Lake Lacawac, Bruce R. Hargreaves, Lehigh University (brh0@lehigh.edu, http://www.lehigh.edu/~brh0)
Station moved to lake center on 20 April 08
The water level sensor (referenced to dock) settles for several days after moving platform to lake center and thus underestimates water level during this period.
Adjusted Tw sensors 13Nov07 based on comparison of depths and vs PUV & YSI sonde profiles (note that Tw at 11.3m matches PUV Tw at 12.5, probably within sediment boundary layer)
Tw12 adjusted to match others on bottom after moved to dock

H310 sensor depth & Lake level are based on differential pressure sensor with ca 0.1mm resolution & vertical position referenced to bottom of lake.
Sensor PSIG converted to depth using density of water at 4oC (1.43321 psi/m)
Lake level is referenced also to lower frame of dock at SE corner (2003-May2005)
(Actual water level at dock varies seasonally with density of water column and hourly from precip, runoff, evaporation, seepage & outflow. Outflow also varies with status of beaver dam).

| | | |
|---|---|---|
| 5280 | ft/mile | |
| 1609.3 | m/mile | |

| | Tair avg F | Tair max F | Tair min F | | Rain-in | WS-mph | WS max mph | | | | | Tw 0.1m F | Tw 0.5m F | Tw 1m F | Tw 2m F | Tw 3m F | Tw 4m F | Tw 5m F | Tw 6m F | Tw 8m F | Tw 10m F | Tw 12m F | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 69.5 | 87.2 | 54.0 | | 1.95 | 3.5 | 22 | | | | | 77.7 | 77.8 | 77.7 | 77.1 | 74.2 | 63.9 | 54.7 | 49.1 | 44.2 | 43.4 | 43.2 | | | | | | |
| **Month summary** | Tair avg-C | Tair Hi-C | Tair Min-C | RHair-% | Rain-mm | WS-m/s | WS Max-m/s | WDIR-deg | Barom-mb | Sum Rad W/m2 | Sum PAR uM/m2/s | Tw 0.1m | Tw 0.5m | Tw 1m | Tw 2m | Tw 3m | Tw 4m | Tw 5m | Tw 6m | Tw 8m | Tw10.2m | Tw11.5m | H310_z (m) | Lakelevel-mm (4oC) | cumul. rain-mm | Batt min V | RH% CR10 enc | RH% MUX enc |
| | **20.8** | **30.6** | **12.2** | **81.4** | **49.6** | **1.6** | **10.1** | **#N/A** | **963.6** | **634122215** | **1321** | **25.4** | **25.5** | **25.4** | **25.1** | **23.5** | **17.7** | **12.6** | **9.5** | **6.8** | **6.3** | **6.2** | **10.1** | **36.8** | **49.6** | **12.6** | **28.5** | **30.0** |

