

Below is a listing of the Data Loggers used at the CU Ameriflux Site.

CNR Logger:

Start Date	End Date	CSI File	Parameters	Channels	Example Data File	Photo	Comments
Nov 19, 2007	present	rad_03.csi	rad_03.csi.params	NaN	(add later)		On 19 Nov 2007: no longer saving 5-min SW_net, LW_net, Albedo, rad_net in logger files. No changes to 1-hz data output.
Sep 13, 2006	Nov 19, 2007	rad_02.csi	rad_02.csi.params	NaN	(add later)	photo	On 13 Sep 2006: increased the number of 5-min data saved (include calculated Radiation). Also, added jumper wires to low-side of differential input.
Jan 6, 2006	Sep 13, 2006	rad_01.csi (no program change)	rad_01.csi.params	NaN	(add later)	photo	On 6 Jan 2006: connected T.case and moved the photodiode sensors to the proper inputs.
Jan 3, 2006 (~12:00 MST)	Jan 6, 2006	rad_01.csi	rad_01.csi.params	NaN	(add later)	photo	On 3 Jan 2006: uploaded the new program (rad_01.csi) and connected SW/LW wires for the cnr1 (except for T.case).
Dec 16, 2005	Jan 3, 2003	RAD.CSI (no program change)	RAD.CSI.params	NaN	cnr_050506.dat	photo	On 16 Dec 2005: Added CNR-1 sensor and connected incoming SW to logger (no mod to cnr logger program).
Oct 4, 2004	Dec 16, 2005	RAD.CSI	RAD.CSI.params	NaN	cnr_050506.dat	photo	On 4 Oct 2004, Added photodiode sensors and a 2nd PAR sensor.
Jun 4, 2004	Oct 4, 2004	CNR30B.CSI	CNR30B.CSI.params	NaN	cnr_040712.dat	photo	on 4 Jun 2004, removed extra parameters output to the data system (ops13).
Feb 13, 2004	Jun 4, 2004	CNR30B_old.CSI	CNR30B.CSI.params	NaN	cnr_040712.dat	photo	on Feb 13th, added the borrowed KZ PSP sensor from ATD/EOL (SN 940185)
Jun 2, 2003	Feb 13, 2004	CNR30.CSI	NaN	NaN	NaN	photo	on 2 Jun 2003 started saving 5-min data; on 5 Dec, 2003 Brant and I removed P.Blankens CNR-1

FAST Logger (for co2 flux):

