

# Tools and Products

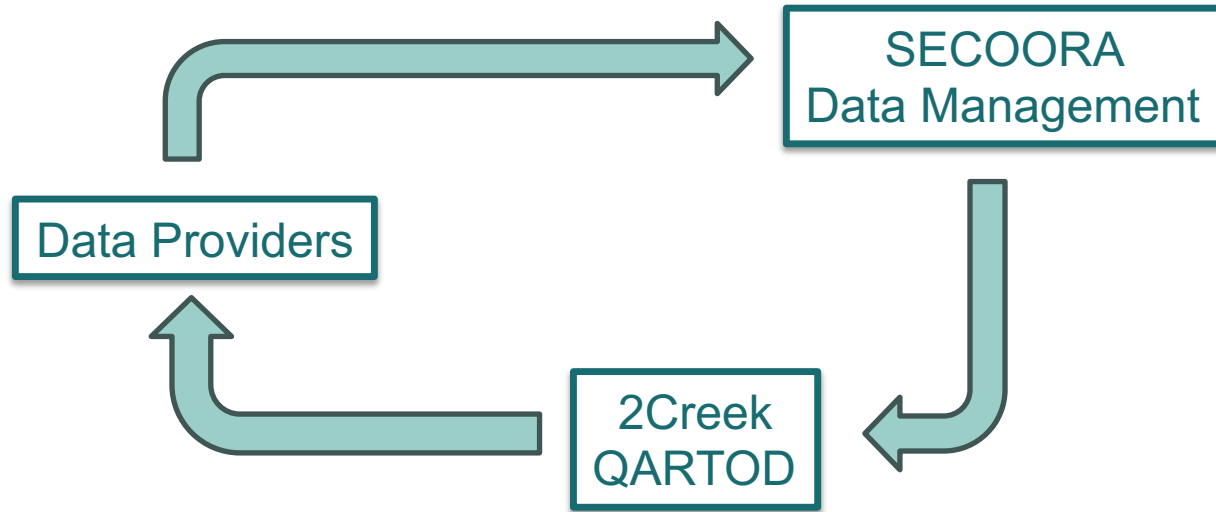
**Charlton Galvarino, Second Creek Consulting, LLC**  
**Chris LaClair, CORMP, UNC-Wilmington**



Water Levels in the Southeast  
June 13-15, 2023

# Overview of Session

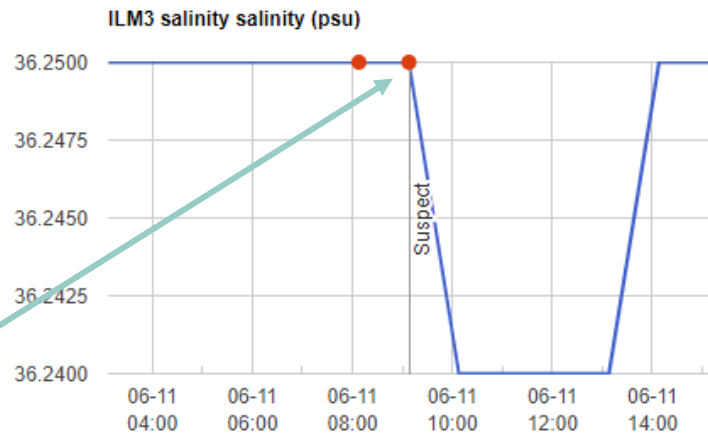
Purpose: Participants will get a brief overview of tools for accessing water level data.



# QARTOD @ CORMP

Table 3-2. QC Tests in order of implementation and hierarchy

<b>Group 1</b> <i>Required</i>	Test 1	Timing/Gap Test
	Test 2	Syntax Test
	Test 3	Location Test
	Test 4	Gross Range Test
	Test 5	Climatology Test
<b>Group 2</b> <i>Strongly Recommended</i>	Test 6	Spike Test
	Test 7	Rate of Change Test
	Test 8	Flat Line Test
<b>Group 3</b> <i>Suggested</i>	Test 9	Multi-Variate Test
	Test 10	Attenuated Signal Test
	Test 11	Neighbor or Forecast Test

