

NCEI and CoCoRaHS Data

Bryant Korzeniewski

Meteorologist/Datzilla Gatekeeper/COOP Focal Point

Riverside Technology, Inc.

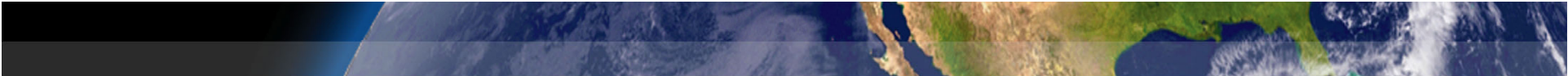
on behalf of NOAA's National Centers for Environmental Information

May 2022



National Oceanic and Atmospheric Administration | NOAA Satellite and Information Service



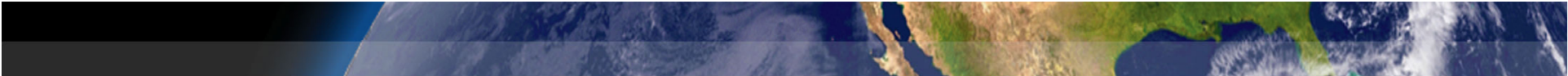


FULL DISCLOSURE



- Bryant Korzeniewski is a **FEDERAL CONTRACTOR** with Riverside Technology, Inc. (a.k.a. Riverside) as part of the Science and Data Stewardship (SDS) Contract at NCEI in Asheville, NC
- Bryant Korzeniewski represents and presents **on behalf of** NCEI at this meeting



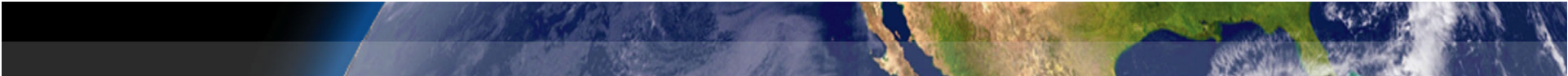


NCEI's To-Do List With CoCoRaHS Data

- Address Data Matches Detected by GHCN-Daily Between CoCoRaHS Data and NWS-Submitted Data (e.g. COOP Station) **ONGOING!**

(NOTES: GHCN-Daily = Global Historical Climatology Network – Daily
NWS = National Weather Service
COOP = Volunteer Cooperative Observer)





Data Matches Between CoCoRaHS and NWS-Submitted Data

	2014	2016	2017	2019	2022
GHCN-Daily Stations Affected	215	240	221	190	345
Stations with at least 90% Data-Match of Non-Zero Values for PRCP/SNOW/SNWD	114	113	110	134	172
Stations with 75 to less than 90% Data- Match of Non-Zero Values for PRCP/SNOW/SNWD	49	59	46	27	82
Stations with 50% to less than 75% Data-Match of Non-Zero Values for PRCP/SNOW/SNWD	52	68	65	29	91

**Disclaimer: 2015 and 2018 are not included within this table due to BK not presenting at WERA for said years.
Also, 2020 and 2021 aren't included due to not being available in time for its WERA Presentation.**





cocorahs.data - Excel

Bryant Korzeniewski

File Home Insert Page Layout Formulas Data Review View Help Acrobat Tell me what you want to do

