/\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*/

/\* Institute of Ecosystem Studies (Millbrook, NY) \*/

/\* \*/

/\* TITLE: Sunapee\_buoy\_data\_input.sas \*/

/\* AUTHOR: Amanda Elliott \*/

/\* SYSTEM: Toshiba Tecra, Windows XP SAS 9.1 \*/

/\* DATE: 17Oct2007 \*/

/\* PROJECT: Lake Sunapee monitoring bouy \*/

/\* PURPOSE: Read in raw buoy datalogger data and export as an \*/

/\* organized dataset \*/

/\* \*/

/\* \*/

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/\* folder tree structure \*/

/\* \*/

/\* Lake Sunapee \*/

/\* | \*/

/\* monitoring \*/

/\* | \*/

/\* buoy data \*/

/\* / \ \*/

/\* sas program SAS\_raw\_data \*/

/\* | \*/

/\* raw data files \*/

/\* \*/

/\* \*/

/\* \*/

/\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*/

options ls=**100** ps=**52** pageno=**1**; \* when page orientation=portrait;

libname buoy "sasdatalibr";

\* NEED TO DEAL WITH THE CHANGE IN DEPTH DURING THE FALL OF 2007;

\* EASIEST WAY IS TO SPLIT THE RAW DATA FILES AND READ IN AS DIFFERENT

DEPTHS AND JUST HAVE MORE VARIABLES.;

\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*;

\* read in raw bouy data;

title 'raw\_buoy';

**data** raw\_Aug\_Oct07;

infile "SAS\_raw\_data\Sunapee\_buoy\_data\_27Aug07-02Oct07.csv"

firstobs=**1** dlm=',' n=**2**;

input array year julian\_day time1 temponDO\_C DOpersat DO\_ppm temp0m\_C

temp0p5m\_C temp1m\_C temp1p5m\_C temp2m\_C temp2p5m\_C temp3m\_C temp4m\_C

temp5m\_C temp6m\_C temp7m\_C temp8m\_C temp9m\_C temp10m\_C temp11m\_C

temp13m\_C temp15m\_C temp\_air\_C relhum\_pct PAR\_umolesm2s wind\_dir\_deg

wind\_spd\_ms temp\_anem\_C;

**run**;

\*proc print data=raw\_Aug\_Oct07; **run**;

**data** raw\_Oct\_Nov07;

infile "SAS\_raw\_data\Sunapee\_buoy\_data02Oct07-21Nov07.dat"

firstobs=**1** dlm=',' n=**2**;

input array year julian\_day time1 temponDO\_C DOpersat DO\_ppm temp0m\_C

temp0p5m\_C temp1m\_C temp1p5m\_C temp2m\_C temp2p5m\_C temp3m\_C temp4m\_C

temp5m\_C temp6m\_C temp7m\_C temp8m\_C temp9m\_C temp10m\_C temp11m\_C

temp13m\_C temp15m\_C temp\_air\_C relhum\_pct PAR\_umolesm2s wind\_dir\_deg

wind\_spd\_ms temp\_anem\_C;

**run**;

\*proc print data=raw\_Oct\_Nov07; **run**;

**data** raw\_Nov\_Dec07;

infile "SAS\_raw\_data\Sunapee\_buoy\_data21Nov-13Dec07.dat"

firstobs=**1** dlm=',' n=**2**;

input array year julian\_day time1 temponDO\_C DOpersat DO\_ppm temp0m\_C

temp0p5m\_C temp1m\_C temp1p5m\_C temp2m\_C temp2p5m\_C temp3m\_C temp4m\_C

temp5m\_C temp6m\_C temp7m\_C temp8m\_C temp9m\_C temp10m\_C temp11m\_C

temp13m\_C temp15m\_C temp\_air\_C relhum\_pct PAR\_umolesm2s wind\_dir\_deg

wind\_spd\_ms temp\_anem\_C;

**run**;

\*proc print data=raw\_Nov\_Dec07; **run**;