month 7

Data

| Location | % records | Date | Day of Yr | Tair avg-C | Tair Hi-C | Tair Min-C | RHair-% | Rain-mm | WS-m/s | WS Max-m/s | WDIR-deg | Barom-mb | Sum Rad J/m2 | Sum PAR Mol/m2 | Tw 0.1m | Tw 0.5m | Tw 1m | Tw 2m | TW3m | TW4m | TW5m | TW6m | TW8m | TW H310-C | TW12m | H310 depth-m (4oC) | Lakelevel-mm (4oC) | cumul. rain-mm | Batt mi | RH% CR10 enc | RH% MUX enc |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| LC | 100% | 7/1/2008 | 183 | 19.0 | 22.4 | 15.8 | 84.7 | 0.0 | 1.8 | 7.0 | 295 | 961.3 | 22346170 | 47 | 24 | 24 | 24.2 | 23.9 | 21.1 | 15.7 | 11.6 | 9.0 | 6.7 | 6.2 | 6.2 | 10.2 | 82.4 | 0.000 | 12.6 | 21.3 | 23.9 |
| LC | 100% | 7/2/2008 | 184 | 19.3 | 24.4 | 12.9 | 71.3 | 0.0 | 1.8 | 8.6 | 261 | 964.3 | 29315705 | 60 | 24 | 24 | 24.3 | 24.0 | 21.4 | 15.9 | 11.6 | 9.0 | 6.6 | 6.2 | 6.2 | 10.1 | 77.1 | 0.000 | 12.7 | 20.5 | 22.7 |
| LC | 100% | 7/3/2008 | 185 | 20.6 | 25.8 | 16.9 | 77.3 | 4.8 | 1.9 | 8.1 | 235 | 963.3 | 15238298 | 32 | 24 | 24 | 24.1 | 24.0 | 21.7 | 16.0 | 11.7 | 9.0 | 6.7 | 6.2 | 6.2 | 10.1 | 73.0 | 4.800 | 12.7 | 21.0 | 23.7 |
| LC | 100% | 7/4/2008 | 186 | 18.9 | 20.7 | 17.1 | 93.3 | 0.3 | 0.9 | 3.3 | 187 | 965.5 | 8364367 | 18 | 24 | 24 | 23.8 | 23.7 | 21.9 | 16.1 | 11.8 | 9.1 | 6.7 | 6.2 | 6.2 | 10.1 | 73.7 | 5.100 | 12.6 | 23.2 | 26.4 |
| LC | 100% | 7/5/2008 | 187 | 19.5 | 24.7 | 14.9 | 87.6 | 0.0 | 0.8 | 4.2 | 192 | 965.4 | 19270183 | 40 | 24 | 24 | 23.6 | 23.4 | 21.9 | 16.1 | 11.8 | 9.1 | 6.6 | 6.3 | 6.2 | 10.1 | 67.6 | 5.100 | 12.6 | 24.1 | 26.6 |
| LC | 100% | 7/6/2008 | 188 | 20.7 | 25.4 | 15.9 | 87.5 | 0.1 | 1.2 | 5.0 | 174 | 966.8 | 21812650 | 45 | 24 | 24 | 24.1 | 23.7 | 22.0 | 16.2 | 11.8 | 9.1 | 6.7 | 6.3 | 6.2 | 10.1 | 64.5 | 5.200 | 12.6 | 24.5 | 26.4 |
| LC | 100% | 7/7/2008 | 189 | 22.4 | 25.2 | 19.5 | 90.3 | 0.0 | 1.1 | 4.5 | 173 | 966.5 | 16094977 | 34 | 25 | 25 | 24.6 | 24.0 | 22.0 | 16.4 | 11.9 | 9.1 | 6.7 | 6.3 | 6.2 | 10.1 | 61.1 | 5.200 | 12.6 | 25.9 | 27.0 |
| LC | 100% | 7/8/2008 | 190 | 24.0 | 28.5 | 19.7 | 82.2 | 0.0 | 1.9 | 6.5 | 233 | 963.0 | 24813274 | 51 | 25 | 26 | 25.2 | 24.3 | 22.1 | 16.5 | 12.0 | 9.2 | 6.7 | 6.3 | 6.2 | 10.1 | 57.5 | 5.200 | 12.6 | 26.7 | 27.4 |