Start Date	End Date	CSI File	Parameters	Channels	Example Data File	Photo	Comments
May 17, 2010	present	fast_12.csi		NaN	NaN	NaN	on may 17, 2010, streamlined slightly, now runs ok at 10-hz (with thermocouple).
May 5, 2010	May 17, 2010	fast_11.csi		NaN	NaN	NaN	on may 5, 2010, added 10-hz thermocouple (note, logger could not run at 10-hz!).
Sep 27, 2009	May 5, 2010	fast_10.csi		NaN	NaN	NaN	on sep 27, 2009, added eol csat, cleaned out all the ozone stuff.
Jul 10, 2009	Sep 27, 2009	fast_09.csi		NaN	NaN	NaN	on jul 10, 2009, replaced li-6262 with spare, change h2o.ec back to +/- 1000mV.
Jun 25, 2009	Jul 10, 2009	fast_08.csi		NaN	NaN	NaN	on jun 25 2009, changed range of co2.ec.b (now h2o.ec!) to be +/- 1000 mV
Oct 24, 2008	Jun 25, 2009	fast_07.csi		NaN	NaN	NaN	on oct 24 2008, removed az2_L, az2_X, added 2nd co2.ec channel.
Sep 30, 2008	Oct 24, 2008	fast_06.csi		NaN	NaN	NaN	on sep 30 2008, added 4 more parameters to fast logger (for the accelerometers, az1_L, az1_X, az2_L, az2_X).
Sep 26, 2007	Sep 30, 2008	fast_05.csi		NaN	NaN	NaN	on sep 26 2007, removed fast ozone parameters (same as fast_03.csi).
Apr 3, 2007	Sep 26, 2007	fast_04.csi		NaN	NaN	NaN	on apr 3 2007, added back the ozone parameters (except for poz1).
Nov 26, 2006	Apr 3, 2007	fast_03.csi		NaN	NaN	NaN	on nov 26, changed co2.ec range back to 5000 mV (otherwise really cold conditions clipped the co2.ec data). all the ozone parameters are still gone.
Oct 24, 2006	Nov 26, 2006	fast_02.csi		NaN	NaN	NaN	on oct 24, kept co2.ec range at 1000 mV (it was co2.ec range =5000 mV). removed all the ozone parameters (now the logger can keep up). this works with ops33.
Oct 16, 2006	Oct 24, 2006	fast_01.csi		NaN	NaN	NaN	on oct 16, changed co2 range back to 1000 mV (it was co2.ec range =5000 mV). (note, the sample rate dropped off a bit since the program couldn't keep up!). In doing this I also decreased the "offset" of co2.ec (with the dial on the li-6262).
Jun 3, 2005	Oct 16, 2006	FAST23X9.CSI		NaN	NaN	NaN	on jun3, went back to using FAST23X9.CSI (ie, co2.ec range =5000 mV).
May 26, 2005	Jun 3, 2005	FAST2X10.CSI		NaN	NaN	NaN	on may 26: changed mV range for co2.ec from 5000 to 1000 mV (changed ref gas).
Feb 11, 2005	May 26, 2005	FAST23X9.CSI		NaN	NaN	NaN	on feb 11 removed poz2 and poz3 (ozone pressure sensor data) from the data system.
Oct 9, 2004	Feb 11, 2005	FAST23X8.CSI		NaN	NaN	NaN	On oct8/9, Added 3 pressure sensors to the ozone flux system, started working on Oct 9th).
pre-2004	before Oct, 2004	FAST23X7.CSI		NaN	NaN	NaN	Original program by AT.

PROF Logger:

Start Date	End Date	CSI File	Parameters	Channels	Example Data File	Photo	Comments
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Jul 29, 2009	present	prf_02.csi	prf_02.csi.params	NaN	NaN	NaN	on 7/29/09: added in the EOL "roaming" T/RH sensor...
Nov 19, 2007	Jul 29, 2009	prf_01.csi	prf_01.csi.params	NaN	NaN	NaN	on 11/19/07: stopped saving 1-min data. changed output from day,hr/min/sec to day,hr/min.
Jun 2, 2004	Nov 19, 2007	PROF30B.CSI	PROF.CSI.params	NaN	NaN	NaN	Increased resolution of CO2 Li-6251. Changed order of zero/span.
pre-2003	June 2, 2004	PROF30B.CSI	PROF.CSI.params	NaN	NaN	NaN	Original program by AT.

MET Logger:

Start Date	End Date	CSI File	Parameters	Channels	Example Data File	Photo	Comments
Dec 13, 2007	present	met_06.csi	met_06.csi.params	Available DIFF channels: 2,4,12	NaN	NaN	on 13 dec 2007: changed output of RM young prop-vanes to be in physical units (m/s and deg from true N). (no mod to ops file necessary).
Sep 26, 2007	Dec 13, 2007	met_05.csi	met_05.csi.params	Available DIFF channels: 2,4,12	NaN	NaN	on 26 sep 2007, added another new T/RH sensor (#5) to chan ?. Sensor is at ~6m?
Jun 14, 2007	Sep 26, 2007	met_04.csi	met_04.csi.params	Available DIFF channels: 2,4,12	NaN	NaN	on 14 june 2007, added new T/RH sensor (#4) to chan 11.
May 31, 2007	Jun 14, 2007	met_03.csi	met_03.csi.params	Available DIFF channels: 2,4,11,12	NaN	NaN	on 31 may 2007: removed handar 9-m data from met logger program (chans 11 and 12).
May 30, 2007	May 31, 2007	met_02.csi	met_02.csi.params	NaN	NaN	NaN	started outputting prop-vane ws and wd in voltages (i.e., not converted to physical units).
Apr 23, 2007	May 30, 2007	met_01.csi	met_01.csi.params	NaN			on 23 april 2007: modified program so on restart it will close the span/zero valves in the li-6262 (EC) system.
May 13, 2003	Apr 23, 2007	MET30D.CSI	MET30D.CSI.params	NaN			On 13 May, 2003, started saving 5-min data rather than 30-min data.
Jul 21, 2001	May 13, 2003	MET30C.CSI	MET30C.CSI.params	NaN			
Oct 16, 2000	Jul 21, 2001	MET30B.CSI	MET30B.CSI.params	NaN			
Jul 5, 2000	Oct 16, 2000	MET30A.CSI	MET30A.CSI.params	NaN			
Jan 12, 2000	Jul 5, 2000	MET30.CSI	MET.CSI.params	NaN			this was the second oldest version of the MET program i could find on the gateway (SpB).
Sep 21, 1999	Jan 12, 2000	MET.CSI	MET.CSI.params	NaN			this was the oldest version of the MET program i could find on the gateway (SpB).

