

## 2008-27 Total Alkalinity

### Duplicate analysis for samples drawn from a single Niskin bottle:

| Event Number                       | Sample Number | Station | Pressure dbar | ALK 1 $\mu\text{mol/kg}$ | ALK 2 $\mu\text{mol/kg}$ | ALK 3 $\mu\text{mol/kg}$ | Difference $\mu\text{mol/kg}$ | Absolute Difference | Standard Deviation | Comments         |
|------------------------------------|---------------|---------|---------------|--------------------------|--------------------------|--------------------------|-------------------------------|---------------------|--------------------|------------------|
| 11                                 | 28            | P4      | 1248.7        | 2395.20                  | 2394.88                  |                          | 0.32                          | 0.32                |                    |                  |
| 38                                 | 193           | P12     | 2999.8        | 2430.21                  | 2429.19                  |                          | 1.01                          |                     |                    | Poor calibration |
| 53                                 | 310           | P16     | 3001.5        | 2430.31                  | 2430.93                  |                          | -0.62                         | 0.62                |                    |                  |
| 63                                 | 364           | P20     | 3001.4        | 2429.01                  | 2428.42                  |                          | 0.59                          | 0.59                |                    |                  |
| 72                                 | 429           | P26     | 3500.2        | 2425.70                  | 2424.53                  |                          | 1.17                          | 1.17                |                    |                  |
| 91                                 | 553           | P25     | 1999.7        | 2420.85                  | 2421.20                  |                          | -0.35                         | 0.35                |                    |                  |
| 91                                 | 554           | P25     | 2000.3        | 2421.20                  | 2420.72                  |                          | 0.48                          | 0.48                |                    |                  |
| 91                                 | 555           | P25     | 2000.2        | 2420.42                  | 2421.26                  |                          | -0.84                         | 0.84                |                    |                  |
| 91                                 | 556           | P25     | 1999.6        | 2419.20                  | 2419.02                  |                          | 0.18                          | 0.18                |                    |                  |
| 91                                 | 557           | P25     | 1998.6        | 2420.36                  | 2420.81                  |                          | -0.45                         | 0.45                |                    |                  |
| average variability:               |               |         |               |                          |                          |                          | 0.15                          | 0.56                |                    |                  |
| standard deviation of variability: |               |         |               |                          |                          |                          | 0.69                          | 0.30                |                    |                  |

### Duplicate Niskins at the same pressure

| Event Number                       | Sample Number | Station | Nominal Pressure dbar | ALK A $\mu\text{mol/kg}$ | ALK B $\mu\text{mol/kg}$ | ALK C $\mu\text{mol/kg}$ | ALK D $\mu\text{mol/kg}$ | ALK E $\mu\text{mol/kg}$ | Difference $\mu\text{mol/kg}$ | Absolute Difference | Standard Deviation | Comments         |
|------------------------------------|---------------|---------|-----------------------|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|-------------------------------|---------------------|--------------------|------------------|
| 11                                 | 27 / 28       | P4      | 1250                  | 2394.05                  | 2395.04                  |                          |                          |                          | 0.99                          | 0.99                |                    |                  |
| 38                                 | 192 / 193     | P12     | 3000                  | 2428.58                  | 2430.21                  |                          |                          |                          | 1.62                          |                     |                    | Poor calibration |
| 53                                 | 310 / 311     | P16     | 3000                  | 2430.62                  | 2430.61                  |                          |                          |                          | -0.01                         | 0.01                |                    |                  |
| 63                                 | 364 / 365     | P20     | 3000                  | 2428.71                  | 2428.49                  |                          |                          |                          | -0.23                         | 0.23                |                    |                  |
| 91                                 | 553 - 557     | P25     | 2000                  | 2421.02                  | 2420.96                  | 2420.84                  | 2419.11                  | 2420.59                  |                               |                     | 0.80               |                  |
| average variability:               |               |         |                       |                          |                          |                          |                          |                          | 0.59                          |                     |                    | 0.51             |
| standard deviation of variability: |               |         |                       |                          |                          |                          |                          |                          | 0.87                          |                     |                    | 0.46             |

**Precision estimate:** 0.56  $\mu\text{mol/kg}$