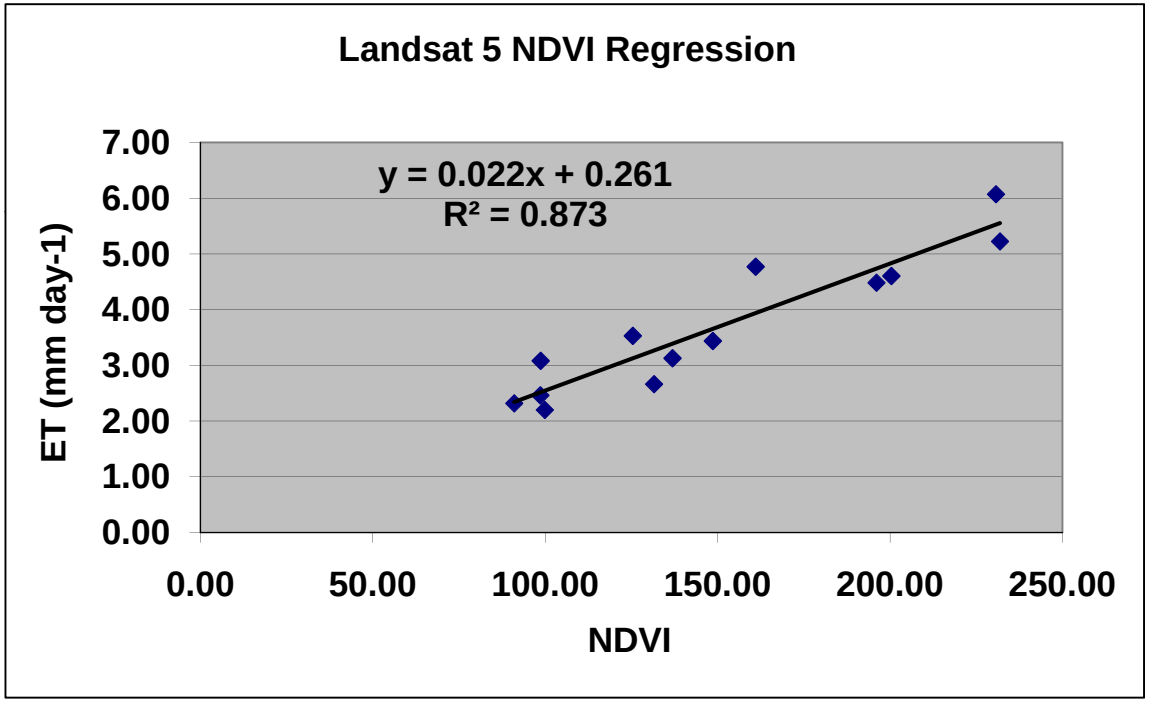
3 Day Ave (8/28-8/30)

Field_Name	5_23_NDVI	6_8_NDVI	6_24_NDVI	7_10_NDVI	7_26_NDVI	8_11_NDVI	8_27_NDVI
Field 19	100.28	134.96	98.72	131.60	213.00	106.36	142.20
Field 23	91.07	98.60	161.03	99.93	136.97	196.07	231.87
Field 66	100.92	133.40	94.40	101.52	124.12	125.40	148.64
Field 79	123.05	100.30	98.10	140.65	203.75	219.15	230.70
Field 116	135.64	106.08	110.88	144.64	200.36	211.68	122.60

Notes:

The NDVI values found in columns B through H are the average NDVI values from the Landsat image on that date for an area up wind from the Surface Renewal Instruments, developed using ERDAS Imagine image processing software. The ETc values found in column N are from the Surface Renewal Stations on Webb, and represent the same area as the NDVI values. Dates 6/24 - 8/27 have information from both stations. For 5/23 and 6/8, measurements were only from Field 23, because both stations were operating in Field 23 until 6/22. The roving station was moved to Field 19 and began operation on 6/24. The ETc values are from the All_SR_Data_7_Day_AVE_DW file. Cells that are highlighted represent an average that is less than seven days.

Date	Field	Field ETc (mm)	NDVI	
5/23/09	23	2.31	91.07	
6/8/09	23	2.46	98.60	
6/24/09	23	4.77	161.03	
6/24/09	19	3.08	98.72	4 Day Average (6/24-6
7/10/09	23	2.20	99.93	
7/10/09	19	2.66	131.60	
7/26/09	23	3.12	136.97	
7/26/09	116	4.60	200.36	
8/11/09	23	4.48	196.07	
8/11/09	66	3.52	125.40	
8/27/09	23	5.22	231.87	
8/27/09	66	3.43	148.64	3 Day Average (8/24-8
8/27/09	79	6.07	230.70	3 Day Ave (8/28-8/30)



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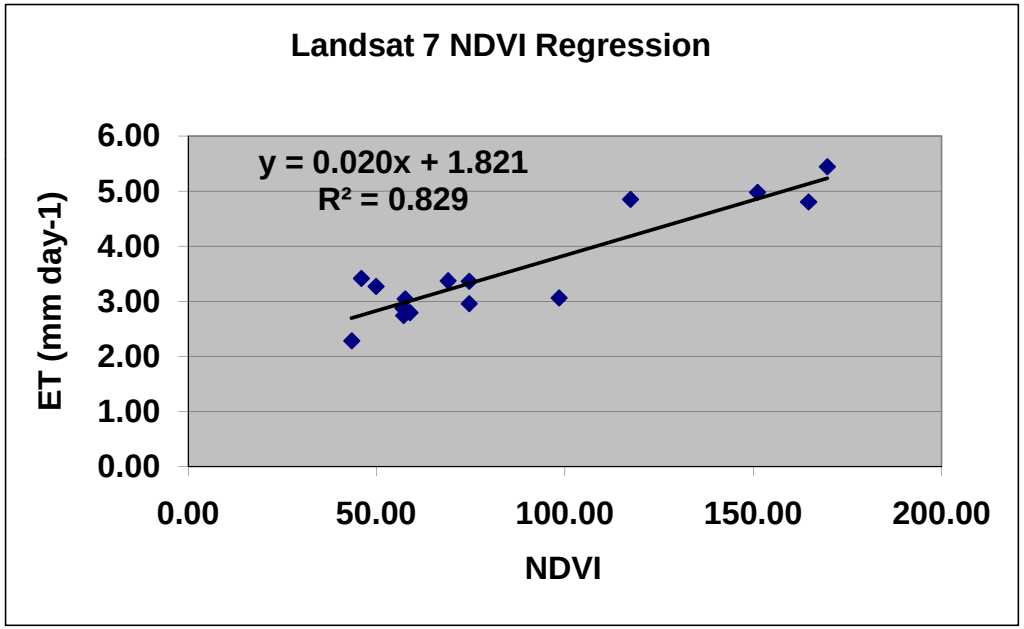
Field_Name	5_15_NDVI	5_31_NDVI	6_16_NDVI	7_2_NDVI	7_18_NDVI	8_3_NDVI	8_19_NDVI	9_4_NDVI	9_20_NDVI
Field 19	58.00	58.57	45.48	58.88	127.40	62.28	61.42	95.16	124.28
Field 23	49.87	42.78	57.20	45.97	74.60	98.43	151.13	57.60	
Modified Field 23	50.07	43.38	55.13	45.87	72.00	90.53	149.53	59.80	57.00
Field 66	50.36	52.46	51.04	46.16	74.92	69.00	74.60	64.22	60.00
Field 79	67.73	71.23	46.54	66.00	121.65	151.70	170.75	169.65	164.65
Field 116	71.00	52.80	50.00	68.16	117.40	140.16	59.53	66.76	88.40

Notes:

The NDVI values found in columns B through J are the average NDVI values from the Landsat image on that date for an area up wind from the Surface Renewal Instruments, developed using ERDAS Imagine image processing software. The ETc values found in column P are from the Surface Renewal Stations on Webb, and represent the same area as the NDVI values. Dates 7/2 - 9/20 have information from both stations. For 5/15 and 6/16, measurements were only from Field 23, because both stations were operating in Field 23 until 6/22. The roving station was moved to Field 19 and began operation on 6/24. The ETc values are from the All_SR_Data_7_Day_AVE_DW file. Cells that are highlighted represent an average that is less than seven days. The NDVI values for Modified Field 23 were used on 5/31 and 9/20 in the development of the Landsat 7 regression equation. Landsat 7 had missing data in a stripe running through the station for those two dates, and a sampling site for NDVI was used just north of the original site.

Date	Field	Field ETc (mm)	NDVI	
5/15/09	23	3.27	49.87	5 Day Average (5/14-5
5/31/09	23	2.28	43.38	
6/16/09	23	2.74	57.20	
7/2/09	23	3.41	45.97	
7/2/09	19	2.79	58.88	
7/18/09	23	2.96	74.60	
7/18/09	116	4.85	117.40	
8/3/09	23	3.06	98.43	
8/3/09	66	3.37	69.00	6 Day Average (8/1-8/(
8/19/09	23	4.98	151.13	
8/19/09	66	3.36	74.60	
9/4/09	23	3.04	57.60	
9/4/09	79	5.44	169.65	
9/20/09	23	2.88	57.00	
9/20/09	79	4.80	164.65	



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Notes:
The regression equation from the SR_Fields_L5 worksheet is applied to the NDVI value from each field to get an ET for each field.
As an example, column C is multiplied by the regression equation: y = 0.0228x + 0.261, to get the ET values in column D.
The volume is then calculated by multiplying the ET value by the acreage of the field, column E. The sum of all the fields are at the bottom of the volume column.