NCARTC Logger:

Start Date	End Date	CSI File	Parameters	Channels	Example Data File	Photo	Comments
Oct 25, 2005	present	nctc_02.csi	nctc_02.params	NaN			on Oct 25, removed orst prt temperature sensor and re-connected channel 12.
Sep 29, 2005	Oct 25, 2005	nctc_01.csi	nctc_01.params	NaN			logged orst prt temperature sensor, gave up channel 12.
Oct 3, 2004	Sep 29, 2005	NCARTC.CSI	NCARTC.params	NaN			Added battery voltage (saved on logger)
Sep, 2002	Oct 3, 2004	NCARTC.CSI	NCARTC.params	NaN			original program (S.Semmer).

UCb Logger (formerly HYDRATC Logger):

Start Date	End Date	CSI File	Parameters	Channels	Example Data File	Photo	Comments
Sep 20, 2010	present	ucb_13.csi	ucb_13.csi.params	NaN	NaN	NaN	on 20 Sept, 2010, changed thermocouple type from "T-type" to "E-type".
Aug 11, 2010	Sep 20, 2010	ucb_12.csi	ucb_12.csi.params	NaN	NaN	NaN	on 11 Aug, 2010, changed ex. port for 257 probe from 1 to 3.
Nov 6, 2009	aug 11, 2010	ucb_11.csi	ucb_11.csi.params	NaN	NaN	NaN	on 6 Nov 2009, started outputting pressure sensor data (two sensors) to quacker (Pbaro.ucb & P.mpx).
Oct 31, 2008	Nov 6, 2009	ucb_10.csi	ucb_10.csi.params	NaN	NaN	NaN	on 31 Oct, 2008, added a thermocouple to diff ch10.
Aug 11, 2008	Oct 31, 2008	ucb_09.csi	ucb_09.csi.params	NaN	NaN	NaN	ucb_09.csi Aug 11, 2008, JB. added the Vaisala 2-d sonic anemometer to diff channels 8 and 9; (the red and black power wires go to 12V and 5V, respectively)
Mar 19, 2008	Aug 11, 2008	ucb_08.csi	ucb_08.csi.params	NaN		photo	on 3/19/08, replaced jia's cr10x with the repaired cr23x (which was actually a battery problem!)...restored the ucb_08.csi program.
Feb 22, 2008	Mar 19, 2008	ucb10x_2.csi	NaN	NaN			on 2/22/08, modified program on the cr10x to try and get the cs616 to work (it didn't work).
Feb 21, 2008	Feb 22, 2008	ucb10x_1.csi	NaN	NaN			on 2/21/08, borrowed a cr10x from jia to replace UCB/cr23x.

