# Dissolved Oxygen Instrument Commisioning

The two new Dissolved Oxygen instruments purchased from SCRIPPS required testing to ensure they generate the same measurements as our existing instrument.

The new instruments are much newer than the existing Hobart and RV Investigator instruments. The dosimats are the newest versions - 876 series – which require a different software version. LVO2 software to work with the new dosimats has the dosimats model trailing, i.e. LVO2\_876.

In this report the instruments are referred to as New A, New B and Old.

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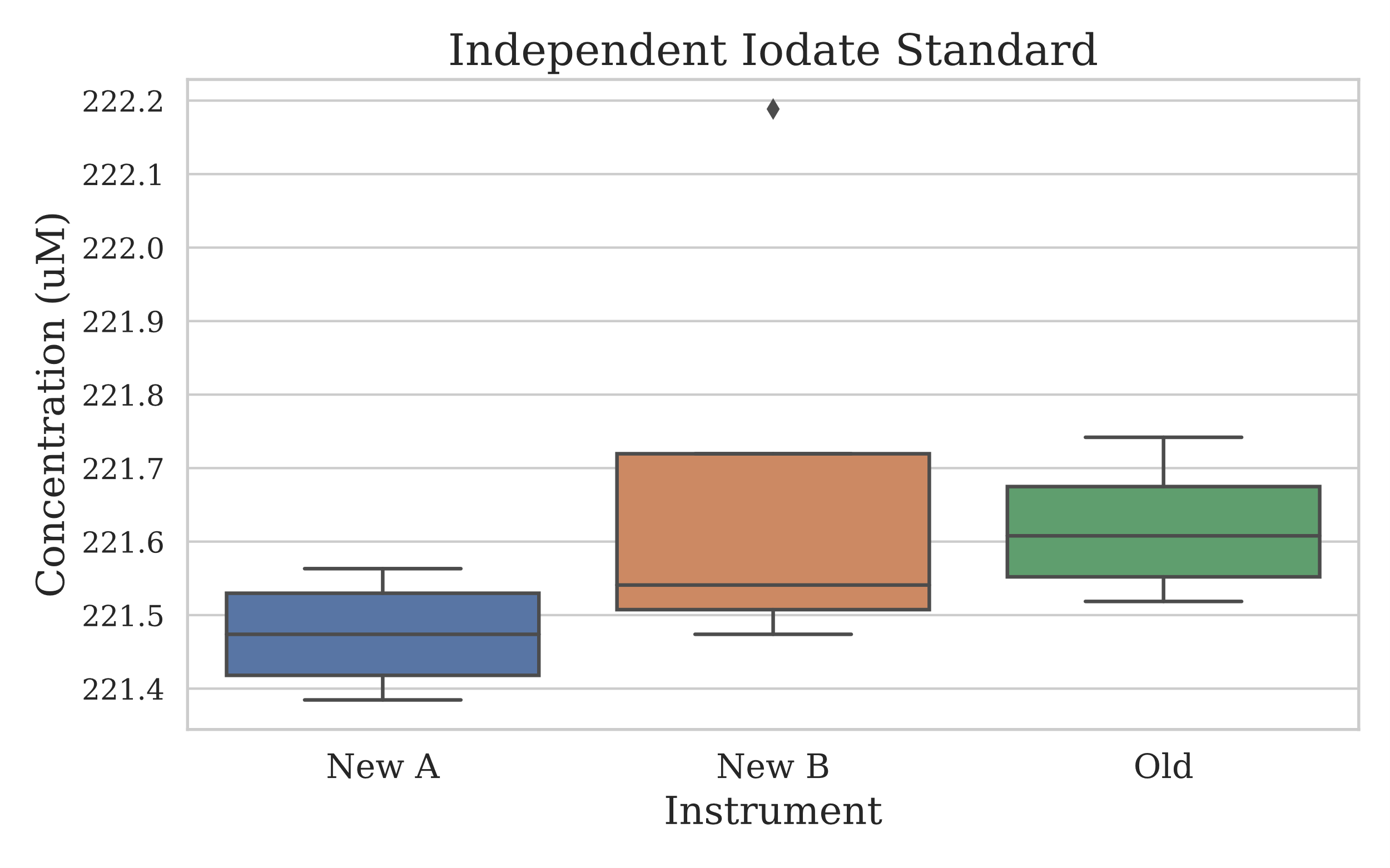
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# Testing