Field	Acres	5_7_NDVI	5_7_ETc	5_7_Vol	5_23_NDVI	5_23_ETc	5_23_Vol	6_8_NDVI	6_8_ETc	6_8_Vol	6_24_NDVI	6_24_ETc	6_24_Vol	7_10_NDVI	7_10_ETc	7_10_Vol	7_26_NDVI	7_26_ETc	7_26_Vol	8_11_NDVI	8_11_ETc	8_11_Vol	8_27_NDVI	8_27_ETc	8_27_Vol
1	8.4	184.12	4.46	0.12	110.21	2.77	0.08	111.86	2.81	0.08	112.81	2.83	0.08	136.88	3.38	0.09	170.14	4.14	0.11	172.37	4.19	0.12	189.09	4.57	0.13
2	12.9	157.22	3.85	0.16	122.25	3.05	0.13	106.93	2.70	0.11	121.68	3.04	0.13	142.80	3.52	0.15	157.76	3.86	0.16	157.07	3.84	0.16	172.29	4.19	0.18
3	22.3	155.77	3.81	0.28	124.78	3.11	0.23	112.00	2.81	0.21	133.47	3.30	0.24	157.27	3.85	0.28	178.47	4.33	0.32	177.51	4.31	0.31	192.35	4.65	0.34
4	16.2	160.97	3.93	0.21	115.46	2.89	0.15	106.62	2.69	0.14	113.99	2.86	0.15	135.65	3.35	0.18	166.32	4.05	0.22	169.93	4.14	0.22	186.41	4.51	0.24
5	10.0	161.80	3.95	0.13	114.52	2.87	0.09	104.56	2.64	0.09	124.08	3.09	0.10	186.64	4.52	0.15	218.94	5.25	0.17	201.26	4.85	0.16	200.66	4.84	0.16
6	89.4	173.08	4.21	1.23	108.30	2.73	0.80	103.70	2.63	0.77	114.17	2.86	0.84	164.60	4.01	1.18	120.54	3.01	0.88	109.45	2.76	0.81	137.55	3.40	1.00
7	51.9	177.47	4.31	0.73	115.00	2.88	0.49	105.69	2.67	0.45	123.45	3.08	0.52	174.37	4.24	0.72	122.51	3.05	0.52	115.10	2.89	0.49	149.10	3.66	0.62
8	45.1	194.59	4.70	0.70	115.47	2.89	0.43	103.74	2.63	0.39	118.90	2.97	0.44	181.72	4.40	0.65	123.22	3.07	0.45	110.75	2.79	0.41	148.85	3.65	0.54
9	43.6	204.72	4.93	0.70	113.74	2.85	0.41	102.36	2.59	0.37	112.29	2.82	0.40	170.06	4.14	0.59	121.30	3.03	0.43	105.71	2.67	0.38	137.65	3.40	0.49
10	61.1	203.66	4.90	0.98	105.23	2.66	0.53	100.63	2.56	0.51	116.98	2.93	0.59	181.15	4.39	0.88	122.53	3.05	0.61	104.38	2.64	0.53	136.84	3.38	0.68
11	46.5	184.27	4.46	0.68	99.69	2.53	0.39	106.08	2.68	0.41	126.27	3.14	0.48	189.51	4.58	0.70	130.69	3.24	0.49	111.25	2.80	0.43	144.42	3.55	0.54
12	88.9	158.36	3.87	1.13	98.68	2.51	0.73	105.79	2.67	0.78	123.06	3.07	0.89	159.56	3.90	1.14	139.14	3.43	1.00	103.01	2.61	0.76	123.25	3.07	0.90
13	30.8	162.59	3.97	0.40	105.84	2.67	0.27	112.13	2.82	0.28	124.71	3.10	0.31	169.12	4.12	0.42	204.19	4.92	0.50	109.54	2.76	0.28	131.67	3.26	0.33
14	13.7	159.56	3.90	0.18	120.91	3.02	0.14	110.11	2.77	0.12	115.97	2.91	0.13	142.66	3.51	0.16	179.17	4.35	0.20	184.67	4.47	0.20	126.44	3.14	0.14
15	28.2	175.63	4.27	0.39	172.84	4.20	0.39	125.15	3.11	0.29	155.14	3.80	0.35	197.73	4.77	0.44	225.79	5.41	0.50	220.14	5.28	0.49	142.74	3.52	0.32
16	115.0	171.94	4.18	1.58	131.63	3.26	1.23	105.99	2.68	1.01	120.29	3.00	1.13	153.17	3.75	1.42	185.58	4.49	1.70	120.47	3.01	1.14	135.87	3.36	1.27
17	105.3	174.28	4.23	1.46	166.33	4.05	1.40	115.66	2.90	1.00	140.94	3.47	1.20	182.84	4.43	1.53	212.23	5.10	1.76	209.46	5.04	1.74	132.35	3.28	1.13
18	5.9	184.09	4.46	0.09	138.94	3.43	0.07	145.03	3.57	0.07	145.97	3.59	0.07	144.38	3.55	0.07	175.13	4.25	0.08	166.03	4.05	0.08	180.78	4.38	0.09
19	76.7	169.00	4.11	1.04	127.78	3.17	0.80	113.26	2.84	0.72	129.88	3.22	0.81	166.24	4.05	1.02	202.71	4.88	1.23	206.35	4.97	1.25	130.42	3.23	0.81
20	8.1	165.30	4.03	0.11	110.37	2.78	0.07	125.78	3.13	0.08	152.89	3.75	0.10	171.91	4.18	0.11	197.61	4.77	0.13	198.94	4.80	0.13	129.22	3.21	0.09
21	24.7	168.65	4.11	0.33	104.06	2.63	0.21	115.14	2.89	0.23	152.25	3.73	0.30	185.72	4.50	0.36	222.37	5.33	0.43	218.44	5.24	0.42	130.87	3.24	0.26
22	4.1	167.11	4.07	0.06	119.60	2.99	0.04	122.26	3.05	0.04	127.83	3.18	0.04	143.46	3.53	0.05	179.66	4.36	0.06	185.83	4.50	0.06	131.03	3.25	0.04
23	46.1	160.94	3.93	0.59	110.13	2.77	0.42	115.43	2.89	0.44	120.31	3.00	0.45	141.92	3.50	0.53	175.86	4.27	0.65	180.95	4.39	0.66	128.16	3.18	0.48
24	16.2	167.92	4.09	0.22	102.18	2.59	0.14	111.12	2.79	0.15	137.19	3.39	0.18	172.94	4.20	0.22	217.14	5.21	0.28	219.26	5.26	0.28	136.85	3.38	0.18
25	13.2	170.51	4.15	0.18	109.10	2.75	0.12	120.31	3.00	0.13	159.18	3.89	0.17	192.01	4.64	0.20	231.81	5.55	0.24	228.96	5.48	0.24	153.94	3.77	0.16
26	15.7	167.77	4.09	0.21	102.07	2.59	0.13	113.66	2.85	0.15	144.00	3.54	0.18	179.55	4.35	0.23	230.05	5.51	0.28	230.26	5.51	0.28	145.92	3.59	0.19
27	29.1	161.21	3.94	0.38	133.58	3.31	0.32	111.46	2.80	0.27	118.31	2.96	0.28	147.54	3.62	0.35	192.40	4.65	0.44	199.15	4.80	0.46	127.19	3.16	0.30
28	124.7	180.85	4.38	1.79	113.93	2.86	1.17	137.33	3.39	1.39	106.24	2.68	1.10	125.36	3.12	1.28	168.06	4.09	1.67	179.21	4.35	1.78	127.47	3.17	1.30
29	22.8	184.84	4.48	0.34	116.03	2.91	0.22	152.63	3.74	0.28	112.82	2.83	0.21	146.47	3.60	0.27	198.26	4.78	0.36	203.28	4.90	0.37	141.36	3.48	0.26
30	14.8	205.98	4.96	0.24	125.34	3.12	0.15	164.88	4.02	0.20	111.51	2.80	0.14	145.49	3.58	0.17	202.05	4.87	0.24	215.64	5.18	0.25	141.40	3.48	0.17
31	561.8	158.95	3.89	7.16	95.50	2.44	4.49	107.39	2.71	4.99	142.01	3.50	6.45	106.00	2.68	4.94	132.05	3.27	6.03	146.21	3.59	6.63	182.13	4.41	8.14
32	37.0	184.44	4.47	0.54	115.36	2.89	0.35	126.83	3.15	0.38	112.15	2.82	0.34	139.17	3.43	0.42	205.32	4.94	0.60	133.39	3.30	0.40	144.64	3.56	0.43
33	6.0	192.12	4.64	0.09	120.58	3.01	0.06	149.69	3.67	0.07	103.62	2.62	0.05	137.77	3.40	0.07	210.31	5.06	0.10	158.08	3.87	0.08	140.15	3.46	0.07
34	4.7	168.38	4.10	0.06	103.31	2.62	0.04	146.28	3.60	0.06	104.38	2.64	0.04	150.41	3.69	0.06	227.45	5.45	0.08	140.59	3.47	0.05	139.69	3.45	0.05
