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### Precision statement for replicate samples drawn from a single Niskin bottle:

The mean difference for Oxygen:Dissolved:Bottle:Volume for the range 0.209 to 6.797 ml/l was 0.010,  
k = 46 (2 outliers removed) where k is the number of duplicates.

### Precision analysis and the determination of outliers

Precision was determined by analyzing replicate samples drawn from one Niskin.

Outliers are discarded on the basis of Chauvenet's criteria. The statistic is calculated using the following formula:

$$\sigma = \left[ \frac{1}{n-1} \sum_1^n (x_i - x_m)^2 \right]^{\frac{1}{2}}$$

The maximum deviation, dmax, is compared with the individual residuals from the original concentrations.

If a replicate's residual is greater than dmax, this reading can be rejected based upon Chauvenet's criterion.

### Duplicate samples from a single Niskin bottle

| Event Number | Sample Number | Station | Pressure dbar | Oxy:Dis 1 ml/l | Oxy:Dis 2 ml/l | Rejected yes / no | Comment            |
|--------------|---------------|---------|---------------|----------------|----------------|-------------------|--------------------|
| 2            | 8             | P1      | 110.8         | 1.124          | 1.066          |                   |                    |
| 2            | 10            | P1      | 5.6           | 6.769          | 6.763          |                   |                    |
| 5            | 25            | P2      | 105.5         | 1.326          | 1.325          |                   |                    |
| 9            | 81            | P4      | 1249.4        | 0.373          | 0.381          |                   |                    |
| 9            | 88            | P4      | 200.1         | 2.474          | 2.477          |                   |                    |
| 9            | 93            | P4      | 75.2          | 6.263          | 6.272          |                   |                    |
| 23           | 144           | P8      | 1998.3        | 1.398          | 1.382          |                   |                    |
| 23           | 152           | P8      | 250.1         | 2.711          | 2.682          |                   |                    |
| 23           | 160           | P8      | 26.7          | 6.308          | 6.276          |                   |                    |
| 31           | 210           | P12     | 1000.1        | 0.364          | 0.255          | yes               | Replicate outliers |
| 31           | 218           | P12     | 149.7         | 4.755          | 4.735          |                   |                    |
| 31           | 222           | P12     | 49.9          | 6.791          | 6.791          |                   |                    |
| 42           | 298           | P16     | 2000.3        | 1.233          | 1.237          |                   |                    |
| 42           | 305           | P16     | 299.8         | 2.098          | 2.084          |                   |                    |
| 42           | 308           | P16     | 175.1         | 3.788          | 3.783          |                   |                    |
| 42           | 312           | P16     | 74.9          | 6.790          | 6.797          |                   |                    |
| 59           | 411           | P20     | 3500.6        | 2.827          | 2.824          |                   |                    |
| 59           | 418           | P20     | 799.2         | 0.444          | 0.440          |                   |                    |
| 59           | 423           | P20     | 200.0         | 3.670          | 3.670          |                   |                    |
| 59           | 431           | P20     | 10.0          | 5.831          | 5.833          |                   |                    |
| 89           | 597           | P26     | 1249.5        | 0.520          | 0.525          |                   |                    |
| 89           | 603           | P26     | 250.1         | 1.817          | 1.820          |                   |                    |
| 105          | 649           | P4      | 1000.1        | 0.210          | 0.209          |                   |                    |
| 105          | 656           | P4      | 199.7         | 3.028          | 3.027          |                   |                    |

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### Duplicate Niskins at the same pressure

**Note:** The precision statement for samples drawn from duplicate Niskin bottles is not calculated since these values are not true duplicates. They are presented here as information only, mainly as a way to further identify problem samples.

| Event Number | Sample Number | Station | Nominal Pressure<br>dbar | Oxy:Dis 1<br>ml/l | Oxy:Dis 2<br>ml/l | Rejected<br>yes / no | Comment |
|--------------|---------------|---------|--------------------------|-------------------|-------------------|----------------------|---------|
| 3            | 27 / 28       | P2      | 75                       | 1.827             | 1.796             |                      |         |
| 9            | 80 / 81       | P4      | 1250                     | 0.404             | 0.377             |                      |         |
| 31           | 204 / 205     | P12     | 3000                     | 2.284             | 2.284             |                      |         |
| 42           | 294 / 295     | P16     | 3500                     | 2.659             | 2.669             |                      |         |
| 59           | 410 / 411     | P20     | 3500                     | 2.823             | 2.825             |                      |         |