Clipboard Font Alignment Number Styles Cells Editing

G13 0000MS-DS-2

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T
1	0000AK-KP-3	USC000508731	0000hook003	USC000255701	0000KY-CB-4	USC00151228	0000MN-RV-8	USC00210784	0000NY-CQ-9	USC00302197	0000UT-UN-9	USC000429111	0000CO-WE-83	USC00055934	0000MO-BN-11	USC00231801	0000SC-CA-17	USC00388474	00TX-BND-65	USC00415742
2	0000AK-SF-3	USC000509314	0000IA-HR-1	USC00134874	0000KY-GL-1	USC00155706	0000MO-BT-1	USC00231748	0000NY-LV-8	USC00303773	0000VA-BD-1	USC000444039	000FL-BV-94	USC00086761	0000MO-HL-25	USC00238880	0000SC-OR-35	USC00386299	00TX-BRS-25	USC00414950
3	0000AL-CH-7	USC00011694	0000ID-CY-4	USC00106844	0000KY-GL-2	USC00153250	0000MO-CS-2	USC00237051	0000NY-LW-4	USC00303961	0000VA-GL-9	USC000448022	000FL-LK-13	USC00081641	0000MO-JC-43	USC00230748	0000SD-TR-13	USC00395228	00TX-BXR-20	USC00417947
4	0000AL-SC-8	USC000116760	0000ID-VL-2	USC00109950	0000KY-HN-2	USC00154732	0000MO-DV-3	USC00233102	0000NY-NS-3	USC00306138	0000VA-HG-1	USC000445880	000FL-MD-28	USC00085667	0000MO-TY-15	USC00236874	0000TN-FY-15	USC00408450	00TX-HDS-31	USC00413266
5	0000AL-WN-2	USC000110063	0000IL-BU-5	USC00116998	0000KY-MY-3	USC00157677	0000MO-HW-1	USC00236012	0000OH-AT-1	USC003030279	0000VA-PR-1	USC000449272	000FL-OR-40	USC00086634	0000MO-TY-27	USC00236460	0000TN-WL-36	USC00408953	00MO-FSA-123	USC00233038
6	0000AR-CW-9	USC00033200	0000IL-CK-7	USC00114890	0000LA-AP-2	USC00162534	0000MO-LN-1	USC00234982	0000OH-CM-7	USC003030140	0000VT-RT-7	USC000436995	000IA-JH-14	USC00138062	0000MS-FR-14	USC00223887	0000TN-WN-61	USC00409481		
7	0000AR-PL-1	USC00034756	0000IL-DG-4	USC00118684	0000LA-CB-1	USC00164355	0000MO-PM-1	USC00231364	0000OH-RS-8	USC003031524	0000WI-BY-2	USC000471604	000IL-CP-14	USC00116769	0000MS-HR-12	USC00225165	0000TX-BLC-1	USC00414605		
8	0000AR-SC-3	USC00035591	0000IL-DW-2	USC00112993	0000LA-EC-1	USC00165090	0000MO-SG-6	USC00237414	0000OH-UN-4	USC003036955	0000WI-WS-3	USC000473702	000IL-CP-19	USC00115292	0000NC-CN-15	USC00316676	0000TX-CLG-2	USC00415965		
9	0000arth001	USC00205365	0000IL-EW-1	USC00113612	0000LA-JF-1	USC00168941	0000MO-SH-3	USC00239056	0000OK-BC-3	USC00342944	0000WI-WS-5	USC000473930	000IL-CP-64	USC00118740	0000NC-DR-65	USC00313336	0000TX-EL-13	USC00415695		
10	0000CA-DN-2	USC00042147	0000IL-LV-7	USC00111447	0000LA-NT-2	USC00166584	0000MO-WH-1	USC00233375	0000OK-BC-4	USC00347952	0000WV-KN-5	USC000467852	000IL-KN-30	USC00112709	0000ND-CS-42	USC00322860	0000TX-HPK-2	USC00412180		
11	0000CA-ED-9	USC00048760	0000IL-LW-4	USC00110670	0000LA-OC-3	USC00166314	0000MS-AM-2	USC00225070	0000OK-BC-6	USC00346035	0000WV-TC-1	USC000462211	000IL-SG-50	USC00117896	0000ND-SK-18	USC00322188	0000TX-HSK-4	USC00413992		
12	0000CA-SR-2	USC00043937	0000IL-ME-8	USC00110306	0000LA-SB-1	USC00166130	0000MS-AM-3	USC00223441	0000OK-KN-2	USC00346620	0000WV-TY-2	USC000465963	000IL-WL-20	USC00115314	0000NH-CR-26	USC00272303	0000TX-KN-76	USC00410510		
13	0000cheY001	USC00254903	0000IL-SK-1	USC00118630	0000LA-ST-1	USC00160016	0000MS-DS-2	USC00227066	0000OR-BK-1	USC00357250	0000WV-PT-9	USC000483936	000IN-BN-30	USC00124356	0000NH-CR-27	USC00278614	0000TX-KR-82	USC00414458		
14	0000cheY006	USC00252145	0000IL-WF-3	USC00113395	0000LA-TR-8	USC00161705	0000MS-DS-8	USC00226527	0000OR-UM-7	USC00352654	0000WV-WS-5	USC000486660	000IN-BN-35	USC00124910	0000NH-RC-23	USC00279278	0000TX-LK-19	USC00418232		
15	0000CO-HD-6	USC00054736	0000IL-WN-2	USC00117470	0000loga001	USC00258133	0000MS-FK-2	USC00225704	0000OR-WL-1	USC00354329	0000york005	USC00259513	000IN-JN-15	USC00126435	0000NJ-SL-11	USC00287850	0000TX-LO-21	USC00413508		
16	0000CO-OR-2	USC00056205	0000IN-CR-6	USC00122931	0000MA-BR-3	USC00195984	0000MS-FR-4	USC00223888	0000PA-CM-9	USC00367167	0000AK-AB-43	USC000502642	000IN-LP-57	USC00129222	0000NJ-SS-60	USC00283706	0000TX-RU-13	USC00419847		
17	0000CT-LT-9	USC00060227	0000IN-HY-7	USC00126164	0000MA-ES-1	USC00195285	0000MS-GD-1	USC00223645	0000PA-CW-8	USC00368361	0000AK-FN-19	USC000509891	000IN-PT-61	USC00128992	0000NM-LE-14	USC00298713	0000TX-UV-17	USC00419261		
18	0000CT-TL-2	USC00067958	0000IN-KN-9	USC00129113	0000MD-PG-3	USC00186800	0000MS-MS-2	USC00226084	0000PA-UN-1	USC00365724	0000AL-JC-11	USC00017304	000IN-RN-10	USC00122825	0000NM-SN-17	USC00297477	0000TX-UV-30	USC00417873		
19	0000deue017	USC00250865	0000IN-LP-9	USC00124613	0000MD-SM-4	USC00185865	0000MS-TS-1	USC00224455	0000pawm005	USC00258410	0000AR-FK-28	USC000031596	000IN-TP-72	USC00129430	0000NV-CK-11	USC00020672	0000TX-WO-26	USC00418658		
20	0000FL-BV-3	USC00088051	0000IN-MR-3	USC00121326	0000ME-SG-1	USC00170409	0000MT-FG-1	USC00244979	0000PR-TB-1	USC000669415	0000AR-VB-20	USC00031829	000IN-TP-73	USC00124715	0000NV-WH-90	USC00263090	0000UT-UN-14	USC00429111		
21	0000FL-BW-2	USC00081800	0000IN-TN-1	USC00128784	0000ME-YK-3	USC00173862	0000MT-SH-6	USC00244248	0000rich004	USC00257800	0000AZ-CH-59	USC00024534	000IN-WY-18	USC00121739	0000NY-AL-12	USC00307329	0000VA-HR-13	USC00448680		
22	0000FL-HS-3	USC00086129	0000IN-UN-3	USC00125049	0000MI-BN-8	USC00207891	0000NC-AV-1	USC00313072	0000rich009	USC00257401	0000CA-SR-16	USC000044405	000KS-MP-42	USC00145152	0000NY-ER-56	USC00301625	0000VT-WS-11	USC00438640		
23	0000FL-JF-6	USC00085879	0000jeff017	USC00252820	0000MI-CX-1	USC00202503	0000NC-DP-4	USC00315930	0000rich017	USC00257545	0000CA-SR-22	USC00045860	000KS-OS-15	USC00146498	0000NY-GR-13	USC00306649	0000WA-KP-53	USC00456706		
24	0000FL-JF-6	USC00085880	0000KS-CL-2	USC00146907	0000MI-CX-7	USC00202382	0000NC-GH-1	USC00317346	0000sali027	USC00253065	0000CA-TH-44	USC00049390	000KS-PN-11	USC00141141	0000NY-LW-12	USC00301388	0000WI-DD-16	USC00478540		
25	0000FL-MN-7	USC00084571	0000KS-CQ-2	USC00147305	0000MI-DL-1	USC00203078	0000ND-BH-4	USC00320817	0000SD-MN-4	USC00394037	0000CO-AU-15	USC00056263	000KS-RA-19	USC00140439	0000NY-MR-28	USC00309049	0000WY-LM-23	USC00481139		
26	0000FL-OR-2	USC00086634	0000KS-CY-2	USC00142652	0000MI-EM-2	USC00206510	0000ND-DN-2	USC00324722	0000SD-SP-6	USC00398420	0000CO-CC-13	USC000593261	000KS-RN-52	USC00140326	0000NY-OD-21	USC00309248	0000WY-LM-23	USC00481142		
27	0000from006	USC00252790	0000KS-CY-4	USC00148502	0000MI-KN-7	USC00202375	0000ND-EM-1	USC00325211	0000TN-LD-2	USC00407710	0000CO-CR-12	USC00056131	000KS-WH-10	USC00144665	0000NY-ON-15	USC00303184	00AZ-MR-171	USC00029464		
28	0000furn011	USC00252560	0000KS-MS-5	USC00140911	0000MI-MC-4	USC00207275	0000ND-MK-1	USC00323705	0000TN-MD-1	USC00404568	0000CO-DL-54	USC00051441	000LA-EB-48	USC00160548	0000NY-OS-16	USC00306376	00AZ-MR-499	USC00029464		
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31	0000GA-HY-8	USC00095666	0000KS-RL-1	USC00144972	0000MI-OC-3	USC00203632	0000NH-CS-7	USC00274556	0000TX-ER-1	USC00003969	0000CO-KC-27	USC00051121	000MA-BR-55	USC00198368	0000NY-WY-10	USC00309593	00CO-LR-125	USC00054135		
32	0000GA-LP-3	USC00092475	0000KS-RP-1	USC00141874	0000MI-ON-2	USC00206398	0000NH-GR-4	USC00270493	0000TX-RF-2	USC00410436	0000CO-KW-25	USC00057586	000MA-WR-22	USC00192807	0000NY-WY-11	USC00307749	00CO-LR-131	USC00054054		
33	0000GA-MI-6	USC00097808	0000KS-SM-1	USC00147542	0000MI-OT-4	USC00203096	0000NJ-HD-1	USC00283704	0000TX-TV-1	USC00410433	0000CO-LA-16	USC00054546	000ME-CM-54	USC00179720	0000OH-HM-24	USC00331516	00CO-LR-135	USC00058690		
34	0000GA-MT-6	USC00091500	0000KS-SU-1	USC00141233	0000MI-WY-7	USC00202016	0000NJ-MD-5	USC00286055	0000TX-TY-2	USC00410013	0000CO-LN-47	USC00053258	000ME-OK-26	USC00176484	0000OH-MY-17	USC00335851	00CO-LR-144	USC00051060		
35	0000GA-OG-1	USC00095165	0000KS-WB-2	USC00142602	0000MN-BK-3	USC00218191	0000NJ-SS-8	USC00288644	0000TX-UP-3	USC00413546	0000CO-LP-91	USC00052435	000ME-YK-52	USC00171131	0000OH-SH-15	USC00332872	00CO-LR-220	USC00052761		
36	0000GA-SR-3	USC00090253	0000KS-WB-3	USC00145132	0000MN-DS-9	USC00210110	0000NM-CR-5	USC00291963	0000TX-UP-5	USC00412446	0000CO-LR-40	USC00055236	000MI-AN-11	USC00203925	0000OH-WR-34	USC00332928	00CO-WE-287	USC00053553		
37	0000GA-WH-4	USC00097827	0000KS-WH-2	USC00144665	0000MN-HN-5	USC00215838	0000NM-SN-3	USC00297481	0000TX-WM-8	USC00418862	0000CO-RG-19	USC00052184	000MI-GT-25	USC00208245	0000PA-CLM-1	USC00360582	00CO-WE-466	USC00050945		
38	0000GA-WR-2	USC00095492	0000KY-BR-2	USC00152575	0000MN-OT-1	USC00212015	0000NY-BM-5	USC00040725	0000UT-CH-2	USC00425194	0000CO-WA-50	USC00055025	000MN-CG-11	USC00212881	0000SC-AK-75	USC00383665	00MN-SL-160	USC00210989		

cocorahs.data



Data Matches Between CoCoRaHS and NWS-Submitted Data

GHCN Browser Screen - USC00113395 Created on-04/18/2022 6:49

GERMANTOWN HILLS, IL Date:202201 Elev= 224.0 Lat: 40.7578 Lon:-89.4764

day	PRCP	MDPR	DAPR	SNOW	MDSF	DASF	SNWD
01		0.00 7	3 7	0.0 7			0 7
02							
03							
04							
05							
06							
07							
08							
09							
10							
11							
12							
13							
14							
15		0.43 7	14 7	1.6 7			2 7
16							
17							
18	0.00 7			0.0 7			1 7
19	0.00 7			0.0 7			0 T 7
20	0.00 7			0.0 7			0 T 7
21							
22							
23		0.00 N	3 N				
24	0.00 TLN	0.00 TL7	4 L7	0.2 7			0 T 7
25	0.00 L7			0.0 7			0 T 7
26	0.00 L7			0.0 7			0 T 7
27	0.00 L7			0.0 7			0 T 7
28	0.00 TL7	0.00 TLN	4 LN	0.0 T 7			0 T 7
29	0.00 7			0.0 7			0 T 7
30	0.00 7			0.0 7			0 T 7
31	0.00 7			0.0 7			0 T 7

