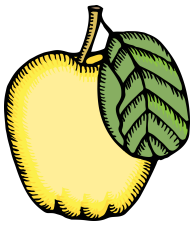

QuinCe

An online tool for data reduction and quality control of surface ocean fCO_2 data

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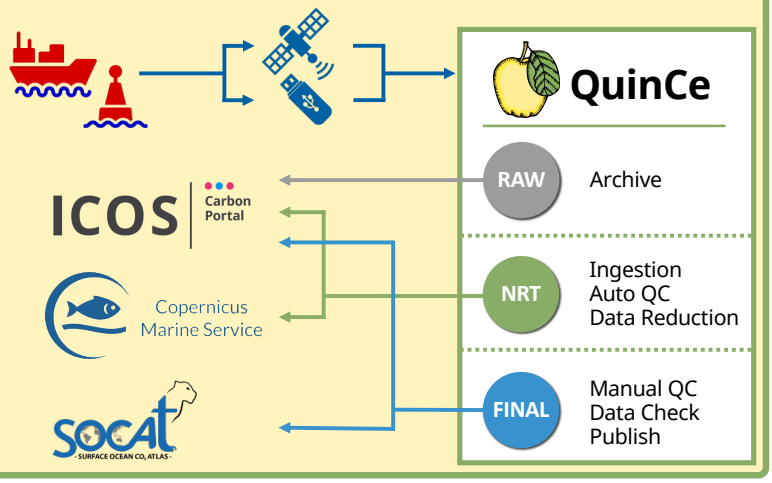
Motivation

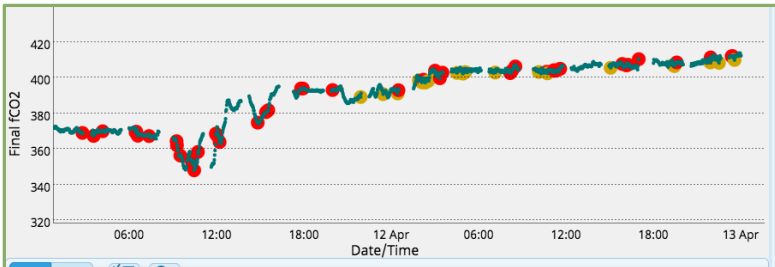
- A single, centralised tool ensures data from all sources is treated according to Best Practices with community-approved algorithms
- Removes code development responsibilities from scientists
- Open Source code increases traceability and transparency
- Reduces data handling work required by scientists
- Flexible architecture allows shorter development time for new projects using different types of data

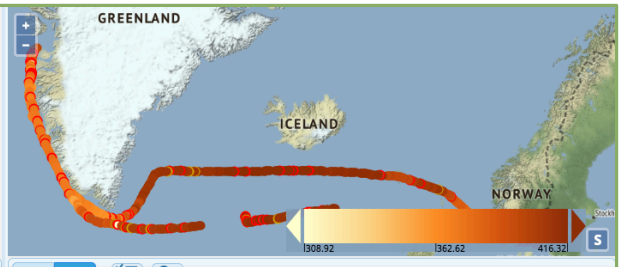
Example Data Flow



Features

- Receives data in any text format - no pre-processing required
- Individual sensor calibration adjustments can be applied
- Data reduction is performed automatically, with calibration to gas standards
- Automated QC routines detect common issues (GPS errors, range limits, outlier and spike detection...) and highlight them for further investigation
- Extensive plotting and mapping tools for manual 1st Level QC
- All QC decisions (automatic and manual) are recorded for future traceability
- Automatic submission to data centres (e.g. CMEMS INSTAC), synthesis projects (e.g. SOCAT) & ICOS RI
- Near Real Time processing allows fully automatic data flow from ship to publication within minutes





Date	Longitude	Latitude	Intake Temperature	Salinity	Equilibrator Temperature	Equilibrator Pressure (differential)	Ambient Pressure	xH2O	CO2	fCO2	Automatic QC
2019-04-14 12:03:07	-25.537	59.076	7.557	35.000	7.740	0.160	995.410	1.430	425.800	412.789	Good
2019-04-14 12:04:39	-25.526	59.078	7.575	35.000	7.780	-0.810	995.200	1.430	425.340	411.561	Good
2019-04-14 12:06:11	-25.515	59.079	7.563	35.000	7.790	-6.880	995.450	1.430	425.030	408.524	Bad
2019-04-14 12:07:43	-25.505	59.081	7.563	35.000	7.780	-0.100	995.660	1.430	425.310	411.816	Good
2019-04-14 12:09:15	-25.494	59.083	7.559	35.000	7.780	-4.450	996.050	1.420	426.070	410.658	Questionable
2019-04-14 12:10:47	-25.483	59.084	7.558	35.000	7.780	-4.060	995.620	1.420	426.710	411.097	Questionable
2019-04-14 12:12:19	-25.473	59.086	7.555	35.000	7.770	5.640	996.140	1.420	426.750	415.517	Good
2019-04-14 12:13:51	-25.463	59.087	7.559	35.000	7.810	0.920	995.950	1.420	426.930	412.960	Good
2019-04-14 12:15:23	-25.452	59.088	7.554	35.000	7.820	-12.300	995.930	1.430	427.340	407.477	Bad
2019-04-14 12:16:55	-25.442	59.090	7.549	35.000	7.820	0.160	996.200	1.420	427.770	413.017	Good

Future Development

- Integration with external metadata handling systems
- More intelligent automatic QC routines based on previous data sets and external data sources
- Uncertainty propagation
- Long-term monitoring of instrument performance
- More variables (pH, O_2 ...)

Info

URL
https://quince.bcdc.no

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Poster PDF