| LC | 100% | 7/9/2008 | 191 | 22.8 | 24.4 | 20.8 | 89.6 | 0.0 | 2.0 | 7.0 | 244 | 958.4 | 13676426 | 30 | 25 | 26 | 25.6 | 24.7 | 22.2 | 16.6 | 12.0 | 9.2 | 6.7 | 6.3 | 6.2 | 10.1 | 53.1 | 5.200 | 12.7 | 27.2 | 27.7 |
| LC | 100% | 7/10/2008 | 192 | 20.4 | 24.1 | 16.1 | 71.6 | 0.0 | 2.5 | 9.1 | 308 | 963.5 | 30209125 | 62 | 25 | 25 | 25.2 | 25.0 | 22.4 | 16.7 | 12.0 | 9.2 | 6.7 | 6.3 | 6.2 | 10.1 | 48.1 | 5.200 | 12.6 | 26.0 | 26.5 |
| LC | 100% | 7/11/2008 | 193 | 20.0 | 25.8 | 12.2 | 74.3 | 0.0 | 1.1 | 5.6 | 263 | 966.7 | 24542582 | 51 | 25 | 25 | 25.1 | 24.8 | 22.8 | 16.8 | 12.1 | 9.3 | 6.7 | 6.3 | 6.2 | 10.1 | 42.3 | 5.200 | 12.7 | 24.6 | 25.1 |
| LC | 100% | 7/12/2008 | 194 | 23.8 | 27.8 | 18.7 | 74.2 | 0.0 | 1.6 | 6.4 | 241 | 966.4 | 21104636 | 44 | 26 | 26 | 25.5 | 25.0 | 23.0 | 17.0 | 12.2 | 9.3 | 6.7 | 6.3 | 6.2 | 10.1 | 38.0 | 5.200 | 12.7 | 26.7 | 27.2 |
| LC | 100% | 7/13/2008 | 195 | 22.6 | 26.4 | 20.1 | 79.3 | 11.1 | 2.9 | 10.1 | 213 | 959.6 | 17451515 | 37 | 25 | 25 | 25.1 | 25.0 | 23.1 | 17.1 | 12.3 | 9.3 | 6.7 | 6.3 | 6.2 | 10.1 | 33.3 | 16.300 | 12.7 | 27.7 | 29.3 |
| LC | 100% | 7/14/2008 | 196 | 20.5 | 24.5 | 16.9 | 83.0 | 0.9 | 1.4 | 5.8 | 266 | 959.7 | 21227492 | 44 | 25 | 25 | 25.2 | 25.0 | 23.6 | 17.3 | 12.4 | 9.4 | 6.7 | 6.3 | 6.2 | 10.1 | 41.5 | 17.200 | 12.6 | 28.7 | 33.0 |
| LC | 100% | 7/15/2008 | 197 | 19.9 | 25.2 | 13.7 | 73.6 | 0.0 | 1.5 | 7.8 | 282 | 967.1 | 29589276 | 61 | 25 | 25 | 25.4 | 24.9 | 23.9 | 17.4 | 12.4 | 9.4 | 6.7 | 6.3 | 6.2 | 10.1 | 37.2 | 17.200 | 12.6 | 26.6 | 28.0 |
| LC | 100% | 7/16/2008 | 198 | 21.5 | 28.9 | 13.1 | 70.6 | 0.0 | 1.1 | 5.0 | 260 | 970.1 | 28960987 | 60 | 26 | 26 | 25.5 | 25.2 | 23.9 | 17.6 | 12.5 | 9.5 | 6.7 | 6.4 | 6.3 | 10.1 | 31.9 | 17.200 | 12.7 | 26.6 | 27.3 |
| LC | 100% | 7/17/2008 | 199 | 22.4 | 28.3 | 16.9 | 80.3 | 0.0 | 1.2 | 5.7 | 245 | 969.7 | 21119675 | 44 | 26 | 26 | 26.1 | 25.5 | 23.9 | 17.8 | 12.6 | 9.5 | 6.8 | 6.4 | 6.3 | 10.1 | 27.2 | 17.200 | 12.6 | 28.5 | 28.5 |
