# ISDAT Programmers Guide
# 5. Libraries

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# Contents

# 1 Introduction

## 1.1 Purpose of the document

The purpose of this document is to provide the information needed to write libraries for the scientific analysis to be implemented in the ISDAT system. The document is intended for the programmer. A general introduction to the ISDAT is given in [Ref. 1]. An overview of documents related to coding and general guidelines are given in [Ref. 2].

## 1.2 Scope of the software

The scope of the ISDAT scientific libraries are to provide tools to facilitate the scientific analysis of the ISDAT clients.

## 1.3 Definitions and acronyms

| Acronym | Meaning |
|---|---|
| DBH | Data Base Handler |
| ISDAT | Interactive Science Data Analysis Tool |
| N/A | Not Applicable |
| TBD | To Be defined |
| TBW | To Be Written |

# 2 Scientific library functions

All experimental data related information should be available via *DbGetData* calls to the DBH. Libraries should take care of needed information not depending on the measured data, and also provide scientific processing tools of general character. Examples of such functions are;

- Time series analysis tools (FFT etc)
- Magnetic field models
- Platform position[1]
- Platform attitude[2]
- Orbit number computations.
- Time conversions.
- Coordinate transformations.

[1] The platform position computations may also reside in the DBH depending on project
[2] The attitude computations may also reside in the DBH depending on project

# 3 Library coding

There is nothing that singles out library coding from client coding. However, it is particularly important that:

- No print statements are included in the library.
- Error codes are always communicated to the calling process.
- A call ErrorCode2String() is included in the library.
- The library never exits to the operating system.
- It is always assumed that the calling process communicates erraneous arguments.
- All controlling data is communicated via arguments.
- Structures are used to minimize the number of arguments.
- All declarations and defines are collected in a (include) Lib.h file.
- Unique define names are used.
- Manual pages are available and updated.
- The library updates are backwards compatible.

### 3.0.1 Documentation

[to be written]

### 3.0.2 Installation

[to be written]

## References

[1] G. Holmgren and A. Lundgren. ISDAT interactive scientific analysis tool. an introduction. Technical report, IRF-U, February 1994.

[2] A. Lundgren and G. Holmgren. ISDAT programmers guide. 1. overview and general guidelines. Technical report, IRF-U, February 1994.

# A Source code list

## A.1 File Imakefile

```
[to be written]
```