

NEA Data Bank Report to the NRDC, Vienna, 18-20 May 1999

Introduction

Following the departure of Marek Konieczny from the Data Bank's staff in July 1998, the post was filled by Ali Nouri in January 1999. His efforts are concentrated on the compilation of the new JEFF-3 library and on the preparation of JEF-2.2 summary documentation.

Experimental (EXFOR) and Bibliographic (CINDA) data compilation

A total of 52 EXFOR entries for neutron induced experiments, were compiled and transmitted to the other data centres in 1998. Forty-four (44) of these entries concerned new experiments, whereas 8 were corrections of old entries.

More than 900 new entries were compiled into the CINDA database in 1998.

A version of the CINDA database has been made available on CD-ROM by the Data Bank to members of the Network of Reaction Data Centres (NRDC). Feedback is expected in May 1999 at the NRDC meeting, prior to the product being released generally later in 1999.

Intermediate Energy Nuclear Data (IEND) for EXFOR

In 1998, the Data Bank compiled 160 new data sets from charged particle induced experiments into the EXFOR database due to increased efforts to compile data for the Intermediate Energy community.

The Joint Evaluated Fission and Fusion Project (JEFF)

Detailed documentation for the JEF-2.2 library is in final preparation. This documentation comprises historical information, the sources of data in the file, a complete report on the accuracy of JEF2.2 for a variety of applications (thermal and fast reactors, criticality, shielding...) and the list of feedback. The required improvements as resulting from benchmarking studies will also be highlighted. The full documentation will be assembled by the end of May 1999 and the final publication is foreseen for September 1999.

Some revisions were made to the initial selection of JEFF-3.0 reflecting the results of recent benchmarking studies or evaluation work. This selection is now completed for the starter file and the loading will be done before the end of May 1999. Efforts were made to investigate and to correct the errors found in the evaluations. Some format errors as those found by the CHECKR code call for straightforward corrective actions and this will be done before June 1999. Other errors are more difficult to handle and it was decided to prioritise the actions in order to meet the full corrections for the most important nuclides or elements before the end of June 1999. The processing of new evaluations using NJOY is part of the QA procedure and work is in progress to generate a 15-group library ready to be employed for initial benchmarking tests in conjunction with the sensitivity analysis made at Cadarache. This work is planned during summer 1999 and possible feedback will be incorporated to the file before its release in September 1999 for more in-depth benchmarking studies.

A new working group was created within the JEFF project devoted to the generation of covariance matrices. This working group will investigate the different methods for covariance data generation and produce data for specific nuclides for inclusion in JEFF-3.

In 1999 work will focus on;

- Corrective actions to the remaining errors in the file.
- Extensive processing of JEFF-3.0 using NJOY for the production of application libraries.
- Benchmarking studies.

Extensions are planned to:

- Incorporate intermediate energy (150 MeV) cross sections for the most important nuclides,
- Assemble special purpose files (Neutron Induced Fission Products Data and Radioactive Decay Data) with the development of corresponding QA procedures.
- Finalise on-going evaluation work and update the file; a new version is foreseen for the end of 2000.

JEF-PC program

OECD sales statistics show that 204 new users use JEF-PC, while 128 updates were sold during 1998.

The plans for further development of the JEF-PC program in order to add new features (for instance, possibilities for plotting angular and energy distributions) face the problem of software architecture. Different consultations of independent software specialists conclude the need for the code to be re-structured, including the choice of a more appropriate language, prior to any addition. The possibility of developing a Windows, or even a platform-independent version, was studied and is under review along with the encouraging results obtained during the development of the online plotting capabilities for EXFOR.

Services to Nuclear Data Users

The Data Bank answered 65 manual data requests in 1998. Most of these (50) were for copies of the JENDL-3.2 CD-ROM made available to the Data Bank by JAERI for distribution to member countries. The number of manual requests continues to decrease as the online service improves and more users become registered for direct data downloads.

The number of on-line accesses registered in 1998 was more than 10 thousand. More than 3.7 Gigabytes of data were retrieved.

As all the JEF and EFF documents are now accessible through the web to the JEFF members, manual requests of documentation for this project were re-directed to on-line accesses. As the number of documents is becoming very large (about 800 for JEF and 700 for EFF), it is planned to add the Character Recognition feature to the already scanned document enabling an automatic search capability to be performed on the entire body text of the documents. Nearly all new documents are received electronically, which allows direct conversion to pdf format and Web availability, hence avoiding the cost and delay of scanning documents.