Lake Lacawac, Bruce R. Hargreaves, Lehigh University (brh0@lehigh.edu, http://www.lehigh.edu/~brh0)
31October2010: platform moved to dock 19Sep2010: Station moved to dock 9am-4pm for replacement of deck; mast down middle of day; remoored with only 3 lines (missing SE)
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
Beaver dam bypass pipe installed 6Oct

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						
	37.3	42.9	32.1		1.06	5.0	25					47.8	47.8	47.9	47.9	48.0	47.9	48.1	47.8	47.6	47.8	47.4						
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	Tw02.2m	Tw02.7m	H310_z (m)	Lakelevel-mm (4oC)	cumul. rain-mm	Batt min-V	RH% CR10 enc	RH% MUX enc
	2.9	**6.1**	**0.1**	**82.3**	**26.9**	**2.2**	**11.3**	**242.3**	**964.4**	**59270824**	**117**	**8.8**	**8.8**	**8.8**	**8.8**	**8.9**	**8.8**	**9.0**	**8.8**	**8.7**	**8.8**	**8.6**	**2.2**	**6.2**	**26.9**	**12.4**	**14.3**	**41.6**

month (All)

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 min-V	RH% CR10 enc	RH% MUX enc
ND	100%	11/1/2010	305	1.5	3.6	-0.1	76.8	0.0	3.6	8.7	283	974.0	9997085	20	9.71	9.76	9.75	9.73	9.71	9.64	9.68	9.61	9.53	9.7	9.52	2.2	-3.1	0.000	12.4	13.8	39.6
ND	100%	11/2/2010	306	2.5	7.8	-1.0	75.3	0.0	1.6	6.5	199	976.8	12978435	25	9.46	9.52	9.53	9.53	9.49	9.38	9.43	9.37	9.30	9.4	9.20	2.2	-7.2	0.000	12.6	14.5	39.9
ND	100%	11/3/2010	307	3.1	9.7	-3.2	75.8	0.0	0.6	4.6	227	967.7	12482816	24	9.33	9.24	9.24	9.25	9.21	9.16	9.26	9.14	9.07	9.2	8.93	2.2	-9.6	0.000	12.6	14.6	38.2
ND	100%	11/4/2010	308	5.0	6.0	4.2	97.0	25.2	1.6	5.7	128	952.7	1174129	3	8.92	8.99	9.02	9.07	9.14	9.06	9.29	9.12	8.99	9.1	8.81	2.2	3.5	25.200	12.5	13.3	43.1
ND	100%	11/5/2010	309	4.2	6.0	1.6	97.1	0.4	1.5	5.4	290	949.2	3198864	7	8.71	8.79	8.81	8.89	8.96	8.92	9.08	8.94	8.72	8.8	8.62	2.2	19.5	25.600	12.5	14.3	44.0
ND	100%	11/6/2010	310	2.3	3.9	0.0	85.8	0.0	2.1	7.0	207	967.2	4265457	9	8.42	8.49	8.51	8.52	8.60	8.63	8.78	8.58	8.36	8.5	8.28	2.2	19.0	25.600	12.4	14.0	43.4
ND	100%	11/7/2010	311	1.9	5.6	-1.5	74.0	0.0	2.7	11.2	284	970.9	11553944	22	7.97	8.05	8.06	8.07	8.14	8.13	8.35	8.04	7.91	8.1	7.78	2.2	15.5	25.600	12.4	14.8	42.1
ND	75%	11/8/2010	312	3.0	5.9	0.5	76.4	1.3	4.2	11.3	320	957.2	3620094	8	7.53	7.60	7.61	7.66	7.75	7.70	7.83	7.64	7.48	7.7	7.43	2.2	12.3	26.900	12.6	14.7	42.2
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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: **2.61767578** Runoff & seepage as % of watershed area precip: **28.3%**