| LC | 100% | 7/18/2008 | 200 | 24.2 | 29.9 | 17.7 | 78.1 | 0.0 | 1.7 | 5.8 | 262 | 966.7 | 26336456 | 55 | 26 | 26 | 26.4 | 25.8 | 24.0 | 18.0 | 12.7 | 9.5 | 6.8 | 6.4 | 6.3 | 10.1 | 22.4 | 17.200 | 12.6 | 29.1 | 29.2 |
| LC | 100% | 7/19/2008 | 201 | 25.4 | 29.9 | 21.3 | 74.3 | 0.0 | 1.5 | 6.5 | 264 | 964.8 | 23596357 | 49 | 27 | 27 | 27.1 | 26.2 | 24.1 | 18.1 | 12.7 | 9.6 | 6.8 | 6.4 | 6.3 | 10.1 | 17.7 | 17.200 | 12.6 | 30.3 | 30.1 |
| LC | 100% | 7/20/2008 | 202 | 24.6 | 30.6 | 19.2 | 74.8 | 4.4 | 2.0 | 8.8 | 240 | 962.4 | 24071033 | 50 | 27 | 27 | 27.2 | 26.7 | 24.3 | 18.3 | 12.8 | 9.6 | 6.8 | 6.4 | 6.3 | 10.1 | 12.9 | 21.600 | 12.6 | 30.6 | 30.8 |
| LC | 100% | 7/21/2008 | 203 | 21.7 | 27.3 | 18.4 | 88.7 | 1.7 | 1.9 | 9.8 | 276 | 960.6 | 20882247 | 44 | 27 | 27 | 27.0 | 26.9 | 24.5 | 18.4 | 12.9 | 9.7 | 6.8 | 6.4 | 6.3 | 10.1 | 11.9 | 23.300 | 12.6 | 31.5 | 33.3 |
| LC | 100% | 7/22/2008 | 204 | 21.9 | 27.2 | 16.8 | 87.4 | 0.1 | 1.0 | 5.7 | 204 | 962.4 | 19369039 | 41 | 27 | 27 | 26.9 | 26.6 | 24.8 | 18.6 | 13.0 | 9.7 | 6.8 | 6.4 | 6.3 | 10.1 | 8.7 | 23.400 | 12.6 | 31.5 | 32.7 |
| LC | 100% | 7/23/2008 | 205 | 20.1 | 21.9 | 18.0 | 97.7 | 24.8 | 1.5 | 7.5 | 189 | 963.3 | 7026380 | 16 | 26 | 26 | 26.5 | 26.4 | 24.9 | 18.7 | 13.1 | 9.8 | 6.8 | 6.4 | 6.3 | 10.1 | 18.8 | 48.200 | 12.6 | 32.8 | 38.0 |
| LC | 100% | 7/24/2008 | 206 | 19.7 | 22.8 | 15.7 | 84.9 | 0.8 | 2.0 | 8.9 | 231 | 963.3 | 20494876 | 43 | 26 | 26 | 25.8 | 25.7 | 25.1 | 18.9 | 13.3 | 9.9 | 6.9 | 6.4 | 6.3 | 10.1 | 32.8 | 49.000 | 12.6 | 33.7 | 39.0 |
| LC | 100% | 7/25/2008 | 207 | 19.7 | 25.6 | 13.4 | 72.2 | 0.0 | 1.4 | 6.7 | 265 | 968.3 | 28526129 | 59 | 26 | 26 | 25.6 | 25.2 | 24.8 | 19.1 | 13.3 | 9.9 | 6.8 | 6.4 | 6.3 | 10.1 | 28.0 | 49.000 | 12.6 | 31.8 | 33.3 |
| LC | 100% | 7/26/2008 | 208 | 22.0 | 26.1 | 16.6 | 78.8 | 0.0 | 2.0 | 6.9 | 223 | 963.9 | 21131888 | 44 | 25 | 26 | 25.6 | 25.4 | 24.7 | 19.2 | 13.4 | 10.0 | 6.9 | 6.4 | 6.3 | 10.1 | 22.7 | 49.000 | 12.7 | 32.1 | 33.3 |
| LC | 100% | 7/27/2008 | 209 | 21.6 | 25.4 | 15.8 | 84.6 | 0.6 | 1.6 | 9.3 | 249 | 959.4 | 15807746 | 33 | 25 | 25 | 25.5 | 25.3 | 24.8 | 19.4 | 13.5 | 10.0 | 6.9 | 6.4 | 6.3 | 10.1 | 19.2 | 49.600 | 12.6 | 34.1 | 35.9 |
