

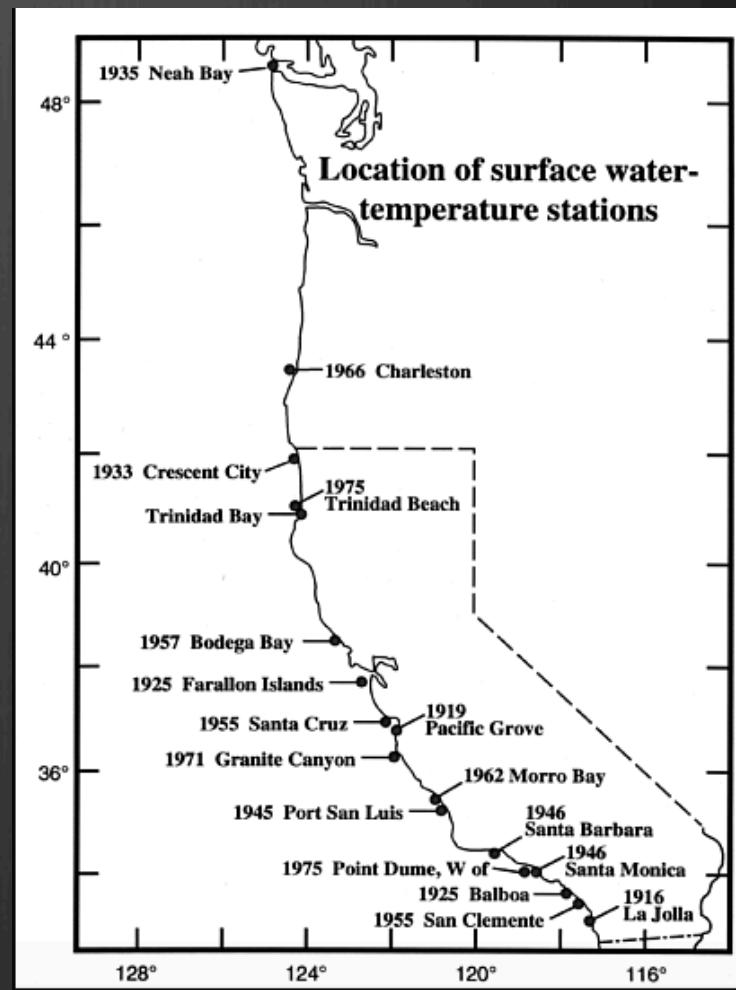
Automating R scripts and using google drive

Jimmy Fumo

10/23/19

Overview

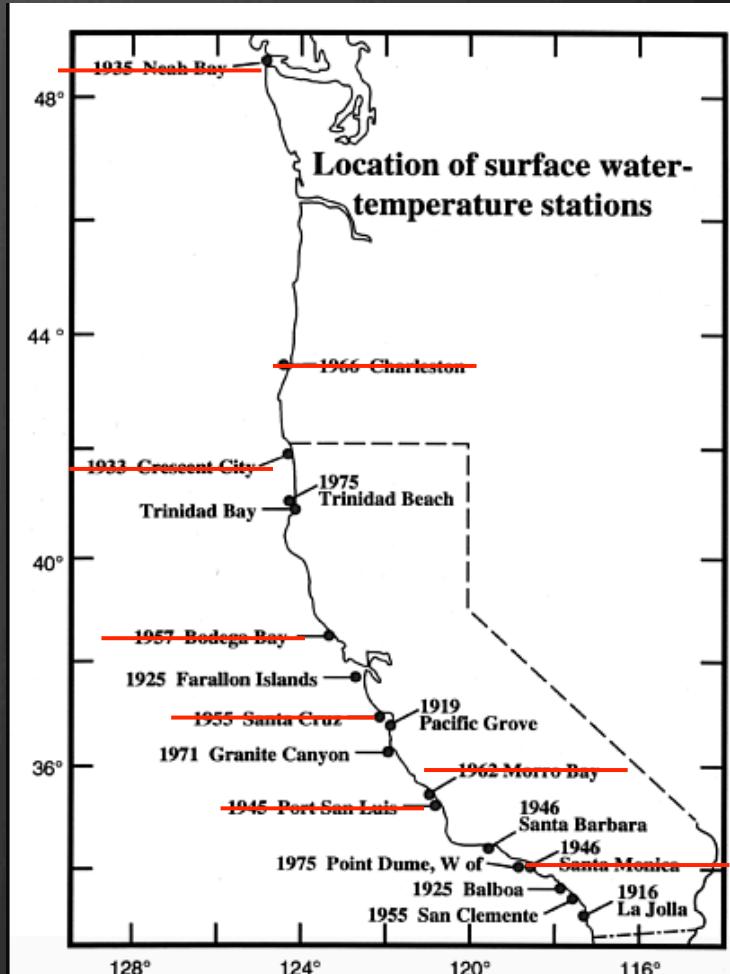
• The Manual Shore Stations Program



Overview

• The Manual Shore Stations Program

Station	Agency
Scripps Pier	Birch Aquarists
San Clemente	SC Lifeguards
Newport Beach	NB Lifeguards
Zuma Beach	Zuma Lifeguards
Santa Barbara	SB Harbor Patrol
Granite Canyon	Marine Pollution Studies Lab (UCD)
Pacific Grove	Hopkins Mar. Lab
Farallon Islands	Point Blue Conservation Science
Trinidad	HSU Mar. Lab



Overview

Data

SCRIPPS INSTITUTION OF OCEANOGRAPHY / UCSD
Shore Stations Program Data Sheet for Ocean and Weather Observations

STATION: SE FARALLON ISLAND MONTH: March YEAR: 2019
Pt. Reyes Bird Observatory

IF USING LOCAL TIME ZONE, CHECK BOX. IF OTHER, SPECIFY _____

Day of Month	Obs. Initials	Time of Obsv	AIR TEMP. (°C)	SEA SURF. TEMP. (0.01°C)	Thermometer Number	Salinity Sample Number	SEA STATE	WEATHER OBSERVATIONS & COMMENTS
1	JDS	11:57	12.0	12.31	DT009	21316	Calm	
2	JDS	11:59	12.6	12.34	DT009	21317	Rough	
3	MJZ	11:57	12.5	12.44	DT009	21318	Calm	
4	MJZ	11:54	12.5	12.44	DT009	21319	Calm	
5	MJZ	12:07	11.5	12.29	DT009	21320	Rough	
6	MJZ	11:53	12.5	12.32	DT009	21321	Rough	3 ft swell, collected in surf
7	MJZ	11:49	11.0	12.33	DT009	21322	Moderate	
8	MJZ	11:49	11.5	12.29	DT009	21323	Calm	
9	MJZ	11:49	12.5	12.30	DT009	21324	Calm	
10	MJZ	12:42	12.0	12.25	DT009	21325	Moderate	
11	MJZ	13:12	14.0	12.70	DT009	21326	Calm	
12	MJZ	12:40	12.0	12.48	DT009	21327	Rough	
13	MJZ	12:50	12.5	12.19	DT009	21328	Moderate	
14	MJZ	12:44	14.0	12.52	DT009	21329	Calm	
15	MJZ	12:55	15.0	12.64	DT009	21330	Calm	
16	MJZ	12:59	15.0	12.58	DT009	21331	Calm	
17	SR	12:47	14.0	13.51	DT009	21332	Calm	
18	SR	13:02	13.0	13.05	DT009	21333	Calm	
19	SR	13:01	15.5	12.89	DT009	21334	Calm	
20	SR	12:58	14.0	12.46	DT009	21335	mod	
21	SR	12:57	15.0	13.28	DT009	21336	Calm	
22	SR	13:00	12.0	12.45	DT009	21337	Rough	
23	SR	13:00	14.0	12.61	DT009	21338	Calm	
24	SR	12:45	14.5	13.06	DT009	21339	Calm	
25	SR	13:00	13.0	12.91	DT009	21340	Rough	
26	SR	12:45	14.5	13.91	DT009	21341	Calm	
27	SR	13:00	15.5	12.66	DT009	21342	mod	
28	SR	13:00	15.5	12.88	DT009	21343	Calm	
29	SR	13:00	15.5	13.68	DT009	21344	Calm	
30								
31	SOP	13:00	15.0	13.98	DT009	21345	Calm	

ONCE PER MONTH, ACTIVE VS BACKUP THERMOMETER CALIBRATION CHECK:

Day of Month	Obs. Initials	Time of Obsv	SEA SURF. TEMP. (0.01°C)	Therm. Number	SEA SURF. TEMP. (0.01°C)	Therm. Number	Comments

** Please note any change in thermometer under comments.
If you need supplies, please contact shorestation@ucsd.edu or call (858) 534-6304.