## Experiments Summary

|  |  |
| --- | --- |
| Experiment Overview | Instruments Tested |
| Measurement of an independently dispensed Iodate standard as a sample | New A, New B, Old |
| Repeated measurements of deep sample replicates: 1 | New A, New B, Old |
| Comparison of profiles | New A, Old |
| Repeated measurements of atmospheric sample replicates | New A, New B, Old |
| Repeated measurements of deep sample replicates: 2 | New A, New B, Old |

## Independent Iodate Standards



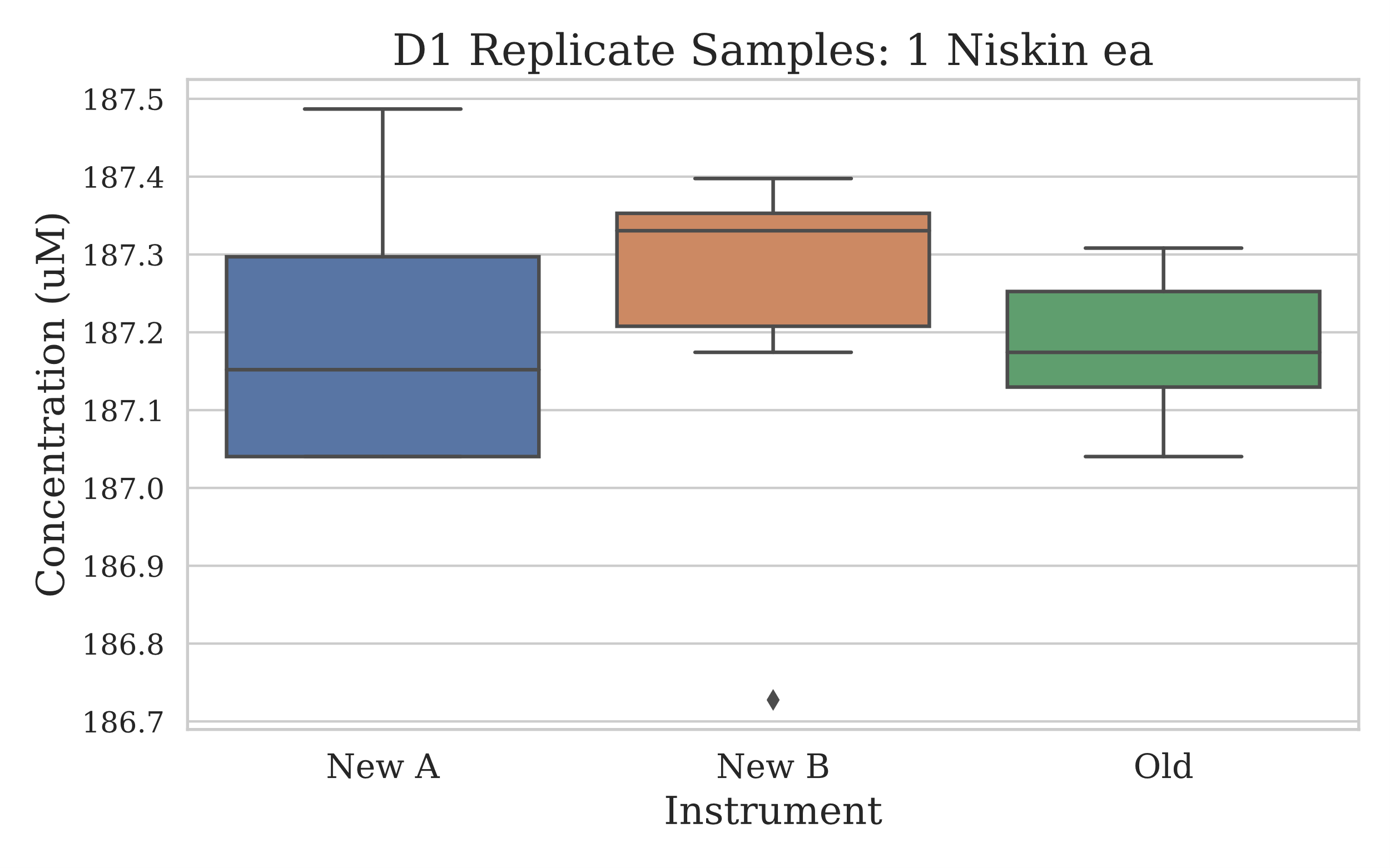
|  |  |  |  |
| --- | --- | --- | --- |
|  | New A | New B | Old |
| Mean | 221.4739 | 221.6861 | 221.6191 |
| Median | 221.4739 | 221.5409 | 221.6079 |
| Standard Deviation | 0.0815 | 0.3369 | 0.0990 |
| % RSD | 0.037% | 0.152% | 0.045% |
| n | 4 | 4 | 4 |