Jul 17, 2007	Feb 18, 2008	ucb_08.csi	ucb_08.csi.params	NaN		photo	on 2/18/08, UCB cr23x logger stops working!
Oct 1, 2006	Jul 17, 2007	ucb_07.csi	ucb_07.csi.params	NaN		photo	on Oct 1, added shorthaul modem (output to the quacker is in ASCII format)
Sep 19, 2006	Oct 1, 2006	ucb_06.csi	ucb_06.csi.params	NaN		photo	added honeywell ASCX15AN pressure sensor to SE chan22, outputting Pbaro_hw instead of Rnet to quacker (but in 5-min data all are saved, ie no columns goes from 10 to 11).
Oct 25, 2005	Sep 19, 2006	ucb_05.csi	ucb_05.csi.params	NaN		photo	started saving 107L Temperature data! + serial output to data system.
Oct 15, 2005	Oct 25, 2005	ucb_04.csi	ucb_04.csi.params	NaN		photo	Added 107L Temperature sensor
Oct 8, 2005	Oct 15, 2005	ucb_03.csi	NaN	NaN		photo	Added cs616 Water Content probe
Sep 20, 2005	Oct 8, 2005	ucb_02.csi	NaN	NaN		photo	added 257l soil wetness sensor sensor (buried on Sept 29th)
Jul 21, 2005 (10:40 MST)	Sep 20, 2005	UCB_01.CSI	NaN	NaN	ucb_050809.dat	photo	use to collect in-canopy radiation and gmp343 probe data

UC Logger:

Start Date	End Date	CSI File	Parameters	Channels	Example Data File	Photo	Comments
Aug 4, 2009	present	uc_03.csi	NaN	NaN	NaN	NaN	on 4 aug 2009, stopped saving 5-min averages; li-7500 data inputs are SDM, output back to 10-hz.
Jul 29, 2009	Aug 4, 2009	uc_02.csi	NaN	NaN	NaN	NaN	7/29/2009, collecting both analog and sdm output from li-7500 (but sample rate drops to 3 hz?)...
Aug 11, 2008	Jul 29, 2009	uc_01.csi	NaN	NaN	NaN	NaN	version uc_01.csi (came from twosonic.csi); removed 2-d handar (added to uc logger). 8/11/08, spb.
Jul 14th, 2005	Aug 11, 2008	TWOSONIC.CSI	NaN	NaN	uc_050809.dat	photo	went back to running the old program (TWOSONIC.CSI).
Jul 12, 2005 (10:00 MST)	Jul 14, 2005	UC01.CSI	NaN	NaN	uc_050714.dat	photo	tried to add some additional instruments, but this caused the 10-hz data to get screwed up.
Jan 20, 2005 (? MST)	Jul 12, 2005	TWOSONIC.CSI	NaN	NaN	uc_050311.dat	photo	On 01/20/05: Removed the GMP343 and re-installed the recalibrated li7500.
Nov 9, 2004	Jan 20, 2005	TWOSON2.CSI	NaN	NaN	uc_050120.dat	photo	Used to measure the GMP343 which was on se chan5 (where the li-7500 was connected). The li-7500 was sent back for recalibration.
Jun 5, 2003	Nov 9, 2004	TWOSONIC_orig.CSI	NaN	NaN	uc_040608.dat	photo	Original program written by Andrew Turnipseed.

SOIL Logger:

Start Date	End Date	CSI File	Parameters	Channels	Example Data File	Photo	Comments
Oct 7, 2008	present	soil_03.csi	soil_03.params	NaN	soil_081007c.dat	NaN	On Oct 7th 2008: Removed the period_n1 and period_n2 parameters for the two cs-616 sensors. Added a 2nd mux for 8 new cs-616 sensors (these are now saved as w616_1-w616_8).
Oct 26, 2007	Oct 7, 2008	soil_02.csi	soil_02.params	NaN	soil_071030.dat	NaN	On Oct 26th 2007: Removed all the "tdr" parameters. Started saving all 25 temperatures from the am25t mux.
Oct 16, 2005	Oct 26, 2007	soil_01.csi	soil_01.params	NaN	soil_0510xx.dat	photo	On Oct 15th: Removed 107L (se, chan9) and 2 thermocouples (diff, ch 8 and ch9). On Oct 16th: added 3 thermocouples to am25T mux and 2 csi 616l soil moisture sensors.
Jun 30, 2005 (13:00 MST)	Oct 16, 2005	soilsno2.csi	soilsno2.params	NaN	soil_050705.dat	photo	Added a new temperature sensor (csi 107-L) to chan 9 (se) and ouput battery voltage.
Oct 29, 2003	Jun 30, 2005 (13:00 MST)	SOILSNOW.CSI	SOILSNOW.params	NaN	soil_031104.dat	NaN	This program was used for soil sensors at the hydra locations (between CU tower and N Canopy tower).
Aug 3, 2003	Oct 29, 2003	SOIL23XC.CSI	SOIL23XC.params	NaN	soil_030901.dat	NaN	This program was used in summer 2003, the program was modified during the hydra setup in Oct 2003.