Ved V. Salt Togs 20190824 JP

Overview

Data

YEAR	MONTH	DAY	TIME_PST	IG_DAY	TIME_URF	TEMP_C	FLAG_TEMP
2019	3	1	1159	0	12.3	0	
2019	3	2	1159	0	12.3	0	
2019	3	3	1157	0	12.4	0	
2019	3	4	1154	0	12.4	0	
2019	3	5	1207	0	12.3	0	
2019	3	6	1153	0	12.3	0	
2019	3	7	1149	0	12.3	0	
2019	3	8	1149	0	12.3	0	
2019	3	9	1149	0	12.3	0	
2019	3	10	1148	0	12.3	0	
2019	3	11	1212	0	12.7	0	
2019	3	12	1140	0	12.5	0	
2019	3	13	1150	0	12.2	0	
2019	3	14	1144	0	12.5	0	
2019	3	15	1155	0	12.6	0	
2019	3	16	1159	0	12.6	0	
2019	3	17	1147	0	13.5	0	
2019	3	18	1202	0	13.1	0	
2019	3	19	1201	0	12.9	0	
2019	3	20	1158	0	12.5	0	
2019	3	21	1157	0	13.3	0	
2019	3	22	1200	0	12.5	0	
2019	3	23	1200	0	12.8	0	
2019	3	24	1145	0	13.1	0	
2019	3	25	1200	0	12.5	0	
2019	3	26	1145	0	12.8	0	
2019	3	27	1200	0	12.7	0	
2019	3	28	1200	0	12.9	0	
2019	3	29	1200	0	13.7	0	
2019	3	30	Nan	0	Nan	0	
2019	3	31	1200	0	14.0	0	



Microsoft
Excel

SCRIPPS INSTITUTION OF OCEANOGRAPHY / UCSD Shore Stations Program Data Sheet for Ocean and Weather Observations							
STATION: SE FARALLON ISLAND			MONTH: March		YEAR: 2019		
Pt. Reyes Bird Observatory							
<input checked="" type="checkbox"/> IF USING LOCAL TIME ZONE, CHECK BOX. IF OTHER, SPECIFY:							
Day of Month	Obs. Initials	Time of Obsv	AIR TEMP. (°C)	SEA SURF. TEMP. (0.01°C)	Thermometer Number	Salinity Sample Number	SEA STATE
1	JDS	11:57	12.0	12.31	DT009	21316	Calm
2	JDS	11:59	12.5	12.34	DT009	21317	Rough
3	MJQ	11:57	12.5	12.44	DT009	21318	Calm
4	MJQ	11:54	12.5	12.44	DT009	21319	Calm
5	MJQ	12:07	11.5	12.29	DT009	21320	Rough
6	MJQ	11:53	12.5	12.32	DT009	21321	Rough
7	MJQ	11:49	11.0	12.33	DT009	21322	Moderate
8	MJQ	11:49	11.5	12.29	DT009	21323	Calm
9	MJQ	11:49	12.5	12.30	DT009	21324	Calm
10	MJQ	12:42	12.0	12.25	DT009	21325	Moderate
11	MJQ	13:12	14.0	12.70	DT009	21326	Calm
12	MJQ	12:40	12.0	12.48	DT009	21327	Rough
13	MJQ	12:50	12.5	12.19	DT009	21328	Moderate
14	MJQ	12:44	14.0	12.52	DT009	21329	Calm
15	MJQ	12:55	15.0	12.64	DT009	21330	Calm
16	MJQ	12:59	15.0	12.58	DT009	21331	Calm
17	SR	1247	14.0	13.51	DT009	21332	Calm
18	SR	1302	13.0	13.05	DT009	21333	Calm
19	SR	1301	15.5	12.89	DT009	21334	Calm
20	SR	1258	14.0	12.46	DT009	21335	mod
21	SR	1247	15.0	13.28	DT009	21336	Calm
22	SR	1300	12.0	12.45	DT009	21337	Rough
23	SR	1300	14.0	12.61	DT009	21338	Calm
24	SR	1245	14.5	13.06	DT009	21339	Calm
25	SR	1300	13.0	12.91	DT009	21340	Rough
26	SR	1245	14.5	13.91	DT009	21341	Calm
27	SR	1300	15.5	12.66	DT009	21342	mod
28	SR	1300	15.5	12.88	DT009	21343	Calm
29	SR	1300	15.5	13.68	DT009	21344	Calm
30	SR	1300	15.0	13.98	DT009	21345	Calm
ONCE PER MONTH, ACTIVE VS BACKUP THERMOMETER CALIBRATION CHECK:							
Day of Month	Obs. Initials	Time of Obsv	SEA SURF. TEMP. (0.01°C)	Therm. Number	SEA SURF. TEMP. (0.01°C)	Therm. Number	COMMENTS

** Please note any change in thermometer under comments.
If you need supplies, please contact shorestation@ucsd.edu or call (858) 534-6304.

Ved v. Salt Tugs 20190824 JP

Overview

● Final Product

● shorestations.ucsd.edu



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[Stations & Data](#) ▾

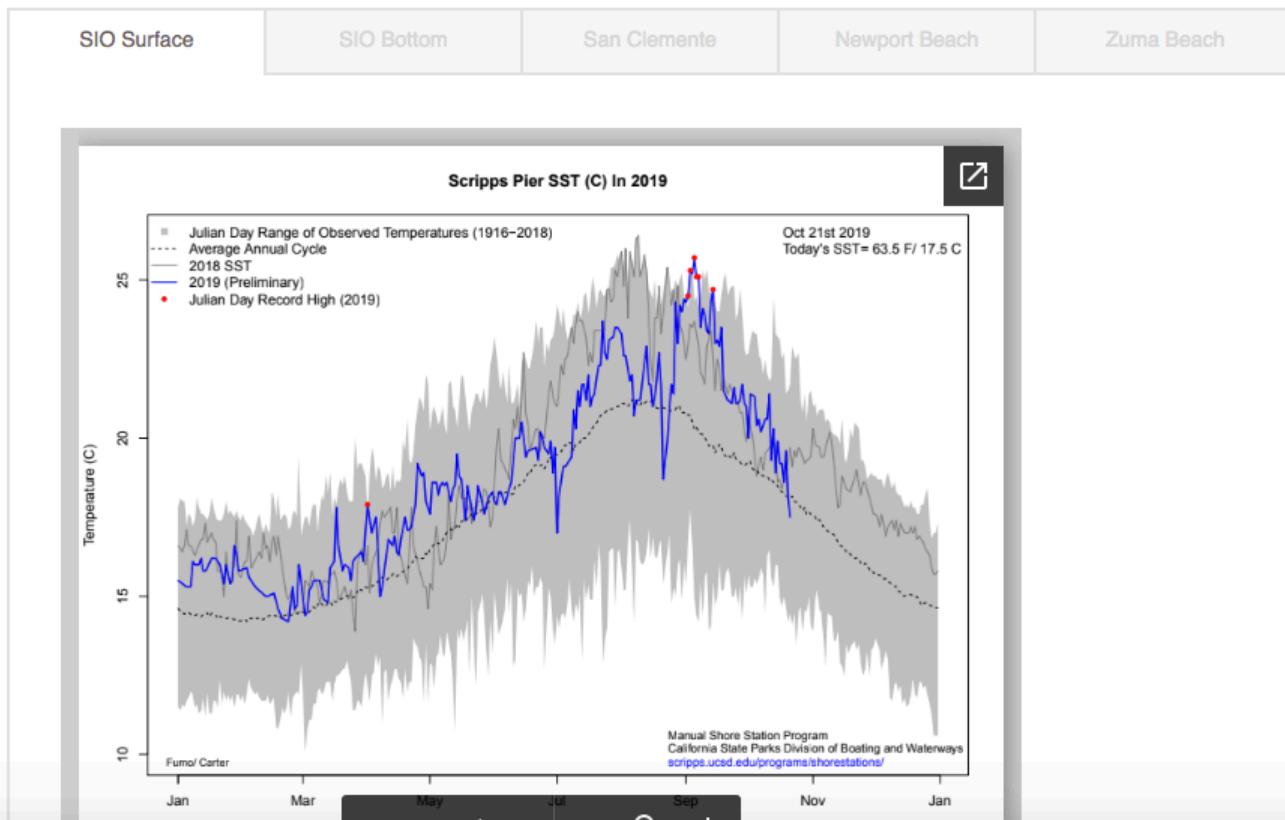
[Publications](#)

[Centennial Celebration](#)

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Current Ocean Temperatures



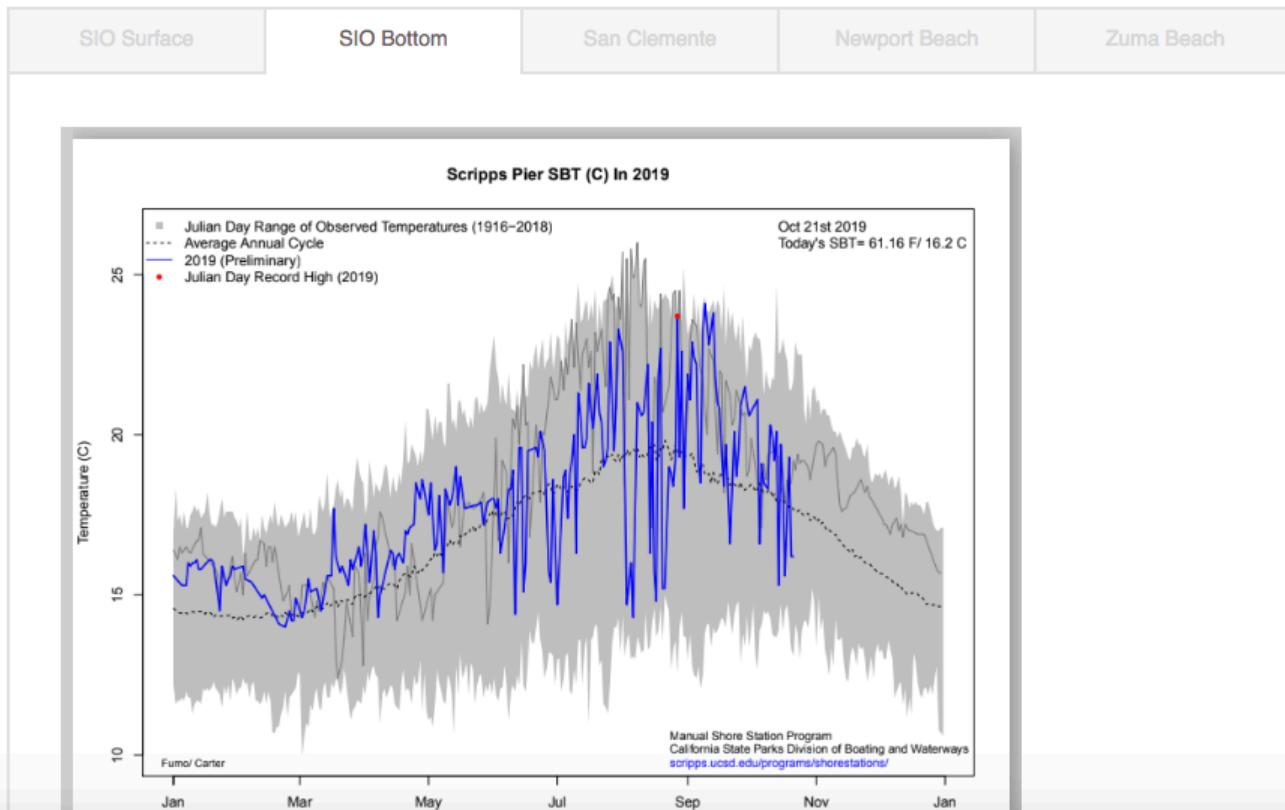
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Current Ocean Temperatures