TotPcn FMA 0.43 Snow M Depth 2

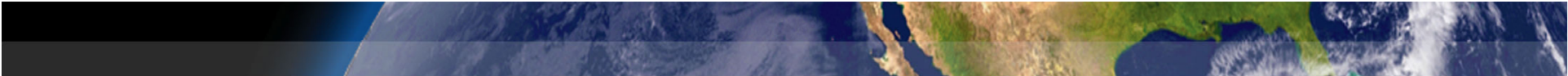
DEN:
Grt 24Hr: Day: Number Days With: Pcn >.01: 0 >.1: 0 >.5: 0 >1.0: 0
MaxSaw : 2 Day: 15 Snow >1.0: M Snw Depth>1: 2

Change Yr... 2022... Display Precip Elem... Show MS Data Save Data
Split Month ? Units : US Close

Single-day PRCP Value of Trace on Day 24 from CoCoRaHS; 4-day Accumulated Precip. Of Trace on Day 24 from WxCoder3/COOP

Also Single-day PRCP Values on Days 25 through 28 from WxCoder3/COOP; 4-Day Accumulated Precip. Of Trace on Day 28 from CoCoRaHS

Data-Source of 'N' is CoCoRaHS; Data-Source of '7' is WxCoder3/COOP

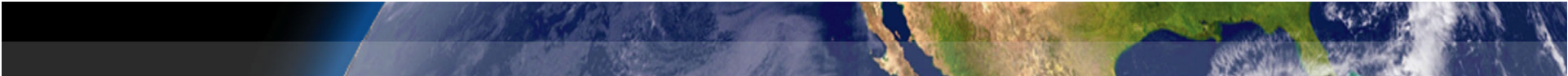


Data Matches Between CoCoRaHS and NWS-Submitted Data

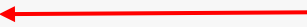
- Options on how to handle CoCoRaHS/COOP Co-located Stations within GHCN-Daily in the future?
 - Do nothing and leave things as they are
 - Change the GHCN-Daily ingest process to overwrite all CoCoRaHS observations in a month if there is also Coop data for the same site no matter what (this can lead to less completeness sometimes, e.g., fewer snow elements, but perhaps less annoyance at the flagging)
 - Treat the co-located stations as separate stations in GHCN-Daily. However, sometimes a CoCoRaHS station is "promoted" to NWS Coop so there are times where we have to keep the two data streams under a single GHCN-Daily station identifier.
 - Other suggestions? Maybe discussion for a future CoCoRaHS QA/QC Subcommittee Meeting?

CALL FOR ACTION





NCEI's To-Do List With CoCoRaHS Data

- Address Data Matches Detected by GHCN-Daily Between CoCoRaHS Data and NWS-Submitted Data (e.g. COOP Station) **ONGOING!**
- Handle Incoming Multi-Day Accumulated Precipitation Values received from CoCoRaHS  **COMPLETED!**

Handle Incoming Multi-Day Accumulated Values From CoCoRaHS

Data-Source of 'N' is CoCoRaHS

GHCN Browser Screen - US1NCBC0087 Created on-05/8/2022 5:54

BAT CAVE 1.9 N, NC Date:202204 Elev= 624.2 Lat: 35.4797 Lon:-82.2848

day	PRCP	MDPR	DAPR	SNOW	MDSF	DASF	SNWD
01	0.02 N						
02							
03							
04							
05							
06							
07		0.67 N	6 N				
08	0.00 N			0.0 N			
09		0.09 N	2 N				
10				0.0 N			
11	0.00 N						
12							
13		0.05 N	3 N				
14				0.0 N			
15	0.00 N						
16							
17							
18							
19							
20							
21							
22							
23		1.25 N	8 N				
24	0.00 N			0.0 N			
25	0.00 N			0.0 N			
26	0.00 N			0.0 N			
27	0.00 N			0.0 N			
28	0.00 N			0.0 N			
29	0.00 N			0.0 N			
30	0.00 N			0.0 N			

TotPcn Snow Depth
A 2.08 M

DEFN:
Grf 24Hr: 0.02 Day: 01 Number Days With: Pcn >.01: 1 >.1: 0 >.5: 0 >1.0: 0
MaxSnw : Day: Snow >1.0: M Snw Depth>1: M

Handle Incoming Multi-Day Accumulated Values From CoCoRaHS

Data-Source of 'N' is CoCoRaHS

GHCN Browser Screen - US1COLR1115 Created on-05/8/2022 5:48

ESTES PARK 1.7 W, CO Date:202204 Elev=2425.6 Lat: 40.3705 Lon:105.5531

day	PRCP	MDPR	DAPR	SNOW	MDSF	DASF	SNWD
01	0.00 T N			0.0 T N			
02	0.00 N			0.0 N			
03							
04							
05							
06		0.06 N	4 N				0 N
07	0.00 T N			0.0 T N			
08	0.00 N			0.0 N			
09	0.00 N			0.0 N			
10							
11							
12							
13		0.00 T N	4 N				0 N
14	0.01 N			0.0 T N			
15	0.00 T N			0.0 T N			
16	0.00 T N			0.0 T N			
17							
18							
19							
20		0.00 T N	4 N				0 N
21	0.00 T N			0.0 T N			
22	0.00 N			0.0 N			
23	0.01 N			0.0 T N			
24							
25							
26							
27		0.36 N	4 N				0 N
28	0.00 N			0.0 N			
29	0.00 N			0.0 N			
30	0.00 T N			0.0 T N			

TotPcn Snow Depth
A 0.44 M 0

DEFN:
Gr24Hr: 0.01 Day: 23+ Number Days With: Pcn >.01: 2 >.1: 0 >.5: 0 >1.0: 0

Handle Incoming Multi-Day Accumulated Values From CoCoRaHS

Data-Source of 'N' is CoCoRaHS

GHCN Browser Screen - CA1QC000042 Created on-05/8/2022 5:35

RAPIDES-DES-JOACHIMS 2.6 NW, QC Date:202204 Elev= 124.7 Lat: 46.2080 L...

day	PRCP	MDPR	DAPR	SNOW	MDSF	DASF	SNWD
01		10.7 N	2 N				
02	0.0 N			0 N			
03	0.5 N						
04	3.3 N						
05	0.0 N			0 N			
06	0.0 N			0 N			
07	4.1 N						
08	5.8 N						
09	2.3 N						
10	0.5 N			0 TN			
11	0.0 N			0 N			
12	0.0 N			0 N			
13	0.0 TN						
14	15.5 N						
15	2.3 N						
16	0.0 N			0 N			
17	0.0 N			0 N			
18	0.0 N			0 N			
19							
20		11.2 N	2 N				
21	0.0 N			0 N			
22	3.3 N						
23	0.0 N			0 N			
24	0.0 TN						
25	4.8 N						
26	28.7 N						
27	3.6 N			10 N			
28	0.0 N			0 N			
29	0.0 N			0 N			
30	0.0 N			0 N			

TotPcn 96.5 Snow Depth

DFN: Grt 24Hr: 1.13 Day: 26 Number Days With: Pcn >.01: 12 >.1: 8 >.5: 1 >1.0: 1

Handle Incoming Multi-Day Accumulated Values From CoCoRaHS

Data-Source of 'N' is CoCoRaHS

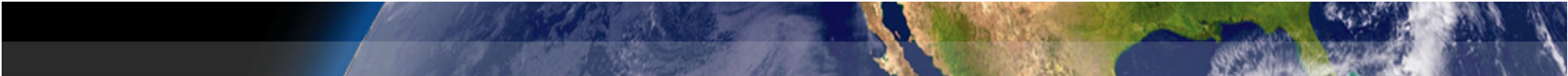
GHCN Browser Screen - BF1EX000005 Created on-05/8/2022 5:32

GEORGE TOWN 3.6 NW, BH Date:202204 Elev= 10.4 Lat: 23.5279 Lon:-75.80...

day	PRCP	MDPR	DAPR	SNOW	MDSF	DASF	SNWD
01		0.00 N	8 N				
02							
03							
04							
05	0.00 N			0.0 N			
06							
07		0.00 N	2 N				
08	0.00 N			0.0 N			
09							
10							
11							
12							
13							
14							
15							
16							
17							
18							
19		2.70 N	11 N				
20							
21		0.31 N	2 N				
22	0.20 N						
23							
24							
25	0.27 N						
26							
27							
28		0.05 N	3 N				
29							
30							

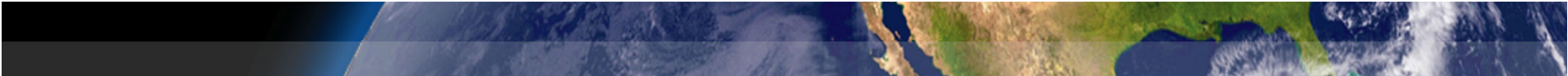
TotPcn MA 3.53 Snow M Depth

DFN: Grt 24Hr: 0.27 Day: 25 Number Days With: Pcn >.01: 2 >.1: 2 >.5: 0 >1.0: 0



NCEI's To-Do List With CoCoRaHS Data

- Address Data Matches Detected by GHCN-Daily Between CoCoRaHS Data and NWS-Submitted Data (e.g. COOP Station) **ONGOING!**
- Handle Incoming Multi-Day Accumulated Precipitation Values received from CoCoRaHS ← **COMPLETED!**
- Include Time of Observation for CoCoRaHS within the GHCN-Daily By-Year Files and Super-GHCND Files **COMPLETED!**



