LD MANAGER AND LD TOOLS: NEW SOFTWARE TO OPERATE LAGRAGIAN DRIFTERS

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Abstract -The following article presents a new software whose purpose is to ease the operation of lagrangian drifters and the ulterior data retrieval. LD Manager relies on the use of TCP/IP communications between the drifters and the computer that runs this piece of software. It manages TCP connection requests from its clients, the drifters, and fills up a database with the information they sent. LD Tools is an easy-to-use interface that makes experiment organization and data retrieval much more efficiently.

Keywords - lagragian drifter operation, TCP/IP communications

LD MANAGER

LD Manager is the piece of software that manages the communications with the drifters and that interacts with then under an eventual petition from the operator of the software. It has been developed in Java, and a successful beta version has been generated and tested for Windows XP and Windows 7.

As a background process, a TCP server runs in the computer where this software is installed. This process manages the connection requests from the drifters, establishes the appropriate TCP sockets and refresh the connections in case of IP change.

Figure 1 shows the flow of information between the server and the drifters. The data generated by the drifters is sent to the server via internet (orange path in figure 1). Therefore, the drifters must be equipped with modems able to implement TCP/IP telecommunications. These data is stored in a database in the computer along with some other relevant information as the current drifter configurations and so on.

Configuration change petitions (yellow path in figure 1) on the drifters can be handled by using an additional GSM modem. This modem send any configuration change request via SMS and waits for acknowledge from the drifter (blue path in figure 1).

LD TOOLS

LD Tools is an additional piece of software intended to organize lagrangian drifter experiments and ease the data retrieval.

Concerning experiment management, LD Tools allows creating, editing and archiving experiments. As a lagrangian experiment may involve one or more drifters, this software relies on a database to organize all that information in order to recover it later on.

Data retrieval may be done by focusing on the whole data set of a single drifter and then filtering the initial and final dates. However, the recommended data retrieval method is based on experiment identification. As an experiment has information on the drifters involved, the initial and final date of the experiments, data recovering with this method is usually faster and more efficient.

FIELD TEST

Successful tests have been performed in Spain (Gulf figure 2 –) and France (Ligurian Sea) so far.

FUTURE WORK

Further collaborations all around Europe and other Mediterranean countries must be established in order to get user feedback and enrich this software solution.
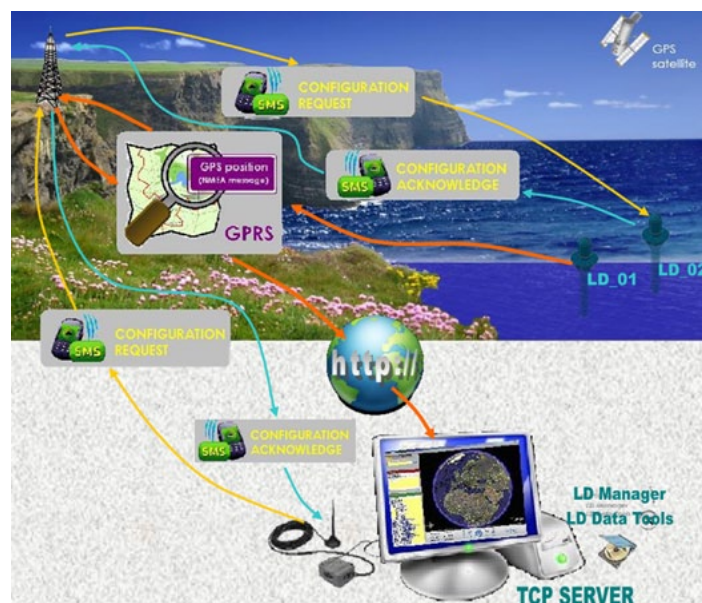

Figure 1. Information flow between drifters and the server running LD Manager.

Figure 2. One-drifter lagrangian experiments operated with LD Manager.