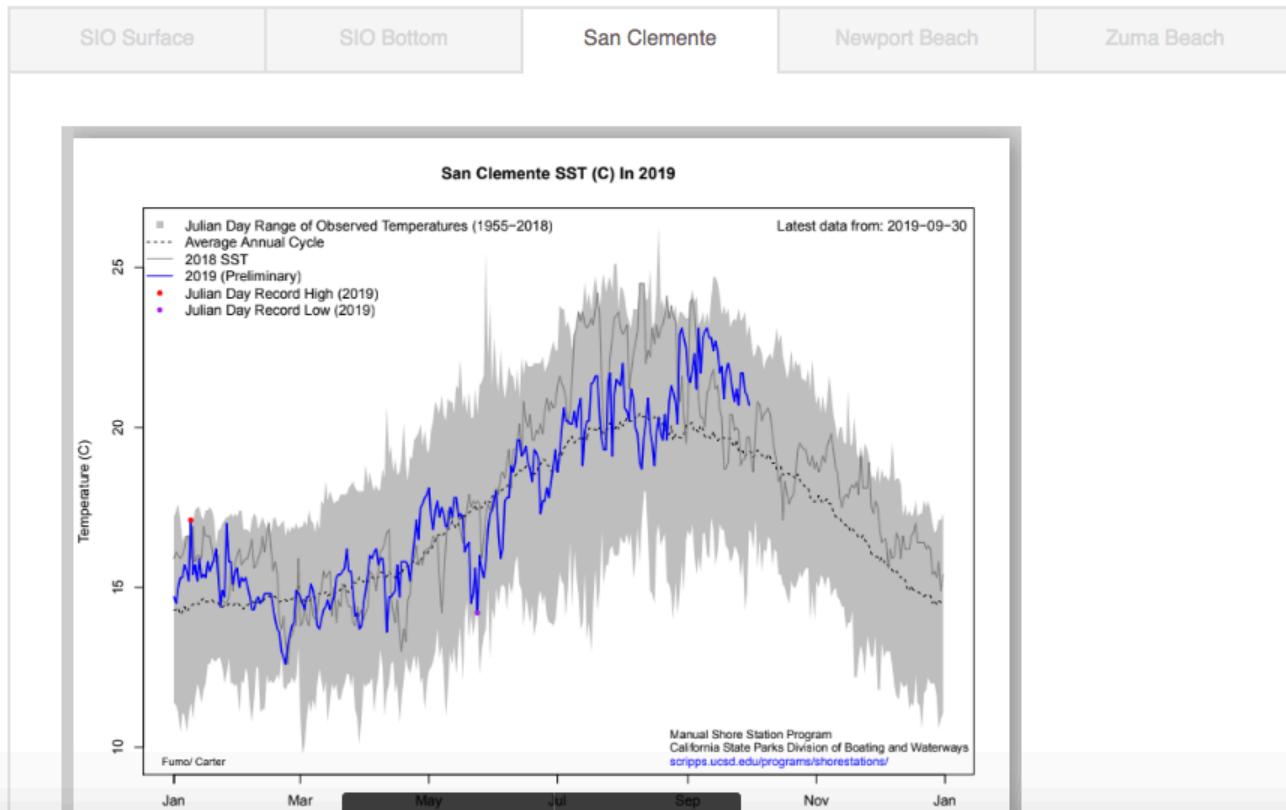
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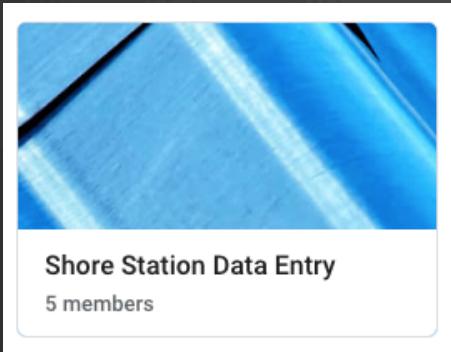
Current Ocean Temperatures



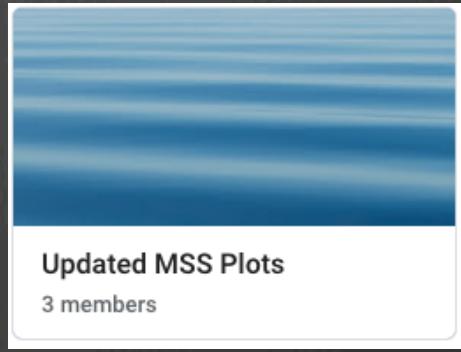
Google drive

- Team Drive

- One to pull data from



- One to put plots into



Google drive

Google form

Observer's Initials *

Your answer

Sea Surface Temperature (C) *

xx.xx (Enter 99.99 if not taken)

Your answer

Sea Surface Salinity Tag Number *

Enter 99999 if not taken

Your answer

Bottom Temperature (C) *

xx.xx (Enter 99.99 if temperature not taken)

Your answer

Scripps Pier Shore Station Data Entry

* Required

Date of Sample *

Date

mm/dd/yyyy

Time of Sample (24 Hour, Local Time Zone) *

Enter in format HH:MM

Bottom Salinity Tag Number *

Enter 99999 if not taken

Your answer

Thermometer Number *

DT###

Your answer

Weather Observations and Comments

Your answer

SUBMIT

Never submit passwords through Google Forms.

Google drive

🎥 Google form responses

SIO Pier Shore Station Data Entry (Responses) ★ 📁

Last edit was 2 hours ago

Share

Timestamp

	A	B	C	D	E	F	G	H
1	Timestamp	Date of Sample	Time of Sample (24 Hour, Observer's Initials)	Sea Surface Temperature	Sea Surface Salinity Tag	Bottom Temperature (C)	Bottom Salinity Tag	
2	2/13/2018 14:16:12	2/9/2018	13:25 ??	16.39	36276	16.14		
3	2/13/2018 14:17:32	2/10/2018	11:56 ??	16.23	36272	16.13		
4	2/13/2018 14:18:33	2/11/2018	13:40 KS	16.98	36273	16.72		
5	2/13/2018 14:24:11	2/12/2018	09:15 KS	16.47	36274	99.99		
6	2/13/2018 17:27:43	2/13/2018	15:30 ??	16.6	36275	16.57		
7	2/14/2018 9:56:19	2/14/2018	10:00 MT	16.13	36276	15.87		
8	2/15/2018 11:52:53	2/15/2018	11:44 MR	16.73	36277	16.47		
9	2/16/2018 13:17:55	2/16/2018	13:10 iy	16.92	36278	16.45		
10	2/17/2018 10:52:01	2/17/2018	10:47 JL	16.29	36279	16.01		
11	2/18/2018 14:45:31	2/18/2018	14:45 vl	16.86	36280	16.5		
12	2/20/2018 15:46:46	2/20/2018	15:35 mr	15.9	36281	99.99		
13	2/22/2018 10:13:14	2/22/2018	10:15 VL	14.97	36282	14.83		

Google drive

- ⦿ Google form responses
 - ⦿ sorted & rounded & flagged as preliminary

SIO Pier Shore Station Data Entry (Responses)

File Edit View Insert Format Data Tools Form Add-ons Help Last edit was 2 hours ago

Share

fx =sort(Sheet2!A:M,1,TRUE)

	A	B	C	D	E	F	G	H	I	J	K	L
1	1/2/2018	15.1	15.1	11:00	2018	1	2	1100	15.11	15.09	7	
2	2/9/2018	16.4	16.1	13:25	2018	2	9	1325	16.39	16.14	7	
3	2/10/2018	16.2	16.1	11:56	2018	2	10	1156	16.23	16.13	7	
4	2/11/2018	17	16.7	13:40	2018	2	11	1340	16.98	16.72	7	
5	2/12/2018	16.5	100	09:15	2018	2	12	0915	16.47	99.99	7	
6	2/13/2018	16.6	16.6	15:30	2018	2	13	1530	16.6	16.57	7	
7	2/14/2018	16.1	15.9	10:00	2018	2	14	1000	16.13	15.87	7	
8	2/15/2018	16.7	16.5	11:44	2018	2	15	1144	16.73	16.47	7	
9	2/16/2018	16.9	16.5	13:10	2018	2	16	1310	16.92	16.45	7	
10	2/17/2018	16.3	16	10:47	2018	2	17	1047	16.29	16.01	7	
11	2/18/2018	16.9	16.5	14:45	2018	2	18	1445	16.86	16.5	7	
12	2/20/2018	15.9	100	15:35	2018	2	20	1535	15.9	99.99	7	
13	2/22/2018	15	14.8	10:15	2018	2	22	1015	14.97	14.83	7	
14	2/23/2018	14.9	100	13:20	2018	2	23	1320	14.91	99.99	7	
15	2/24/2018	15.1	15.1	14:05	2018	2	24	1405	15.08	15.12	7	
16	2/25/2018	15.3	15.3	03:30	2018	2	25	0330	15.26	15.27	7	

