



## Libdatawell: a software library for the DWR MkIII and DWR4

**Do you want to use Waverider data in your (proprietary) software? Just include the libdatawell software library that takes all the decoding work off your hands, and let you focus in the processing and presentation part of your software.**

### Datawell software library

The libdatawell software library consists of the following parts:

- A library named libwaves, for decoding the data transmitted by the DWR MkIII, DWR-G(4), WR-SG, and DWR4 buoys and received by an RX-C receiver; libwaves can be included in other, proprietary, software projects.
- A set of rudimentary tools based on this library that performs a basic conversion of the DWR MkIII, DWR-G(4), WR-SG, and DWR4 data into CSV files.
- Specifications of the data formats used.

### Introduction

Libwaves helps you develop your own software or analysis tools for all types of Datawell buoys. It aims at two groups of users:

- Users who want to develop their own processing or presentation software in e.g. C. This group of users can use the library directly. For these users the development headers are available, allowing using the library in any computer language that can call functions in a library written in C.
- Users who want to analyse the wave data in programs like Matlab, Octave or Excel. For these users the library contains the tools to receive, log and convert the data of the buoy to CSV files. These files can be opened and read by the aforementioned programs to process and plot the data in spreadsheets and charts.

### Formats

The library contains decoding support for most common data types used by the Datawell buoys:

- HXV, the data transmitted via the HF-link by the DWR MkIII, DWR-G(4), and WR-SG buoys.
- RDT, the real-time data stored on the logger card of the DWR MkIII, DWR-G(4), and WR-SG buoys.
- SDT, the spectral and system data stored on the logger card of the DWR MkIII, DWR-G(4), and WR-SG buoys.
- HVA, the data transmitted via the HF-link by the 4-series of buoys.
- BVA, the stored on the logger card by the 4-series of buoys.
- SBD the e-mail format transmitted with Iridium Short Burst Data by the 4-series of buoys.
- Argos e-mail messages transmitted by the 4-series of buoys.
- The data received via iBuoy. Data received via the Internet using Iridium or GPRS.

The library contains the tools to convert these data formats to CSV files, allowing further processing with standard software.

For developers the library contains the engines to do these conversions and make the data available in C structures, allowing further processing with their own software.

	A	B	C	D
1	Timestamp [-]	Datastamp [-]	latitude [rad]	longitude [rad]
2	1307371212	31788	0.913998688	0.080638484

A CSV file with a GPS-location decoded from a BVA file



# Libdatawell

Datawell - Oceanographic Instruments

## Contents of the package

The library is shipped including the following components:

- The library itself.
- C/C++ development headers, used to develop software using the library.
- A set of tools including:
  - Saving the HXV data in CSV files.
  - Saving the RDT data in CSV files.
  - Saving the SDT data in CSV files.
  - Receiving the HVA data from a RX-C receiver over the network.
  - Logging the received HVA data.
  - Converting the BVA data on the logger into HVA data.
  - Saving the HVA data in CSV files.
  - Saving SBD e-mail messages in CSV files.
  - Saving Argos e-mail messages in CSV files.
- A set of documentation:
  - The manual describing the library and its tools.
  - The DWTP specifications.
  - The CSV specifications.
  - The iBuoy protocol specifications.
- Several BVA and HVA sample files.

## Availability

The library is available for both the Windows and Linux platform. It is available free of charge. The library is shipped under a liberal licence, allowing you to redistribute the library and its tools with your own software. In order to receive a copy of the library, please contact our sales department.

	A	B	C	D
1	status [-]	heave [m]	north[m]	west[m]
2	g	-0.066229668	-0.006000172	-0.103874241
3	g	-0.019005474	0.038043804	-0.118282322
4	g	-0.059164034	0.085490935	-0.136972025
5	g	-0.135928402	0.118282322	-0.14954809
6	g	-0.114154993	0.084473792	-0.123454264
7	g	-0.041055023	0.017003921	-0.067240274
8	g	-0.017003921	-0.022008498	-0.022008498
9	g	0.040051093	-0.034031374	-0.020006385
10	g	0.155874248	-0.011001062	-0.066229668
11	g	0.173947912	0.055132868	-0.120349365
12	g	0.083457053	0.092622673	-0.133843103
13	g	0.047082897	0.041055023	-0.102848982
14	g	0.047082897	-0.047082897	-0.064209403
15	g	-0.043063477	-0.111065252	-0.031023779
16	g	-0.144296031	-0.151653892	0.019005474
17	g	-0.100799937	-0.175018319	0.08142477

CSV file with the displacements decoded from a HVA file

## System requirements

Minimum	OS	Debian Linux <ul style="list-style-type: none"> <li>• Jessie i386 / amd64</li> </ul> Ubuntu Linux* <ul style="list-style-type: none"> <li>• Precise Pangolin i386 / amd64</li> <li>• Trusty Tahr i386 / amd64</li> <li>• Xenial Xerus i386 / amd64</li> </ul> Window <ul style="list-style-type: none"> <li>• Windows Vista</li> <li>• Windows 7</li> <li>• Windows 8</li> <li>• Windows 10</li> </ul>
	CPU	80x86 compatible with the SSE2 instruction set

\*) For other Linux distributions contact our sales department.