| LC | 100% | 7/28/2008 | 210 | 19.9 | 25.9 | 12.9 | 78.0 | 0.0 | 1.6 | 7.2 | 267 | 961.0 | 22343786 | 45 | 25 | 25 | 25.3 | 25.0 | 24.7 | 19.6 | 13.6 | 10.0 | 6.9 | 6.4 | 6.3 | 10.1 | 15.2 | 49.600 | 12.6 | 32.8 | 33.6 |
| LC | 100% | 7/29/2008 | 211 | 21.5 | 26.3 | 16.3 | 79.1 | 0.0 | 1.7 | 7.2 | 279 | 962.6 | 22989183 | 47 | 25 | 25 | 25.3 | 25.1 | 24.6 | 19.7 | 13.6 | 10.1 | 6.9 | 6.4 | 6.3 | 10.1 | 10.5 | 49.600 | 12.6 | 33.8 | 33.8 |
| LC | 100% | 7/30/2008 | 212 | 22.0 | 26.6 | 15.9 | 83.6 | 0.0 | 0.8 | 3.9 | 222 | 959.5 | 16409397 | 34 | 26 | 25 | 25.3 | 25.2 | 24.6 | 19.9 | 13.7 | 10.1 | 6.9 | 6.4 | 6.3 | 10.1 | 6.5 | 49.600 | 12.6 | 34.1 | 34.3 |
| LC | 25% | 7/31/2008 | 213 | 20.7 | 21.7 | 19.4 | 91.4 | 0.0 | 0.9 | 3.6 | 247 | 955.1 | 360 | 0 | 25 | 25 | 25.5 | 25.2 | 24.6 | 20.0 | 13.8 | 10.2 | 6.9 | 6.4 | 6.3 | 10.1 | 4.6 | 49.600 | 12.6 | 35.7 | 36.0 |

Lake water & energy budget daily summary from hourly data (negative values: loss from lake; runoff & seepage term is residual after adjusting lake level change for all others)

Ratio of lake watershed to lake area: **3.88** Runoff & seepage as % of watershed area precip: **#N/A**

| | | | | | | | | | | | | | | | | | | | | | advect & sky rad | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Grand sum/avg** | **21.39** | **25.40** | **25.47** | **25.41** | **25.07** | **23.47** | **17.71** | **1.4** | **634122215** | **-77110** | **-79.8** | **49.6** | **#N/A** | **-114.1** | **-10.1** | **#N/A** | **#N/A** | **13%** | **501660** | **30** | **23.67** | **2.4** | **#N/A** |

Data

reflected% 10% | 4.184 | 4000000 | joule/calorie (= joule/degree for 1cm3) | cm3/m2 (for 0-4m integrated depth)

| DATE | DayOfYr | AvgTair C | AvgTw 0.1m | AvgTw0.5 m | Avg Tw1m | Avg Tw2m | Avg Tw3m | Avg Tw4m | AvgWS CSI m/s | SumRad J/m2 | SumH Evap (*900=J/m2) | Sum Lk_lvl chg (mm/hr) | SumRain mm | Sum Runoff & seepage, mm/hr | SumLake evap (mm/hr) | SumTerrevap2, (Air VPdeficit, mbar) * (WS, m/s) * scale factor | Sum Out flow (lake mm/hr) | sum in+out (mm) | % of absorbed solar heat lost via evap | evap loss (degC 0-4m) | solar heat - evap loss (kJ/m$^2$) | solar heat - evap loss (degC 0-4m) | starting