Google drive

- Google form responses
 - sorted & rounded & flagged as preliminary
 - And added to the whole time series

non-QC'd SIO Shore Station Data  

File Edit View Insert Format Data Tools Add-ons Help Last edit was on February 20, 2018    Share

100% \$.0 .00 123 Arial 10 B I H A E L I J K Σ

fx YEAR

	A	B	C	D	E	F	G	H	I	J	K	L
1	YEAR	MONTH	DAY	TIME_PST	TIME_FLAG	SURF_TEMP_C	SURF_FLAG	BOT_TEMP_C	BOT_FLAG			
2	1916		8	22	Nan	19.5	0	Nan				
3	1916		8	23	Nan	19.9	0	Nan				
4	1916		8	24	Nan	19.7	0	Nan				
5	1916		8	25	Nan	19.7	0	Nan				
37554	2019	10	17	9:00	7	19.2	7	15.6	7			
37555	2019	10	18	1013	7	18.6	7	Nan	7			
37556	2019	10	19	1405	7	19.6	7		19.3	7		
37557	2019	10	20	1000	7	18.1	7		16.2	7		
37558	2019	10	21	9:40	7	17.5	7		16.2	7		

↓

Google drive

- Google formula for importing from another sheet

non-QC'd SIO Shore Station Data

File Edit View Insert Format Data Tools Add-ons Help Last edit was on February 20, 2018 Share

=importrange("1fM4uvyONJDXqUsWmxofAIs5apNSM_UKSJWrXXYom_Jo", "Sheet3!E:E")

	A	B	C	D	E	F	G	H	I	J	K	L
37051	2018	1	28	1700	7	16	7	15.9	7			
37052	2018	1	29	1400	7	17.4	7	16.2	7			
37053	2018	1	30	1536	7	15.7	7	15.5	7			
37054	2018	1	31	845	7	15.6	7	15.1	7			
37055	2018	2	2	1315	7	16.1	7	15.7	7			
37056	2018	2	3	1121	7	16.1	7	15	7			
37057	2018	2	4	1540	7	16.9	7	16.3	7			
37058	2018	2	5	915	7	15.9	7	15.6	7			
37059	2018	1	2	1100	7	15.1	7	15.1	7			
37060	2018	2	9	1325	7	16.4	7	16.1	7			
37061	2018	2	10	1156	7	16.2	7	16.1	7			
37062	2018	2	11	1340	7	17	7	16.7	7			
37063	2018	2	12	0915	7	16.5	7	NaN	7			
37064	2018	2	13	1530	7	16.6	7	16.6	7			
37065	2018	2	14	1000	7	16.1	7	15.9	7			
37066	2018	2	15	1144	7	16.7	7	16.5	7			

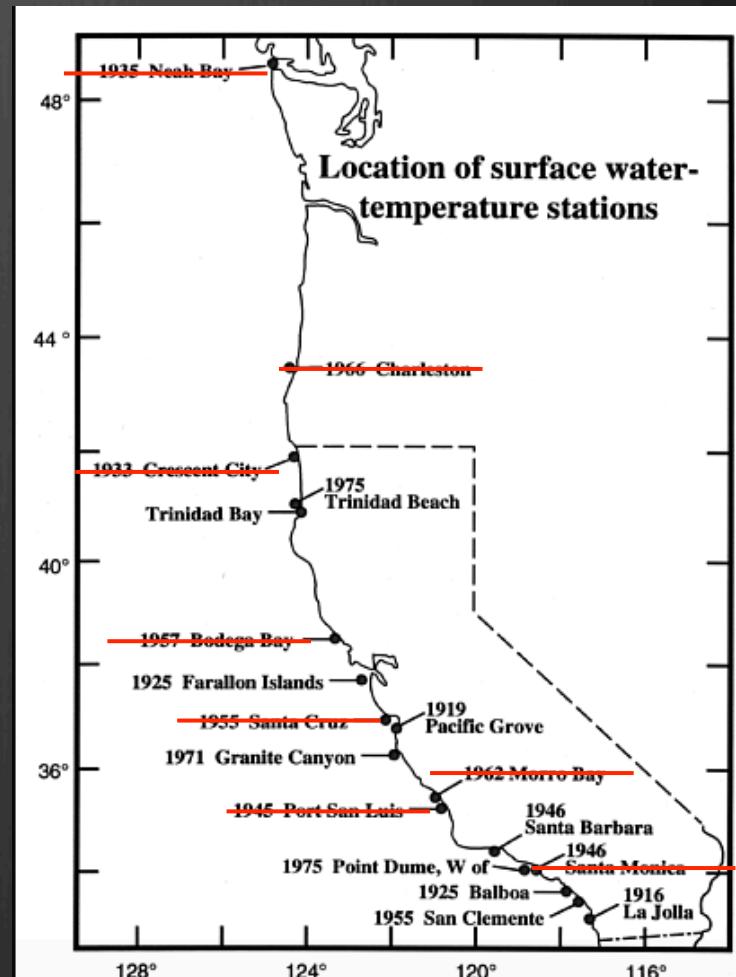
Google drive

- Download whole time series
- <https://docs.google.com/spreadsheets/d/1Rfl69IuXa-UIgjdZX3MozJIhOCcVnRaATLLdwq7E52w/export?format=csv>

Beach Server

- Only SIO and the Farallon islands enter data via google drive

Station	Agency
Scripps Pier	Birch Aquarists
San Clemente	SC Lifeguards
Newport Beach	NB Lifeguards
Zuma Beach	Zuma Lifeguards
Santa Barbara	SB Harbor Patrol
Granite Canyon	Marine Pollution Studies Lab (UCD)
Pacific Grove	Hopkins Mar. Lab
Farallon Islands	Point Blue Conservation Science
Trinidad	HSU Mar. Lab



Beach Server

- Only SIO and the Farallon islands enter data via google drive

- For all the others...

YEAR	MONTH	DAY	TIME_PST	IG_DAY	TIME	URF_TEMP_C	FLAG_TEMP
2019	3	1	1159	0	12.3	0	
2019	3	2	1159	0	12.3	0	
2019	3	3	1157	0	12.4	0	
2019	3	4	1154	0	12.4	0	
2019	3	5	1207	0	12.3	0	
2019	3	6	1153	0	12.3	0	
2019	3	7	1149	0	12.3	0	
2019	3	8	1149	0	12.3	0	
2019	3	9	1149	0	12.3	0	
2019	3	10	1148	0	12.3	0	
2019	3	11	1212	0	12.7	0	
2019	3	12	1140	0	12.5	0	
2019	3	13	1150	0	12.2	0	
2019	3	14	1144	0	12.5	0	
2019	3	15	1155	0	12.6	0	
2019	3	16	1159	0	12.6	0	
2019	3	17	1147	0	13.5	0	
2019	3	18	1202	0	13.1	0	
2019	3	19	1201	0	12.9	0	
2019	3	20	1158	0	12.5	0	
2019	3	21	1157	0	13.3	0	
2019	3	22	1200	0	12.5	0	
2019	3	23	1200	0	12.8	0	
2019	3	24	1145	0	13.1	0	
2019	3	25	1200	0	12.5	0	
2019	3	26	1145	0	12.8	0	
2019	3	27	1200	0	12.7	0	
2019	3	28	1200	0	12.9	0	
2019	3	29	1200	0	13.7	0	
2019	3	30	NaN	0	NaN	0	
2019	3	31	1200	0	14.0	0	



SCRIPPS INSTITUTION OF OCEANOGRAPHY / UCSD
Shore Stations Program Data Sheet for Ocean and Weather Observations

STATION: SE FARALLON ISLAND		MONTH: March	YEAR: 2019
Pt. Reyes Bird Observatory			
<input checked="" type="checkbox"/> IF USING LOCAL TIME ZONE, CHECK BOX. IF OTHER, SPECIFY.			
Day of Month	Obs. Initials	Time of Obsv	AIR TEMP. (°C)
1	JDS	11:57	12.0
2	JDS	11:59	12.5
3	M32	11:57	12.5
4	M32	11:54	12.5
5	M32	12:02	11.5
6	M32	11:53	12.5
7	M32	11:44	11.0
8	M32	11:49	11.5
9	M32	11:49	12.5
10	M32	12:42	12.0
11	M32	13:42	14.0
12	M32	12:40	12.0
13	M32	12:50	12.5
14	M32	12:44	14.0
15	M32	12:45	15.0
16	M32	12:51	15.0
17	SR	12:47	14.0
18	JR	13:02	13.0
19	SR	13:01	15.5
20	JR	13:56	14.0
21	SR	13:47	15.0
22	JR	13:00	12.0
23	SR	13:00	14.0
24	SR	12:45	14.5
25	JR	13:00	13.0
26	SR	12:45	14.5
27	SR	13:00	15.5
28	JR	13:00	15.5
29	SR	13:00	15.5
30		J	..
31	SOP	13:00	15.0

ONCE PER MONTH, ACTIVE VS BACKUP, THERMOMETER CALIBRATION CHECK:

Day of Month	Obs. Initials	Time of Obsv	SEA SURF. TEMP. (0.01°C)	Thermometer Number	SEA SURF. TEMP. (0.01°C)	Therm. Number	Comments
--------------	---------------	--------------	--------------------------	--------------------	--------------------------	---------------	----------

** Please note any change in thermometer under comments.
If you need supplies, please contact shorestation@ucsd.edu or call (858) 534-6304.
Jed V. Salt Togs 2019084 JF

R Script
Cl

Clean up R
Change WD –
Load libraries

Manipulate data

And Create a plot

We all know how to....

```
1 #This script will update the plots available @ shorestations.ucsd.edu for SC, NB, Zuma, SB, GC, PG.
2 ##It pulls data directly from the server, plots it, and puts the plot onto google drive.
3 ##The website then pulls the plots directly from google drive with a linked url.
4
5 #start of every script
6 rm(list=ls())
7 #SC#####
8 #set the working directory to match the server location of the latest Temperature data from SC
9 setwd("/home/rstudio/jfumo/sccoos/manual_shore_station/DATA/TEMPERATURE/CURRENT/2_SC")
10 #load in some libraries that will become essential later
11 library(stringr)
12 library(readxl)
13 library(googledrive)
14 library(stringr)
15 #read in the latest excel file in the working directory as 'stack'
16 ##The line below calls for all the files in the working directory with "dir()".
17 ###It then extracts the date string from all the file names in the directory with the series of 8 '\\d' below.
18 ####It then figures out which of the 8 digit number strings is highest, figures out what the file name is, and
19 stack=as.data.frame(read_excel(as.character(na.omit(dir()[str_extract(dir(), '\\d\\d\\d\\d\\d\\d\\d\\d\\d\\d\\d\\d')]==max(n)))
20 #Since all of the manual shore station files have a header, let's remove it.
21 ##We scan through the first row of data to isolate the row in which the word 'YEAR' is stated. This should be
22 which(stack[,1]=='YEAR')
23 #So we can remove all the rows above that point.
24 stack=stack[c(which(stack[,1]=='YEAR'):length(stack[,1])),]
25 colnames(stack)=stack[1,]
26 stack=stack[-1,]
27 stack$SURF_TEMP_C=suppressWarnings(as.numeric(stack$SURF_TEMP_C))
28 stack$date=as.POSIXct(strptime(paste(as.character(stack$YEAR),as.character(stack$MONTH),as.character(stack$DAY),
29 stack$MonthDayChar=paste(str_pad(as.character(stack$MONTH),side='left',pad='0',width=2),str_pad(as.character(s
30 stack$TEMP_FLAG[is.nan(stack$TEMP_FLAG)==T]=0
31 today=stack[stack$MonthDayChar==tail(stack$MonthDayChar,1),]
32 today=today[is.nan(today$SURF_TEMP_C)==F,]
33 today=today[today$TEMP_FLAG=='0' | today$TEMP_FLAG=='7',]
34 #This year so far...
35 stack2=stack[stack$YEAR!=as.numeric(substr(Sys.Date(),1,4)),]
36
37 setwd("/home/rstudio/jfumo/sccoos/manual_shore_station/DATA/TEMPERATURE/AutomatedPlotsForMSSwebsite")
38 pdf("SST This Year SC.pdf",width=11,height=8.5,encoding='MacRoman')
39 plot(x=range(df$time),y=range(c(as.numeric(na.omit(as.numeric(df$SURFmin))),as.numeric(na.omit(as.numeric(df$SI
40 polygon(c(df$time,rev(df$time)),c(df$SURFmax,rev(df$SURFmin)),col='gray',border=NA)
41 lines(SURFmean~time,data=df[is.nan(df$SURFmean)==F],type='l',col='black',lty=2)
42 lines(df$SURFLastYear[is.na(df$SURFLastYear)==F]~df$time[is.na(df$SURFLastYear)==F],type='l',col='gray50')
43 lines(df$SURFthisYear[is.na(df$SURFthisYear)==F]~df$time[is.na(df$SURFthisYear)==F],type='l',col='blue',lwd=2)
44 points(as.numeric(na.omit(df$SURFthisYear[as.numeric(df$SURFthisYear)>as.numeric(df$SURFmax)]))~na.omit(df$tim
45 points(as.numeric(na.omit(df$SURFthisYear[as.numeric(df$SURFthisYear)<as.numeric(df$SURFmin)]))~na.omit(df$tim
46 #legend('topleft',legend=as.vector(c('Record High in Previous Years','All Time Average','Record Low',paste(sub
47 legend('topleft',legend=as.vector(c(paste("Julian Day Range of Observed Temperatures (1955-",as.character(as.n
48 legend('topright',legend=as.vector(c(paste('Latest data from:',substr(stack$date[max(which(is.na(stack$SURF_TEI
49 legend('bottomright',legend=as.vector(c("Manual Shore Station Program","California State Parks Division of Boa
50 legend('bottomleft',legend=as.vector(c("Fumo/ Carter"))),col='gray',bty='n',cex=.75)
51 dev.off()
```

The R script

- googledrive::drive_download()
- So now lets pull data from Google Drive into R...
 - An example from my code:

```
drive_download(drive_get(id="1Rfl69IuXa-UIgjdZX3MozJIh0CcVnRaATLLdwq7E52w"), type='csv', overwrite=TRUE)
```

- library(googledrive)



- ?drive_download()

drive_update (googledrive) R Documentation

Update an existing Drive file

Description

Update an existing Drive file id with new content ("media" in Drive API-speak), new metadata, or both.

Usage

```
drive_update(file, media = NULL, ..., verbose = TRUE)
```

Arguments

file	Something that identifies the file of interest on your Google Drive. Can be a name or path, a file id or URL marked with as_id() , or a dribbble .
media	Character, path to the local file to upload.
...	Named parameters to pass along to the Drive API. You can affect the metadata of the target file by specifying properties of the Files resource via See the "Request body" section of the Drive API docs for the associated endpoint.
verbose	Logical, indicating whether to print informative messages (default TRUE).

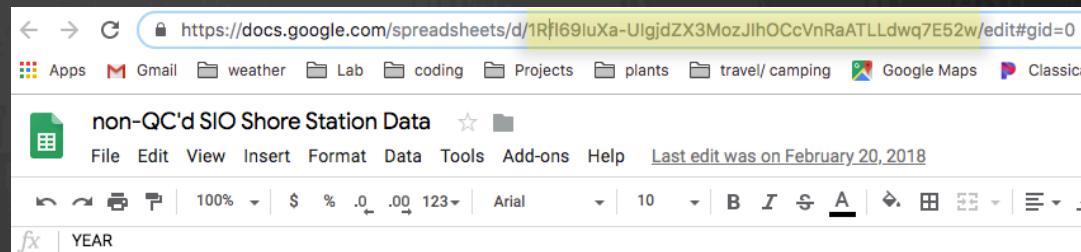
The R script

```
drive_download(drive_get(id="1RfI69IuXa-UIgjdZX3MozJlh0CcVnRaATLLdwq7E52w"), type='csv', overwrite=T)
```

- Use googledrive::drive_download()

- 3 arguments:

- file=drive_get(id="url")
- type='csv'
- overwrite=T (logical)

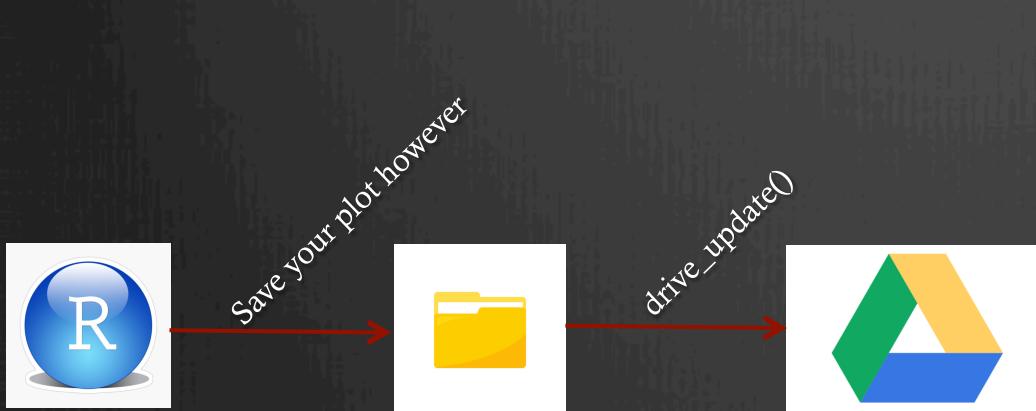


- End result. The google drive file is now a .csv in your working directory.
 - You can now read this file in with a plain old read.csv()

The R script

• googledrive::drive_update()

```
72 # and put them all on the team drive
73 drive_update(file=as_id("https://drive.google.com/a/ucsd.edu/file/d/1850r6LkcEZWQukYN7jGvPUTEXWBV3NrB/view?usp=sharing"))
74 ,media=paste(getwd(),"/SST This Year SC.pdf",sep=''))
```



Update an existing Drive file

Description

Update an existing Drive file id with new content ("media" in Drive API-speak), new metadata, or both.

Usage

```
drive_update(file, media = NULL, ..., verbose = TRUE)
```

Arguments

file Something that identifies the file of interest on your Google Drive. Can be a name or path, a file id or URL marked with `as_id()`, or a `dribble`.

media Character, path to the local file to upload.

... Named parameters to pass along to the Drive API. You can affect the metadata of the target file by specifying properties of the Files resource via See the "Request body" section of the Drive API docs for the associated endpoint.

verbose Logical, indicating whether to print informative messages (default TRUE).