## Repeated Deep Sample Measurement: 1

### Samples from One Niskin per Instrument

For each instrument tested, the samples were collected from a single Niskin. See table below for a tabulated view.

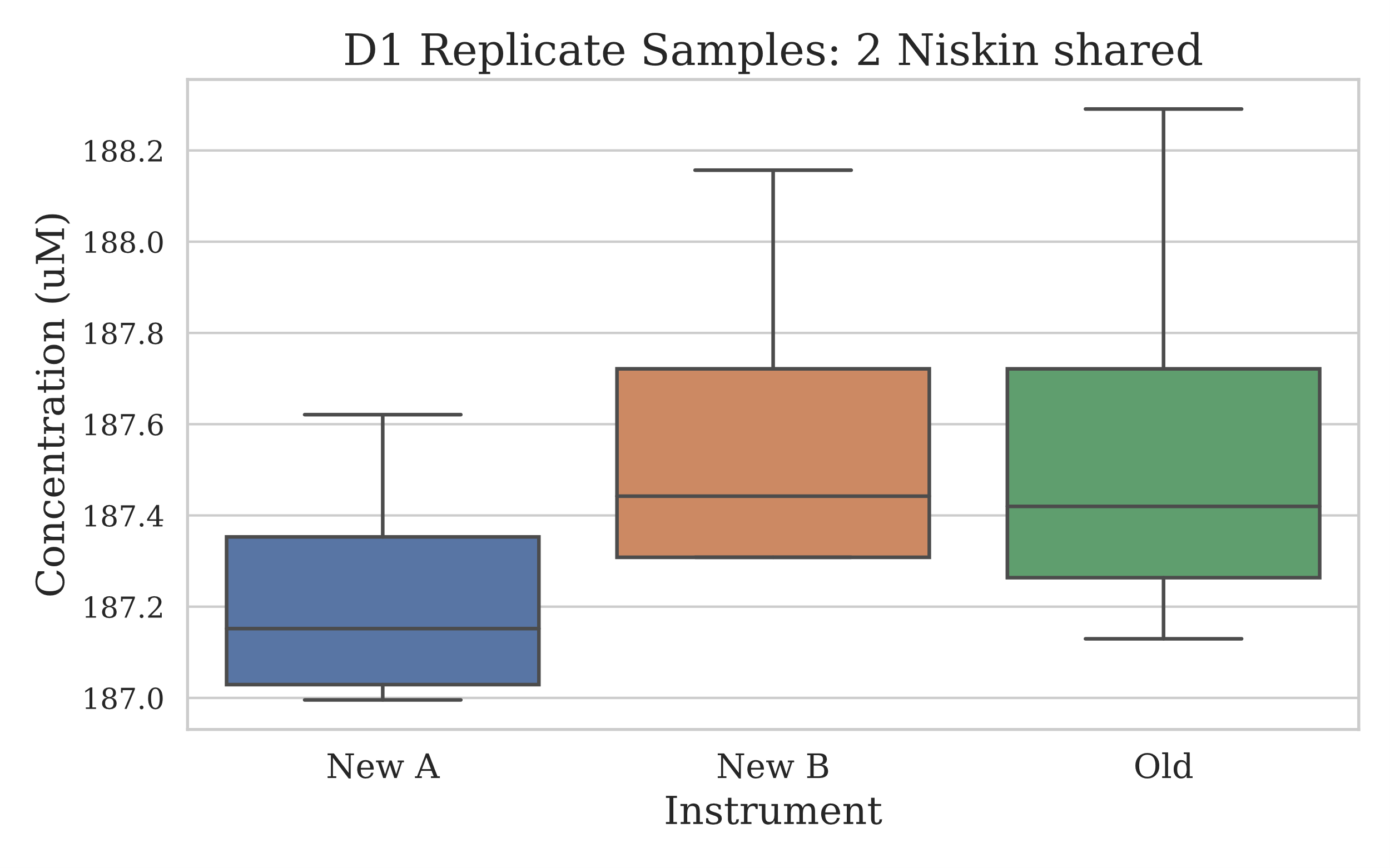
|  |  |  |  |
| --- | --- | --- | --- |
| Instrument | DEPLOYMENT | Niskin | Replicates |
| New A | 1 | 4 | 6 |
| New B | 1 | 7 | 6 |
| Old | 1 | 3 | 6 |