Tw (0-4m) | ending Tw (0-4m) | Tw chg, 0-4m | non-evap heat exchange (degC 0-4m, calc from dTw) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 7/1/2008 | 183 | 18.96 | 24.08 | 24.23 | 24.22 | 23.86 | 21.12 | 15.66 | 1.7 | 22346170 | -2706 | -5 | 0.0 | 0.8 | -4.0 | -0.3 | -1.3 | -5 | 12.1% | -0.15 | 17676 | 1.1 | 22.0 | 22.4 | 0.39 | 1.44 |
| 7/2/2008 | 184 | 19.32 | 24.25 | 24.37 | 24.34 | 23.97 | 21.38 | 15.86 | 1.6 | 29315705 | -3490 | -6 | 0.0 | 1.2 | -5.2 | -0.5 | -1.3 | -6 | 11.9% | -0.19 | 23243 | 1.4 | 22.4 | 22.4 | (0.01) | 1.38 |
| 7/3/2008 | 185 | 20.57 | 23.94 | 24.08 | 24.10 | 24.00 | 21.71 | 15.96 | 1.7 | 15238298 | -2681 | 1 | 4.8 | 2.2 | -4.0 | -0.4 | -1.3 | 1 | 17.6% | -0.14 | 11302 | 0.7 | 22.4 | 22.4 | (0.02) | 0.66 |
| 7/4/2008 | 186 | 18.88 | 23.62 | 23.78 | 23.78 | 23.70 | 21.89 | 16.06 | 0.8 | 8364367 | -1352 | -6 | 0.3 | 0.9 | -2.0 | 0.0 | -5.2 | -6 | 16.2% | -0.07 | 6311 | 0.4 | 22.4 | 22.1 | (0.30) | 0.07 |
| 7/5/2008 | 187 | 19.54 | 23.97 | 23.94 | 23.63 | 23.45 | 21.90 | 16.11 | 0.7 | 19270183 | -1486 | -3 | 0.0 | 0.6 | -2.2 | -0.1 | -1.3 | -3 | 7.7% | -0.08 | 16006 | 1.0 | 22.1 | 22.2 | 0.16 | 1.11 |
| 7/6/2008 | 188 | 20.75 | 24.42 | 24.43 | 24.07 | 23.71 | 21.96 | 16.21 | 1.0 | 21812650 | -1610 | -4 | 0.1 | 0.1 | -2.4 | -0.2 | -1.3 | -4 | 7.4% | -0.09 | 18182 | 1.1 | 22.2 | 22.5 | 0.27 | 1.36 |
| 7/7/2008 | 189 | 22.37 | 25.04 | 24.92 | 24.62 | 24.00 | 22.03 | 16.36 | 1.0 | 16094977 | -1156 | -3 | 0.0 | -0.1 | -1.7 | -0.1 | -1.2 | -3 | 7.2% | -0.06 | 13445 | 0.8 | 22.5 | 22.8 | 0.36 | 1.16 |
| 7/8/2008 | 190 | 24.04 | 25.44 | 25.56 | 25.24 | 24.34 | 22.11 | 16.46 | 1.8 | 24813274 | -1877 | -5 | 0.0 | -0.1 | -2.8 | -0.4 | -1.3 | -5 | 7.6% | -0.10 | 20643 | 1.2 | 22.8 | 23.1 | 0.30 | 1.54 |
| 7/9/2008 | 191 | 22.80 | 25.42 | 25.57 | 25.61 | 24.70 | 22.16 | 16.55 | 1.9 | 13676426 | -1828 | -4 | 0.0 | 0.7 | -2.7 | -0.2 | -1.4 | -4 | 13.4% | -0.10 | 10663 | 0.6 | 23.1 | 23.2 | 0.03 | 0.66 |
| 7/10/2008 | 192 | 20.40 | 25.08 | 25.19 | 25.23 | 25.05 | 22.39 | 16.72 | 2.3 | 30209125 | -4584 | -7 | 0.0 | 2.2 | -6.8 | -0.6 | -1.6 | -7 | 15.2% | -0.25 | 23062 | 1.4 | 23.2 | 23.3 | 0.13 | 1.51 |