Time of Observation for CoCoRaHS Within GHCN-Daily

- More than 100,000,000 observation time additions from CoCoRaHS Stations
- NCEI's GHCN-Daily POC Matt Menne has worked to ensure that both our data user access and xmACIS' access accurately ingest the time of observations in their respective systems. (ACIS = Applied Climate Information System)
- In the Super-GHCN-D Files at <https://www1.ncdc.noaa.gov/pub/data/ghcn/daily/superghcnd/>
- In the /by_year/ (a.k.a. data-year) Files at https://www1.ncdc.noaa.gov/pub/data/ghcn/daily/by_year/

Handle Incoming Multi-Day Accumulated Values From CoCoRaHS

	GHCN ID	Date	Element	Value	Measurement Flag	Quality Flag	Source Flag	Observation Time
	A	B	C	D	E	F	G	H
22	US1COKW0007	20220324	PRCP	0			N	0700
23	US1COKW0007	20220324	SNOW	0			N	0700
24	US1WYCR0012	20220324	PRCP	0			N	0800
25	US1WYCR0012	20220324	SNOW	0			N	0800
35	US1WYCR0012	20220305	PRCP	0			N	0800
36	US1WYCR0012	20220305	SNOW	0			N	0800
55	US10nanc006	20220425	PRCP	0			N	0700
56	US1ALMS0018	20220425	PRCP	0			N	0700
57	US1ALMS0018	20220425	SNOW	0			N	0700
58	US1ARST0002	20220425	PRCP	419			N	0800
59	US1ARST0010	20220425	PRCP	394			N	0800
60	US1CASM0001	20220425	PRCP	0			N	0900
61	US1CASM0001	20220425	SNOW	0			N	0900
62	US1CASN0080	20220425	PRCP	0			N	0700
63	US1CASN0080	20220425	SNOW	0			N	0700
64	US1COBO0522	20220425	PRCP	0			N	0730
65	US1COBO0522	20220425	SNOW	0			N	0730
66	US1COKW0007	20220425	PRCP	0			N	0700
67	US1COKW0007	20220425	SNOW	0			N	0700
68	US1COLR0458	20220425	PRCP	0			N	1700
69	US1COLR0458	20220425	SNOW	0			N	1700
70	US1COME0083	20220425	PRCP	0			N	0700
71	US1COME0083	20220425	SNOW	0			N	0700
72	US1FLSW0014	20220425	PRCP	0			N	0700
73	US1FLSW0014	20220425	SNOW	0			N	0700
74	US1GAFS0024	20220425	PRCP	0			N	0700
75	US1GAFS0024	20220425	SNOW	0			N	0700
76	US1GAOC0002	20220425	PRCP	0			N	0700
77	US1GAOC0002	20220425	SNOW	0			N	0700
78	US1ILLG0003	20220425	PRCP	15			N	0800
79	US1KSDK0051	20220425	PRCP	0			N	0700
80	US1KSDK0051	20220425	SNOW	0			N	0700
81	US1KSFR0022	20220425	PRCP	0			N	0700

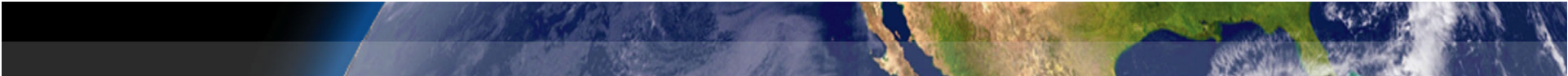
/superghcnd/



Handle Incoming Multi-Day Accumulated Values From CoCoRaHS

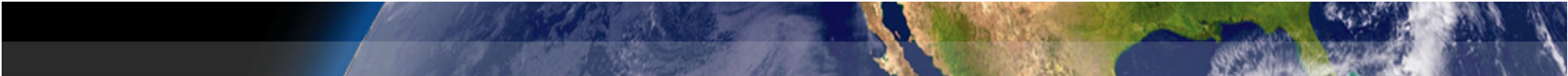
	GHCN ID	Date	Element	Value	Measurement Flag	Quality Flag	Source Flag	Observation Time
	A	B	C	D	E	F	G	H
25981	US1ALMS0018	20220101	PRCP	0			N	0700
25982	US1ALMS0018	20220101	SNOW	0			N	0700
27366	US1CASM0001	20220101	PRCP	0			N	0900
27367	US1CASM0001	20220101	SNOW	0			N	0900
27408	US1CASN0080	20220101	PRCP	0			N	0700
27409	US1CASN0080	20220101	SNOW	0			N	0700
28881	US1COKW0007	20220101	PRCP	13			N	0700
29098	US1COLR0458	20220101	SNWD	191			N	1700
29099	US1COLR0458	20220101	DAPR	2			N	1700
29100	US1COLR0458	20220101	MDPR	157			N	1700
29101	US1COLR0458	20220101	WESD	157			N	1700
31175	US1FLSW0014	20220101	PRCP	0			N	0700
31176	US1FLSW0014	20220101	SNOW	0			N	0700
31509	US1GAOC0002	20220101	DAPR	6			N	0700
31510	US1GAOC0002	20220101	MDPR	612			N	0700
33549	US1KSDK0051	20220101	PRCP	0			N	0700
33550	US1KSDK0051	20220101	SNOW	0			N	0700
33645	US1KSFR0022	20220101	PRCP	43			N	0700
33646	US1KSFR0022	20220101	SNOW	5			N	0700
33647	US1KSFR0022	20220101	SNWD	13			N	0700
33648	US1KSFR0022	20220101	WESD	43			N	0700
33649	US1KSFR0022	20220101	WESF	43			N	0700

/by_year/



Access to the GHCN-Daily Dataset for CoCoRaHS Stations' Data

- Availability of GHCN-Daily Data:
 - By_Station, go to https://www1.ncdc.noaa.gov/pub/data/ghcn/daily/by_station/ (may be slow to load up all stations)
 - By_Year (a.k.a. data-year), go to https://www1.ncdc.noaa.gov/pub/data/ghcn/daily/by_year/
 - FTP Access at <ftp://ftp.ncdc.noaa.gov/pub/data/ghcn/daily> (FTP Site availability is now browser dependent; Google Chrome and Firefox no longer allow FTP access)
- CoCoRaHS Stations in GHCN-Daily have GHCN IDs beginning with US1, CA1, or BF1 (e.g. US1NCBC0087, CA1QC000042, BF1EX000005)
 - Complete GHCN-Daily Station List at <https://www1.ncdc.noaa.gov/pub/data/ghcn/daily/ghcnd-stations.txt>



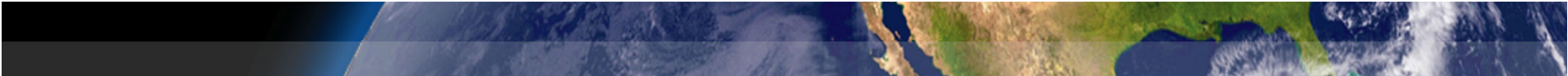
NCEI's To-Do List With CoCoRaHS Data

- Address Data Matches Detected by GHCN-Daily Between CoCoRaHS Data and NWS-Submitted Data (e.g. COOP Station) **ONGOING!**
- Handle Incoming Multi-Day Accumulated Precipitation Values received from CoCoRaHS ← **COMPLETED!**
- Include Time of Observation for CoCoRaHS within the GHCN-Daily By-Year Files and Super-GHCND Files **COMPLETED!**
- Ensuring that CoCoRaHS Data Values that are Extreme are reflected as valid in GHCN-Daily **ONGOING!**

NCEI GHCN-Daily Quality Flag Files To Review CoCoRaHS Data

- To review CoCoRaHS Stations within any NWS Weather Forecast Office (WFO), go to <https://www1.ncdc.noaa.gov/pub/data/ghcn/daily/nws/>
 - Related GHCN-Daily Flag Files' Readme File at <https://www1.ncdc.noaa.gov/pub/data/ghcn/daily/nws/readme.txt>
 - CoCoRaHS Stations have GHCN IDs beginning with US1##### (e.g. CO-BO-137 is US1COBO0137)
- Example (screen capture): Early Season SNOW/SNWD Values in the U.S. Rockies During 9/2020 (**1062** out of 1253 SNOW/SNWD values being from CoCoRaHS Sites)