Value

An object of class `dribble`, a tibble with one row per item.

The R script

• googledrive::drive_update()

```
72 # and put them all on the team drive  
73 drive_update(file=as_id("https://drive.google.com/a/ucsd.edu/file/d/1850r6LkcEZWQUkYN7jGvPUTEXWBV3NrB/view?usp=sharing"))  
74
```

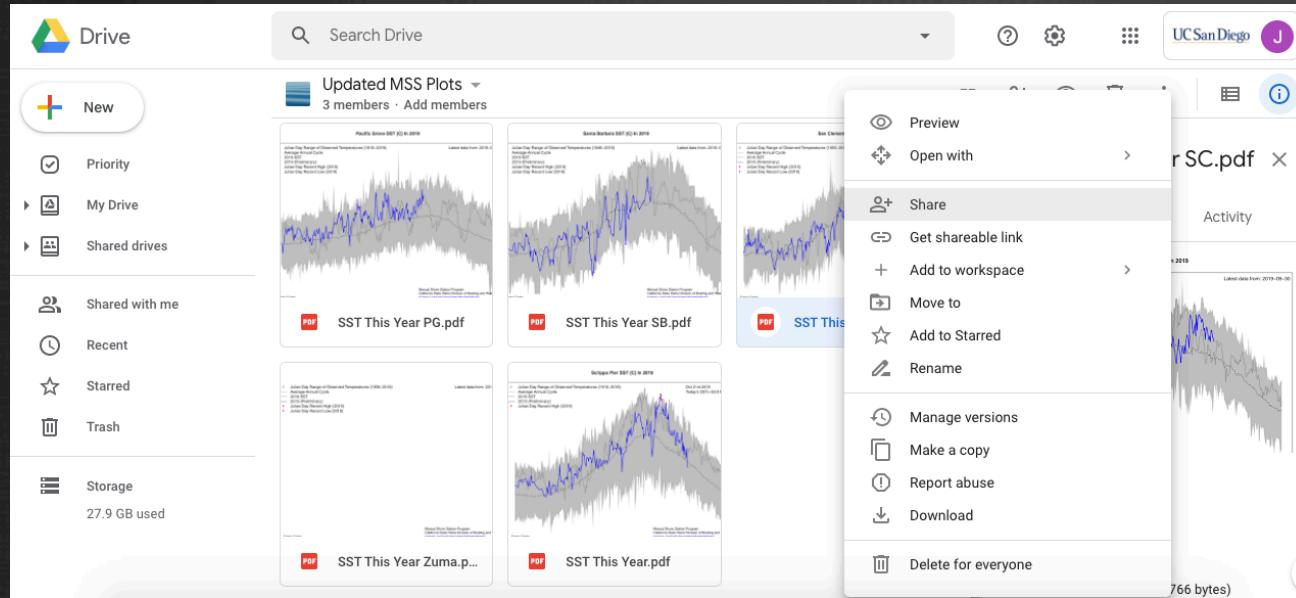
• Arguments:

• file=as_id("url")

```
,media=paste(getwd(),"/SST This Year SC.pdf",sep=''))
```

1. Right click plot

2. Share



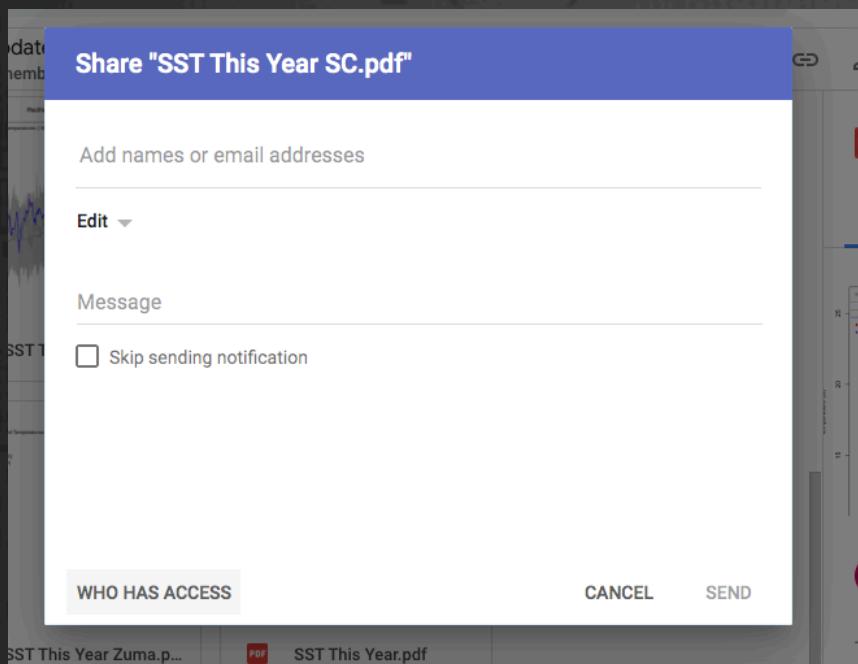
The R script

• googledrive::drive_update()

```
72 # and put them all on the team drive  
73 drive_update(file=as_id("https://drive.google.com/a/ucsd.edu/file/d/1850r6LkcEZWQUkYN7jGvPUTEXWBV3NrB/view?usp=sharing"))  
74
```

• Arguments:

• file=as_id("url")



```
,media=paste(getwd(),"/SST This Year SC.pdf",sep=''))
```

1. Right click plot
2. Share
3. “Who has access”

The R script

• googledrive::drive_update()

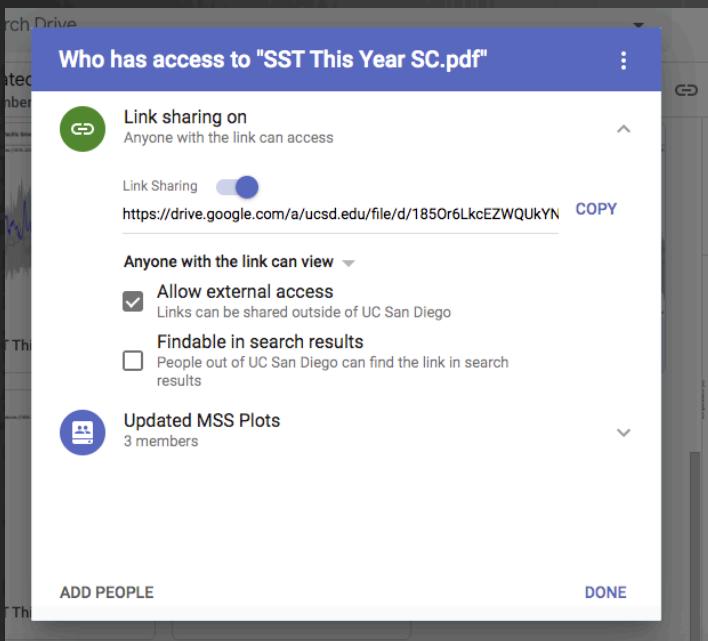
```
72 # and put them all on the team drive  
73 drive_update(file=as_id("https://drive.google.com/a/ucsd.edu/file/d/1850r6LkcEZWQUkYN7jGvPUTEXWBV3NrB/view?usp=sharing"))  
74
```

• Arguments:

• file=as_id("url")

```
, media=paste(getwd(),"/SST This Year SC.pdf",sep=''))
```

1. Right click plot
2. Share
3. “Who has access”
4. Turn link sharing on



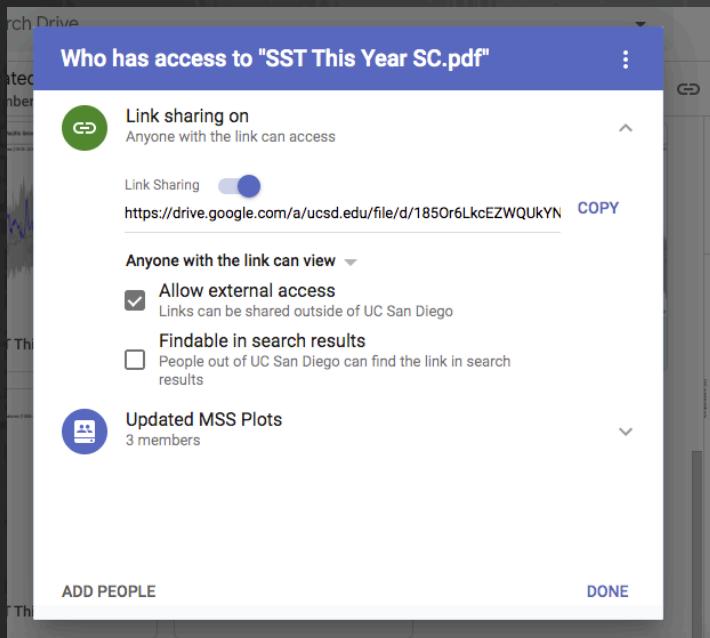
The R script

• googledrive::drive_update()

```
72 # and put them all on the team drive  
73 drive_update(file=as_id("https://drive.google.com/a/ucsd.edu/file/d/1850r6LkcEZWQUkYN7jGvPUTEXWBV3NrB/view?usp=sharing"))  
74
```

• Arguments:

• file=as_id("url")



```
, media=paste(getwd(), "/SST This Year SC.pdf", sep=''))
```

1. Right click plot
2. Share
3. “Who has access”
4. Turn link sharing on
 - Allow external access
 - Anyone can view
5. Copy full URL into as_id()

