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TiltMeter Low-Rate Raw Data

These are raw uncalibrated data from RBRconcerto tiltmeters (not parsed), currently sampled at 5SPS, product of a middleware driver.

Oceans 3.0 API filter: `dataProductCode=APTLOW`

RBR manufacturer data sheet: http://rbr-global.com/wp-content/uploads/2017/10/0005642revA-RBRconcerto-APT.pdf

General file format description: https://docs.rbr-global.com/apt

Revision History

- 20180503: Initial release
- 20221223: changes to accommodate new dataproductID=195 to separate -20SPS and -5SPS .apt data

Formats

Format is .apt, consisting of comma-separated numeric values as shown in the section below. The file names end with -5SPS with file extension .apt. Low rate raw data is also available via data product 195.

Oceans 3.0 API filter: `extension=apt`

ONC also sends the .apt files to IRIS, as currently done with seismometer data (102). Example: https://service.iris.edu/fdsnws/dataselect/1/query?net=NV&sta=CBC27&loc=Z1&cha=AHD&starttime=2019-10-05T00:00:00&endtime=2019-10-05T01:00:00&format=miniseed&nodata=404

Examples

A sample .apt file would look as follows:

```
20221221T194744.449Z, 2022-12-21 19:47:43.099, 2000-05-19 03:20:47.650, 30425949.692726135, 30019071.577116847,
30922182.090580463, 5835970.132611692, 29072933.522984385, 5855472.229886800
20221221T194744.650Z, 2022-12-21 19:47:43.299, 2000-05-19 03:20:47.700, 30425949.888303875, 30019071.418792009,
30922182.360664006, 5835970.125626773, 29072939.092293381, 5855472.239200026
20221221T194744.851Z, 2022-12-21 19:47:43.499, 2000-05-19 03:20:47.750, 30425949.329510331, 30019071.763381358,
30922183.068469166, 5835970.141924918, 29072934.370487928, 5855472.222901881
20221221T194745.053Z, 2022-12-21 19:47:43.699, 2000-05-19 03:20:47.800, 30425950.158387422, 30019071.875140070,
30922182.388603687, 5835970.137268305, 29072936.577722430, 5855472.232215106
```

Each line contains the following information:

0	Middleware timestamp	YYYYMMDDTHHMMSS.sssZ format	Timestamp from the middleware driver
1	NTP time	YYYY-MM-DD HH:MM:SS.sss format.	The time that the NTP client reports. This is reset automatically per the configured NTP refresh rate while the NTP source is accessible.
2	Logger time	YYYY-MM-DD HH:MM:SS.sss format.	The time that the internal logger reports. Drift should be ±60s/year.
3	Accelerometer X period (picoseconds)	Double precision (64 bit) floating point number.	The period of the X (first) channel of the triaxial accelerometer.
4	Accelerometer Y period (ps)	Double precision (64 bit) floating point number.	The period of the Y (second) channel of the triaxial accelerometer.
5	Accelerometer Z period (ps)	Double precision (64 bit) floating point number.	The period of the Z (third) channel of the triaxial accelerometer.
6	Accelerometer temperature period (ps)	Double precision (64 bit) floating point number.	The period of the temperature (fourth) channel of the triaxial accelerometer.
7	BPR pressure period (ps)	Double precision (64 bit) floating point number.	The period of the pressure (first) channel of the BPR.
8	BPR temperature period (ps)	Double precision (64 bit) floating point number.	The period of the temperature (first) channel of the BPR.

Sample file with 5 SPS for download: RBRTILTMETERACCBPR63055_20221221T194743.049Z-5SPS.apt

Discussion

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