US1COBO0137	2020	09	08	SNOW	5	O	N
US1COBO0159	2020	09	08	SNOW	18	O	N
US1COBO0230	2020	09	08	SNOW	8	O	N
US1COBO0342	2020	09	08	SNOW	3	O	N
US1COBO0343	2020	09	08	SNOW	38	O	N
US1COBO0482	2020	09	08	SNOW	18	O	N
US1COBO0514	2020	09	08	SNOW	5	O	N
US1COBR0032	2020	09	08	SNOW	3	O	N
US1CODG0030	2020	09	08	SNOW	5	O	N
US1CODG0162	2020	09	08	SNOW	8	O	N
US1CODG0165	2020	09	08	SNOW	8	O	N
US1CODG0293	2020	09	08	SNOW	10	O	N
US1COEP0311	2020	09	08	SNOW	5	O	N
US1COEP0396	2020	09	08	SNOW	5	O	N
US1COGL0020	2020	09	08	SNOW	15	O	N
US1COJF0011	2020	09	08	SNOW	38	O	N
US1COJF0052	2020	09	08	SNOW	13	O	N
US1COJF0063	2020	09	08	SNOW	13	O	N
US1COJF0484	2020	09	08	SNOW	5	O	N
US1COJF0497	2020	09	08	SNOW	28	O	N
US1COLR0075	2020	09	08	SNOW	13	O	N
US1COLR0140	2020	09	08	SNOW	5	O	N
US1COLR0142	2020	09	08	SNOW	8	O	N
US1COLR0213	2020	09	08	SNOW	23	O	N
US1COLR0252	2020	09	08	SNOW	13	O	N
US1COLR0259	2020	09	08	SNOW	8	O	N
US1COLR0273	2020	09	08	SNOW	8	O	N
US1COLR0295	2020	09	08	SNOW	5	O	N



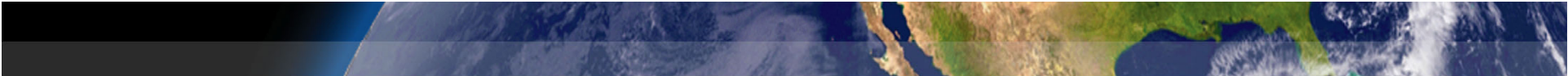
Honoring CoCoRaHS Data Values Due To Extreme Events

When CoCoRaHS values are known to be related to an extreme event, please coordinate with the following NCEI Staff:

NCEI's GHCN-Daily POC, Matt Menne
(Matthew.Menne@noaa.gov)

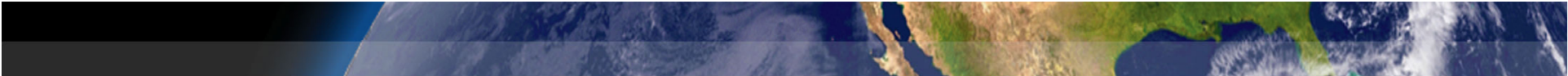
NCEI's Datzilla Gatekeeper, Bryant Korzeniewski
(Bryant.Korzeniewski@noaa.gov)





NCEI's To-Do List With CoCoRaHS Data

- Address Data Matches Detected by GHCN-Daily Between CoCoRaHS Data and NWS-Submitted Data (e.g. COOP Station) **ONGOING!**
- Handle Incoming Multi-Day Accumulated Precipitation Values received from CoCoRaHS ← **COMPLETED!**
- Include Time of Observation for CoCoRaHS within the GHCN-Daily By-Year Files and Super-GHCND Files **COMPLETED!**
- Ensuring that CoCoRaHS Data Values that are Extreme are reflected as valid in GHCN-Daily **ONGOING!**
- Documenting Change Points in CoCoRaHS Stations For Historical Metadata Provenance ← **COMPLETED!**



Documenting Change Points in CoCoRaHS Stations For Historical Metadata Provenance

- Station Name Changes
 - Previous Station Name for a CoCoRaHS Station is now stored as “Alias”
- When a Station Officially Opens and Officially Closes
 - New station history feed from CoCoRaHS is now ingested into NCEI’s Historical Observing Metadata Repository System; now has good start and end dates)

Documenting Change Points in CoCoRaHS Stations For Historical Metadata Provenance

Actual Begin Date → QUEENS 3.4 NNW, NY
2017-07-06 to Present

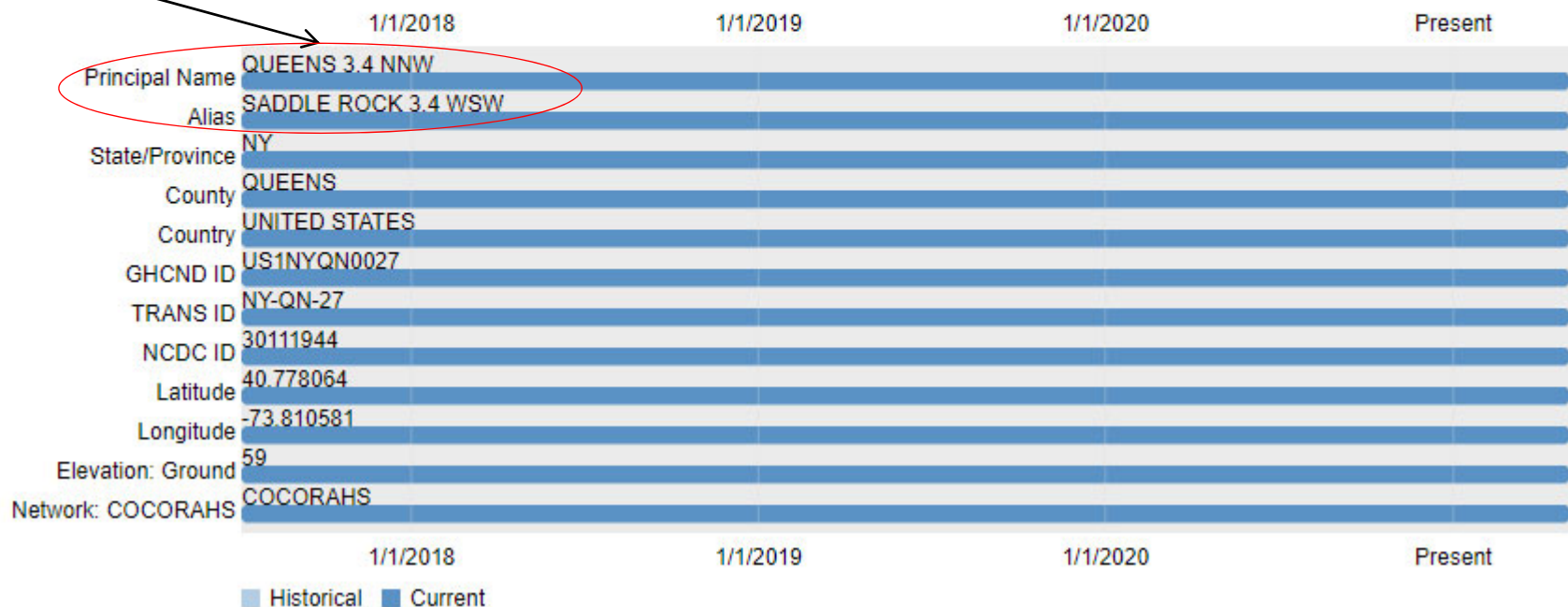
Station-Level (MSHR) Data

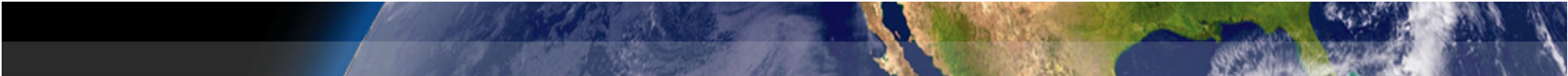
Element-Level (PHR) Data

Location Data

Misc Data

Station Names Past and Present



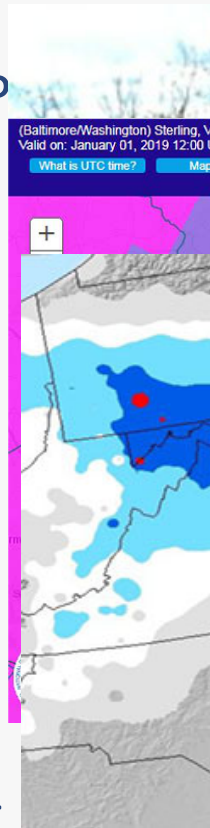


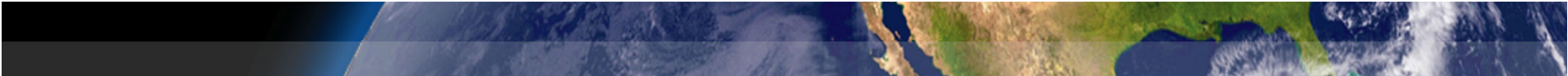
Documenting Change Points in CoCoRaHS Stations For Historical Metadata Provenance