The R script

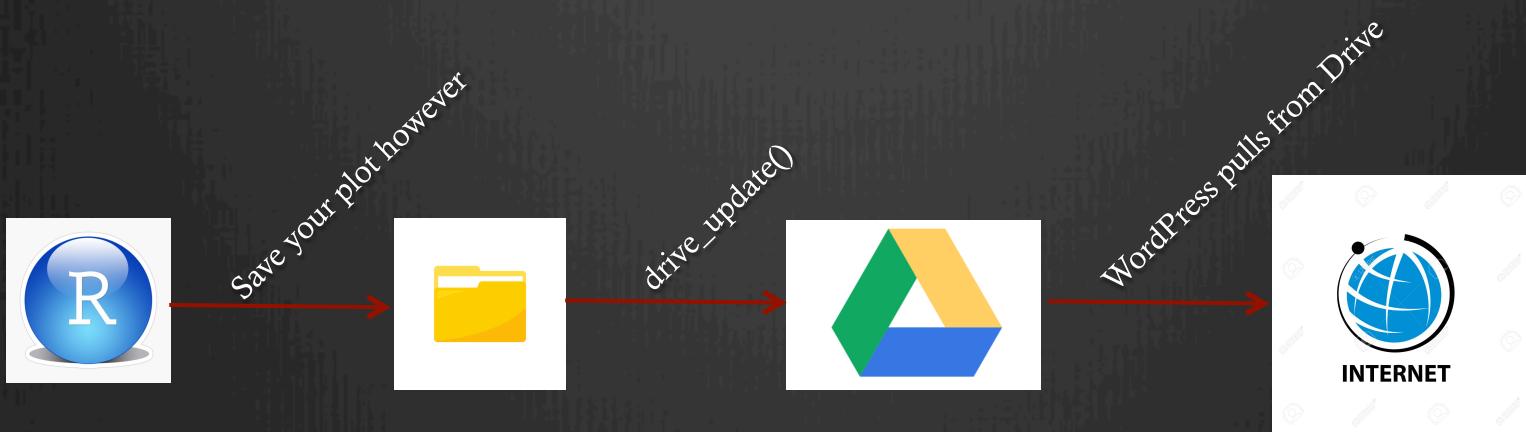
• googledrive::drive_update()

```
72 # and put them all on the team drive  
73 drive_update(file=as_id("https://drive.google.com/a/ucsd.edu/file/d/1850r6LkcEZWQUkYN7jGvPUTEXWBV3NrB/view?usp=sharing"))  
74
```

• Arguments:

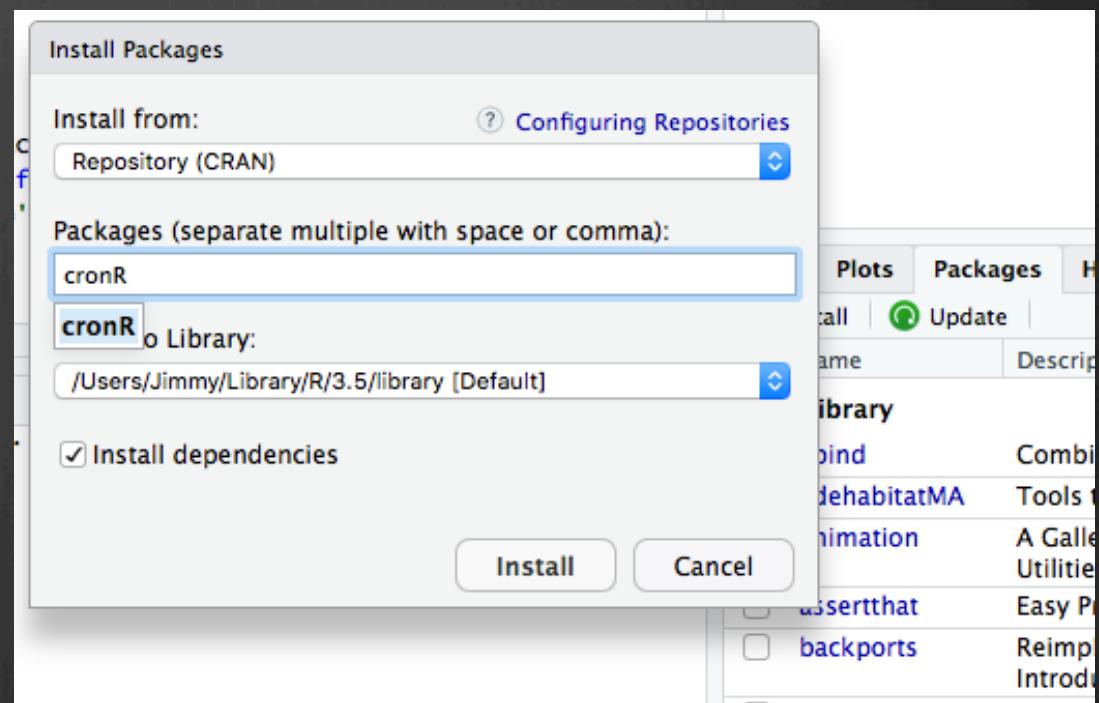
- file=as_id("url")
- media=full file path of image

```
,media= paste(getwd(),"/SST This Year SC.pdf",sep=''))
```



The R script

- cronR
 - Install cronR
 - library(cronR)
 - Restart R



The R script

• cronR

• Click Addins !^

The screenshot shows the RStudio interface. The top bar displays "RStudio". The left pane contains a script editor with the file "Temp_v_phCounts_Dep2.R" open. The code in the script is:

```
1 rm(list=ls())
2 setwd("~/Desktop/stuff/Reports/20191022_ph_thermistorVariability")
3 rawData=readRDS("rawData_20191022.RDS")
4 rawData=rawData[which(rawData$Deployment==2),]
5 df=lapply(sort(unique(rawData$ph_counts)),function(x){c(x,rawData$temperature[rawData$ph_counts==x])})
6 df=lapply(df, `length<-`, max(lengths(df)))
7 df=as.data.frame(df)
8 df=df[-1,]
9
10 pdf("Temp_vs_phCounts_Dep2.pdf",width=11,height=8.5)
11 bp=boxplot(df,col='gray',ylab='pH',medcol='black',boxcol='gray',whiskcol='gray50',outcol='black',pc1
12 axis(1,at=unlist(lapply(seq(from=-500,to=9000,by=500),function(x){if(min(abs(sort(unique(rawData$ph_
13 legend='bottomright',legend=as.vector(c("Fumo")),byt='n')
14 dev.off()
15
16
```

The right pane shows the "Environment" tab, which is currently empty. The bottom pane shows the "Console" output, which includes the standard R welcome message and some usage information.

```
R is free software and comes with ABSOLUTELY NO WARRANTY.
You are welcome to redistribute it under certain conditions.
Type 'license()' or 'licence()' for distribution details.

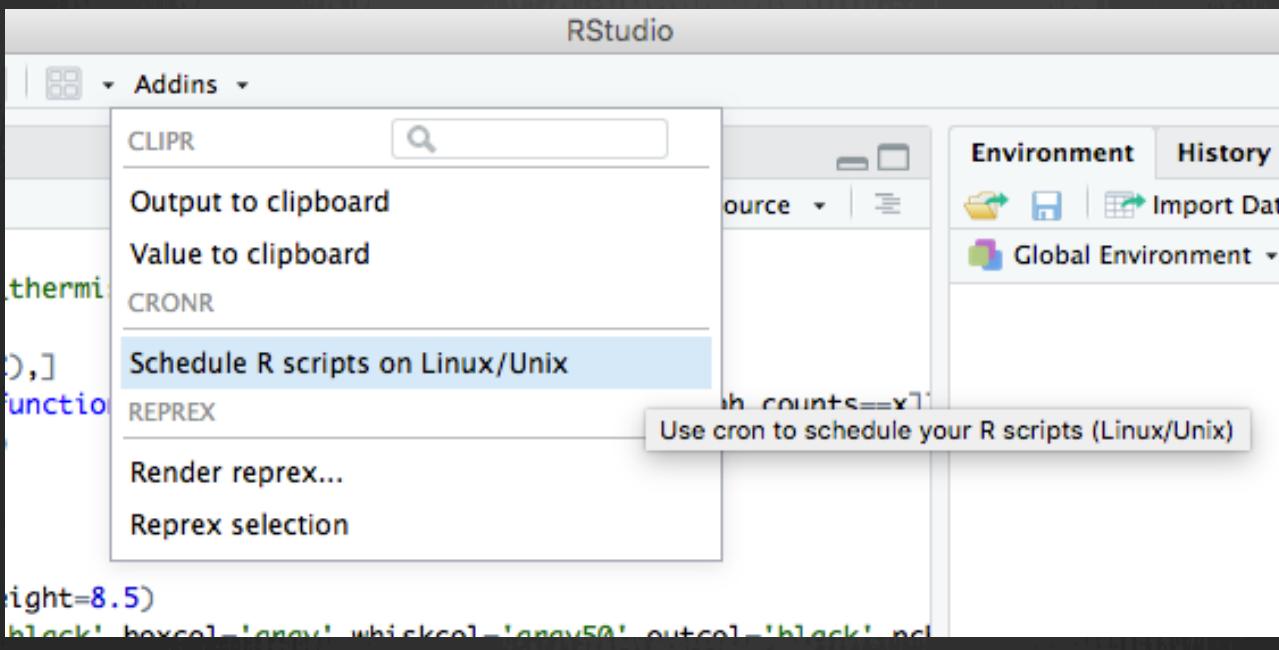
Natural language support but running in an English locale

R is a collaborative project with many contributors.
Type 'contributors()' for more information and
'citation()' on how to cite R or R packages in publications.

Type 'demo()' for some demos, 'help()' for on-line help, or
'help.start()' for an HTML browser interface to help.
Type 'q()' to quit R.
```

The R script

- cronR
 - Click Addins !^
 - Select “Schedule R scripts on Linux/Unix”



The R script

• cronR

- Click Addins !^
- Select “Schedule R scripts on Linux/Unix
- Fill out the form. Create Job. Done.