Grand sum/avg	**2.93**	**8.75**	**8.80**	**8.82**	**8.84**	**8.87**	**8.83**	**2.0**	**59270824**	**-11363**	**12.1**	**26.9**	**19.6**	**-16.6**	**0.0**	**0.0**
																SumTerrevap2=AirVPD,mbar*WS,m/s*s

Data

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 (*0.9=KJ/m2)	Sum Lk_lvl chg (mm)	SumRain mm	Sum Runoff & seepage, mm	SumLake evap (mm)	Sum Terrevap2
11/1/2010	305	1.55	9.71	9.76	9.75	9.73	9.71	9.64	3.4	9997085	-2772	-6.504	0.0	-1.5	-4.0	0.0
11/2/2010	306	2.45	9.46	9.52	9.53	9.53	9.49	9.38	1.5	12978435	-1470	-2.074	0.0	1.3	-2.1	0.0
11/3/2010	307	3.11	9.33	9.24	9.24	9.25	9.21	9.16	0.4	12482816	-879	-2.320	0.0	0.2	-1.3	0.0
11/4/2010	308	5.00	8.92	8.99	9.02	9.07	9.14	9.06	1.4	1174129	-578	29.072	25.2	6.8	-0.8	0.0
11/5/2010	309	4.18	8.71	8.79	8.81	8.89	8.96	8.92	1.4	3198864	-632	1.090	0.4	5.3	-0.9	0.0
11/6/2010	310	2.28	8.42	8.49	8.51	8.52	8.60	8.63	2.0	4265457	-1293	-2.707	0.0	2.8	-1.9	0.0
11/7/2010	311	1.88	7.97	8.05	8.06	8.07	8.14	8.13	2.5	11553944	-1801	-3.234	0.0	2.5	-2.6	0.0
11/8/2010	312	2.98	7.53	7.60	7.61	7.65	7.74	7.70	3.9	3620094	-1938	-1.266	1.3	2.4	-2.8	0.0
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1.000 <=SCALE ADJ (1.0=no adjustment)

4.184 joule/calorie (= joule/degree for 1cm3)

Nominal diffuse %R from water=7%	#N/A	#N/A	#N/A			9	8.8	-2.1							#N/A	-3.8

				4.184	<=CONVERT HEAT TO DEGREES										4.184	slope
7%	0.9			6000000	cm3/m2 (for 0-4m integrated depth)										6000000	intercept
																r2
Solar Heat input (absorbed from solar rad), KJ/m2)	Sum H evap (KJ/m^2)	solar heat absorbed - evap loss (kJ/m^2)	% of absorbed solar heat lost via evap	Solar Heat input (absorbed from solar rad), Tw 0-6m)	starting Tw (0-6m)	ending Tw (0-6m)	actual dTw, 0-6m	RESID1: NON-SOLAR FLUX (Heat flux to offset absorbed solar to match dTw)	evap loss (degC 0-6m)	RESID2: NON-SOLAR FLUX to offset absorbed solar to match dTw LESS EVAP (degC 0-6m)						
9297	-2495	6802	26.8%	0.37	9.95	9.25	(0.70)	(1.07)	-0.10	(0.97)						
12070	-1323	10747	11.0%	0.48	9.25	9.37	0.11	(0.37)	-0.05	(0.31)						
11609	-791	10818	6.8%	0.46	9.37	9.26	(0.10)	(0.57)	-0.03	(0.53)						
1092	-520	572	47.6%	0.04	9.26	8.92	(0.34)	(0.39)	-0.02	(0.36)						
2975	-569	2406	19.1%	0.12	8.92	8.72	(0.21)	(0.33)	-0.02	(0.30)						
3967	-1164	2803	29.3%	0.16	8.72	8.09	(0.62)	(0.78)	-0.05	(0.74)						
10745	-1621	9124	15.1%	0.43	8.09	7.87	(0.22)	(0.65)	-0.06	(0.59)						
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