TC Logger:

Start Date	End Date	CSI File	Parameters	Channels	Example Data File	Photo	Comments
Mar 21, 2014	Present	tc_13.csi	tc_13.params	NaN			on 21 Mar 2014, added snothrm IR sensor, in the output, T_snothrm replaced the THP sensor (which is no longer present). On 21 Sep 2015, replaced broken am25t (mux1, sn 1616) with spare am25t (sn 4370) (still using tc_13.csi). On 2 Nov 2015, added old TC sensors back to tc logger (still using tc_13.csi)
Oct 13, 2006	Mar 21, 2014	tc_12.csi	tc_12.params	NaN			on oct13, reconnected the repaired am25t (sn 1396) to tc23x logger (ie, am25t on the ground)

Oct 12, 2006	Oct 13, 2006	tc_11.csi	tc_11.params	NaN			
Oct 6, 2006	Oct 12, 2006	tc_10.csi	tc_10.params	NaN			
Oct 5, 2006	Oct 6, 2006	tc_09.csi	tc_09.params	NaN			
Sep 29, 2006	Oct 5, 2006	tc_08.csi	tc_08.params	NaN			
Sep 24, 2006	Sep 29, 2006	tc_07.csi	tc_07.params	NaN			on sep 24, reconnected the repaired am25t (sn 1616) back to tc23x logger
Aug 31, 2006	Sep 24, 2006	tc_06.csi	tc_06.params	NaN			
Aug 29, 2006	Aug 31, 2006	tc_05.csi	tc_05.params	NaN			
Aug 24, 2006	Aug 29, 2006	tc_04.csi	tc_04.params	NaN			
Aug 22, 2006	Aug 24, 2006	tc_03.csi	tc_03.params	NaN			
Oct 8, 2005	Aug 22, 2006	tc_02.csi (no change)	tc_02.params	NaN			Lightning strike on 17 Jul 2006 knocked out the two am25t muxes. On Aug 22 started to mess around with program.
Sep 20, 2005	Oct 8, 2005	tc_02.csi (no change)	tc_02.params	NaN	tc_050912.dat	photo	On 20 Sep: Connected more TCs to the AM25T (no change to the program).
Sep 15, 2005	Sep 20, 2005	tc_02.csi	tc_02.params	NaN	NaN	photo	added an AM25T to the box which is on the ground (connected several TCs, but some are still not connected).
Jul 19, 2005	Sep 15, 2005	TC_01.CSI	TC_01.params	NaN	tc_050719.dat	photo	On 19 Jul 2005: swapped out the AM25T in the logger box with the repaired one (sn 1616). Started using the am25t reference temp sensor again.
Apr 7, 2004	Jul 19, 2005	TC23X05.CSI	TC23X05.params	NaN	NaN	NaN	AM25T ref thermistor not working properly. On 7 Apr 2004: Ref. Temperature seemed dead in the am25t. Modified program accordingly (used panel temp for reference).
Apr 1, 2004	Apr 7, 2004	TC23X04.CSI					Modified program to sample at 5-min (TC23X04.CSI). intervals instead of 10-min (TC23X03.CSI).
Oct 29, 2003	Apr 1, 2004	TC23X03.CSI					Big Changes: Commented out muxs 2 and 3, Added the IR Thermometer. New Output Order: time tag, IR-thermometer. Ref temp of Mux 1, Tcs 1-25 (on Mux 1).
Aug 20, 2003	Oct 29, 2003	TC23XB.CSI					Data saved every 10-min, panel temp is used as AM25T ref temperature (I think this is the AM25T in the same enclosure as the CR23X).
Jun 11, 2002	Aug 20, 2003	TC23XB_ver1.csi					This is a bit of a guess, but I found "TC23XB_ver1.csi" on the laptop with a date from 6/11/02. It is very similar to "TC23XB.CSI", except TC23XB.CSI uses the panel temp as the AM25 ref Temp (and the time interval is 15-min in "TC23XB_ver1.csi" and 10-min in "TC23XB.CSI".