|  |  |  |  |
| --- | --- | --- | --- |
|  | New A | New B | Old |
| Mean (uM) | 187.1966 | 187.2189 | 187.1817 |
| Median (uM) | 187.1520 | 187.3306 | 187.1743 |
| Standard Deviation | 0.1868 | 0.2526 | 0.0995 |
| % RSD | 0.100% | 0.135% | 0.053% |
| n | 6 | 6 | 6 |

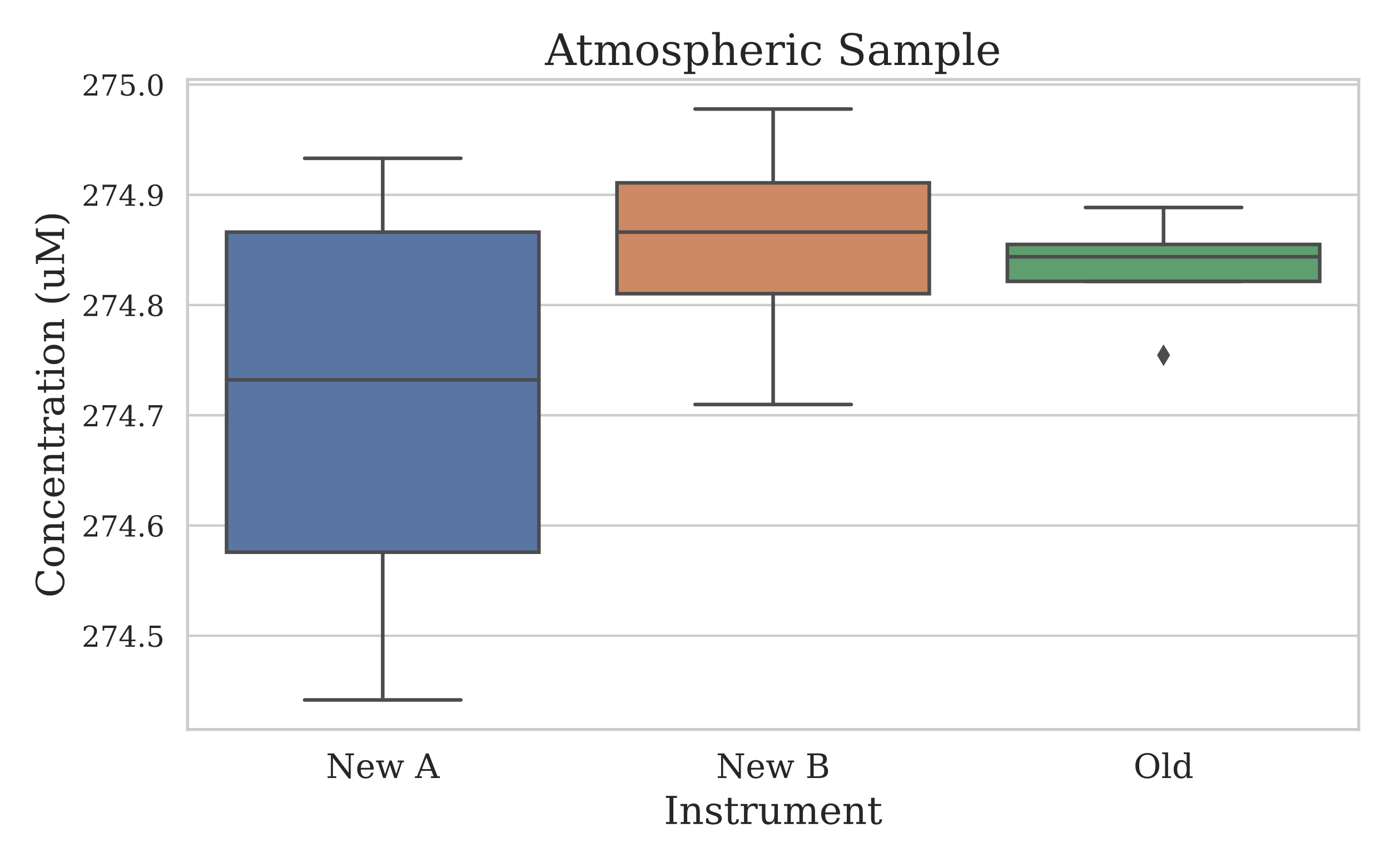
### Samples from Two Niskins for all Instruments