35	13.5	188.88	4.57	0.20	121.09	3.02	0.13	152.19	3.73	0.17	115.28	2.89	0.13	157.09	3.84	0.17	220.69	5.29	0.24	172.71	4.20	0.19	153.86	3.77	0.17
36	13.6	193.63	4.68	0.21	121.29	3.03	0.13	156.79	3.84	0.17	113.74	2.85	0.13	154.60	3.79	0.17	215.74	5.18	0.23	216.23	5.19	0.23	149.24	3.66	0.16
37	15.0	189.47	4.58	0.23	123.34	3.07	0.15	157.94	3.86	0.19	114.86	2.88	0.14	152.55	3.74	0.18	208.95	5.03	0.25	196.22	4.73	0.23	150.38	3.69	0.18
38	23.6	191.14	4.62	0.36	163.12	3.98	0.31	192.43	4.65	0.36	134.36	3.32	0.26	148.97	3.66	0.28	184.79	4.47	0.35	138.93	3.43	0.27	143.85	3.54	0.27
39	28.2	188.02	4.55	0.42	107.70	2.72	0.25	134.48	3.33	0.31	107.08	2.70	0.25	129.69	3.22	0.30	191.81	4.63	0.43	111.94	2.81	0.26	137.58	3.40	0.31
40	43.9	174.47	4.24	0.61	109.05	2.75	0.40	142.53	3.51	0.51	105.57	2.67	0.38	135.48	3.35	0.48	210.95	5.07	0.73	112.75	2.83	0.41	144.18	3.55	0.51
41	32.1	165.36	4.03	0.42	112.04	2.82	0.30	142.98	3.52	0.37	109.13	2.75	0.29	143.36	3.53	0.37	218.55	5.24	0.55	117.75	2.95	0.31	158.63	3.88	0.41
42	40.4	178.05	4.32	0.57	109.07	2.75	0.36	141.82	3.49	0.46	107.62	2.71	0.36	156.79	3.84	0.51	222.73	5.34	0.71	118.84	2.97	0.39	168.81	4.11	0.54
43	32.1	166.55	4.06	0.43	114.75	2.88	0.30	144.61	3.56	0.37	111.70	2.81	0.30	159.28	3.89	0.41	213.81	5.14	0.54	123.55	3.08	0.32	168.94	4.11	0.43
44	75.9	190.40	4.60	1.15	110.33	2.78	0.69	118.25	2.96	0.74	106.09	2.68	0.67	137.85	3.40	0.85	195.99	4.73	1.18	202.32	4.87	1.21	210.83	5.07	1.26
45	73.7	167.79	4.09	0.99	101.35	2.57	0.62	108.70	2.74	0.66	95.41	2.44	0.59	133.31	3.30	0.80	194.14	4.69	1.13	212.63	5.11	1.24	129.47	3.21	0.78
46	68.2	182.70	4.43	0.99	104.73	2.65	0.59	113.36	2.85	0.64	100.58	2.55	0.57	129.73	3.22	0.72	181.64	4.40	0.99	195.08	4.71	1.05	200.69	4.84	1.08
47	79.2	161.44	3.94	1.02	121.23	3.03	0.79	103.76	2.63	0.68	96.08	2.45	0.64	102.30	2.59	0.67	123.31	3.07	0.80	130.38	3.23	0.84	166.93	4.07	1.06
48	70.3	172.20	4.19	0.97	116.29	2.91	0.67	103.04	2.61	0.60	93.11	2.38	0.55	105.85	2.67	0.62	137.21	3.39	0.78	166.79	4.06	0.94	122.05	3.04	0.70
49	21.0	160.94	3.93	0.27	120.59	3.01	0.21	110.00	2.77	0.19	113.61	2.85	0.20	140.27	3.46	0.24	178.34	4.33	0.30	179.88	4.36	0.30	126.01	3.13	0.22
50	12.1	161.98	3.95	0.16	128.25	3.19	0.13	106.45	2.69	0.11	131.00	3.25	0.13	182.89	4.43	0.18	230.08	5.51	0.22	230.44	5.51	0.22	126.73	3.15	0.12
51	29.8	154.62	3.79	0.37	104.86	2.65	0.26	104.01	2.63	0.26	98.75	2.51	0.25	108.09	2.73	0.27	126.58	3.15	0.31	140.56	3.47	0.34	123.34	3.07	0.30
52	31.7	154.67	3.79	0.39	123.33	3.07	0.32	103.66	2.62	0.27	94.74	2.42	0.25	105.38	2.66	0.28	131.96	3.27	0.34	149.57	3.67	0.38	126.12	3.14	0.33
53	3.4	160.92	3.93	0.04	127.62	3.17	0.04	110.92	2.79	0.03	141.15	3.48	0.04	201.62	4.86	0.05	237.23	5.67	0.06	233.00	5.57	0.06	128.15	3.18	0.04
54	14.3	151.27	3.71	0.17	114.67	2.88	0.14	101.98	2.59	0.12	94.08	2.41	0.11	109.87	2.77	0.13	166.35	4.05	0.19	211.72	5.09	0.24	121.78	3.04	0.14
55	12.3	158.94	3.88	0.16	104.24	2.64	0.11	104.32	2.64	0.11	96.30	2.46	0.10	109.00	2.75	0.11	130.63	3.24	0.13	135.46	3.35	0.14	126.61	3.15	0.13
56	7.2	203.17	4.89	0.12	185.03	4.48	0.11	131.78	3.27	0.08	148.75	3.65	0.09	188.11	4.55	0.11	226.75	5.43	0.13	226.94	5.44	0.13	139.56	3.44	0.08
57	26.1	175.98	4.27	0.37	150.23	3.69	0.32	106.39	2.69	0.23	125.71	3.13	0.27	175.05	4.25	0.36	224.48	5.38	0.46	228.46	5.47	0.47	131.21	3.25	0.28
58	21.2	141.57	3.49	0.24	91.91	2.36	0.16	93.26	2.39	0.17	85.68	2.21	0.15	94.99	2.43	0.17	119.97	3.00	0.21	127.28	3.16	0.22	108.40	2.73	0.19
59	43.9	158.39	3.87	0.56	97.54	2.48	0.36	97.04	2.47	0.36	91.68	2.35	0.34	102.62	2.60	0.37	124.89	3.11	0.45	126.49	3.14	0.45	117.65	2.94	0.42
60	2.0	173.14	4.21	0.03	128.21	3.18	0.02	111.07	2.79	0.02	136.14	3.37	0.02	167.29	4.08	0.03	209.50	5.04	0.03	211.64	5.09	0.03	132.36	3.28	0.02
61	40.9	169.71	4.13	0.55	115.20	2.89	0.39	102.51	2.60	0.35	107.22	2.71	0.36	131.54	3.26	0.44	171.13	4.16	0.56	181.29	4.39	0.59	119.72	2.99	0.40
62	39.2	178.33	4.33	0.56	108.63	2.74	0.35	100.75	2.56	0.33	98.23	2.50	0.32	112.40	2.82	0.36	134.15	3.32	0.43	132.06	3.27	0.42	122.48	3.05	0.39
63	11.9	163.30	3.98	0.16	125.61	3.12	0.12	109.87	2.77	0.11	116.66	2.92	0.11	144.46	3.55	0.14	194.31	4.69	0.18	203.44	4.90	0.19	128.15	3.18	0.12
64	26.5	170.23	4.14	0.36	101.94	2.59	0.22	103.22	2.61	0.23	105.32	2.66	0.23	132.88	3.29	0.29	193.33	4.67	0.41	201.67	4.86	0.42	122.62	3.06	0.27
65	26.0	168.90	4.11	0.35	98.55	2.51	0.21	101.00	2.56	0.22	101.21	2.57	0.22	127.42	3.17	0.27	188.10	4.55	0.39	205.82	4.95	0.42	119.92	3.00	0.26
66	9.5	193.96	4.68	0.15	109.81	2.76	0.09	104.26	2.64	0.08	108.60	2.74	0.09	132.00	3.27	0.10	183.49	4.44	0.14	199.92	4.82	0.15	120.00	3.00	0.09
67	46.5	173.84	4.22	0.65	129.88	3.22	0.49	107.35	2.71	0.41	97.66	2.49	0.38	109.65	2.76	0.42	140.98	3.48	0.53	153.79	3.77	0.58	121.55	3.03	0.46
68	46.0	161.91	3.95	0.60	110.71	2.79	0.42	103.52	2.62	0.40	91.52	2.35	0.35	101.97	2.59	0.39	133.62	3.31	0.50	149.59	3.67	0.55	131.06	3.25	0.49
69	41.8	176.62	4.29	0.59	109.42	2.76	0.38	105.37	2.66	0.36	94.17	2.41	0.33	101.66	2.58	0.35	124.16	3.09	0.42	125.44	3.12	0.43	146.07	3.59	0.49
70	28.9	166.34	4.05	0.38	118.29	2.96	0.28	109.74	2.76	0.26	95.53	2.44	0.23	115.99	2.91	0.28	174.10	4.23	0.40	191.99	4.64	0.44	207.18	4.98	0.47