HYDRATC Logger:

Date	CSI File	Parameters	Channels	Comments
December 10, 2004	SOILHY.CSI			Added GMP343 probe (channel 12, SE chan 24). Stopped outputting of unused channels.

MRSTEMP Logger:

Start Date	End Date	CSI File	Parameters	Channels	Example Data File	Photo	Comments
Oct 4, 2007	Present	mrs_02.csi		NaN			on oct4 2007, started saving the 107 ref probe (that is in the box with the logger) data.
Oct 12, 2006	Oct 4, 2007	mrs_01.csi		NaN			on oct12, stopped collecting data from the broken snowtemp probe.
May 15, 2003	Oct 12, 2006	MRSTEMP.CSI		NaN			Original program

cr21x "Pressure" Logger:

Start Date	End Date	CSI File	Parameters	Channels	Example Data File	Photo	Comments
Oct 24, 2006	Present	21xp_02.csi		NaN			On Oct 24, swapped tubing to pressure sensors, changed sample rate to 5hz.
Oct 12, 2006	Oct 24, 2006	21xp_01.csi					added a cr21x logger to directly output data to quacker (nothing saved in logger)

WEST ROBOT Logger:

Start Date	End Date	CSI File	Parameters	Channels	Example Data File	Photo	Comments
June 8, 2007	present	auto26nw.csi					Written by Andy Schauer on June 1st, 2007. This program can be used year round, with only the necessary modification to the program via the logger keypad needed to switch to 4 flask (i.e. winter) sampling. From summer to winter do: *0 *4A AAAAAAAAA 1 A *0, that is a total of 9 A's after the *4A. Before pressing "1" you should see this in the screen (and if you don't, start over): 09: +0.0000. The *4A moves you to the user-adjustable value table and then the repeated As advance you to the 9th value, the season flag (0=summer, 1=winter). From winter to summer, either upload the program to the logger from the laptop or do the same as above, substituting 1 with 0 so the last three entires are 0 A *0
Feb 4, 2006	June 8, 2007	auto25w.csi (copied from auto25nw.csi, ver4)		NaN		no photo	On 4 Feb 2006: uploaded the logger program, set the fudge day to "0" (Thur/Fri swaps).
April 29, 2005	Aug 26, 2005	AUTO24W.CSI			050617w.dat	no photo	Version 24 is a modification of v 23E. AUTO_23e.CSI collects 2 midafternoon flasks, 11 night flasks, and then 2 more midafternoon flasks. The IRGA is always on with this program. Fudge Day changed to "2"(08/26/05).

EAST ROBOT Logger:

Start Date	End Date	CSI File	Parameters	Channels	Example Data File	Photo	Comments
Feb 4, 2006	Present	auto25e.csi (copied from auto25nw.csi, ver4)		NaN		no photo	On 4 Feb 2006: uploaded the logger program, set the fudge day to "0" (Thur/Fri swaps).
April 29, 2005	Aug 26, 2005	AUTO24E.CSI			050617e.dat	no photo	Licor replaced on 07/12/05 by KR. Fudge Day changed to "2"(08/26/05).

Noah's cr10 logger:

Start Date	End Date	CSI File	Parameters	Channels	Example Data File	Photo	Comments
Sat. Nov. 17, 2007	current	noah_m.csi	NaN	NaN	NaN	no photo	Noah was at Niwot Ridge on Sat. Nov. 17, 2007 to re-wire his logger/sensors

[Sean Burns](#)

Last Modified: 11/11/2015 09:55:31