NEA Data Bank

Progress Report 2010-2011

NRDC meeting, Vienna, Austria

23 - 24 May 2011

1. General

The OECD NEA Data Bank provides scientist in member countries with reference materials in the field of nuclear energy applications. The services include the compilation, verification, and distribution of nuclear data, chemical thermodynamic data, integral benchmark experiments, as well as computer programs and associated application libraries. The Data Bank also develops and maintains databases and related administration/retrieval tools, including the JANIS display software. The Data Bank works in close co-operation with the Nuclear Science Section, especially in the field of computer codes and associated application libraries benchmarking, integral experiments, nuclear data evaluation co-operation, and knowledge preservation. These activities are in essence international and organised in close collaboration with other main national and international organisations.

More information on the NEA Data Bank can be found at www.oecd-nea.org/databank.

2. Organisation

The Data Bank is governed by the Data Bank Executive Group of the Nuclear Science Committee (NSC), one of the seven standing technical committees working under the supervision of the Steering Committee for Nuclear Energy, which is the governing body of the NEA.

Following the large turnover in 2009-2010, when five out of nine professional staff left the Data Bank (H. Henriksson, P. Nagel, E. Sartori, A. Hasegawa, Y. Rugama), the situation has gradually improved with the replacement of four of them in the last years:

Emmeric Dupont replaced Hans Henriksson in September 2009,
Jim Gulliford replaced Enrico Sartori in January 2010,
Franco Michel-Sendis replaced Yolanda Rugama in September 2010,
Kiyoshi Matsumoto replaced Akira Hasegawa in May 2011 as Head of the NEA Data Bank.

In addition, Jim Gulliford has been appointed Deputy Head of the Data Bank and Head of the Nuclear Science Section, following the retirement of Claes Nordborg in April 2011.

3. Nuclear Data Services

The Data Bank maintains large databases containing bibliographic, experimental and evaluated nuclear data and makes them available online to scientists and engineers in member countries. Other important nuclear data related activities of the Data Bank are the coordination of the Joint Evaluated Fission and Fusion (JEFF) file project and the development of the JANIS software, designed to facilitate the visualisation, comparison, and manipulation of nuclear data.

More information on Nuclear Data Services can be found at www.oecd-nea.org/dbdata.

3.1 Experimental data compilation

The Data Bank compilation of measured neutron and charged particle induced reaction data continues with the help of external consultants with special efforts to check the content of the database and retransmit corrected entries.

Neutron induced data

In 2010, 49 new and 217 updated entries were compiled by the Data Bank for area 2. In the first months of 2011, the corresponding figures are 2 new and 75 revised entries.

Charged particle induced data

In 2010, the Data Bank compiled 78 new entries and updated 52 others for area O. The corresponding figures for the first months of 2011 are 46 new and 19 corrected entries.

3.2 Bibliographic data compilation

As discussed during the NRDC2010 meeting (see NEADB progress report and conclusion C13 of INDC(NDS)-0573) and approved by the NEA Nuclear Science Committee Executive Group in June 2010, it was decided to stop manual compilation of CINDA entries at the NEA Data Bank.

3.3 The JEFF project

Following the adoption by the nuclear industry of the latest version of the Joint Evaluated Fission and Fusion nuclear data library (JEFF-3.1.1), it was decided to continue the efforts to further improve the data by developing a JEFF-3.2 version, which should preserve JEFF-3.1.1 performance and responds to additional users' needs for both fission and fusion applications, e.g. covariance data, photon production. A first test file, JEFF-3.2T1, was assembled in March 2011 as a first step toward JEFF-3.2, which should be released by mid-2013.

The NEA Data Bank produced a JANIS-Book to compare JEFF-3.2T1 data with other evaluated and experimental data. This first JANIS-Book includes a comparison of about 6000 total reaction channel cross-sections from JEFF-3.2T1 with JEFF-3.1.1, ENDF/B-VII.0, JENDL-4.0, EAF-2010, TENDL-2009 and EXFOR data. This comparison will help assess the overall quality of JEFF-3.2T1 data and serve as guidance for JEFF-3.2 selection, in complement to integral validation. The JEFF-3.2T1 JANIS-Book is available as JEF/DOC-1370 (on request).

3.4 The JANIS software

The JANIS 3.2 version allows the user to access all recent major evaluated libraries (e.g. JEFF, ENDF/B, JENDL, EAF, CENDL, BROND) and contains new features to display data uncertainties and their correlation in both ENDF and NJOY formats. JANIS 3.2 is accessible online and on DVD together with its main databases. More information on JANIS can be found at www.oecd-nea.org/janis.

The Data Bank also develops in-house codes to help check the correctness of EXFOR data (see WP2011-17,18,24,25). The JANIS Trans checker (www.oecd-nea.org/janis/trans-checker) periodically checks if new preliminary EXFOR TRANS files are uploaded to the NDS folder and provides compilers with an on-line log file containing error(s) and warning(s) to allow correction of format errors at an early stage. A new version of the JANIS Trans checker was recently made available for insertion into the EXFOR-Editor developed at VNIIEF (see WP2011-37).

3.5 Web services to nuclear data users

The nuclear data services are provided through direct on-line access to CINDA, EXFOR, and EVA databases containing bibliographic, experimental, and evaluated nuclear data respectively. These databases are also available through the JANIS software. The statistics for these services are given in the following table. Find out more about Data Bank databases at www.oecd-nea.org/dbdata/databases.htm.

	Number of Visits		
	2010	**2009**	**2008**
Computer Programs	136028	210872	270826
Abstracts	78173	145010	202077
Web Pages	57034	64667	67648
Program Retrievals	821	1195	1101
Nuclear Science	113238	122055	112604
Nuclear Data	47951	49331	48653
Janis (web+soft)	70542	53803	48815
Searches	17709	15027	14786
Eva Search	13018	10190	9085
EXFOR Search	2982	2837	3550
CINDA Search	1709	2000	2151
TDB	11677	12011	15927
Other Databases	4350	4498	4962
HPRL	1551	1268	1750
SFCOMPO	2373	2136	2102
RTFDB	426	1094	991