71	20.1	175.25	4.26	0.28	130.07	3.23	0.21	130.46	3.24	0.21	109.12	2.75	0.18	130.48	3.24	0.21	176.40	4.28	0.28	183.96	4.46	0.29	150.81	3.70	0.24
72	18.3	162.35	3.96	0.24	121.39	3.03	0.18	129.77	3.22	0.19	100.47	2.55	0.15	119.67	2.99	0.18	158.60	3.88	0.23	170.28	4.14	0.25	175.03	4.25	0.26
73	16.7	161.71	3.95	0.22	121.71	3.04	0.17	128.31	3.19	0.17	100.61	2.55	0.14	118.65	2.97	0.16	155.04	3.80	0.21	164.93	4.02	0.22	193.18	4.67	0.26
74	14.6	161.26	3.94	0.19	126.84	3.15	0.15	132.08	3.27	0.16	101.01	2.56	0.12	118.99	2.97	0.14	154.26	3.78	0.18	164.92	4.02	0.19	193.64	4.68	0.22
75	11.7	161.72	3.95	0.15	120.27	3.00	0.12	135.10	3.34	0.13	98.83	2.51	0.10	117.25	2.93	0.11	158.10	3.87	0.15	171.90	4.18	0.16	197.82	4.77	0.18
76	9.9	167.92	4.09	0.13	123.17	3.07	0.10	140.27	3.46	0.11	103.56	2.62	0.09	119.90	2.99	0.10	169.04	4.12	0.13	187.00	4.52	0.15	211.56	5.08	0.17
77	9.8	160.86	3.93	0.13	110.62	2.78	0.09	134.42	3.33	0.11	102.22	2.59	0.08	117.98	2.95	0.10	160.75	3.93	0.13	181.11	4.39	0.14	203.84	4.91	0.16
78	12.8	165.51	4.03	0.17	124.01	3.09	0.13	130.13	3.23	0.14	100.70	2.56	0.11	116.24	2.91	0.12	161.27	3.94	0.16	185.82	4.50	0.19	214.27	5.15	0.22
79	16.0	159.31	3.89	0.20	113.34	2.85	0.15	114.43	2.87	0.15	92.74	2.38	0.12	114.86	2.88	0.15	192.31	4.65	0.24	219.03	5.25	0.28	234.19	5.60	0.29
80	20.9	176.08	4.28	0.29	104.95	2.65	0.18	128.69	3.20	0.22	99.02	2.52	0.17	127.58	3.17	0.22	194.19	4.69	0.32	212.71	5.11	0.35	227.29	5.44	0.37
81	13.3	170.43	4.15	0.18	117.95	2.95	0.13	131.51	3.26	0.14	106.31	2.68	0.12	128.14	3.18	0.14	172.33	4.19	0.18	191.99	4.64	0.20	212.49	5.11	0.22
82	113.3	155.23	3.80	1.41	103.49	2.62	0.97	122.92	3.06	1.14	95.93	2.45	0.91	105.08	2.66	0.99	133.53	3.31	1.23	139.05	3.43	1.28	165.43	4.03	1.50
83	37.3	162.97	3.98	0.49	109.73	2.76	0.34	126.58	3.15	0.38	102.15	2.59	0.32	123.47	3.08	0.38	164.20	4.00	0.49	173.21	4.21	0.52	194.25	4.69	0.57
84	49.6	157.50	3.85	0.63	113.67	2.85	0.46	149.11	3.66	0.60	104.08	2.63	0.43	130.58	3.24	0.53	173.07	4.21	0.69	182.89	4.43	0.72	200.62	4.84	0.79
85	42.6	160.47	3.92	0.55	110.82	2.79	0.39	124.11	3.09	0.43	98.91	2.52	0.35	118.83	2.97	0.41	159.31	3.89	0.54	160.65	3.92	0.55	174.99	4.25	0.59
86	10.6	170.11	4.14	0.14	128.28	3.19	0.11	154.40	3.78	0.13	110.15	2.77	0.10	145.06	3.57	0.12	195.68	4.72	0.16	210.22	5.05	0.18	225.11	5.39	0.19
87	3.3	171.22	4.16	0.04	120.61	3.01	0.03	114.33	2.87	0.03	121.56	3.03	0.03	161.50	3.94	0.04	204.83	4.93	0.05	211.00	5.07	0.05	220.72	5.29	0.06
88	48.5	165.92	4.04	0.64	129.22	3.21	0.51	106.50	2.69	0.43	119.59	2.99	0.48	157.73	3.86	0.61	185.08	4.48	0.71	182.22	4.42	0.70	195.91	4.73	0.75
89	15.0	166.13	4.05	0.20	114.18	2.86	0.14	107.85	2.72	0.13	108.53	2.74	0.13	130.80	3.24	0.16	161.06	3.93	0.19	167.15	4.07	0.20	186.69	4.52	0.22
90	3.8	170.68	4.15	0.05	111.90	2.81	0.04	111.47	2.80	0.04	123.21	3.07	0.04	143.79	3.54	0.04	178.00	4.32	0.05	189.16	4.57	0.06	209.16	5.03	0.06
91	14.1	167.82	4.09	0.19	115.46	2.89	0.13	111.42	2.80	0.13	120.92	3.02	0.14	142.76	3.52	0.16	172.35	4.19	0.19	174.54	4.24	0.20	191.81	4.63	0.21
92	15.0	158.47	3.87	0.19	109.84	2.77	0.14	108.42	2.73	0.13	113.02	2.84	0.14	132.99	3.29	0.16	172.84	4.20	0.21	181.42	4.40	0.22	205.26	4.94	0.24
93	8.4	160.98	3.93	0.11	116.63	2.92	0.08	111.67	2.81	0.08	116.18	2.91	0.08	135.77	3.36	0.09	162.39	3.96	0.11	157.77	3.86	0.11	179.37	4.35	0.12
94	9.0	185.44	4.49	0.13	157.19	3.84	0.11	127.62	3.17	0.09	116.50	2.92	0.09	152.56	3.74	0.11	191.75	4.63	0.14	193.17	4.67	0.14	140.21	3.46	0.10
95	20.9	177.95	4.32	0.30	154.96	3.79	0.26	121.02	3.02	0.21	116.08	2.91	0.20	151.31	3.71	0.25	194.58	4.70	0.32	203.06	4.89	0.33	138.79	3.43	0.23
96	74.4	173.94	4.23	1.03	131.80	3.27	0.80	112.59	2.83	0.69	109.96	2.77	0.68	144.77	3.56	0.87	186.67	4.52	1.10	191.73	4.63	1.13	197.86	4.77	1.17
97	21.3	192.82	4.66	0.33	169.59	4.13	0.29	146.28	3.60	0.25	125.68	3.13	0.22	159.03	3.89	0.27	190.22	4.60	0.32	191.86	4.64	0.32	203.17	4.89	0.34
98	5.4	206.13	4.96	0.09	183.67	4.45	0.08	111.40	2.80	0.05	120.80	3.02	0.05	156.47	3.83	0.07	187.13	4.53	0.08	190.73	4.61	0.08	135.40	3.35	0.06
99	8.2	166.90	4.07	0.11	130.50	3.24	0.09	110.63	2.78	0.07	132.97	3.29	0.09	184.17	4.46	0.12	215.03	5.16	0.14	212.27	5.10	0.14	140.17	3.46	0.09
100	24.6	167.19	4.07	0.33	126.24	3.14	0.25	109.40	2.76	0.22	116.65	2.92	0.24	156.08	3.82	0.31	202.59	4.88	0.39	206.24	4.96	0.40	141.27	3.48	0.28
101	5.9	192.35	4.65	0.09	163.38	3.99	0.08	131.00	3.25	0.06	144.83	3.56	0.07	167.65	4.08	0.08	188.00	4.55	0.09	178.33	4.33	0.08	136.63	3.38	0.07
102	10.2	212.03	5.10	0.17	192.59	4.65	0.16	128.67	3.19	0.11	137.18	3.39	0.11	181.42	4.40	0.15	212.76	5.11	0.17	216.74	5.20	0.17	166.36	4.05	0.14
103	4.3	213.58	5.13	0.07	192.18	4.64	0.07	116.18	2.91	0.04	130.94	3.25	0.05	169.55	4.13	0.06	203.67	4.90	0.07	206.52	4.97	0.07	160.27	3.92	0.06
104	21.2	164.66	4.02	0.28	117.16	2.93	0.20	110.55	2.78	0.19	118.63	2.97	0.21	140.94	3.47	0.24	169.13	4.12	0.29	165.21	4.03	0.28	132.12	3.27	0.23
105	5.6	183.54	4.45	0.08	152.35	3.73	0.07	119.19	2.98	0.05	130.54	3.24	0.06	176.65	4.29	0.08	217.92	5.23	0.10	224.58	5.38	0.10	227.92	5.46	0.10
106	27.4	198.43	4.79	0.43	139.18	3.43	0.31	117.35	2.94	0.26	126.01	3.13	0.28	169.54	4.13	0.37	207.73	5.00	0.45	211.95	5.09	0.46	160.76	3.93	0.35
107	0.2	157.67	3.86	0.00	123.67	3.08	0.00	111.33	2.80	0.00	114.67	2.88	0.00	167.33	4.08	0.00	199.33	4.81	0.00	205.00	4.94	0.00	223.00	5.35	0.00
108	2.7	179.25	4.35	0.04	152.63	3.74	0.03	111.81	2.81	0.03	122.50	3.05	0.03	167.75	4.09	0.04	210.25	5.05	0.05	213.94	5.14	0.05	226.75	5.43	0.05
109	4.7	205.36	4.94	0.08	162.15	3.96	0.06	118.58	2.96	0.05	131.42	3.26	0.05	180.09	4.37	0.07	214.03	5.14	0.08	221.52	5.31	0.08	228.82	5.48	0.08
110	24.3	182.83	4.43	0.35	114.93	2.88	0.23	110.19	2.77	0.22	112.37	2.82	0.22	136.36	3.37	0.27	182.27	4.42	0.35	194.03	4.68	0.37	130.12	3.23	0.26
111	12.3	168.03	4.09	0.17	108.81	2.74	0.11	100.06	2.54	0.10	103.81	2.63	0.11	133.59	3.31	0.13	178.79	4.34	0.18	188.59	4.56	0.18	144.27	3.55	0.14
112	12.1	182.76	4.43	0.18	97.68	2.49	0.10	98.00	2.50	0.10	100.36	2.55	0.10	134.63	3.33	0.13	198.32	4.78	0.19	203.65	4.90	0.19	132.09	3.27	0.13
113	3.8	167.52	4.08	0.05	100.04	2.54	0.03	103.39	2.62	0.03	105.91	2.68	0.03	137.35	3.39	0.04	203.09	4.89	0.06	211.30	5.08	0.06	124.09	3.09	0.04
114	23.2	158.65	3.88	0.30	117.16	2.93	0.22	107.95	2.72	0.21	113.96	2.86	0.22	140.07	3.45	0.26	170.15	4.14	0.32	169.02	4.11	0.31	187.38	4.53	0.35
115	1.0	166.67	4.06	0.01	119.78	2.99	0.01	116.56	2.92	0.01	117.00	2.93	0.01	133.89	3.31	0.01	143.78	3.54	0.01	142.44	3.51	0.01	158.11	3.87	0.01
116	9.7	169.08	4.12	0.13	102.20	2.59	0.08	105.43	2.66	0.08	105.47	2.67	0.08	125.20	3.12	0.10	186.22	4.51	0.14	200.98	4.84	0.15	212.45	5.10	0.16
117	5.3	177.12	4.30	0.08	130.00	3.23	0.06	138.79	3.43	0.06	141.88	3.50	0.06	156.41	3.83	0.07	194.74	4.70	0.08	197.71	4.77	0.08	212.71	5.11	0.09
118	3.5	167.75	4.09	0.05	135.00	3.34	0.04	118.88	2.97	0.03	142.54	3.51	0.04	183.25	4.44	0.05	216.46	5.20	0.06	213.71	5.13	0.06	224.92	5.39	0.06
119	33.5	161.19	3.94	0.43	124.80	3.11	0.34	111.30	2.80	0.31	122.42	3.05	0.34	160.51	3.92	0.43	194.63	4.70	0.52	197.73	4.77	0.52	211.61	5.09	0.56
120	32.3	180.26	4.37	0.46	104.24	2.64	0.28	103.31	2.62	0.28	101.86	2.58	0.27	120.17	3.00	0.32	168.38	4.10	0.43	180.48	4.38	0.46	121.67	3.04	0.32
121	7.3	192.32	4.65	0.11	111.53	2.80	0.07	110.71	2.79	0.07	113.45	2.85	0.07	140.53	3.46	0.08	189.32	4.58	0.11	202.21	4.87	0.12	135.92	3.36	0.08
122	16.3	194.75	4.70	0.25	117.23	2.93	0.16	119.92	3.00	0.16	126.85	3.15	0.17	146.47	3.60	0.19	175.06	4.25	0.23	182.33	4.42	0.24	146.99	3.61	0.19
123	75.1	197.11	4.76	1.17	103.48	2.62	0.65	112.11	2.82	0.69	100.33	2.55	0.63	123.52	3.08	0.76	163.71	3.99	0.98	170.64	4.15	1.02	120.08	3.00	0.74
124	7.8	203.16	4.89	0.13	147.10	3.61	0.09	130.72	3.24	0.08	107.40	2.71	0.07	120.28	3.00	0.08	154.38	3.78	0.10	169.98	4.14	0.11	197.08	4.75	0.12
125	16.0	176.33	4.28	0.22	112.56	2.83	0.15	111.09	2.79	0.15	116.61	2.92	0.15	131.19	3.25	0.17	155.73	3.81	0.20	149.65	3.67	0.19	168.51	4.10	0.22
126	24.1	162.75	3.97	0.31	115.59	2.90	0.23	108.51	2.74	0.22	112.37	2.82	0.22	131.72	3.26	0.26	159.79	3.90	0.31	155.85	3.81	0.30	175.80	4.27	0.34
127	23.7	151.38	3.71	0.29	106.15	2.68	0.21	102.12	2.59	0.20	96.04	2.45	0.19	101.99	2.59	0.20	123.51	3.08	0.24	138.37	3.42	0.27	122.04	3.04	0.24
128	2.0	211.41	5.08	0.03	156.59	3.83	0.02	172.88	4.20	0.03	142.88	3.52	0.02	164.00	4.00	0.03	214.06	5.14	0.03	223.41	5.35	0.03	164.35	4.01	0.03
129	4.8	200.29	4.83	0.08	144.34	3.55	0.06	179.29	4.35	0.07	143.54	3.53	0.06	185.00	4.48	0.07	224.97	5.39	0.08	217.34	5.22	0.08	163.49	3.99	0.06
130	1.0	208.40	5.01	0.02	108.50	2.73	0.01	132.50	3.28	0.01	118.40	2.96	0.01	133.30	3.30	0.01	160.40	3.92	0.01	154.90	3.79	0.01	171.00	4.16	0.01
				55.47			**38.45**			**38.46**			**38.76**			**44.96**			**53.89**			**52.94**			**51.02**

