

Buoy 62093 - 2024 Quality Control Report

Generated: 2025-08-19 23:48:58

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Data Overview

- Station ID: 62093
- Year: 2024
- Total Records: 14,538
- Time Range: 2024-01-01 00:00:00 to 2024-10-30 23:00:00
- Duration: 303 days
- Sensors/Loggers: 2 active
 - 12144_CR6: 7,293 records (50.2%)
 - 189_Wavesense: 7,245 records (49.8%)

Quality Control Results

Record-Level QC Status

- ****QC complete:**** 13,688 records (94.2%)
- ****No QC performed:**** 850 records (5.8%)

Parameter-Level QC Results

Parameter	Total	Missing	Range Fail	Spike Fail	Flat Line Fail	Passed	Pass Rate
airpressure	14,538	0	0	0	12	14,526	99.9%
airtemp	14,538	0	0	0	501	14,037	96.6%
humidity	14,538	0	0	3	66	14,469	99.5%
windsp	14,538	0	0	8	18	14,512	99.8%
winddir	14,538	0	0	233	12	14,293	98.3%
hm0	14,538	0	0	0	315	14,223	97.8%
hmax	14,538	0	0	3	0	14,535	100.0%
tp	14,538	0	0	10	38	14,490	99.7%
mdir	14,538	0	0	412	0	14,126	97.2%
seatemp_aa	14,538	0	0	0	106	14,432	99.3%

Issues Identified

- airpressure: 12 flat line values (5+ consecutive identical)
- airtemp: 501 flat line values (5+ consecutive identical)
- humidity: 3 spike values (>20.0 change)
- humidity: 66 flat line values (5+ consecutive identical)
- windsp: 8 spike values (>15.0 change)
- windsp: 18 flat line values (5+ consecutive identical)
- winddir: 233 spike values (>180.0 change)
- winddir: 12 flat line values (5+ consecutive identical)
- hm0: 315 flat line values (5+ consecutive identical)

- hmax: 3 spike values (>5.0 change)
- tp: 10 spike values (>10.0 change)
- tp: 38 flat line values (5+ consecutive identical)
- mdir: 412 spike values (>180.0 change)
- seatemp_aa: 106 flat line values (5+ consecutive identical)

QC Limits Applied

Station-specific QC limits used for this analysis:

Parameter	Min Value	Max Value	Spike Threshold	Notes
airpressure	950.0	1050.0	10.0	Default
airtemp	-20.0	40.0	5.0	Default
humidity	0.0	100.0	20.0	Default
windsp	0.0	50.0	15.0	Default
winddir	0.0	360.0	180.0	Default
hm0	0.0	15.0	3.5	Station-specific
hmax	0.0	25.0	5.0	Station-specific
tp	1.0	25.0	10.0	Default
mdir	0.0	360.0	180.0	Default
seatemp_aa	5.0	19.0	2.5	Station-specific

Data Visualization

QC Failure Color Coding

The visualization uses different colors to distinguish QC failure types:

- **Blue dots**: Good data (passed all QC tests)
- **Red dots**: Range failures (values outside physical limits)
- **Orange dots**: Spike failures (unrealistic sudden changes)
- **Purple dots**: Flat line failures (sensor stuck/malfunctioning)

The bottom-right panel shows a stacked bar chart with the percentage breakdown of each QC result type per parameter.