**data** raw\_Dec07\_Jan08;

infile "SAS\_raw\_data\Sunapee\_buoy\_data20Dec07-17Jan08.dat"

firstobs=**1** dlm=',' n=**2**;

input array year julian\_day time1 temponDO\_C DOpersat DO\_ppm temp0m\_C

temp0p5m\_C temp1m\_C temp1p5m\_C temp2m\_C temp2p5m\_C temp3m\_C temp4m\_C

temp5m\_C temp6m\_C temp7m\_C temp8m\_C temp9m\_C temp10m\_C temp11m\_C

temp13m\_C temp15m\_C temp\_air\_C relhum\_pct PAR\_umolesm2s wind\_dir\_deg

wind\_spd\_ms temp\_anem\_C;

**run**;

\*proc print data=raw\_Dec07\_Jan08; **run**;

**data** raw\_17Jan\_30Jan08;

infile "SAS\_raw\_data\Sunapee\_buoy\_data17Jan-30Jan08.dat"

firstobs=**1** dlm=',' n=**2**;

input array year julian\_day time1 temponDO\_C DOpersat DO\_ppm temp0m\_C

temp0p5m\_C temp1m\_C temp1p5m\_C temp2m\_C temp2p5m\_C temp3m\_C temp4m\_C

temp5m\_C temp6m\_C temp7m\_C temp8m\_C temp9m\_C temp10m\_C temp11m\_C

temp13m\_C temp15m\_C temp\_air\_C relhum\_pct PAR\_umolesm2s wind\_dir\_deg

wind\_spd\_ms temp\_anem\_C;

**run**;

\*proc print data=raw\_17Jan\_30Jan08; **run**;

**data** raw\_03Feb\_17Feb08;

infile "SAS\_raw\_data\Sunapee\_buoy\_data03Feb-17Feb2008.dat"

firstobs=**1** dlm=',' n=**2**;

input array year julian\_day time1 temponDO\_C DOpersat DO\_ppm temp0m\_C

temp0p5m\_C temp1m\_C temp1p5m\_C temp2m\_C temp2p5m\_C temp3m\_C temp4m\_C

temp5m\_C temp6m\_C temp7m\_C temp8m\_C temp9m\_C temp10m\_C temp11m\_C

temp13m\_C temp15m\_C temp\_air\_C relhum\_pct PAR\_umolesm2s wind\_dir\_deg

wind\_spd\_ms temp\_anem\_C;

**run**;

\*proc print data=raw\_03Feb\_17Feb08; **run**;

**data** raw\_17Feb\_28Mar08;

infile "SAS\_raw\_data\Sunapee\_buoy\_data17Feb-28Mar08.dat"

firstobs=**1** dlm=',' n=**2**;

input array year julian\_day time1 temponDO\_C DOpersat DO\_ppm temp0m\_C

temp0p5m\_C temp1m\_C temp1p5m\_C temp2m\_C temp2p5m\_C temp3m\_C temp4m\_C

temp5m\_C temp6m\_C temp7m\_C temp8m\_C temp9m\_C temp10m\_C temp11m\_C

temp13m\_C temp15m\_C temp\_air\_C relhum\_pct PAR\_umolesm2s wind\_dir\_deg

wind\_spd\_ms temp\_anem\_C;

**run**;

\*proc print data=raw\_03Feb\_17Feb08; **run**;

**data** raw\_09Apr\_223Apr08;

infile "SAS\_raw\_data\Sunapee\_buoy\_data09Apr-23Apr08.dat"

firstobs=**1** dlm=',' n=**2**;

input array year julian\_day time1 temponDO\_C DOpersat DO\_ppm temp0m\_C

temp0p5m\_C temp1m\_C temp1p5m\_C temp2m\_C temp2p5m\_C temp3m\_C temp4m\_C

temp5m\_C temp6m\_C temp7m\_C temp8m\_C temp9m\_C temp10m\_C temp11m\_C

temp13m\_C temp15m\_C temp\_air\_C relhum\_pct PAR\_umolesm2s wind\_dir\_deg

wind\_spd\_ms temp\_anem\_C;

**run**;

\*proc print data=raw\_09Apr\_223Apr08; **run**;