Notes:
The regression equation from the SR_Fields_L7 worksheet is applied to the NDVI value from each field to get an ET for each field
As an example, column C is multiplied by the regression equation: y = 0.0201x + 1.8217, to get the ET values in column
The volume is then calculated by multiplying the ET value by the acreage of the field, column E. The sum of all the fields are at the bottom of the volume colur

Field	Acres	5_15_NDVI	5_15_ETc	5_15_Vol	5_31_NDVI	5_31_ETc	5_31_Vol	6_16_NDVI	6_16_ETc	6_16_Vol	7_2_NDVI	7_2_ETc	7_2_Vol	7_18_NDVI	7_18_ETc	7_18_Vol	8_3_NDVI	8_3_ETc	8_3_Vol	8_19_NDVI	8_19_ETc	8_19_Vol	9_4_NDVI	9_4_ETc	9_4_Vol	9_20_NDVI	9_20_ETc	9_20_Vol
1	8.4	70	3.22	0.09	58.85	3.00	0.08	55	2.93	0.08	59	3.01	0.08	106	3.95	0.11	109	4.01	0.11	110	4.04	0.11	119	4.22	0.12	70	3.23	0.09
2	12.9	58	2.98	0.13	49.72	2.82	0.12	52	2.86	0.12	75	3.33	0.14	94	3.71	0.16	96	3.76	0.16	96	3.75	0.16	107	3.98	0.17	66	3.15	0.13
3	22.3	57	2.97	0.22	51.79	2.86	0.21	58	2.98	0.22	98	3.80	0.28	117	4.17	0.30	117	4.16	0.30	115	4.13	0.30	64	3.11	0.23	77	3.38	0.25
4	16.2	56	2.94	0.16	51.35	2.85	0.15	54	2.90	0.15	77	3.37	0.18	101	3.86	0.21	108	3.99	0.21	110	4.04	0.21	63	3.10	0.16	74	3.31	0.18
5	10.0	68	3.18	0.10	61.70	3.06	0.10	52	2.88	0.09	94	3.71	0.12	148	4.80	0.16	146	4.76	0.16	130	4.43	0.15	129	4.41	0.14	71	3.26	0.11
6	89.4	56	2.94	0.86	48.27	2.79	0.82	54	2.90	0.85	77	3.37	0.99	147	4.77	1.40	60	3.03	0.89	62	3.07	0.90	80	3.44	1.01	96	3.76	1.10
7	51.9	59	3.02	0.51	47.33	2.77	0.47	55	2.93	0.50	83	3.49	0.59	155	4.95	0.84	63	3.09	0.53	66	3.16	0.54	97	3.77	0.64	113	4.08	0.70
8	45.1	64	3.10	0.46	47.02	2.77	0.41	52	2.86	0.42	89	3.62	0.54	160	5.05	0.75	61	3.04	0.45	65	3.13	0.46	96	3.75	0.56	117	4.18	0.62
9	43.6	70	3.23	0.46	46.43	2.75	0.39	52	2.86	0.41	81	3.45	0.49	152	4.87	0.70	58	2.99	0.43	61	3.04	0.43	85	3.53	0.50	106	3.96	0.57
10	61.1	66	3.14	0.63	45.19	2.73	0.55	52	2.87	0.57	92	3.67	0.74	161	5.05	1.01	58	2.99	0.60	61	3.04	0.61	82	3.47	0.70	101	3.85	0.77
11	46.5	63	3.10	0.47	47.00	2.77	0.42	57	2.98	0.45	100	3.84	0.59	165	5.14	0.79	61	3.05	0.47	66	3.15	0.48	87	3.57	0.54	108	3.99	0.61
12	88.9	62	3.07	0.90	46.74	2.76	0.81	56	2.95	0.86	84	3.51	1.02	130	4.44	1.29	59	3.00	0.87	55	2.92	0.85	65	3.12	0.91	75	3.33	0.97
13	30.8	68	3.18	0.32	50.47	2.84	0.29	60	3.03	0.31	92	3.67	0.37	148	4.80	0.49	64	3.11	0.31	58	2.99	0.30	71	3.26	0.33	83	3.49	0.35
14	13.7	60	3.03	0.14	50.03	2.83	0.13	54	2.91	0.13	69	3.21	0.14	109	4.02	0.18	120	4.23	0.19	119	4.21	0.19	63	3.09	0.14	78	3.39	0.15
15	28.2	87	3.57	0.33	59.02	3.01	0.28	69	3.20	0.30	126	4.36	0.40	163	5.10	0.47	163	5.11	0.47	153	4.90	0.45	76	3.35	0.31	92	3.66	0.34
16	115.0	65	3.13	1.18	50.71	2.84	1.07	56	2.94	1.11	80	3.44	1.30	122	4.27	1.61	78	3.39	1.28	67	3.18	1.20	76	3.35	1.26	92	3.68	1.39
17	105.3	99	3.81	1.32	57.39	2.98	1.03	69	3.21	1.11	112	4.08	1.41	152	4.87	1.68	150	4.85	1.67	79	3.40	1.18	74	3.31	1.14	90	3.63	1.26
18	5.9	93	3.70	0.07	57.74	2.98	0.06	69	3.21	0.06	74	3.30	0.06	103	3.88	0.08	95	3.74	0.07	97	3.78	0.07	113	4.10	0.08	119	4.22	0.08
19	76.7	72	3.27	0.82	49.62	2.82	0.71	60	3.02	0.76	89	3.61	0.91	134	4.51	1.14	144	4.72	1.19	68	3.19	0.80	70	3.23	0.81	93	3.69	0.93
20	8.1	80	3.43	0.09	60.13	3.03	0.08	78	3.39	0.09	97	3.78	0.10	125	4.33	0.12	136	4.55	0.12	64	3.11	0.08	69	3.22	0.09	86	3.56	0.09
21	24.7	88	3.59	0.29	52.84	2.88	0.23	72	3.28	0.27	117	4.18	0.34	159	5.02	0.41	159	5.03	0.41	64	3.10	0.25	71	3.25	0.26	81	3.45	0.28
22	4.1	85	3.52	0.05	71.10	3.25	0.04	81	3.44	0.05	87	3.57	0.05	121	4.25	0.06	122	4.28	0.06	69	3.22	0.04	75	3.34	0.05	83	3.49	0.05
23	46.1	62	3.07	0.46	51.23	2.85	0.43	57	2.96	0.45	80	3.43	0.52	115	4.14	0.63	120	4.24	0.64	61	3.05	0.46	68	3.19	0.48	89	3.62	0.55
24	16.2	76	3.34	0.18	48.67	2.80	0.15	64	3.11	0.17	111	4.06	0.22	156	4.95	0.26	166	5.15	0.27	67	3.17	0.17	83	3.50	0.19	102	3.87	0.21
25	13.2	84	3.51	0.15	49.19	2.81	0.12	82	3.48	0.15	127	4.36	0.19	172	5.27	0.23	174	5.32	0.23	86	3.54	0.15	93	3.68	0.16	114	4.12	0.18
26	15.7	87	3.58	0.18	49.44	2.82	0.15	71	3.24	0.17	90	3.63	0.19	159	5.02	0.26	170	5.24	0.27	73	3.28	0.17	86	3.56	0.18	106	3.95	0.20
27	29.1	73	3.29	0.31	52.03	2.87	0.27	60	3.03	0.29	74	3.31	0.32	121	4.24	0.40	133	4.49	0.43	63	3.09	0.29	69	3.21	0.31	91	3.65	0.35
28	124.7	75	3.32	1.36	62.23	3.07	1.26	59	3.01	1.23	59	3.01	1.23	99	3.82	1.56	111	4.05	1.66	59	3.01	1.23	73	3.28	1.34	95	3.73	1.53
29	22.8	105	3.93	0.29	72.24	3.27	0.25	59	3.01	0.23	76	3.35	0.25	122	4.28	0.32	142	4.68	0.35	68	3.20	0.24	88	3.59	0.27	106	3.96	0.30
30	14.8	80	3.43	0.17	83.98	3.51	0.17	58	2.99	0.15	70	3.22	0.16	126	4.35	0.21	149	4.83	0.24	68	3.19	0.16	85	3.52	0.17	103	3.90	0.19
31	561.8	56	2.95	5.43	47.25	2.77	5.11	59	3.01	5.55	77	3.37	6.21	78	3.40	6.26	79	3.41	6.29	100	3.84	7.07	79	3.41	6.28	63	3.09	5.69
32	37.0	59	3.02	0.37	64.39	3.12	0.38	56	2.94	0.36	71	3.24	0.39	124	4.32	0.52	146	4.75	0.58	71	3.24	0.39	84	3.51	0.43	98	3.79	0.46
33	6.0	68	3.19	0.06	61.63	3.06	0.06	50	2.82	0.06	60	3.02	0.06	129	4.42	0.09	158	4.99	0.10	65	3.13	0.06	82	3.48	0.07	104	3.90	0.08
34	4.7	70	3.23	0.05	69.63	3.22	0.05	58	2.98	0.05	71	3.25	0.05	149	4.82	0.07	171	5.26	0.08	67	3.17	0.05	86	3.55	0.05	105	3.92	0.06
35	13.5	85	3.53	0.16	65.55	3.14	0.14	54	2.90	0.13	72	3.27	0.15	148	4.81	0.21	165	5.14	0.23	70	3.24	0.14	102	3.87	0.17	131	4.46	0.20
36	13.6	86	3.55	0.16	76.90	3.37	0.15	56	2.95	0.13	71	3.26	0.14	140	4.64	0.21	160	5.03	0.22	70	3.23	0.14	98	3.79	0.17	122	4.27	0.19