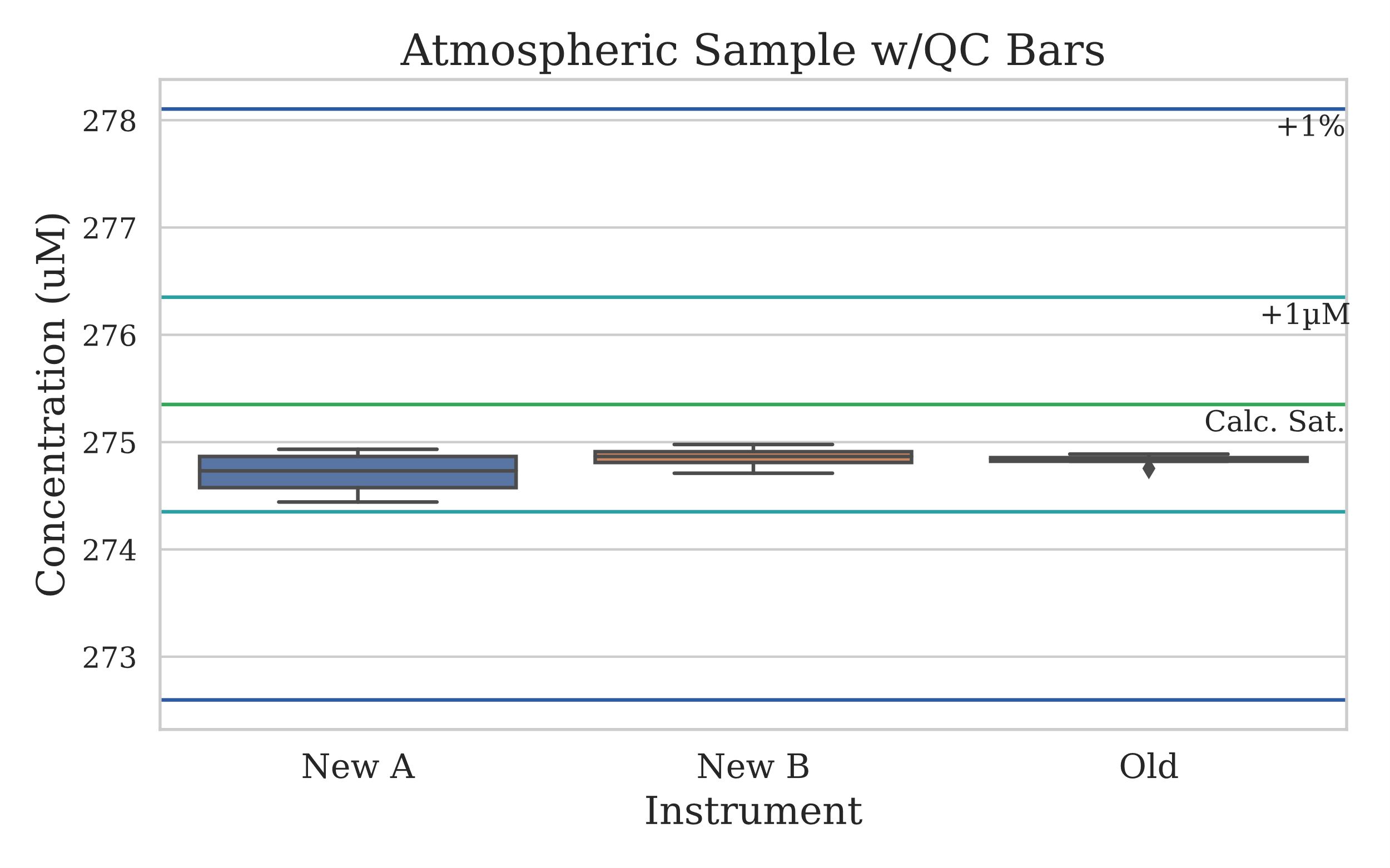
The samples to test all instruments were collected from two Niskins, this resulted in each instrument having 2 samples from each niskin – as 6 samples were collected from either Niskin.