**data** raw\_buoy;

\* merge all raw files;

set raw\_Aug\_Oct07 raw\_Oct\_Nov07 raw\_Nov\_Dec07 raw\_Dec07\_Jan08

raw\_17Jan\_30Jan08 raw\_03Feb\_17Feb08 raw\_17Feb\_28Mar08 raw\_09Apr\_223Apr08;

\* create a julian date from the year and julian day;

year1000=year\***1000**;

juliandate=year1000+julian\_day;

date=datejul(juliandate);

format date date9.;

\* convert time to a format SAS can deal with;

LENGTH timestring $ **4**;

timestring=time1;

hour=**120**; min=**120**;

\* 1am to 9:50am;

if time1>**50** and time1<=**950** then hourS=substr(timestring,**2**,**1**);

if time1>**50** and time1<=**950** then minuteS=substr(timestring,**3**,**2**);

\* after 10am;

if time1>**950** then hourS=substr(timestring,**1**,**2**);

if time1>**950** then minuteS=substr(timestring,**3**,**2**);

hour=hourS; min=minuteS;

sec=**0**;

\* midnight to 12:50am;

if time1=**0** then hour=**0**;

if time1=**0** then min=**0**;

if time1>**0** and time1<=**50** then hour=**0**;

if time1>**0** and time1<=**50** then min=time1;

datetime=DHMS(date,hour,min,sec);

format datetime datetime.;

time=timepart(datetime);

format time hhmm.;

\* set missing values to missing;

if temponDO\_C=-**6999** then temponDO\_C='.';

if DOpersat=-**6999** then DOpersat='.';

if DO\_ppm=-**6999** then DO\_ppm='.';

if temp0m\_C=-**6999** then temp0m\_C='.';

if temp0p5m\_C=-**6999** then temp0p5m\_C='.';

if temp1m\_C=-**6999** then temp1m\_C='.';

if temp1p5m\_C=-**6999** then temp1p5m\_C='.';

if temp2m\_C=-**6999** then temp2m\_C='.';

if temp2p5m\_C=-**6999** then temp2p5m\_C='.';

if temp3m\_C=-**6999** then temp3m\_C='.';

if temp4m\_C=-**6999** then temp4m\_C='.';

if temp5m\_C=-**6999** then temp5m\_C='.';

if temp6m\_C=-**6999** then temp6m\_C='.';

if temp7m\_C=-**6999** then temp7m\_C='.';

if temp8m\_C=-**6999** then temp8m\_C='.';

if temp9m\_C=-**6999** then temp9m\_C='.';

if temp10m\_C=-**6999** then temp10m\_C='.';

if temp11m\_C=-**6999** then temp11m\_C='.';

if temp13m\_C=-**6999** then temp13m\_C='.';

if temp15m\_C=-**6999** then temp15m\_C='.';

if temp\_air\_C=-**6999** then temp\_air\_C='.';

if relhum\_pct=-**6999** then relhum\_pct='.';

if PAR\_umolesm2s=-**6999** then PAR\_umolesm2s='.';

if wind\_dir\_deg=-**6999** then wind\_dir\_deg='.';

if wind\_spd\_ms=-**6999** then wind\_spd\_ms='.';

if temp\_anem\_C=-**6999** then temp\_anem\_C='.';

drop timestring array hourS minuteS year1000 juliandate time1 sec;

**run**;

\*proc print data=raw\_buoy; **run**;

\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*;

\* create cleaned up dataset of all data;

title 'Sunapee\_buoy\_data';

**proc** **SQL**;

create table buoy.Sunapee\_buoy\_data as

select datetime, date, time, hour, temponDO\_C, DOpersat, DO\_ppm, temp0m\_C,

temp0p5m\_C, temp1m\_C, temp1p5m\_C, temp2m\_C, temp2p5m\_C, temp3m\_C,

temp4m\_C, temp5m\_C, temp6m\_C, temp7m\_C, temp8m\_C, temp9m\_C, temp10m\_C,

temp11m\_C, temp13m\_C, temp15m\_C, temp\_air\_C, PAR\_umolesm2s,

wind\_dir\_deg, wind\_spd\_ms, temp\_anem\_C

from raw\_buoy;

\*proc print data=buoy.Sunapee\_buoy\_data; **run**;