37	15.0	93	3.70	0.18	75.34	3.34	0.16	62	3.08	0.15	75	3.33	0.16	141	4.66	0.23	153	4.90	0.24	73	3.29	0.16	98	3.79	0.19	121	4.26	0.21
38	23.6	91	3.64	0.28	107.71	3.99	0.31	126	4.36	0.34	82	3.46	0.27	130	4.44	0.34	126	4.35	0.34	71	3.24	0.25	87	3.56	0.28	110	4.03	0.31
39	28.2	56	2.95	0.27	56.43	2.96	0.27	53	2.89	0.27	62	3.06	0.28	114	4.11	0.38	66	3.14	0.29	64	3.10	0.29	81	3.45	0.32	105	3.93	0.36
40	43.9	59	3.01	0.43	56.93	2.97	0.43	56	2.95	0.42	64	3.11	0.45	126	4.35	0.63	65	3.13	0.45	67	3.16	0.46	87	3.56	0.51	115	4.13	0.60
41	32.1	59	3.01	0.32	59.40	3.02	0.32	52	2.87	0.30	65	3.13	0.33	135	4.53	0.48	67	3.17	0.33	72	3.28	0.34	108	4.00	0.42	137	4.57	0.48
42	40.4	59	3.01	0.40	61.20	3.05	0.40	53	2.88	0.38	69	3.21	0.43	147	4.78	0.63	71	3.24	0.43	78	3.39	0.45	125	4.33	0.57	149	4.82	0.64
43	32.1	61	3.05	0.32	68.31	3.19	0.34	59	3.01	0.32	76	3.34	0.35	134	4.51	0.47	73	3.29	0.35	81	3.45	0.36	118	4.20	0.44	144	4.72	0.50
44	75.9	57	2.98	0.74	67.14	3.17	0.79	51	2.86	0.71	60	3.04	0.76	116	4.16	1.03	143	4.70	1.17	141	4.67	1.16	72	3.26	0.81	74	3.31	0.82
45	73.7	50	2.82	0.68	63.03	3.09	0.75	47	2.77	0.67	57	2.96	0.72	114	4.12	1.00	144	4.72	1.14	154	4.92	1.19	61	3.06	0.74	74	3.31	0.80
46	68.2	54	2.91	0.65	63.03	3.09	0.69	49	2.81	0.63	56	2.94	0.66	111	4.04	0.90	129	4.42	0.99	143	4.69	1.05	67	3.17	0.71	72	3.26	0.73
47	79.2	59	3.01	0.78	76.80	3.37	0.87	51	2.84	0.74	46	2.76	0.72	73	3.29	0.86	71	3.25	0.84	85	3.54	0.92	57	2.96	0.77	62	3.07	0.80
48	70.3	56	2.94	0.68	78.71	3.40	0.79	50	2.82	0.65	47	2.77	0.64	79	3.40	0.79	91	3.64	0.84	122	4.27	0.98	60	3.03	0.70	74	3.32	0.77
49	21.0	63	3.09	0.21	51.11	2.85	0.20	55	2.92	0.20	77	3.36	0.23	114	4.11	0.28	120	4.23	0.29	103	3.90	0.27	65	3.13	0.22	81	3.45	0.24
50	12.1	70	3.22	0.13	52.16	2.87	0.11	58	2.99	0.12	109	4.01	0.16	166	5.15	0.20	169	5.22	0.21	160	5.04	0.20	72	3.27	0.13	94	3.71	0.15
51	29.8	52	2.87	0.28	46.29	2.75	0.27	50	2.82	0.28	47	2.76	0.27	78	3.39	0.33	75	3.32	0.32	96	3.76	0.37	59	3.01	0.29	70	3.22	0.32
52	31.7	69	3.21	0.33	45.92	2.74	0.29	58	2.99	0.31	46	2.75	0.29	81	3.45	0.36	84	3.51	0.36	103	3.90	0.40	63	3.10	0.32	77	3.36	0.35
53	3.4	69	3.20	0.04	52.93	2.89	0.03	61	3.04	0.03	122	4.27	0.05	174	5.31	0.06	175	5.33	0.06	167	5.18	0.06	71	3.24	0.04	98	3.80	0.04
54	14.3	61	3.05	0.14	47.05	2.77	0.13	55	2.93	0.14	45	2.72	0.13	94	3.70	0.17	133	4.50	0.21	160	5.03	0.24	62	3.07	0.14	78	3.39	0.16
55	12.3	51	2.85	0.12	46.00	2.75	0.11	51	2.86	0.12	46	2.75	0.11	80	3.44	0.14	73	3.29	0.13	89	3.62	0.15	67	3.16	0.13	85	3.54	0.14
56	7.2	121	4.25	0.10	73.60	3.30	0.08	74	3.30	0.08	110	4.03	0.10	154	4.92	0.12	161	5.05	0.12	159	5.02	0.12	85	3.52	0.08	113	4.10	0.10
57	26.1	85	3.54	0.30	51.81	2.86	0.25	58	2.99	0.26	94	3.70	0.32	158	5.00	0.43	167	5.19	0.44	164	5.13	0.44	73	3.29	0.28	99	3.81	0.33
58	21.2	45	2.72	0.19	43.84	2.70	0.19	46	2.75	0.19	44	2.70	0.19	74	3.31	0.23	74	3.32	0.23	90	3.64	0.25	58	2.98	0.21	72	3.27	0.23
59	43.9	51	2.84	0.41	52.93	2.89	0.42	48	2.79	0.40	46	2.74	0.40	75	3.32	0.48	69	3.20	0.46	84	3.52	0.51	63	3.08	0.44	78	3.39	0.49
60	2.0	82	3.47	0.02	57.63	2.98	0.02	58	2.98	0.02	89	3.61	0.02	129	4.41	0.03	137	4.57	0.03	140	4.63	0.03	78	3.39	0.02	108	3.99	0.03
61	40.9	58	2.99	0.40	56.97	2.97	0.40	52	2.87	0.39	61	3.05	0.41	109	4.00	0.54	124	4.32	0.58	126	4.34	0.58	63	3.08	0.41	86	3.55	0.48
62	39.2	56	2.94	0.38	72.81	3.29	0.42	51	2.85	0.37	54	2.90	0.37	80	3.43	0.44	77	3.37	0.43	85	3.52	0.45	66	3.16	0.41	82	3.47	0.45
63	11.9	64	3.11	0.12	53.00	2.89	0.11	55	2.92	0.11	75	3.34	0.13	118	4.19	0.16	134	4.52	0.18	143	4.70	0.18	67	3.17	0.12	95	3.72	0.15
64	26.5	55	2.92	0.25	51.14	2.85	0.25	50	2.83	0.25	61	3.06	0.27	119	4.21	0.37	136	4.56	0.40	146	4.75	0.41	63	3.08	0.27	82	3.47	0.30
65	26.0	54	2.90	0.25	54.48	2.92	0.25	50	2.82	0.24	59	3.01	0.26	113	4.09	0.35	136	4.55	0.39	146	4.75	0.40	64	3.11	0.26	81	3.45	0.29
66	9.5	62	3.07	0.10	57.01	2.97	0.09	51	2.85	0.09	64	3.12	0.10	114	4.11	0.13	134	4.52	0.14	146	4.75	0.15	61	3.06	0.10	77	3.37	0.10
67	46.5	62	3.07	0.47	52.70	2.88	0.44	48	2.80	0.43	49	2.80	0.43	82	3.47	0.53	86	3.54	0.54	87	3.57	0.55	60	3.03	0.46	73	3.29	0.50
68	46.0	54	2.90	0.44	69.50	3.22	0.49	50	2.83	0.43	45	2.73	0.41	75	3.34	0.50	78	3.38	0.51	96	3.76	0.57	55	2.93	0.44	63	3.08	0.46
69	41.8	58	2.98	0.41	65.52	3.14	0.43	55	2.93	0.40	48	2.78	0.38	73	3.29	0.45	70	3.23	0.44	79	3.42	0.47	56	2.96	0.40	60	3.02	0.41
70	28.9	59	3.00	0.28	51.40	2.85	0.27	49	2.80	0.27	52	2.87	0.27	100	3.83	0.36	126	4.35	0.41	134	4.51	0.43	143	4.69	0.45	67	3.17	0.30
71	20.1	67	3.17	0.21	82.64	3.48	0.23	54	2.91	0.19	60	3.04	0.20	103	3.89	0.26	113	4.09	0.27	123	4.28	0.28	66	3.14	0.21	76	3.34	0.22
72	18.3	62	3.07	0.18	76.79	3.37	0.20	56	2.96	0.18	56	2.94	0.18	95	3.73	0.22	95	3.72	0.22	115	4.13	0.25	61	3.06	0.18	71	3.24	0.19
73	16.7	61	3.04	0.17	80.18	3.43	0.19	57	2.97	0.16	55	2.93	0.16	91	3.66	0.20	94	3.71	0.20	114	4.11	0.22	64	3.10	0.17	73	3.29	0.18
74	14.6	64	3.11	0.15	82.70	3.48	0.17	60	3.04	0.15	57	2.96	0.14	93	3.69	0.18	99	3.81	0.18	113	4.08	0.20	64	3.11	0.15	77	3.37	0.16
75	11.7	61	3.05	0.12	70.46	3.24	0.12	93	3.68	0.14	54	2.90	0.11	92	3.66	0.14	104	3.91	0.15	119	4.21	0.16	64	3.12	0.12	76	3.35	0.13
76	9.9	65	3.13	0.10	70.42	3.24	0.11	92	3.68	0.12	57	2.97	0.10	99	3.80	0.12	116	4.14	0.14	137	4.58	0.15	69	3.21	0.10	78	3.40	0.11
77	9.8	59	3.01	0.10	62.38	3.08	0.10	77	3.37	0.11	56	2.95	0.10	90	3.63	0.12	106	3.95	0.13	126	4.35	0.14	67	3.17	0.10	75	3.32	0.11

