[PS]Litho 2: Enabling the Power of Mobile Devices and Cloud Computing for Creating Comprehensive Sedimentary Logs from Outcrop, Core and Mud Logging*

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Abstract

Since the beginning of modern Geology, representation of core and outcrop data in on-scale sedimentary columns became a fundamental tool for sedimentological and stratigraphic analysis of ancient sedimentary successions. Initially, sedimentary logs were sketched in the field or core facilities, and then redrawn in the lab, often requiring long time of processing with the associated risk of data lost. Later, personal computers provided new resources with applications that facilitate the column drawing, but the problem of data acquisition in the field was still unsolved. In recent years, two new technologies irrupted allowing new possibilities to solve this problem. In first place, smart phones became powerful devices allowing the user to interact with data using multi-touch screens. The other game-changer technology is cloud computing. Litho is an application that allows the creation of sedimentary logs in a complete new way. The user literally interacts with the sedimentary column using the device screen. Additionally, the data is transparently synchronized across multiple platforms. Litho was initially launched as an Android application and it is currently available as a free tool at the Google Play Store. Typical applications of this software are the description of stratigraphic columns from outcrops, cores, and mud logging. In this work, we introduce the version 2.0 of this free software. The new release enables the benefits of the latest disruptive technologies making the creation of sedimentary logs a complete new experience.

Litho 2: Enabling the power of mobile devices and cloud computing for creating comprehensive sedimentary logs from outcrop, core and mud logging

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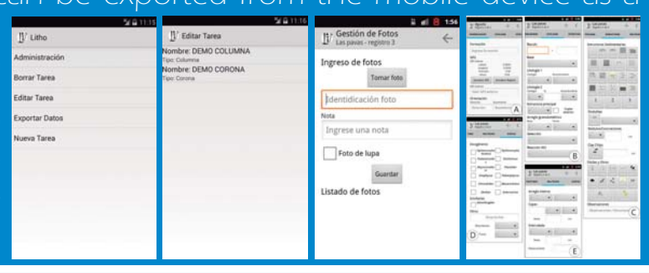
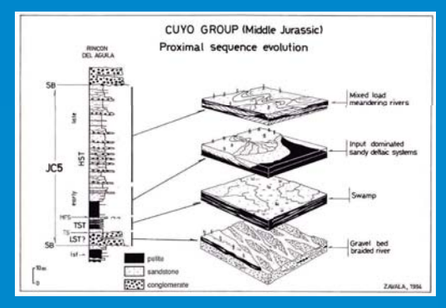
1. Introduction

Since the beginning of modern Geology, representation of core and outcrop data as on-scale sedimentary columns became a fundamental tool for sedimentological and stratigraphic analysis of ancient sedimentary successions. Initially, sedimentary logs were sketched in the field or core facilities, and then redrawn in the lab, often requiring long processing time with the associated risk of data lost. Later, personal computers provided new applications that facilitated the column drawing, but the problem of data acquisition in the field was still unsolved. In recent years, two new technologies irrupted allowing new possibilities to solve this problem. In first place, smartphones became powerful devices allowing the user to interact with data using multi-touch screens. The other game-changer technology is cloud computing. Litho is an application that allows the creation of sedimentary logs in a complete new way. In this work we introduce the version 2.0 of this free software.

2. Previous work

Litho was initially launched as an Android application and it is currently available as a free tool at the Google Play Store. The first version of the product was capable of represent cores and outcrops. The collected data can be exported from the mobile device as a standard data format. However, the full potential of touchscreen devices and cloud computing was not used in the initial release of the tool.





Field notes and hand-made drawings and still useful and elegant. However, data processing is highly time consuming, with the associated risk of data loss

3. Litho v2.0

The second version of Litho was completely redesigned. The user literally interacts with the sedimentary column using the device screen. As the geoscientist progressively describes a core or an outcrop, Litho 2 provides a graphical visualization of the loaded data. As a result, the user is creating the final report at the same time that it is adding new information.

Benefits:

- ✓ Input errors are minimized since the geoscientist can see the final graphical results on the screen.
- ✓ No duplicated information is possible since there is no post-processing involved.
- ✓ All data is contained in a single platform and there are no external data sources involved.
- ✓ Typical applications of this software are the description of stratigraphic columns from outcrops, cores, and mud logging.

A complete library of lithologies, sedimentary structures and other sedimentary features are available, and can be loaded and customized as required in the main screen

4. Data managment

Using cloud computing, data is transparently synchronized across multiple platforms. The user can access to information using a mobile device or a web browser. Once the information is modified, the system synchronizes the changes across all the interfaces through the network. The central part of the system can be hosted either on a public or private cloud service .

5. Data Export

All data loaded by the user can be exported from the system. There are multiple options available. In general, all exported information follows standard formats such as PDF, CSV or LAS.

6. Conclusions

Litho 2 enables the benefits of the latest disruptive technologies making the creation of sedimentary logs a complete new experience. The user interacts with the information in a graphical way. Data is synchronized across multiple devices and platforms. Finally, it is possible to export the collected data as a standard format.