GSM Internet (GPRS)

Datawell - Oceanographic Instruments

GSM Internet: an economic alternative to HF for near shore applications

Datawell GSM Internet option

GSM Internet sets up an internet connection between the GSM modem in your Waverider and a PC in your office. With a relatively high data bandwidth it is possible to download all data available in the buoy, not only full wave spectra, but also raw displacements. Even historic data can be downloaded from the logger.

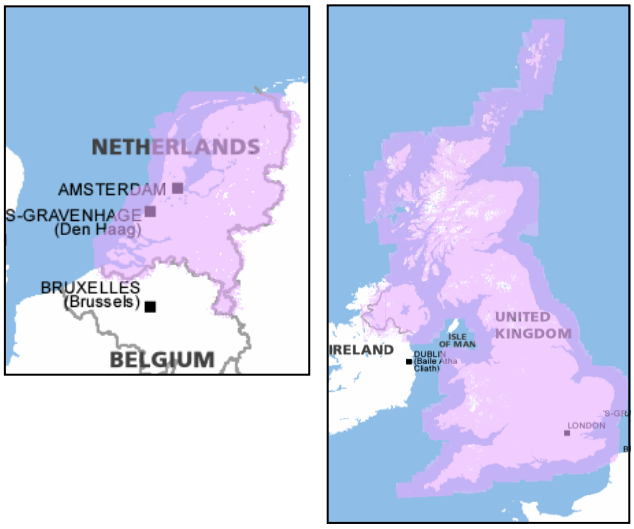
The GSM communication option for DWR-MkIII, DWR-G, WR-SG and DWR(/ACM) is very cost-effective. In particular in GPRS mode which is charged per Mbyte, rather than in dial-in mode which is billed by the minute. Furthermore, there is no need to install a receiving antenna or a receiving GSM modem. Only a single PC suffices, even for a network of buoys received by different GSM base stations along the coastline. As such GSM Internet/GPRS offers an economic alternative to HF communication, at least in near shore applications.

GSM and GPRS

The Datawell GSM option supports the 2G digital cellular network used by mobile phones around the world. It includes data communications via dial-in circuit-switched data and General Packet Radio Services (GPRS) sometimes referred to as 2,5G.

Near shore

GSM and GPRS are mostly used for wireless communication on land. However the coverage maps, e.g. of The Netherlands and the United Kingdom, show that coverage extends many kilometres out to sea. Experiments on the North Sea demonstrated reliable communication to distances over 10 Km.



GSM network information

In order to determine if the GSM link is suited for your situation and to determine the proper network provider, visit the GSM Association website: www.gsma.com/aboutus/gsm-technology/roaming
The buoy's GSM quad band modem can handle GSM 850, 900, 1800 and 1900 MHz frequency bands.

GSM Internet 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

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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. Settings can be changed remotely in the field using Datawell software.

On the user side, the interface software ("iBuoy" or Waves4) handles all internet communication and stores the data. In addition, in a user-friendly environment the software is capable of changing the GSM Internet settings remotely. It seamlessly integrates with W@ves21 or Waves4 presentation and processing software. Still users can write their own interface software, based on the freely available DWTP specification. A single application on a single computer can handle a network of GSM Internet buoys.

The Iridium Internet option is available for DWR-MkIII, DWR-G, WR-SG and DWR4(/ACM) buoys.

Specifications

GSM modem	Frequency band	Quad-band : GSM 850 / 900 / 1800 / 1900 MHz
	Output power	Class 4 (2 W) @ 850 / 900 MHz Class 1 (1 W) @ 1800 / 1900 MHz
	Energy consumption	< 60 mW (continuous)
	SIM card	prepaid mini-SIM card (not recommended) subscription mini-SIM card
General	Data	Datawell Message Format (DMF) messages DWR-MkIII, DWR-G, WR-SG: (0x)0, 3, 5, 6 and 9 DWR4: (0xF)20, 21, 25, 26, 28, 80, 81, 82, C1 and C3
	Update interval	every ½ hour - every 6 hours
	Interface	Internet, PC server
	Software	iBuoy/W@ves21 for DWR-MKIII, DWR-G and WR-SG Waves4 for DWR4(/ACM)
	Availability	DWR-MkIII, DWR-G, WR-SG and DWR4(/ACM)

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