# Seismic Attribute Database for Selective Use of Seismic Attributes for a Given Application*

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## Introduction and Methodology

There is a variety of seismic attributes for different applications in seismic interpretation available. In scientific articles and software packages one and the same attributes might come under different names. For seismic interpreters it is often difficult to keep track of the variety of seismic attributes. To solve that, a platform for finding the right attribute depending on the application is created.

The idea of the seismic attribute database (SADB) is already discussed in Amtmann et al. (2012a, 2012b) and Eichkitz et al. (2012). This idea is continued and further developed. The assembling of the SADB is rebuild and access to the SADB for other users is made possible. The assembling of the SADB is divided into three parts (see Figure 1).

The first part is the literature part. There scientific articles concerning seismic attributes are read and collected in a database by geoscientists. Geoscientists choose the relevant scientific papers to be in the SADB.

In the second part a seismic attribute classification scheme is developed and metadata of scientific articles are integrated. As an initial step for the classification of seismic attributes we decided to keep close to works by Taner (1994, 2001), and Chopra and Marfurt (2005, 2008). Our keyword system is based on two levels, termed main attribute level and minor attribute level. The main attribute level consists of eleven main classes. The minor attribute level consists of 161 attribute classes and 29 application classes. The scientific articles are classified by this keyword system. Furthermore the keyword system is associated with the attribute classes from different commercial software packages, because often different names for the same attributes are used.

The third part is an online platform of seismic attributes, which is divided into two search windows (see Figure 2). The general search window and the expert search window. In the general search window words or phrases within the whole database can be queried with some restriction options. In the expert search window the classification scheme of seismic attributes is displayed as a tree chart. Multiple attributes classes and application classes can be selected. These selections are used for querying the database. As result of all queries of both windows a literature list

of scientific articles containing these classes is generated. Each hit is linked with the official journal's website and references can be exported as XML file format (*.xml). Additionally, one commercial software package can be selected and the seismic attribute classes in the tree chart are highlighted depending on the availability in the software package. Also the attribute name used in the commercial software package is displayed next to the highlighted attribute class.

## Conclusion

At the moment the platform contains 1000 literature links of 65 different journals and from 55 different conferences. These scientific papers are classified by eleven main classes, by 161 attribute classes, by 29 different application classes and by five different commercial software packages. The developed keyword system provides a quick and easy way to find suitable seismic attributes for a given application. In the future it is planned to integrate a glossary of the seismic attribute classes together with the key scientific articles.

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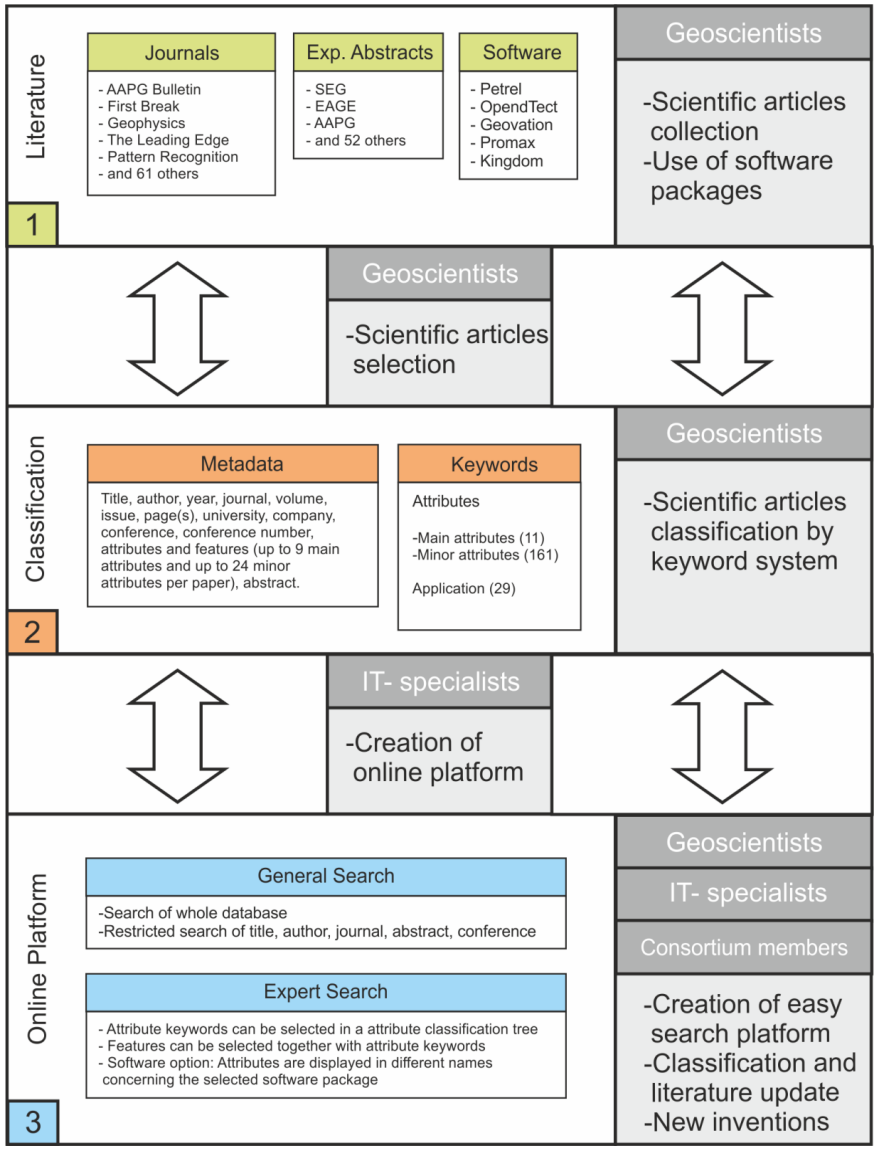


