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# SpaceGL: An Indian Portal for Space Science Grey Literature

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**ABSTRACT**

This paper aims to present an experimental prototype model developed using DSpace for the design of a web portal which provides access to space science grey literature. Grey literature is that which is not readily available as other information and which is difficult to identify and access. The system is based on open source software (Java SDK, Apache, Tomcat, Apache Ant, PostgreSQL, and Dspace). SpaceGL is an important and ground-breaking example of an alternative method of delivering current research results to many potential users. It can act as a central hub which collects and disseminates space science grey literature produced in India through a single user interface. It can also be a showcase which provides continuously updated information on space science-related projects, initiatives, and events etc. produced in India. This experience shows that development of institutional repository system (SpaceGL) resting on open source software, framework and application program interfaces could lead to impressive results, in a short amount of time and with minimum of investment. In spite of being a prototype model, the SpaceGL aims to benefit from nation wide exposure on full-fledged development.

**Keywords**: SpaceGL, Dspace, space science, portal, digital library, electronic archive, grey literature

## 1. INTRODUCTION

Grey literature is generally considered as an important source of up-to-date scientific findings by many authorities. At the same time it is relatively difficult to locate and even more difficult to access. Thus, it may be supposed that all bodies funding research and development should eagerly support tools increasing the accessibility of grey literature to reduce the probability of 'reinventing the wheel' and to improve the efficiency of invested public assets**.** A range of important types of grey literature has no legislative support and, thus, their accessibility is only dependent on the willingness of individual institutions and their awareness of the utility of cooperation among institutions[1]. Scientists and researchers find information hidden in the form of grey literature quite useful, but this information is neither easily available nor easy to identify or access, keeping this aspect in view a conceptual prototype model using DSpace software has been developed for the design of a web portal of space science grey literature in India. This paper enlightens the model with its potential services and features.

## 2. BACKGROUND

The emergence of digital collections and the increasing amount of digital grey literature challenges the library's ability to consistently collect information using our traditional tests and tools. Some of the standard criteria of authority and relevance to the institution's mission remain critical. Other standards such as longevity and access are more problematic to apply. One challenge is the lack of consensus among librarians on a definition of grey literature. Another is the failure of collection policies to adequately address grey literature, especially in the light of digital environment. Addressing both challenges is essential to move forward with collecting digital grey literature in a coherent fashion within the institution[2].

## 3. OBJECTIVES

- To ensure long term preservation of space science grey literature
- To make space science grey literature easily accessible

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- To provide value added service to the space science community
- To allow space science community to locate information about conference proceedings, workshops, talks, presentations, etc.
- To create central database of space science grey literature
- To develop a mechanism for electronic distribution of grey literature
- To serve as a finding aid for key information pertaining to the space science
- To develop a digital library of space science grey literature
- To create a nonprofit service in the interests of space science community

## 4. SCOPE

SpaceGL: An Indian portal for space science grey literature, is a prototype conceptual model for the design of a web portal which provides access to space science grey literature. It is hoped that model acts as a central hub for holding records of space science grey literature from all geographic regions in India.

### 4.1 SpaceGL on Dspace

Dspace is digital asset management software jointly developed by Hewlett-Packard and MIT Libraries, and it is arguably one of the appreciated open source software deployed worldwide for building digital institutional repositories that captures, stores, indexes, preserves, and redistributes content in digital formats. DSpace provides the institutions and universities operate an open access and interoperable institutional repository at the local level. It is also intended to serve as a repository back up for future development to address long-term preservation and remote/online access issues. The system was launched during late 2002 as a live service hosted by MIT Libraries, and the source code made publicly available according to the terms of the BSD open source license, with the intention of encouraging the formation of an open source community around Dspace[3] .

### 4.2 Features of SpaceGL

SpaceGL is a prototype model to to provide uniform access to grey literatures (conferences, symposiums, talks, etc.), providing continuously updated information on space science related projects, initiatives and events, etc., going on and documented in India. The important features of SpaceGL are:

- Can be accessed from intranet and internet
- Supports online registration of remote and local user
- Grey literatures can be archived by the submitters (faculties, student, etc.) from any where and any time against password authentication
- All types of grey literature can be archived at one place in SpaceGL (Fig. 1)
- Supports interactive integration of grey literature from multiple sources
- Allows user to locate grey literature through a single user interface
- Provides services to support the submission, description, searching, browsing, access, preservation and visualisation of these documents

### 4.3 Functions of SpaceGL

There are three web-user interfaces in SpaceGL: Collection and user Management, Submission interface, and Search and Browse. All documents and material on SpaceGL are organised in collections. Collections can be organized in trees, which can be created for different types of grey literature like Conference papers, Seminar etc. SpaceGL Team Manager is responsible for the local customisation of the system and administration of users, i.e. he/she can register users and assign specific rights to them. Responsibilities and user roles are defined on the collection level.

Documents are entered via a step-by-step process or single form submission interface which guides depositors through the process and offers extensive documentation of metadata fields in the help texts. Files can also be uploaded with structured metadata. The different user roles have different interfaces and visibility of administrative metadata depends on the level of rights in the system.

Different types of space science grey literature, i.e., colloquiums, symposiums, talks, conference papers, seminars, etc. are provided, as shown in the collections and communities page in Fig. 2.

The third interface allows user to search and browse either on a general subject level or on a specific one. There are three types of searches available, quick search, 'full-text search' and 'advanced search' which allows a combination of various different search terms to exploit the full potential of the underlying metadata model (Fig. 3).

The main entry point for getting an overview on records deposited on SpaceGL is by browsing through collections or by browsing through the alphabetic lists of authors. One can browse by date, subject, author or scientific domain, while the search is operating on titles, authors, sponsors, subjects, handles and abstracts. (Figs. 4-6).


**Figure 1. Home page of SpaceGL.**


**Figure 2. Collections and communities.**


**Figure 3. Advanced search.**


**Figure 4. Browsing interface by title.**


**Figure 5. Browsing interface by author.**


**Figure 6. Browsing interface by subject.**

## 5. CONCLUSIONS AND FUTURE WORK

As grey literature carries valuable information which is a vital component of growth of scientific knowledge, particularly in developing countries like India, the Portal would act as a central hub for preservation, organisation and dissemination of space science grey literature.

It has been devised to provide expeditious access to grey literatures in various fields of space science and has been tailored keeping in view the information needs of space science community. In future on comprehensive development it would act as a distributed knowledge discovery tool for space science community to enhance their research productivity. With a multilingual user

interface it aims at improving the global visibility and accessibility of Indian grey literature.

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