| 7/11/2008 | 193 | 20.04 | 25.26 | 25.30 | 25.07 | 24.77 | 22.83 | 16.84 | 1.0 | 24542582 | -2685 | -4 | 0.0 | 1.3 | -4.0 | -0.3 | -1.6 | -4 | 10.9% | -0.14 | 19672 | 1.2 | 23.3 | 23.4 | 0.13 | 1.30 |
| 7/12/2008 | 194 | 23.82 | 25.67 | 25.73 | 25.54 | 25.02 | 22.98 | 17.03 | 1.5 | 21104636 | -2289 | -5 | 0.0 | 0.4 | -3.4 | -0.5 | -1.5 | -5 | 10.8% | -0.12 | 16934 | 1.0 | 23.4 | 23.5 | 0.12 | 1.13 |
| 7/13/2008 | 195 | 22.56 | 24.97 | 25.08 | 25.14 | 25.03 | 23.14 | 17.11 | 2.7 | 17451515 | -3162 | 7 | 11.1 | 2.4 | -4.7 | -0.5 | -1.4 | 7 | 18.1% | -0.17 | 12860 | 0.8 | 23.5 | 23.5 | (0.05) | 0.72 |
| 7/14/2008 | 196 | 20.48 | 25.07 | 25.18 | 25.20 | 24.98 | 23.64 | 17.30 | 1.3 | 21227492 | -2442 | -2 | 0.9 | #N/A | -3.6 | -0.2 | #N/A | #N/A | 11.5% | -0.13 | 16907 | 1.0 | 23.5 | 23.6 | 0.07 | 1.08 |
| 7/15/2008 | 197 | 19.85 | 25.22 | 25.36 | 25.35 | 24.93 | 23.86 | 17.43 | 1.4 | 29589276 | -3443 | -5 | 0.0 | #N/A | -5.1 | -0.5 | #N/A | #N/A | 11.6% | -0.19 | 23532 | 1.4 | 23.6 | 23.8 | 0.25 | 1.66 |
| 7/16/2008 | 198 | 21.55 | 25.97 | 25.92 | 25.51 | 25.17 | 23.91 | 17.60 | 0.9 | 28960987 | -2832 | -5 | 0.0 | #N/A | -4.2 | -0.4 | #N/A | #N/A | 9.8% | -0.15 | 23516 | 1.4 | 23.8 | 24.1 | 0.26 | 1.66 |
| 7/17/2008 | 199 | 22.38 | 26.34 | 26.25 | 26.08 | 25.54 | 23.94 | 17.78 | 1.0 | 21119675 | -2188 | -5 | 0.0 | #N/A | -3.2 | -0.2 | #N/A | #N/A | 10.4% | -0.12 | 17039 | 1.0 | 24.1 | 24.2 | 0.17 | 1.19 |
| 7/18/2008 | 200 | 24.16 | 26.37 | 26.45 | 26.39 | 25.81 | 24.01 | 17.97 | 1.6 | 26336456 | -2340 | -5 | 0.0 | #N/A | -3.5 | -0.5 | #N/A | #N/A | 8.9% | -0.13 | 21597 | 1.3 | 24.2 | 24.7 | 0.41 | 1.70 |
| 7/19/2008 | 201 | 25.37 | 26.92 | 27.03 | 27.05 | 26.22 | 24.13 | 18.10 | 1.4 | 23596357 | -2331 | -5 | 0.0 | #N/A | -3.5 | -0.5 | #N/A | #N/A | 9.9% | -0.13 | 19138 | 1.1 | 24.7 | 25.0 | 0.34 | 1.48 |
| 7/20/2008 | 202 | 24.62 | 27.07 | 27.18 | 27.22 | 26.71 | 24.27 | 18.27 | 1.9 | 24071033 | -3507 | -2 | 4.4 | #N/A | -5.2 | -0.8 | #N/A | #N/A | 14.6% | -0.19 | 18507 | 1.1 | 25.0 | 25.1 | 0.15 | 1.25 |