Figure 1. Assembling the seismic attribute database. The assembling is divided into three parts: The literature part (green), the classification part (orange) and the online platform part (blue). The first part includes a literature study and a detailed study on attributes available in commercial software packages. In the second part all papers are classified using a classification scheme of eleven main attribute classes and 161 minor attribute classes and 29 application classes. In this step also metadata (e.g. title, author(s), year of publication, journal, …) is fed into the database. And finally in the third part the online platform is built.

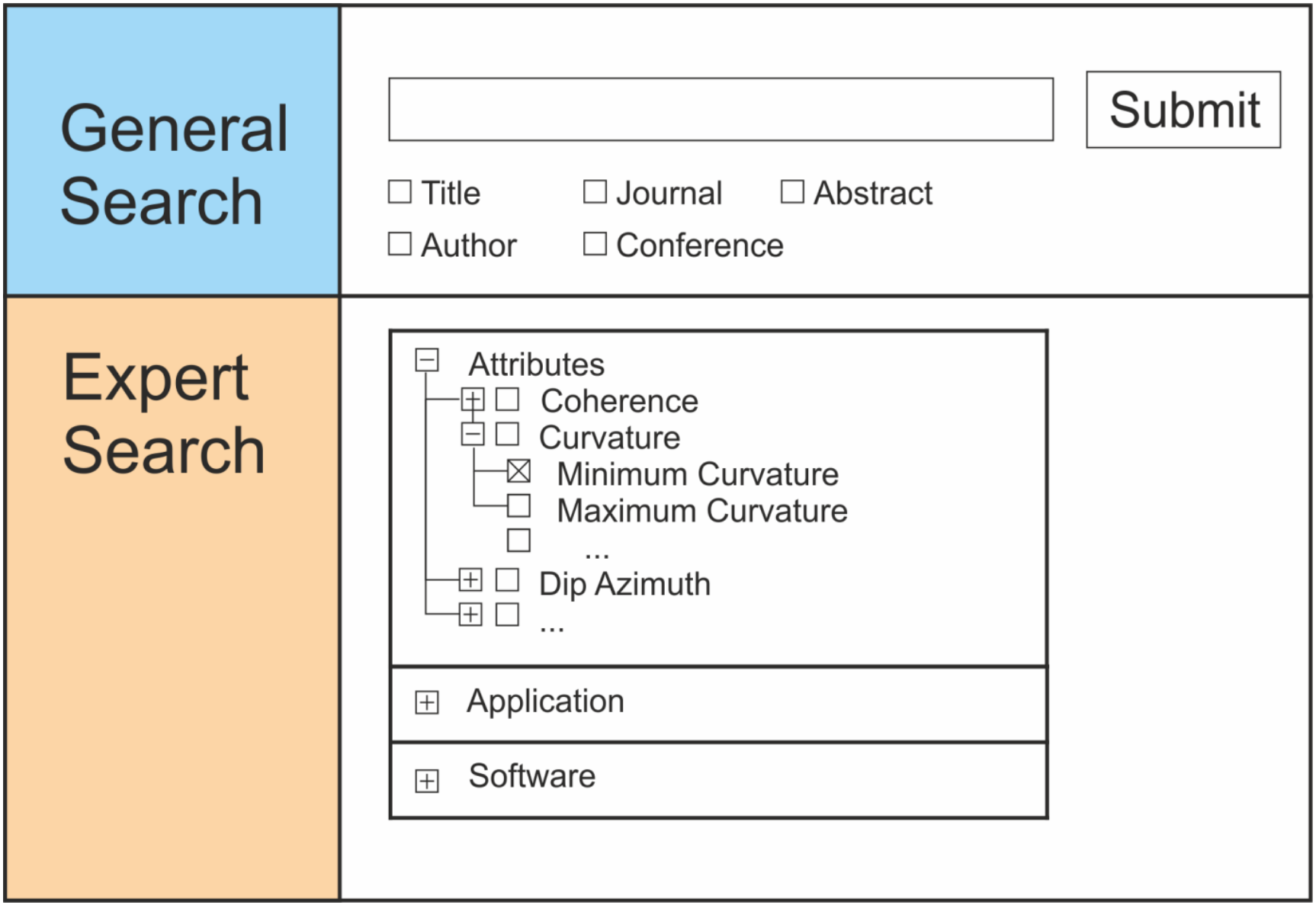


Figure 2. Online platform of seismic attribute database. The online platform is divided into two windows, the general search window and the expert search window. In the general search window words or phrases within the whole database can be queried with some restriction options. In the expert search window the classification scheme of seismic attributes is displayed as a tree chart. Multiple attributes classes and application classes can be selected. These selections are used for querying the database.