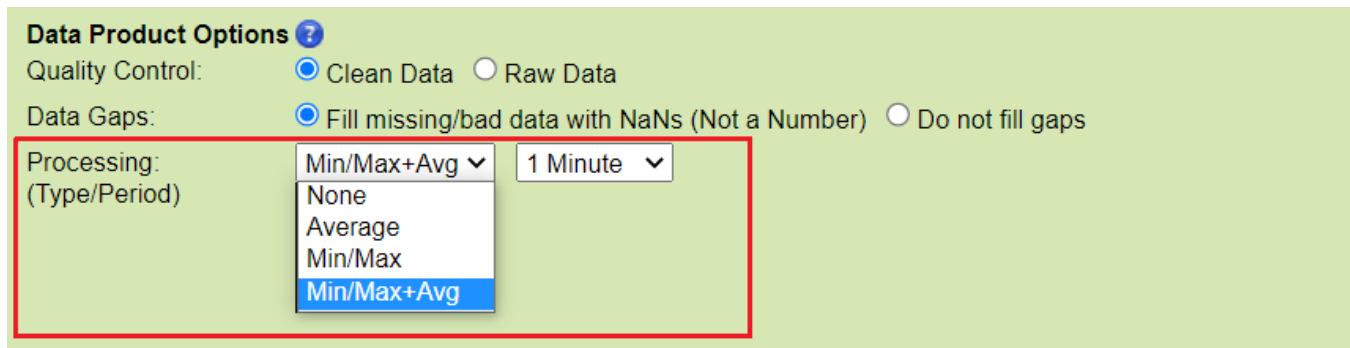


# Resampling (Data Files)

For *time series scalar data*:



**Data Product Options** ?

Quality Control: ☒ Clean Data ☐ Raw Data

Data Gaps: ☒ Fill missing/bad data with NaNs (Not a Number) ☐ Do not fill gaps

Processing: (Type/Period)

Min/Max+Avg ▼ 1 Minute ▼

None

Average

Min/Max

Min/Max+Avg

## Resample Type:

- None - no resampling. *This is the default option for time series scalar data.*

Oceans 3.0 API filter: `dpo_resample=none`

- Average - the mean value within resample period (fixed-window averaging without overlap). This is also known as a 'box-car' or ensemble average. It is subject to the 70% data completeness QAQC check (see below) with the exception of engineering data or data from irregular or scheduled sampling. *Only available with the [clean data product option](#).*

Oceans 3.0 API filter: `dpo_resample=average`

- Min/Max - the most extreme minimum and maximum values within resample period. It is subject to the 70% data completeness QAQC check (except for engineering data or data from irregular or scheduled sampling); QAQC flags are taken from the extreme data points.

Oceans 3.0 API filter: `dpo_resample=minMax` and `dpo_minMax={0, 60, 600, 900, 3600, 86400}`

- Min/Max+Avg - the combination of the min/max and average as described above. The average is always calculated from clean data and will be NaN if there is less than 70% data available after cleaning. QAQC flags for min/max+avg with automatic resampling are the worst flag in the resample period, which includes the 70% check on data completeness (except for engineering data or data from irregular or scheduled sampling). *This is the default option for time series scalar plots - other plots, such as the BHT, AGO, profile or staircase plots will have different options and defaults.*

Oceans 3.0 API filter: `dpo_resample=minMaxAvg` and `dpo_minMaxAvg={0, 60, 600, 900, 3600, 86400}`

## Resample Period:

Visible when an actionable resample type is selected, immediately to the right of the resample type. Current periods offered:

- 1 Minute:

Oceans 3.0 API filter: `dpo_average=60`

- 10 Minute:

Oceans 3.0 API filter: `dpo_average=600`

- 15 Minute:

Oceans 3.0 API filter: `dpo_average=900`

- 1 Hour:

Oceans 3.0 API filter: `dpo_average=3600`

- 1 Day:

Oceans 3.0 API filter: `dpo_average=86400`

When resampling is selected:

- The timestamps in the data series correspond to the centre of each resampling interval. (Data downloaded prior to 13 Feb 2013: timestamps were at beginning of interval). The resample interval always begins and ends at an integer multiple of the resample period, so minutes on the minute, hours on the hour, days on the day, etc.
- If the date/time range on the search has limits that are within a resampling interval, the date/time endpoints are extended to include the entire resampling interval. For example, when daily resampling is selected from 03:00:00.000 on Monday to 20:00:00.000 on Thursday, the date range is extended to 00:00:00.000 on Monday to 23:59:59.999 on Thursday.
- **Note that tides are not filtered out in resampled products.**
- **No anti-alias filtering is done.** This is why only averaging and min/max are offered at this time. Box-car / ensemble averaging is an easily understood and ubiquitous process that is an effective low-pass anti-alias filter. For more information, see this page on [data reduction and time-averaging](#).
- **Spatial / mobile data may be resampled, but users are warned** against this procedure, as it may be inappropriate to do so. Spatial averages or a geospatial display of the non-resampled data may be a better approach.

- **All resampled data products are subject to an additional QAQC check on data completeness** (except engineering data or data from irregular or scheduled sampling). If any resample period does not contain at least 70% of the expected data, the QAQC flag for this period will be a failure (6), unless overridden by a manual QAQC flag, see the [QAQC page](#). For live data, it is quite likely that the last resample period will not be complete and will be flagged; this is especially obvious for plots. Future improvements will allow users to modify the data completeness threshold.

More options will be available in the future as we work to improve the data products. Feedback is welcomed and encouraged. For custom resampling, users can develop their own matlab code in the [Oceans 3.0 Sandbox](#) and run it in the ONC computing environment.

File-name mode field

The resample type and period are added to the file-name when resampling is selected. Example: 'avg1hour', 'MinMax10minute'.