- What's the big deal about knowing the type of observing equipment that's being used for CoCoRaHS?
 - Assumptions are made regarding CoCoRaHS Data Collection and the Types of Gauges Being Used
 - Documentation, Documentation, Documentation!
 - NWS documents the type of rain gauge(s) used for their COOP Observations (4" Plastic or 8" Standard Rain Gauge/SRG) so that the data users know the type of equipment the observations originate from
 - Should the same standards applied to NWS also be applied to CoCoRaHS in cases of their observations being taken from 8" SRG instead of 4" Plastic?
 - Data values are considered for State Climate Extremes Committee (SCEC)
 - Siting is reviewed
 - Quality ***AND*** Quantity of the CoCoRaHS data values submitted by the observer are considered

CoCoRaHS Data Supporting State Climate Extremes Committee (SCEC)

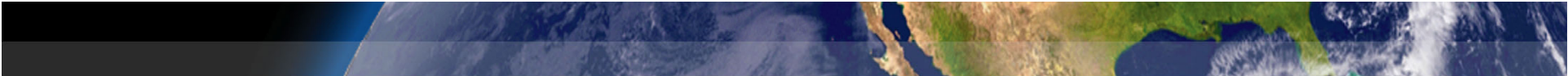
- September 2012: West Milford TWP 3.2 NE, NJ (NJ-PS-16): 90.65" of PRCP during 1/1-12/31/2011 (Maximum Annual Precipitation for the State of NJ)
- March 2019: Catonsville 1.2 NW, MD (MD-BL-39): 84.56" of PRCP during 1/1-12/31/2018 (Maximum Annual Precipitation for State of MD)
- May 2020: Greenwood 2.9 SE, DE (DE-SS-7): 28.0" SNWD on 2/7/2010 (All-Time Maximum Snow Depth for State of DE)
- November 2021: Farlington 0.8 NNE, KS (KS-CR-10): 75.33" of PRCP during 1/1-12/31/2019 (Maximum Annual Precipitation for State of KS)





CoCoRaHS Data Supporting State Climate Extremes Committee (SCEC)

- For more details about the State Climate Extremes Committee (SCEC):
 - Website: <https://www.ncdc.noaa.gov/extremes/scec/>
 - Elements Tracked:
<https://www.ncdc.noaa.gov/extremes/scec/elements-tracked>
 - Records: <https://www.ncdc.noaa.gov/extremes/scec/records>
 - Reports: <https://www.ncdc.noaa.gov/extremes/scec/reports>
- National Climate Extremes Committee (NCEC):
 - Website:
<https://www.ncei.noaa.gov/access/monitoring/ncec/>



Benefits of CoCoRaHS Data to NCEI's Archived Datasets

- Fills in Gaps of Spatial Coverage when other archived data sources don't
- Improves Spatial Checks by the GHCN-Daily Quality Control (QC) when comparing Precipitation Data within neighboring observing sites
- Helps NCEI's Datzilla Gatekeeper when further investigating precipitation values from other data sources that may have been flagged by GHCN-Daily's QC or need to be flagged via Datzilla Ticket submission
- Allows for more near-real-time investigations of recent rainfall events that are queried by NCEI's data users
- Are included in the 1-day/2-day/3-day Snowfall Extremes Tables produced by NCEI's Monitoring Section for FEMA's Evaluation of County-based Disaster Declarations
- Are considered as data records by The State Climate Extremes Committee (SCEC)
- Data users can see Station Name Changes and Open and Closed Dates for each CoCoRaHS Station

Finally, CoCoRaHS in Hiding...

“Where’s CoCoRaHS?”

K Keith Berger - NOAA Federal is presenting

Recruiting C

When vetting...There is
-Pilots and Farmers are t
-Fanatic Gardeners, Land
-People who work in oth

Christopher Horne - N...

Lisa Verzella - NOAA Fe...
James Enlow - NOAA Af...
Alzina Foscatto - NOAA F...
Amy Fritz - NOAA Federal
Keith Berger - NOAA Fe...
Joel Dunn - NOAA Fede...
Christopher Horne - N...
Yvette Benavides - NOA...
Mary Lamm - NOAA Fed...
Kurt Hooley - NOAA Fed...

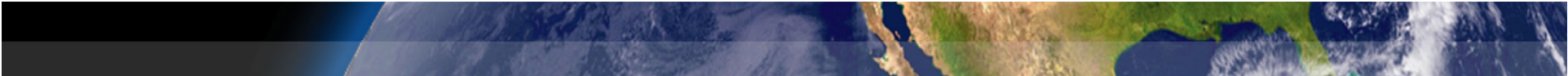


BK'S CONTACT INFO



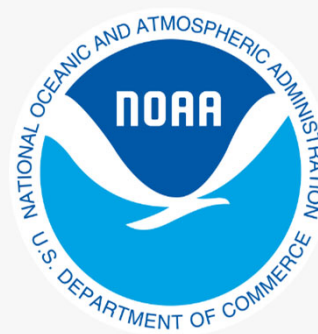
Bryant.Korzeniewski@noaa.gov
<https://www.ncei.noaa.gov>

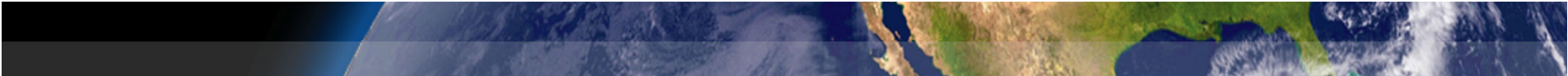




Thank You!

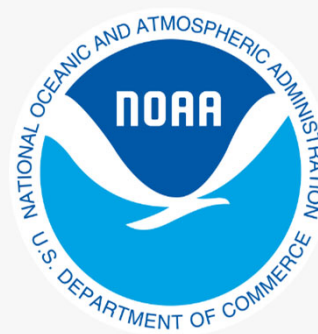
Extra info re: NCEI appears in the following slides



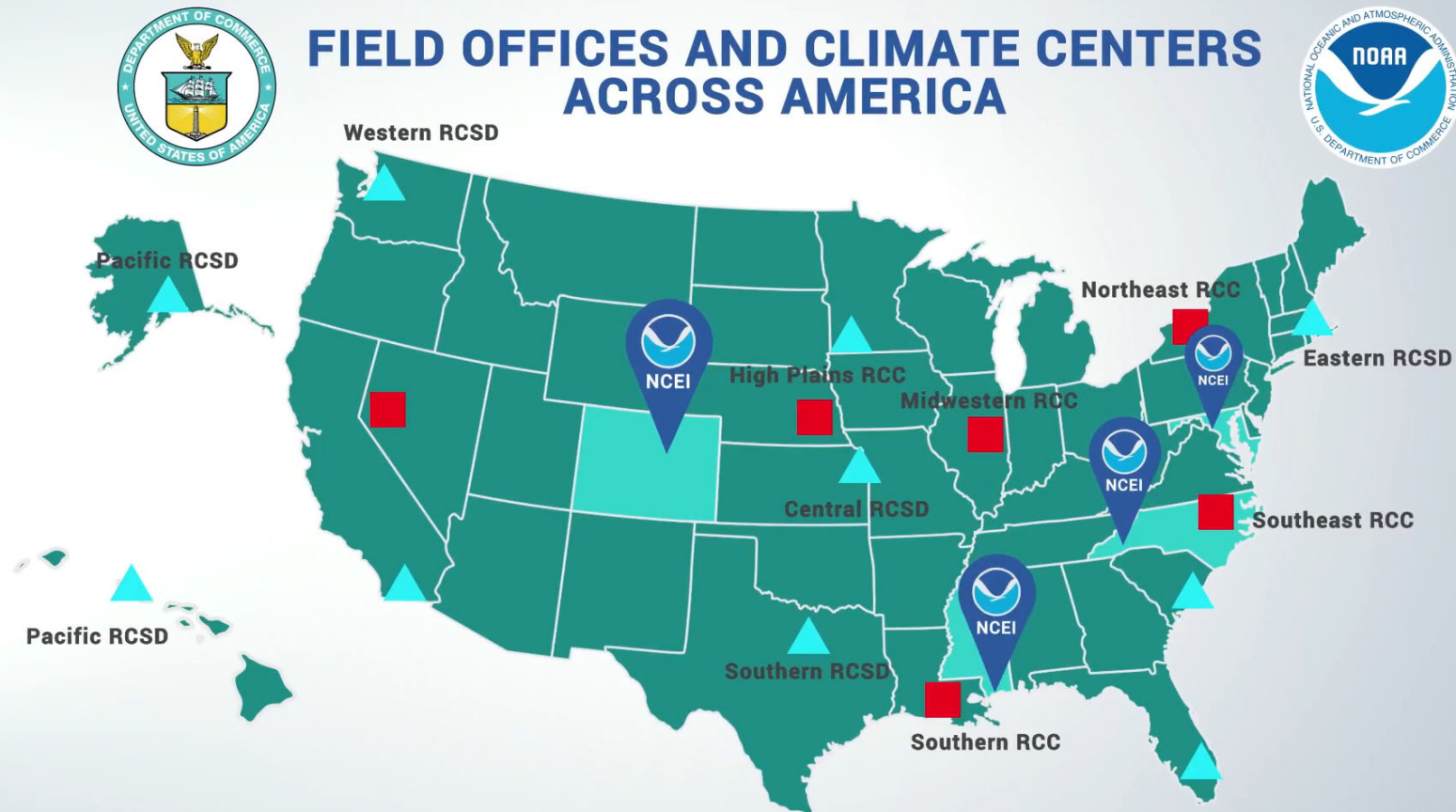


Questions?

