

2013-018 Salinity duplicates

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

The mean difference for Salinity:Bottle for the range 34.2649 to 34.6840 was 0.0016,
k = 36 (0 outlier 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	Salinity 1	Salinity 2	Rejected yes / no
9	81	P4	1249.4	34.4648	34.4676	
9	82	P4	999.6	34.3915	34.3935	
23	144	P8	1998.3	34.5942	34.5933	
23	147	P8	1000.3	34.3892	34.3890	
31	205	P12	2998.5	34.6522	34.6532	
31	210	P12	1000.1	34.3640	34.3648	
42	296	P16	3000.0	34.6573	34.6544	
42	298	P16	2000.3	34.5869	34.5876	
42	301	P16	1000.4	34.3623	34.3619	
59	412	P20	3000.2	34.6540	34.6550	
59	414	P20	2000.0	34.5835	34.5829	
59	417	P20	999.6	34.3596	34.3587	
89	591	P26	4000.7	34.6837	34.6840	
89	593	P26	2999.4	34.6583	34.6548	
89	595	P26	2002.5	34.5872	34.5880	
89	598	P26	1000.0	34.3770	34.3814	
105	649	P4	1000.1	34.3755	34.3722	
105	650	P4	799.7	34.2649	34.2668	