Recommendations

Manual QC Actions Needed

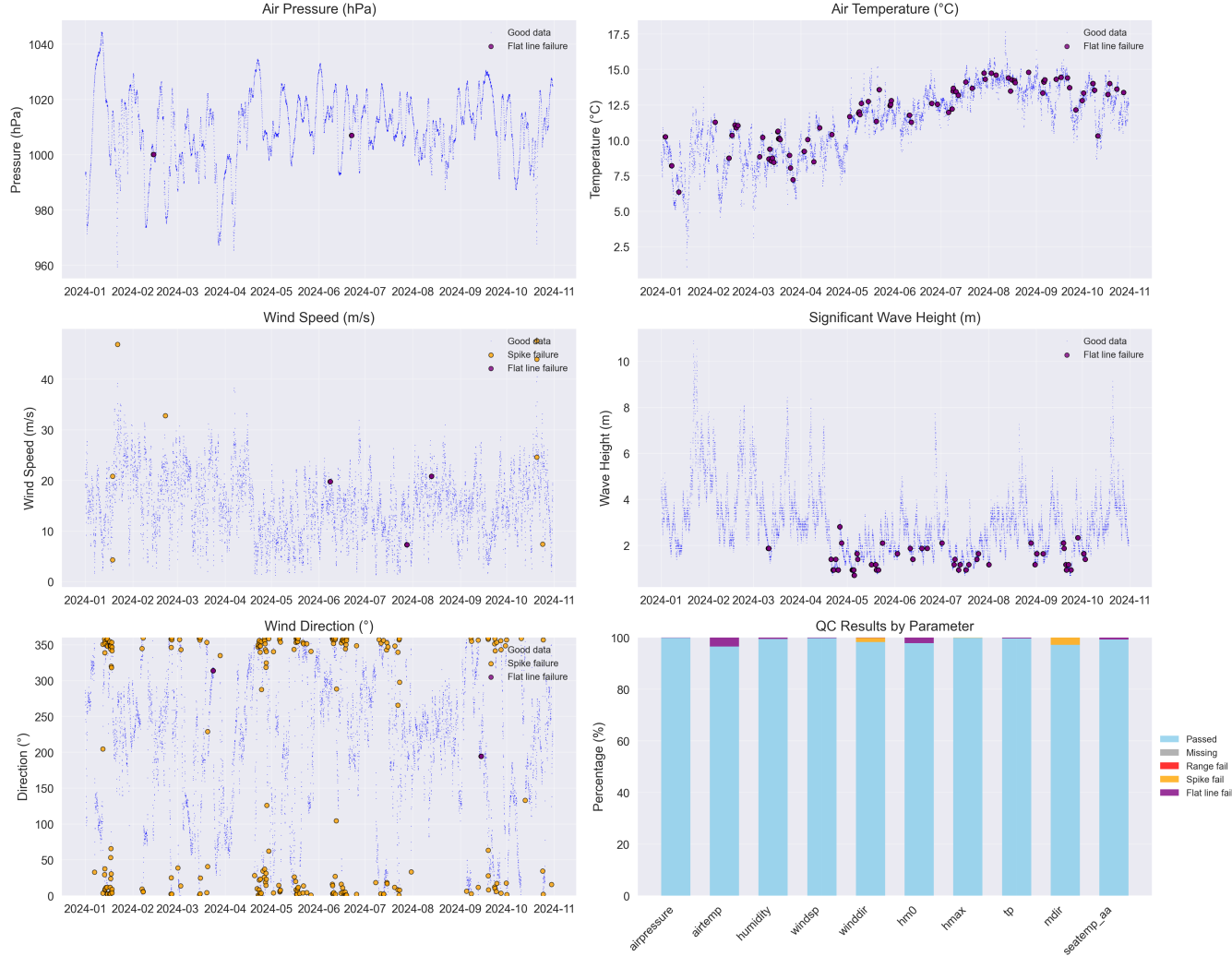
1. **Review flagged extreme values** - validate against weather events
2. **Investigate sensor failures** - replace/repair faulty sensors
3. **Cross-validate between loggers** - compare duplicate measurements
4. **Apply sensor hierarchy** - prioritize Wavesense for hm0, Datawell for hmax
5. **Transfer to production** - move QC'd data to irish_buoys_fugro table

Next Steps

1. Execute parameter-level QC SQL commands from readme.md
2. Perform individual value corrections for flagged data
3. Complete record-level QC marking
4. Transfer approved data to production table

Data Visualization

Buoy 62093 - 2024 Data Overview and QC Results



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