| 7/21/2008 | 203 | 21.70 | 26.91 | 27.00 | 27.04 | 26.89 | 24.50 | 18.41 | 1.8 | 20882247 | -3130 | -3 | 1.7 | #N/A | -4.6 | -0.3 | #N/A | #N/A | 15.0% | -0.17 | 15977 | 1.0 | 25.1 | 25.2 | 0.05 | 1.00 |
| 7/22/2008 | 204 | 21.89 | 27.01 | 26.94 | 26.88 | 26.64 | 24.75 | 18.56 | 0.9 | 19369039 | -2167 | -4 | 0.1 | #N/A | -3.2 | -0.1 | #N/A | #N/A | 11.2% | -0.12 | 15482 | 0.9 | 25.2 | 25.2 | (0.02) | 0.91 |
| 7/23/2008 | 205 | 20.05 | 26.27 | 26.42 | 26.51 | 26.41 | 24.89 | 18.73 | 1.3 | 7026380 | -2270 | 27 | 24.8 | #N/A | -3.4 | 0.0 | #N/A | #N/A | 32.3% | -0.12 | 4281 | 0.3 | 25.2 | 24.6 | (0.55) | (0.29) |
| 7/24/2008 | 206 | 19.72 | 25.65 | 25.74 | 25.80 | 25.70 | 25.05 | 18.93 | 1.8 | 20494876 | -3457 | -4 | 0.8 | #N/A | -5.1 | -0.3 | #N/A | #N/A | 16.9% | -0.19 | 15334 | 0.9 | 24.6 | 24.4 | (0.20) | 0.72 |
| 7/25/2008 | 207 | 19.70 | 25.58 | 25.64 | 25.57 | 25.23 | 24.84 | 19.10 | 1.3 | 28526129 | -3546 | -5 | 0.0 | #N/A | -5.2 | -0.4 | #N/A | #N/A | 12.4% | -0.19 | 22482 | 1.3 | 24.4 | 24.3 | (0.09) | 1.25 |
| 7/26/2008 | 208 | 22.04 | 25.47 | 25.56 | 25.61 | 25.40 | 24.75 | 19.22 | 1.9 | 21131888 | -2812 | -5 | 0.0 | #N/A | -4.2 | -0.4 | #N/A | #N/A | 13.3% | -0.15 | 16488 | 1.0 | 24.3 | 24.3 | 0.01 | 1.00 |
| 7/27/2008 | 209 | 21.59 | 25.35 | 25.45 | 25.46 | 25.34 | 24.78 | 19.40 | 1.5 | 15807746 | -2157 | -2 | 0.6 | #N/A | -3.2 | -0.2 | #N/A | #N/A | 13.6% | -0.12 | 12286 | 0.7 | 24.3 | 24.2 | (0.13) | 0.61 |
| 7/28/2008 | 210 | 19.93 | 25.07 | 25.21 | 25.26 | 25.00 | 24.67 | 19.56 | 1.5 | 22343786 | -2957 | -5 | 0.0 | #N/A | -4.4 | -0.3 | #N/A | #N/A | 13.2% | -0.16 | 17448 | 1.0 | 24.2 | 24.2 | (0.01) | 1.03 |
| 7/29/2008 | 211 | 21.48 | 25.15 | 25.27 | 25.31 | 25.08 | 24.64 | 19.73 | 1.6 | 22989183 | -2697 | -5 | 0.0 | #N/A | -4.0 | -0.4 | #N/A | #N/A | 11.7% | -0.15 | 18263 | 1.1 | 24.2 | 24.4 | 0.18 | 1.27 |
| 7/30/2008 | 212 | 21.97 | 25.55 | 25.43 | 25.33 | 25.15 | 24.64 | 19.91 | 0.7 | 16409397 | -1538 | -3 | 0.0 | #N/A | -2.3 | -0.1 | #N/A | #N/A | 9.4% | -0.08 | 13384 | 0.8 | 24.4 | 24.4 | (0.03) | 0.77 |
| 7/31/2008 | 213 | 20.58 | 25.17 | 25.34 | 25.43 | 25.22 | 24.62 | 19.96 | 1.0 | 360 | -388 | 0 | 0.0 | #N/A | -0.6 | 0.0 | #N/A | #N/A | | #N/A | | | | | | #N/A |