|  |  |  |  |
| --- | --- | --- | --- |
|  | New A | New B | Old |
| Mean (uM) | 187.2301 | 187.5874 | 187.5650 |
| Median (uM) | 187.152 | 187.4422 | 187.4199 |
| Standard Deviation | 0.2856 | 0.4001 | 0.5110 |
| % RSD | 0.153% | 0.213% | 0.272% |
| n | 4 | 4 | 4 |

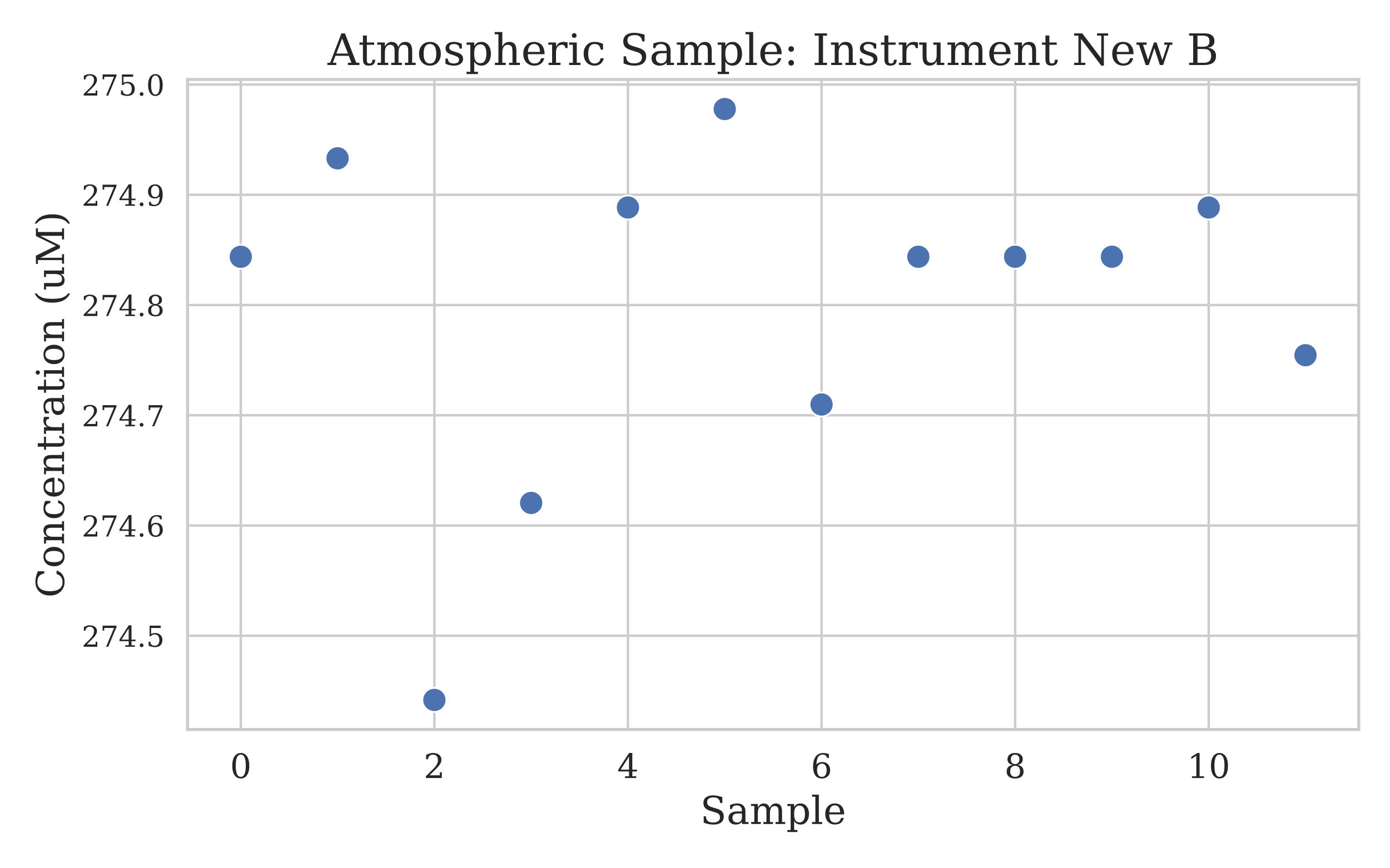
## Atmospheric Sample: All Instruments

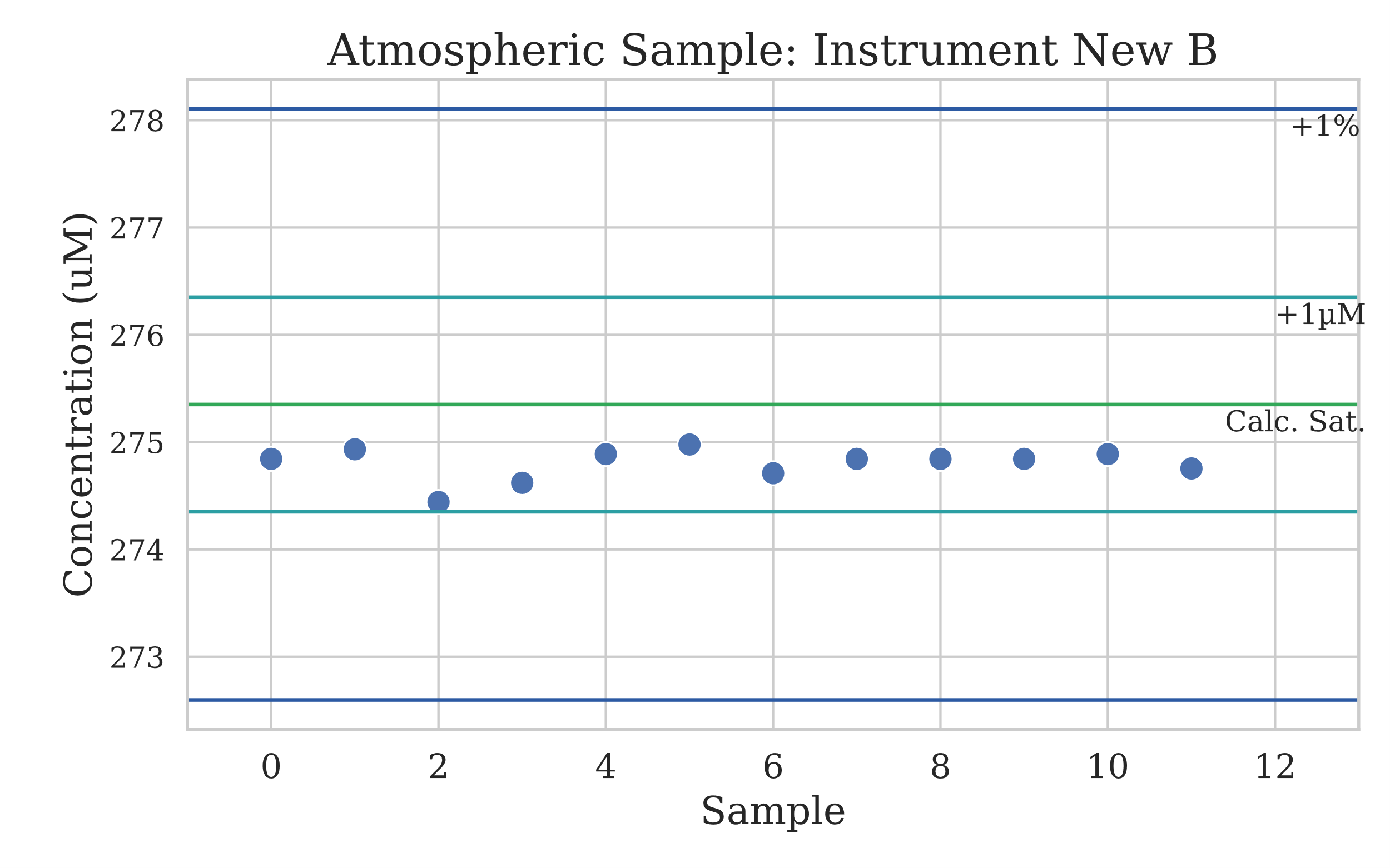




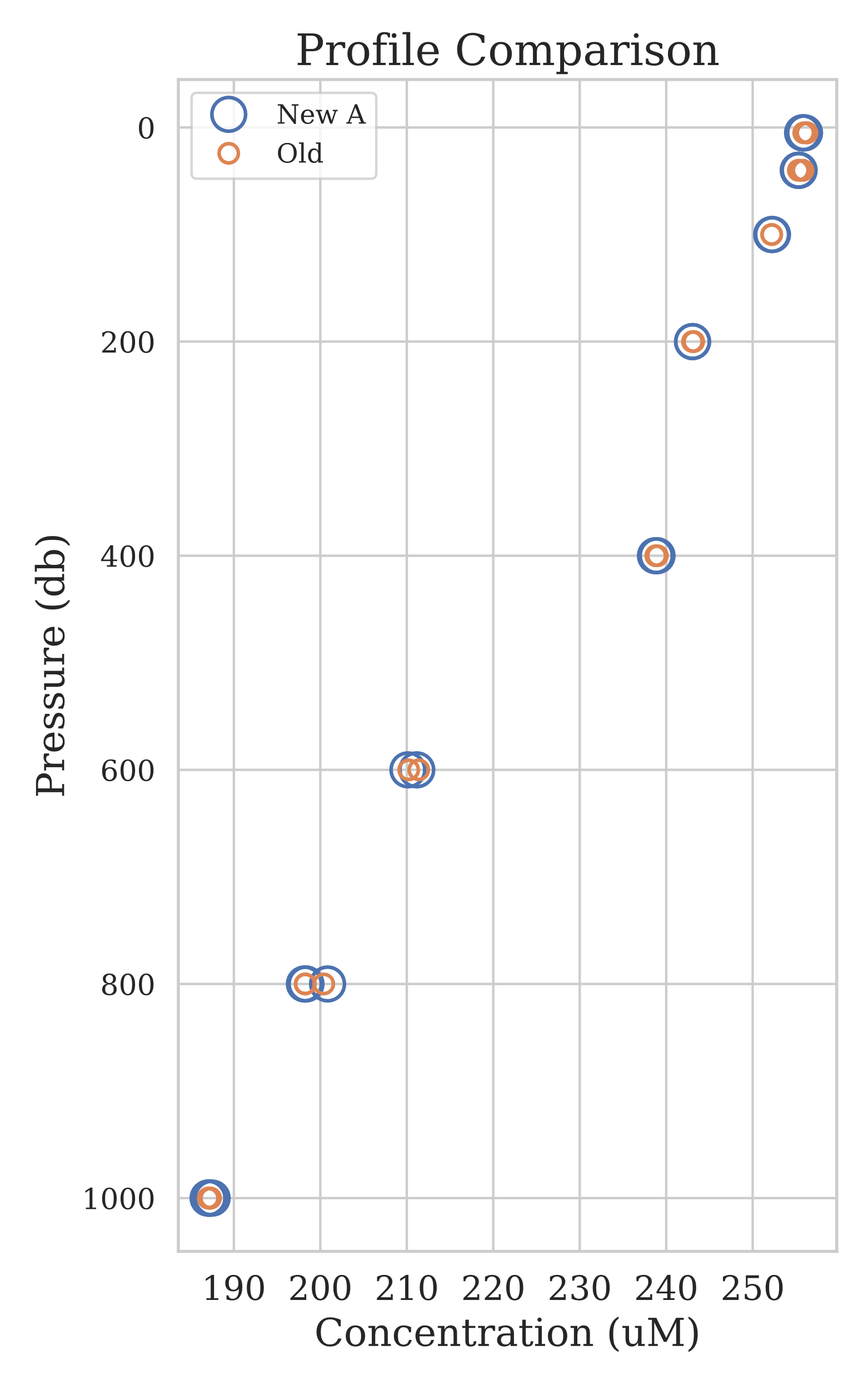
|  |  |  |  |
| --- | --- | --- | --- |
|  | New A | New B | Old |
| Mean (uM) | 274.7098 | 274.8550 | 274.8327 |
| Median (uM) | 274.7322 | 274.8662 | 274.8438 |
| Standard Deviation | 0.2218 | 0.1116 | 0.0562 |
| % RSD | 0.081% | 0.041% | 0.020% |
| n | 4 | 4 | 4 |

## Atmospheric Sample: One Instrument





## Water Profile Comparison



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