78	12.8	67	3.16	0.13	77.92	3.39	0.14	62	3.08	0.13	57	2.97	0.12	91	3.66	0.15	112	4.07	0.17	136	4.55	0.19	73	3.28	0.14	79	3.41	0.14
79	16.0	54	2.91	0.15	56.24	2.95	0.16	59	3.02	0.16	48	2.80	0.15	106	3.95	0.21	143	4.69	0.25	162	5.07	0.27	111	4.05	0.21	77	3.36	0.18
80	20.9	58	2.99	0.21	57.62	2.98	0.20	51	2.84	0.20	56	2.94	0.20	123	4.29	0.29	141	4.66	0.32	154	4.91	0.34	67	3.18	0.22	75	3.32	0.23
81	13.3	64	3.12	0.14	63.18	3.09	0.13	54	2.91	0.13	61	3.05	0.13	100	3.83	0.17	123	4.29	0.19	137	4.58	0.20	72	3.27	0.14	80	3.44	0.15
82	113.3	52	2.87	1.07	54.92	2.93	1.09	56	2.96	1.10	48	2.79	1.04	79	3.40	1.26	77	3.37	1.25	88	3.58	1.33	90	3.62	1.35	63	3.09	1.15
83	37.3	58	2.98	0.36	63.72	3.10	0.38	51	2.85	0.35	57	2.96	0.36	94	3.71	0.45	110	4.04	0.49	123	4.29	0.52	127	4.37	0.53	68	3.19	0.39
84	49.6	57	2.97	0.48	72.07	3.27	0.53	51	2.85	0.46	61	3.04	0.49	103	3.90	0.63	117	4.18	0.68	130	4.43	0.72	119	4.21	0.69	67	3.17	0.52
85	42.6	60	3.03	0.42	60.08	3.03	0.42	50	2.83	0.39	53	2.90	0.40	87	3.58	0.50	101	3.85	0.54	112	4.08	0.57	60	3.02	0.42	64	3.12	0.44
86	10.6	69	3.21	0.11	68.13	3.19	0.11	53	2.88	0.10	66	3.14	0.11	119	4.22	0.15	142	4.67	0.16	146	4.75	0.16	72	3.27	0.11	85	3.53	0.12
87	3.3	81	3.45	0.04	61.97	3.07	0.03	57	2.97	0.03	81	3.46	0.04	128	4.40	0.05	141	4.66	0.05	141	4.66	0.05	141	4.65	0.05	79	3.41	0.04
88	48.5	67	3.18	0.51	78.27	3.40	0.54	52	2.87	0.46	82	3.47	0.55	123	4.29	0.68	125	4.34	0.69	124	4.32	0.69	131	4.46	0.71	75	3.34	0.53
89	15.0	67	3.17	0.16	61.13	3.05	0.15	52	2.87	0.14	64	3.11	0.15	91	3.66	0.18	102	3.88	0.19	109	4.00	0.20	119	4.22	0.21	84	3.52	0.17
90	3.8	61	3.05	0.04	59.37	3.02	0.04	53	2.88	0.04	84	3.50	0.04	107	3.97	0.05	118	4.20	0.05	149	4.82	0.06	147	4.78	0.06	79	3.42	0.04
91	14.1	61	3.05	0.14	66.05	3.15	0.15	56	2.95	0.14	81	3.44	0.16	113	4.09	0.19	116	4.16	0.19	106	3.95	0.18	140	4.63	0.21	75	3.33	0.15
92	15.0	59	3.02	0.15	63.84	3.10	0.15	54	2.92	0.14	69	3.22	0.16	106	3.96	0.19	115	4.13	0.20	123	4.30	0.21	139	4.61	0.23	75	3.34	0.16
93	8.4	61	3.05	0.08	62.98	3.09	0.08	56	2.94	0.08	69	3.21	0.09	103	3.89	0.11	97	3.78	0.10	101	3.85	0.11	121	4.25	0.12	79	3.40	0.09
94	9.0	96	3.74	0.11	96.47	3.76	0.11	57	2.97	0.09	76	3.34	0.10	126	4.36	0.13	134	4.52	0.13	134	4.51	0.13	75	3.33	0.10	97	3.77	0.11
95	20.9	91	3.66	0.25	100.67	3.85	0.26	55	2.94	0.20	75	3.34	0.23	122	4.28	0.29	138	4.60	0.32	143	4.69	0.32	72	3.27	0.22	101	3.86	0.26
96	74.4	75	3.32	0.81	78.32	3.40	0.83	54	2.90	0.71	72	3.28	0.80	123	4.29	1.05	129	4.41	1.08	127	4.37	1.07	138	4.59	1.12	143	4.69	1.15
97	21.3	104	3.90	0.27	103.42	3.90	0.27	60	3.03	0.21	82	3.48	0.24	118	4.18	0.29	129	4.42	0.31	131	4.46	0.31	136	4.56	0.32	137	4.59	0.32
98	5.4	121	4.25	0.07	51.75	2.86	0.05	53	2.88	0.05	74	3.31	0.06	103	3.89	0.07	125	4.33	0.08	127	4.38	0.08	63	3.08	0.05	82	3.46	0.06
99	8.2	71	3.24	0.09	52.50	2.88	0.08	56	2.95	0.08	103	3.89	0.10	153	4.89	0.13	153	4.89	0.13	149	4.82	0.13	68	3.18	0.09	95	3.73	0.10
100	24.6	67	3.17	0.26	52.21	2.87	0.23	54	2.91	0.23	85	3.52	0.28	131	4.45	0.36	144	4.71	0.38	142	4.67	0.38	67	3.16	0.25	80	3.44	0.28
101	5.9	100	3.82	0.07	64.05	3.11	0.06	66	3.16	0.06	97	3.77	0.07	125	4.33	0.08	122	4.27	0.08	117	4.17	0.08	67	3.16	0.06	91	3.66	0.07
102	10.2	128	4.39	0.15	67.88	3.19	0.11	62	3.06	0.10	95	3.73	0.12	139	4.62	0.15	159	5.03	0.17	151	4.86	0.16	86	3.55	0.12	112	4.07	0.14
103	4.3	128	4.40	0.06	57.46	2.98	0.04	59	3.01	0.04	90	3.63	0.05	136	4.56	0.07	143	4.70	0.07	141	4.65	0.07	73	3.29	0.05	100	3.83	0.05
104	21.2	53	2.88	0.20	53.05	2.89	0.20	50	2.83	0.20	77	3.36	0.23	109	4.01	0.28	107	3.97	0.28	102	3.88	0.27	61	3.05	0.21	77	3.37	0.23
105	5.6	90	3.62	0.07	58.05	2.99	0.06	57	2.97	0.05	90	3.62	0.07	142	4.68	0.09	159	5.01	0.09	159	5.01	0.09	69	3.21	0.06	77	3.38	0.06
106	27.4	87	3.58	0.32	57.12	2.97	0.27	58	3.00	0.27	88	3.59	0.32	138	4.59	0.41	149	4.82	0.43	150	4.84	0.44	66	3.14	0.28	80	3.43	0.31
107	0.2	72	3.28	0.00	61.17	3.05	0.00	62	3.07	0.00	90	3.63	0.00	141	4.66	0.00	138	4.60	0.00	149	4.81	0.00	103	3.89	0.00	-	1.82	0.00
108	2.7	96	3.75	0.03	59.14	3.01	0.03	59	3.01	0.03	91	3.66	0.03	148	4.79	0.04	152	4.87	0.04	154	4.93	0.04	168	5.19	0.05	69	3.22	0.03
109	4.7	107	3.97	0.06	59.08	3.01	0.05	59	3.01	0.05	94	3.70	0.06	135	4.53	0.07	154	4.92	0.08	155	4.93	0.08	153	4.91	0.08	79	3.41	0.05
110	24.3	70	3.23	0.26	63.03	3.09	0.25	54	2.91	0.23	69	3.22	0.26	109	4.02	0.32	129	4.41	0.35	136	4.56	0.36	71	3.25	0.26	90	3.63	0.29
111	12.3	66	3.15	0.13	65.02	3.13	0.13	49	2.81	0.11	65	3.14	0.13	109	4.02	0.16	122	4.28	0.17	130	4.44	0.18	95	3.73	0.15	122	4.27	0.17
112	12.1	66	3.14	0.12	55.08	2.93	0.12	48	2.80	0.11	61	3.05	0.12	125	4.32	0.17	140	4.64	0.18	125	4.33	0.17	80	3.43	0.14	99	3.82	0.15
113	3.8	60	3.02	0.04	50.90	2.84	0.04	50	2.82	0.03	62	3.07	0.04	126	4.36	0.05	145	4.74	0.06	78	3.39	0.04	65	3.13	0.04	82	3.47	0.04
114	23.2	58	2.98	0.23	69.51	3.22	0.25	54	2.90	0.22	72	3.27	0.25	114	4.11	0.31	107	3.98	0.30	114	4.11	0.31	118	4.19	0.32	90	3.63	0.28
115	1.0	67	3.18	0.01	76.28	3.35	0.01	59	3.02	0.01	76	3.35	0.01	105	3.93	0.01	127	4.37	0.01	97	3.78	0.01	116	4.16	0.01	89	3.61	0.01
116	9.7	58	2.98	0.09	57.26	2.97	0.09	53	2.90	0.09	54	2.91	0.09	111	4.06	0.13	137	4.57	0.15	146	4.75	0.15	141	4.65	0.15	70	3.24	0.10
117	5.3	74	3.31	0.06	76.72	3.36	0.06	66	3.15	0.06	84	3.52	0.06	124	4.32	0.08	137	4.58	0.08	141	4.65	0.08	99	3.82	0.07	94	3.71	0.06
118	3.5	72	3.27	0.04	92.31	3.68	0.04	59	3.00	0.03	107	3.97	0.05	148	4.79	0.06	154	4.93	0.06	153	4.90	0.06	107	3.98	0.05	121	4.24	0.05
119	33.5	61	3.06	0.34	73.37	3.30	0.36	55	2.94	0.32	82	3.47	0.38	129	4.42	0.49	134	4.52	0.50	136	4.55	0.50	137	4.58	0.50	96	3.76	0.41
120	32.3	62	3.07	0.32	54.87	2.92	0.31	51	2.85	0.30	51	2.85	0.30	101	3.86	0.41	114	4.12	0.44	126	4.36	0.46	62	3.07	0.33	72	3.27	0.35
121	7.3	70	3.22	0.08	61.16	3.05	0.07	58	2.98	0.07	72	3.26	0.08	115	4.14	0.10	135	4.54	0.11	146	4.75	0.11	73	3.30	0.08	94	3.71	0.09
122	16.3	82	3.47	0.19	65.62	3.14	0.17	63	3.08	0.16	81	3.45	0.18	113	4.10	0.22	117	4.16	0.22	126	4.35	0.23	82	3.46	0.18	92	3.67	0.20
123	75.1	59	3.00	0.74	55.16	2.93	0.72	49	2.80	0.69	57	2.98	0.73	103	3.89	0.96	105	3.94	0.97	115	4.13	1.02	59	3.00	0.74	75	3.33	0.82
124	7.8	85	3.54	0.09	69.30	3.21	0.08	71	3.24	0.08	56	2.95	0.08	87	3.56	0.09	98	3.78	0.10	116	4.15	0.11	127	4.38	0.11	83	3.50	0.09
125	16.0	73	3.29	0.17	62.46	3.08	0.16	56	2.95	0.15	67	3.17	0.17	97	3.78	0.20	93	3.70	0.19	94	3.71	0.19	107	3.98	0.21	77	3.38	0.18
126	24.1	63	3.09	0.24	66.47	3.16	0.25	56	2.95	0.23	68	3.18	0.25	112	4.07	0.32	99	3.81	0.30	99	3.82	0.30	75	3.33	0.26	75	3.32	0.26
127	23.7	52	2.87	0.22	44.20	2.71	0.21	50	2.83	0.22	45	2.73	0.21	74	3.30	0.26	78	3.39	0.26	99	3.82	0.30	58	2.99	0.23	72	3.28	0.25
128	2.0	132	4.48	0.03	115.06	4.13	0.03	97	3.77	0.02	98	3.79	0.02	143	4.69	0.03	135	4.54	0.03	93	3.70	0.02	137	4.57	0.03	144	4.71	0.03
129	4.8	118	4.20	0.07	79.34	3.42	0.05	67	3.17	0.05	96	3.75	0.06	164	5.12	0.08	164	5.13	0.08	81	3.44	0.05	102	3.88	0.06	124	4.32	0.07
130	1.0	62	3.06	0.01	61.65	3.06	0.01	53	2.89	0.01	69	3.22	0.01	101	3.86	0.01	97	3.77	0.01	-	1.82	0.01	72	3.27	0.01	77	3.37	0.01
				41.57			**39.96**			**39.39**			**43.40**			**54.07**			**51.91**			**50.89**			**45.94**			**46.96**

