# Iridium Short Burst Data

Datawell - Oceanographic Instruments

## Worldwide, instant short messages from buoy to email-box and vice versa

The Iridium satellite system provides data (and voice) communication, two-way, everywhere on earth, and at all times. This explains the popularity of this communication option on Datawell Waverider buoys. Iridium offers a number of data services. Apart from an internet dial-up data service, there is also a short message service called Iridium Short Burst Data (SBD).

Iridium SBD allows sending and receiving short messages up to 340 bytes in length at a time. For more data several SBD messages may be appended. Addressing is simply via email. No need to set up an internet server that has to remain online permanently. Identification is done by each Iridium SBD modem's unique IMEI number. Messages are charged at typically 1-1½ € or $ per Kbyte in addition to a monthly fee of e.g. 20 € or $ (prices are only indicative).

The Datawell implementation of Iridium SBD supports Datawell Message Format (DMF) messages defined in the DWTP specification, a.o.:

- GPS position
- spectral parameters
- heave spectrum
- directional spectrum
- current speed and direction

More precisely, on the MkIII, DWR-G and WR-SG all primary DMF messages are implemented, adding up to 93 bytes. On the DWR4(/ACM) nearly all extension format DMF messages are supported, varying from 9 to 459 bytes per message. Each DMF message can be requested once or sent periodically. Period intervals range from ½ hour to 1 day. Any combination of messages and intervals is possible. All requested DMF messages will be collected in one or more SBD messages, depending on the total number of bytes. Settings can be changed remotely in the field over the Iridium SBD link.

On the user side Datawell SBD interface software ("sbdBuoy" or Waves4) handles all incoming SBD email-messages and stores the data. In addition, in a user-friendly way this software composes outgoing SBD email-messages to change the Iridium SBD settings. It seamlessly integrates with W@ves21 or Waves4 presentation and processing software. Still users can write their own SBD interface software, based on the freely available DWTP specification. A single program on a single computer can handle a network of Iridium SBD buoys. All emails will be nicely sorted based on the unique IMEI number of each modem, hence each buoy. A PC powered during office hours will do since emails are buffered by your internet provider.

By contrast the earlier-mentioned internet dial-up data service is referred to by Datawell as "Iridium internet". Iridium SBD and Iridium internet share the same Iridium antenna, but the Iridium modem may differ. Normally, a small Iridium SBD specific modem is used that does not support Iridium internet. However, Iridium internet modems are also capable of Iridium SBD. For current users of Iridium internet a mere buoy firmware update suffices to switch to Iridium SBD. Energy consumption is per burst, irrespective whether 0 or 340 bytes, rather than per byte. The Iridium SBD option is available on DWR-MkIII, DWR-G, WR-SG and DWR4(/ACM) buoys, although not yet on the GPS mini-buoy.

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## Specifications

| | | |
|---|---|---|
| **General** | Coverage | Truly global, two way, real time, including polar regions |
| | User interface | Email |
| | Operational cost (indicative) | 1-1½ € or $/Kbyte + 20 € or $/month |
| | Data | Datawell Message Format (DMF) messages<br>DWR-MkIII, DWR-G, WR-SG: (0x)0, 3, 5, 6 and 9<br>DWR4: (0xF)20, 21, 25, 26, 28, 80, 81, 82, C1 and C3 |
| | Intervals | ½ - 24 hours or once or never<br>(can be set independently for each DMF message) |
| | Power consumption | 50 mW @ ½ hour interval, per burst (0-340 bytes) |
| | Availability | DWR-MkIII, DWR-G (DWR-G4 not yet), WR-SG<br>DWR4(/ACM) |



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