- **Bryant.Korzeniewski@noaa.gov**
- **1-(828) 271-4307**



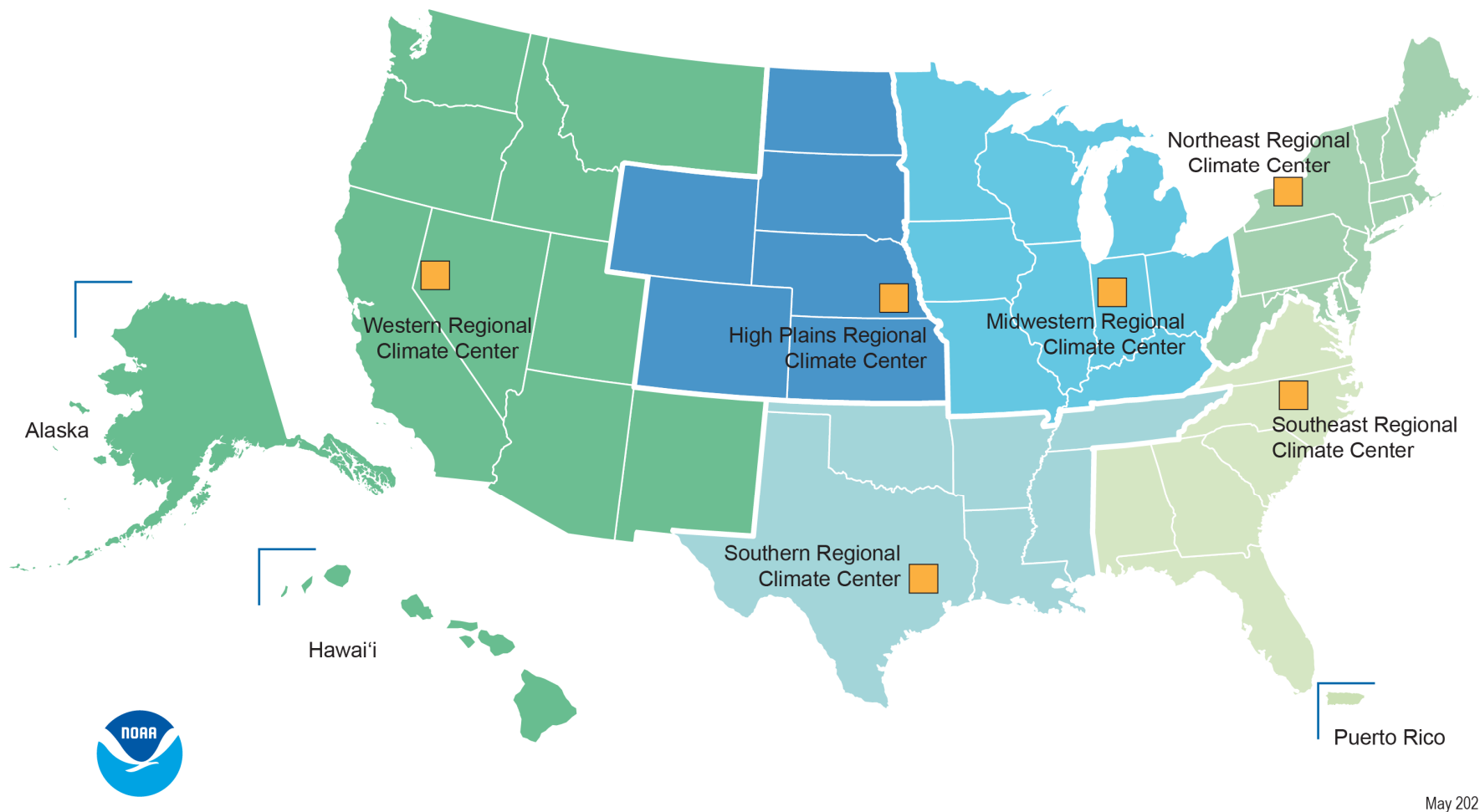
The Footprint of NCEI



Southern RCC and Midwestern RCC have changed locations during 2021 (see next slide)