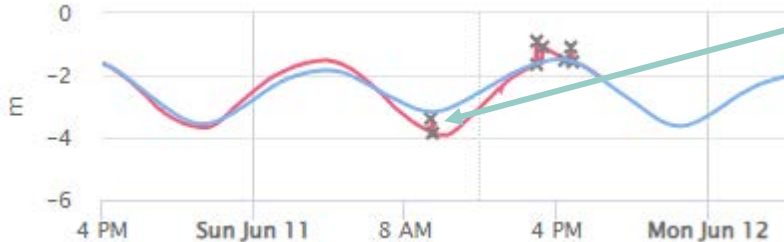


Platform	Parameter	Time (UTC)	Value (psu)	Test 1 (Timing)	Test 2 (syntax)	Test 3 (Location)	Test 4 (Range)	Test 5 (Climatology)	Test 6 (Spike)	Test 7 (Change Rate)	Test 8 (Flat Line)	CORMP Rollup
ILM3	salinity	2023-06-11 11:08:00	36.24	✓	✓	✓	✓	✓	✓	✓	✓	? x ! ✓
ILM3	salinity	2023-06-11 10:08:00	36.24	✓	✓	✓	✓	✓	✓	✓	✓	? x ! ✓
ILM3	salinity	2023-06-11 09:08:00	36.25	✓	✓	✓	✓	✓	✓	✓	!	? x ! ✓
ILM3	salinity	2023-06-11 08:08:00	36.25	✓	✓	✓	✓	✓	✓	✓	!	? x ! ✓
ILM3	salinity	2023-06-11 07:08:00	36.25	✓	✓	✓	✓	✓	✓	✓	✓	? x ! ✓



# QARTOD @ SECOORA-WL

Platform	Parameter	Time (UTC)	Value (m)	Test 1 (Timing)	Test 2 (Syntax)	Test 3 (Location)	Test 4 (Range)	Test 5 (Climatology)	Test 6 (Spike)	Test 7 (Change Rate)	Test 8 (Flat Line)	Test 9 (Nearest Neighbor)	Rollup
GATECH_KILKENNY_CREEK	water_level	2023-06-11 16:16:28	-2.837	✓	✓		✓		✓	✓	✓	✓	? x ! ✓
GATECH_KILKENNY_CREEK	water_level	2023-06-11 16:11:20	-2.888	✓	✓		✓		✓	✓	✓	✓	? x ! ✓
GATECH_KILKENNY_CREEK	water_level	2023-06-11 16:06:12	-2.944	✓	✓		✓		✓	✓	✓	⚠	? x ! ✓
GATECH_KILKENNY_CREEK	water_level	2023-06-11 16:00:57	-2.996	✓	✓		✓		✓	✓	✓	⚠	? x ! ✓
GATECH_KILKENNY_CREEK	water_level	2023-06-11 15:55:49	-3.052	✓	✓		✓		✓	✓	✓	⚠	? x ! ✓

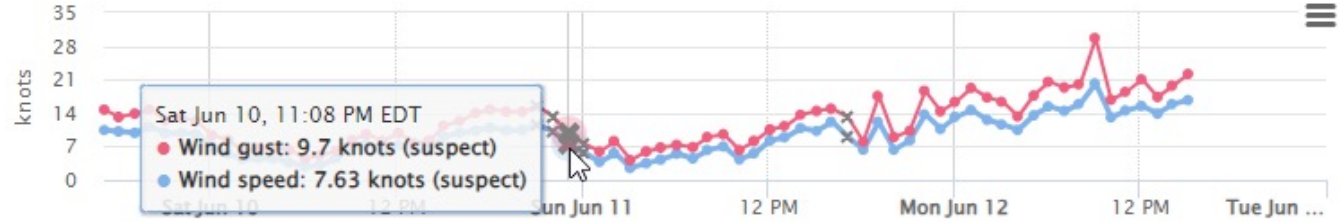


UTide  
 Unified Tidal Analysis and  
 Prediction  
 Acts as “Nearest Neighbor”



# QARTOD Automation: Public Display

**Wind speed**  
**16.72 knots**  
**Wind gust**  
**22.18 knots**  
Mon Jun 12, 3:08 PM EDT  
"x": questionable quality  
FRP2



```
% FRP2 (32.277100 N -80.408300 E)
%
% FRP2 Wind speed (knots) @ 0 m (height)
%
Time (America/New_York) FRP2 Wind speed (knots) FRP2 Wind speed (knots) quality
2023-06-10 14:08 6.67 good
2023-06-10 15:08 9.10 good
...
2023-06-10 20:08 10.46 good
2023-06-10 21:08 11.49 suspect
2023-06-10 22:08 10.10 suspect
2023-06-10 23:08 7.63 suspect
```