Date	L5 or L7 (AF)
5/15/09	41.57
5/23/09	38.45
5/31/09	39.96
6/8/09	38.46
6/16/09	39.39
6/24/09	38.76
7/2/09	43.40
7/10/09	44.96
7/18/09	54.07
7/26/09	53.89
8/3/09	51.91
8/11/09	52.94
8/19/09	50.89
8/27/09	51.02
9/4/09	45.94
9/20/09	46.96

Orange	Landsat 5 Image Dates
Clear	Landsat 7 Image Dates

Date	Estimated AF
5/15/2009	41.57
5/16/2009	41.57
5/17/2009	41.57
5/18/2009	41.57
5/19/2009	40.01
5/20/2009	38.45
5/21/2009	38.45
5/22/2009	38.45
5/23/2009	38.45
5/24/2009	38.45
5/25/2009	38.45
5/26/2009	38.45
5/27/2009	39.21
5/28/2009	39.96
5/29/2009	39.96
5/30/2009	39.96
5/31/2009	39.96
6/1/2009	39.96
6/2/2009	39.96
6/3/2009	39.96
6/4/2009	39.21
6/5/2009	38.46
6/6/2009	38.46
6/7/2009	38.46
6/8/2009	38.46
6/9/2009	38.46
6/10/2009	38.46
6/11/2009	38.46
6/12/2009	38.92
6/13/2009	39.39
6/14/2009	39.39
6/15/2009	39.39
6/16/2009	39.39
6/17/2009	39.39
6/18/2009	39.39
6/19/2009	39.39
6/20/2009	39.08
6/21/2009	38.76
6/22/2009	38.76
6/23/2009	38.76
6/24/2009	38.76
6/25/2009	38.76
6/26/2009	38.76
6/27/2009	38.76
6/28/2009	41.08

	Webb Monthly Total (AF)	Webb Monthly Total (AF/A)
May	674	0.17
June	1181	0.29
July	1540	0.38
August	1599	0.39
September	1397	0.34
Total	6392	1.57

May data is from 5/15 - 5/31

Missing Day = Linear Average

Extended Data Set (9/24-930)

Notes:

Columns A and B represent the volume totals for each landsat day. Cells highlighe represent Landsat 5 images, cells left blank represent Landsat 7 images

Columns D and E represent the summation method to calculate monthly totals of E

Since we used a seven day average, when possible, around each Landsat date, we the average ETc volume to be the same around those dates. The cells highlighted i represent days not included in the ETc seven day average and are thus linear inter

In September, there were two missing Landsat images, 9/12 and 9/28. For 9/12, we between the values from image 9/4 and 9/20. For 9/28, we expanded the values fro of the month (cells highlighted in salmon color).

The final table, top of columns G - I, sums each day of the month for values in AF a by 4063.79 to get AF/A. The light blue highlighted cells represent values starting fr

6/29/2009	43.40
6/30/2009	43.40
7/1/2009	43.40
7/2/2009	43.40
7/3/2009	43.40
7/4/2009	43.40
7/5/2009	43.40
7/6/2009	44.18
7/7/2009	44.96
7/8/2009	44.96
7/9/2009	44.96
7/10/2009	44.96
7/11/2009	44.96
7/12/2009	44.96
7/13/2009	44.96
7/14/2009	49.52
7/15/2009	54.07
7/16/2009	54.07
7/17/2009	54.07
7/18/2009	54.07
7/19/2009	54.07
7/20/2009	54.07
7/21/2009	54.07
7/22/2009	53.98
7/23/2009	53.89
7/24/2009	53.89
7/25/2009	53.89
7/26/2009	53.89
7/27/2009	53.89
7/28/2009	53.89
7/29/2009	53.89
7/30/2009	52.90
7/31/2009	51.91
8/1/2009	51.91
8/2/2009	51.91
8/3/2009	51.91
8/4/2009	51.91
8/5/2009	51.91
8/6/2009	51.91
8/7/2009	52.43
8/8/2009	52.94
8/9/2009	52.94
8/10/2009	52.94
8/11/2009	52.94
8/12/2009	52.94
8/13/2009	52.94

8/14/2009	52.94	
8/15/2009	51.92	
8/16/2009	50.89	
8/17/2009	50.89	
8/18/2009	50.89	
8/19/2009	50.89	
8/20/2009	50.89	
8/21/2009	50.89	
8/22/2009	50.89	
8/23/2009	50.95	
8/24/2009	51.02	
8/25/2009	51.02	
8/26/2009	51.02	
8/27/2009	51.02	
8/28/2009	51.02	0.101857316
8/29/2009	51.02	
8/30/2009	51.02	
8/31/2009	48.48	
9/1/2009	45.94	
9/2/2009	45.94	
9/3/2009	45.94	
9/4/2009	45.94	
9/5/2009	45.94	
9/6/2009	45.94	
9/7/2009	45.94	
9/8/2009	46.05	
9/9/2009	46.15	
9/10/2009	46.25	
9/11/2009	46.35	
9/12/2009	46.45	
9/13/2009	46.56	
9/14/2009	46.66	
9/15/2009	46.76	
9/16/2009	46.86	
9/17/2009	46.96	
9/18/2009	46.96	
9/19/2009	46.96	
9/20/2009	46.96	
9/21/2009	46.96	
9/22/2009	46.96	
9/23/2009	46.96	
9/24/2009	46.96	
9/25/2009	46.96	
9/26/2009	46.96	
9/27/2009	46.96	
9/28/2009	46.96	