The Footprint of NCEI



May 2021

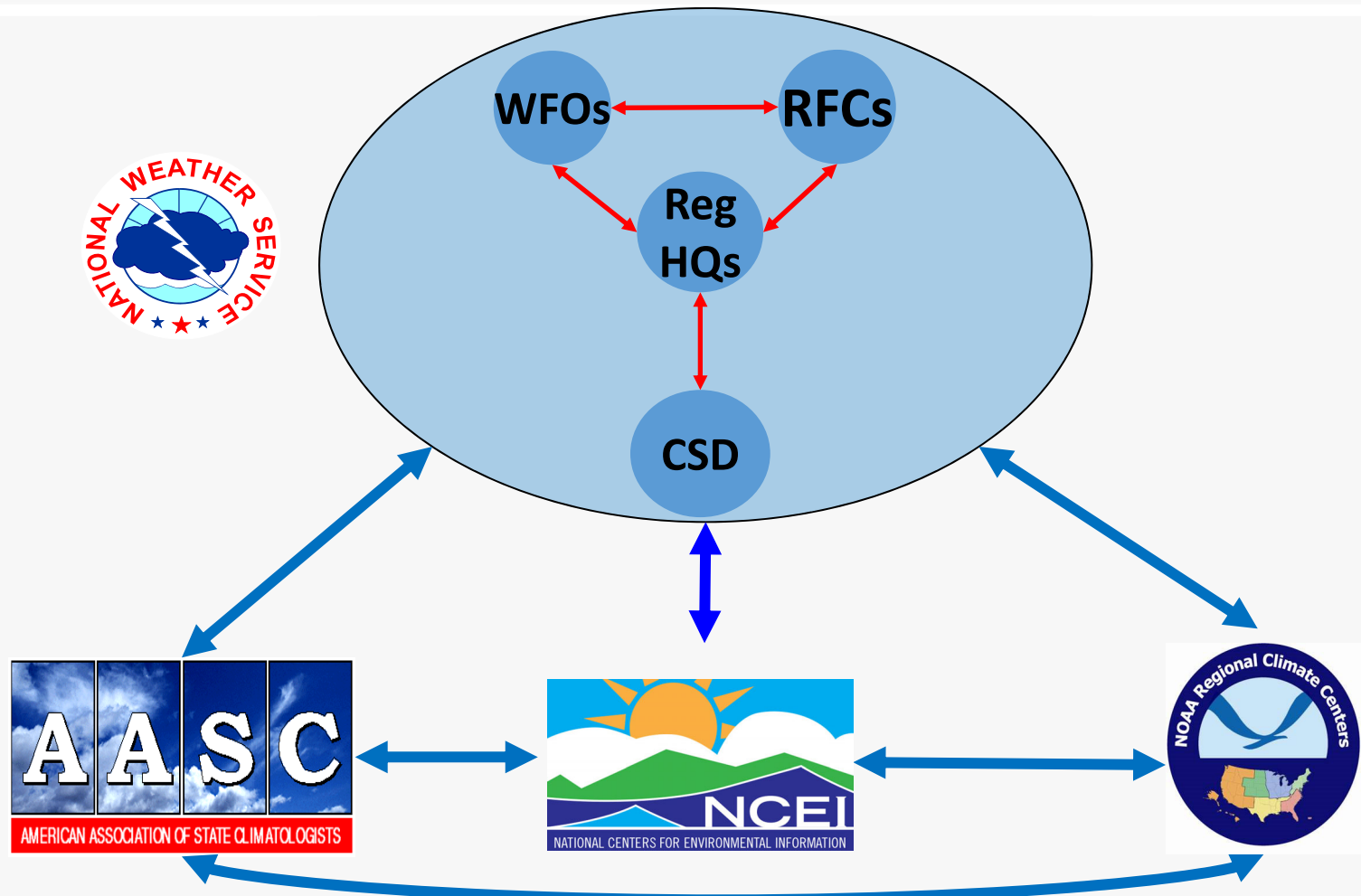


National Centers for Environmental Information

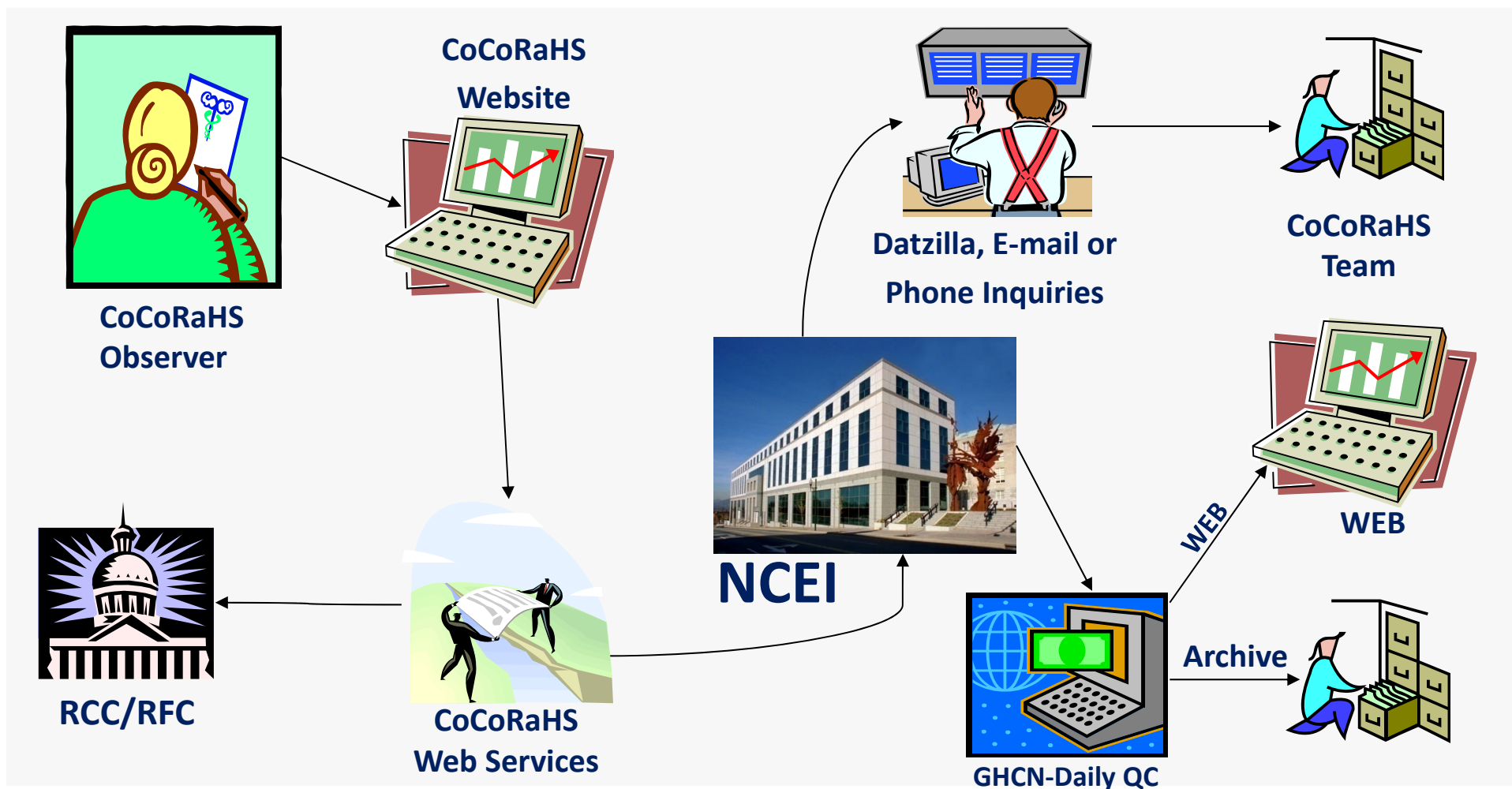


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Tiered National Climate Services Support System



CoCoRaHS Data Flow To NCEI



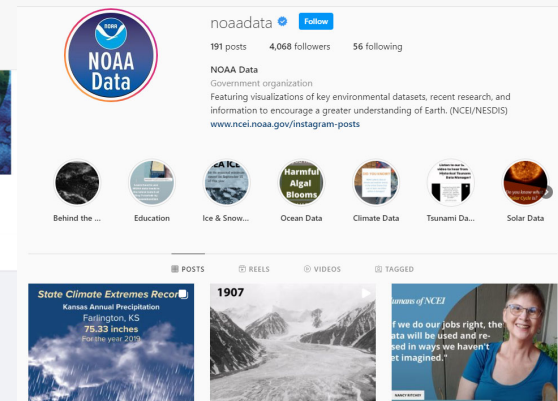
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“Like” Us on Facebook:
<https://www.facebook.com/NOAANCEI>



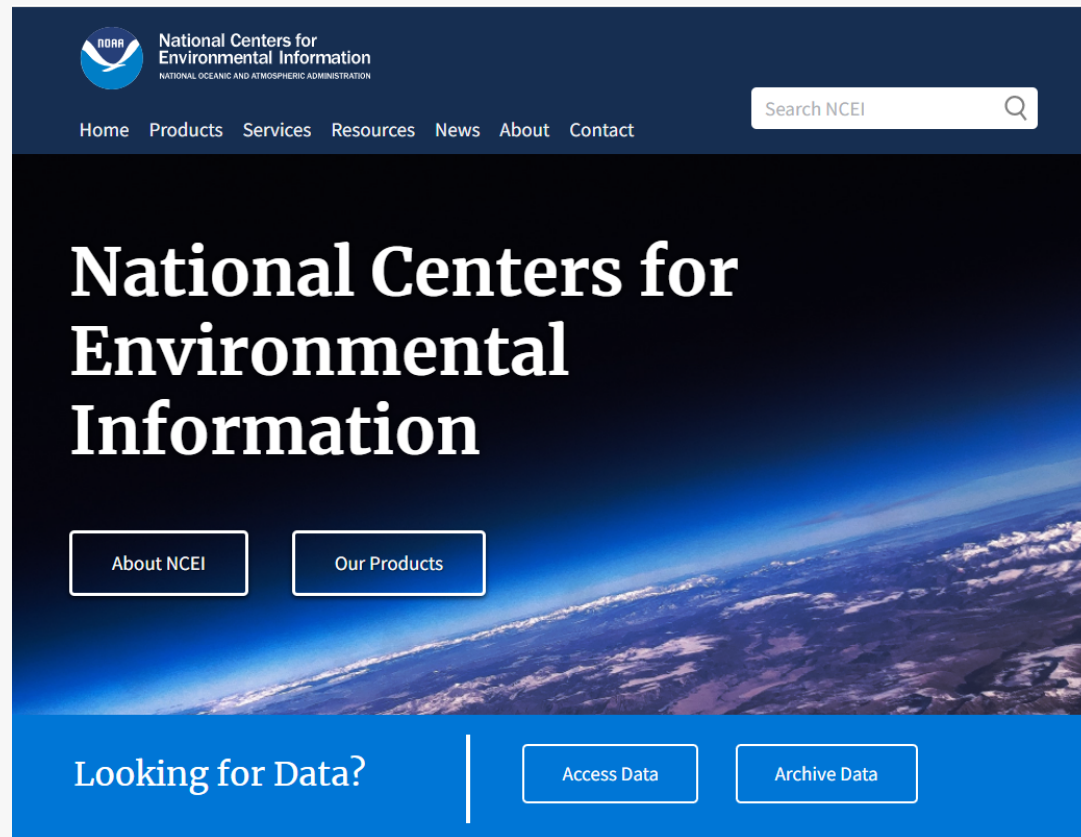
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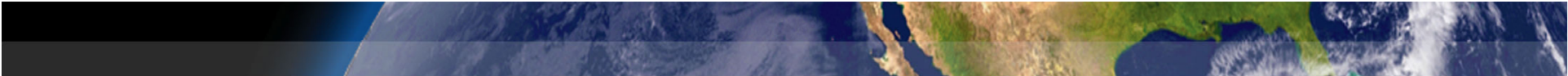
NCEI's Website: <https://www.ncei.noaa.gov>



National Centers for Environmental Information



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Data Matches Between CoCoRaHS and NWS-Submitted Data

- Verification of stations appearing on the 2017 CoCoRaHS Data-Match List presented that year to WERA 1012
 - **14** scenarios coming through as the result of Datzilla Ticket submissions to NCEI or via e-mail
 - **8** of the 14 CoCoRaHS Stations confirmed using the same 4" Plastic Gauge to take their COOP Observations for NWS
 - **6** of the 14 CoCoRaHS Stations confirmed by NWS to use the 8" Standard Rain Gauges (SRG's) for CoCoRaHS Observations ***AND*** to take their COOP Observations for NWS