# QARTOD Automation: Nightly Emails

station	parameter_table	parameter_column	depth	number_suspect	percent_suspect
CCUFAU_BAREFOOT_RESORT_SWING_BRIDGE	water_level	<a href="#">water_level</a>	0	(0 / 288)	0%
CCUFAU_CAPE_CANAVERAL_PUBLIC_DOCK	water_level	<a href="#">water_level</a>	0	(2 / 287)	1%
CCUFAU_FAU_MAIN_POND	water_level	<a href="#">water_level</a>	0	(99 / 289)	34% (mostly nearest neighbor)
CCUFAU_FERNANDINA_BEACH_HARBOR_MARINA	water_level	<a href="#">water_level</a>	0	(198 / 284)	70% (mostly spike)
CCUFAU_MCNABB_PARK	water_level	<a href="#">water_level</a>	0	(2 / 288)	1%
CCUFAU_OSPREY_MARINA_2	water_level	<a href="#">water_level</a>	0	(0 / 288)	0%
CCUFAU_POMPANO_FISHING_PIER	water_level	<a href="#">water_level</a>	0	(288 / 288)	100% (mostly range)



# QARTOD Automation: On-Demand Reports

CORMP Performance Report from 2022-07-01 00:00 EDT to 2022-12-31 23:59 EST

	ILM2				ILM3			
	xferred	on time	not bad	suspect	xferred	on time	not bad	suspect
Air temperature	96%	96%	100%	4%	100%	100%	100%	0%
Air pressure	96%	96%	100%	4%	100%	100%	100%	0%
Wind speed and direction	96%	96%	100%	4%	100%	100%	100%	0%
Surface temperature	96%	96%	100%	4%	96%	100%	100%	0%
Surface salinity	96%	96%	100%	10%	96%	100%	100%	6%
Waves	77%	99%	100%					

xferred  
on time  
not bad

The # of obs transferred divided by the total # of obs the sensor could have reported over this time period.

The % of obs that arrived in the system within 2h of the time of the observation.

The % of obs that were not marked bad as the CORMP rollup flag.



# QARTOD Automation: On-Demand Reports

## SECOORA-WL Data Quality Report

View at Least 15% Suspect

View All Suspect

Time period (monthly):

2023-06-01 - 2023-06-30

Search:

Excel

Station	# Suspect	# Total	% Suspect	"Mostly" Test	Min Date	Max Date
CCUFAU_FAU_MAIN_POND	596	3674	16	spike	2023-06-01	2023-06-12
CCUFAU_FERNANDINA_BEACH_HARBOR_MARINA	946	3552	27	spike	2023-06-01	2023-06-12
CCUFAU_POMPANO_FISHING_PIER	3262	3541	92	range	2023-06-01	2023-06-12
FIU_HOLLYWOOD_BEACH	2474	2919	85	timing	2023-06-01	2023-06-12
GATECH_DIAMOND_CAUSEWAY_AT_SHIPYARD_CREEK	756	3119	24	spike	2023-06-01	2023-06-12
GATECH_FAYE_DRIVE_ON_BURNSIDE_ISLAND	894	3160	28	spike	2023-06-01	2023-06-12



Water Levels in the Southeast  
June 13-15, 2023



# Challenges

- Keeping up with rollup flags
- Keeping ranges up-to-date

## Climatology Ranges

Platform	Parameter	From ( $\pm 1$ day)	To ( $\pm 1$ day)	Min (deg F)	Max (deg F)
ILM2	surface_water_temperature	Jan 01	May 01	45	72
ILM2	surface_water_temperature	May 02	Nov 01	45	89
ILM2	surface_water_temperature	Nov 02	Jan 01	45	72

## Sensor Ranges

Sensor	Sensor Min (deg F)	Sensor Max (deg F)	User Min (deg F)	User Max (deg F)	Spike Threshold Low (deg F)	Spike Threshold High (deg F)	STDEV Threshold	Flatline Threshold (# obs)
surface_water_temperature	23	95	39.2	89.6	33.8	37.4	3	4