Cron job scheduler

Cancel Use cron to schedule your R script Done

Choose your Rscript
Select file

Selected Rscript
No R script selected yet

Job description
I execute things

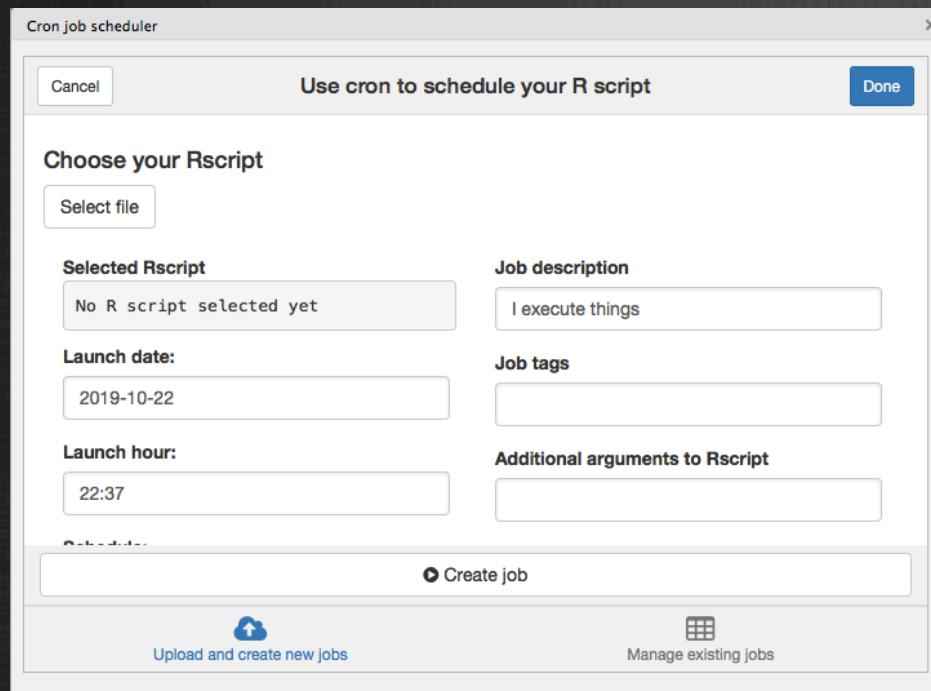
Launch date:
2019-10-22

Launch hour:
22:37

Additional arguments to Rscript

Create job

Upload and create new jobs Manage existing jobs



Cron job scheduler

Cancel Use cron to schedule your R script Done

Launch hour: 22:37 Additional arguments to Rscript

Schedule:
 ONCE
 EVERY MINUTE
 EVERY HOUR
 EVERY DAY
 EVERY WEEK
 EVERY MONTH
 ASIS

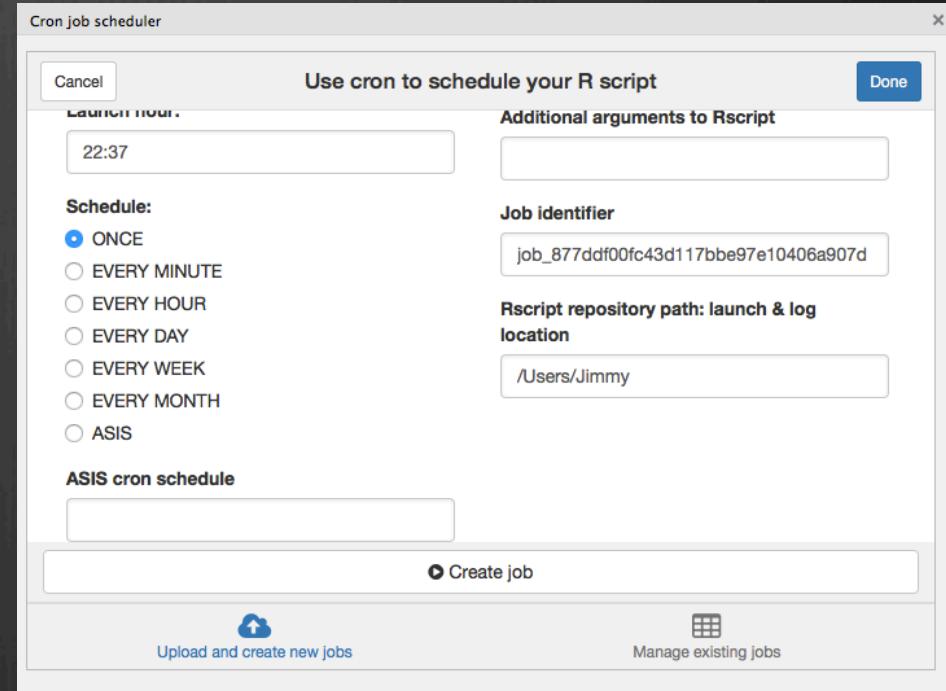
Job identifier: job_877ddf0fc43d117bbe97e10406a907d

Rscript repository path: launch & log location /Users/Jimmy

ASIS cron schedule

Create job

Upload and create new jobs Manage existing jobs



The R script

- mailR::send.mail()
 - Automated emails sent out if:
 - It's after 5:00 and nobody has taken a sample yet.
 - A record is broken.

The R script

- mailR::send.mail()
 - Automated emails sent out if:
 - It's after 5:00 and nobody has taken a sample yet.

```
471 #email about no sample taken
472 library(mailR)
473 sender="jfumo@ucsd.edu"
474 recipients=c('shorestation@ucsd.edu')
475
476 BodyNote="Nobody sampled today for the SIO MSS today...
477   A pier walk would be nice wouldn't it?"
478
479 subject=paste("Have time for a pier walk?", Sys.Date()-1, sep=' ')
480
481 CurrentTime_Local=format(Sys.time(), tz="America/Los_Angeles", usetz=TRUE)
482
483 DateMatch=as.Date(tail(stack$date, 1))!=as.Date(substr(currentTime_Local, 1, 10))
484
485 TimeMatch=as.numeric(substr(currentTime_Local, 12, 13))==17
486
487 if(DateMatch==T & TimeMatch==T){send.mail(from=sender, to=recipients,
488 subject=subject, body=BodyNote, smtp=list(host.name="smtp.ucsd.edu", port=25,
489 user.name=sender), send=T)}
```

The R script

- mailR::send.mail()
 - Automated emails sent out if:
 - It's after 5:00 and nobody has taken a sample yet.

```
471 #email about no sample taken
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479 subject=paste("Have time for a pier walk?", Sys.Date()-1, sep=' ')
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481 CurrentTime_Local=format(Sys.time(), tz="America/Los_Angeles", usetz=TRUE)
482
483 DateMatch=as.Date(tail(stack$date, 1))!=as.Date(substr(currentTime_Local, 1, 10))
484
485 TimeMatch=as.numeric(substr(currentTime_Local, 12, 13))==17
486
487 if(DateMatch==T & TimeMatch==T){send.mail(from=sender, to=recipients,
488 subject=subject, body=BodyNote, smtp=list(host.name="smtp.ucsd.edu", port=25,
489 user.name=sender), send=T)}
```



The R script

- `mailR::send.mail()`
 - Automated emails sent out if:
 - It's after 5:00 and nobody has taken a sample yet.

Have time for a pier walk? 2019-10-09 ➤ Inbox x



[jfumo@ucsd.edu](#)

to shorestation ▾

Tue, Oct 8, 5:02 PM



Nobody sampled today for the SIO MSS today... A pier walk would be nice wouldn't it?

[Reply](#)

[Forward](#)

The R script

- mailR::send.mail()
 - Automated emails sent out if:
 - A record is broken.
 - Includes attachments.

```
491 #email about record temperatures
492 subject=paste("PRELIMINARY DATA! New record for",month.abb[today$MONTH[1]],toOrdinal(today$DAY[1]))
493 recipients=c('shorestation@ucsd.edu')
494 BodyNote=paste("Today's SST is the",toOrdinal(which(today$YEAR==max(today$YEAR))),'warmest',
495                 month.abb[today$MONTH[1]],toOrdinal(today$DAY[1]),'on record at',
496                 today$SURF_TEMP_C[which(today$YEAR==max(today$YEAR))], 'C /',
497                 round((today$SURF_TEMP_C[which(today$YEAR==max(today$YEAR))]*9/5)+32,1),'F')
498 emailTracker=suppressWarnings(read.csv("emailTracker.csv",sep=',',stringsAsFactors = F,header=T))
499 DateMatch=emailTracker$EmailSentOn[1]!=as.character(today$date[today$YEAR==max(today$YEAR)])
500 TopFive=which(today$YEAR==max(today$YEAR))<=5
501 - if(TopFive==T & DateMatch==T){send.mail(from=sender,to=recipients,subject=subject,body=BodyNote,
502                                         smtp=list(host.name="smtp.ucsd.edu",port=25,user.name=sender),
503                                         attach.files=c(paste(getwd(),'~/MonthlyReviewSST_SI0.pdf',sep=''),
504                                         paste(getwd(),'~/History of SST Today.pdf',sep=''),paste(getwd(),'~/History of SBT Today.pdf',
505                                         sep='')),send=T)
506 ;emailTracker$EmailSentOn[1]=as.character(today$date[today$YEAR==max(today$YEAR)])
507 ;write.csv(emailTracker,'emailTracker.csv',row.names = F)}
508
```

