

## A New Frontend Implementation for the Mars Mapserver Prototype, based on the Open Source p.mapper/MapScript Framework

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### Introduction

In previous work, a mapserver backend was implemented for serving HRSC/SRC image data, HRSC/SRC footprints as well as other instrument's data of planetary missions to Mars. In this work, we present a new frontend for the existing data sets served by the mapserver. This new frontend is based on the *p.mapper/MapScript* framework and includes improved functionality together with an advanced dynamic user interface.

### Architecture

The architecture of the mapserver's backend has been described in [1] and [2]. Web Mapping Services (WMS) for image data and Web Feature Services (WFS) for footprints and other feature data are implemented using the CGI-based MapServer [3] program in extension to an Apache web server instance [4]. In this work, we extend our previous work by the integration of an advanced *PHP*-based frontend using MapServer's *MapScript* engine. The frontend is a javascript-driven website based on the *p.mapper* [5] framework. The aim here is to use common Open Source software to achieve low development costs and long-term archiving availability. The *p.mapper/MapScript* framework enables the system for dynamic content creation of the data such as user-customizable queries and different data export varieties.

### Components

To facilitate the setup of a MapServer application based on *PHP/MapScript*, the *p.mapper* framework offers broad functionality and multiple configurations. It includes a dynamic HTML (DHTML) zoom/pan interface, query functions (identify single features, select multiple features, search for feature attributes), a flexible layout of query results via JavaScript templates, print functions, pop-up windows and dialogs, the possibility to add points of interest with labels on the map and a comprehensive plugin API to add custom functionality. The configuration of the layout and behaviour is defined in XML files, the configuration of the map layers is defined in a MapServer map file.

### Feature Description

The use of the *p.mapper* framework as a frontend enables the Mars Mapserver prototype for a variety of fea-

tures. Image or vector layers can be switched on or off, attributes of features can be queried. The query results are displayed in a moveable DHTML window on top of the map. The search for specific orbits or orbit properties is enabled by a search input field. A hyperlink to the according archived science data product is included in the query result table, by its activation the resulting data product page is opened in a new browser window. Figure 1 shows a screen capture of an active Mars Mapserver session example.

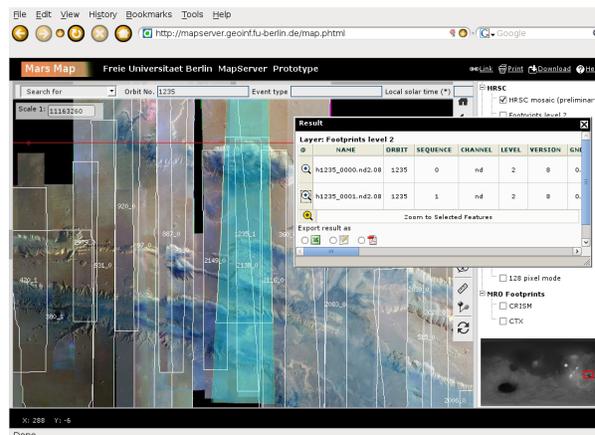


Figure 1: Screen capture of the Mars Mapserver prototype frontend

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### References

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