

**NEA Data Bank
Progress Report 2011-2012**

NRDC meeting, NEA Headquarters, Issy-les-Moulineaux, France

16 - 19 April 2012

1. General

The Data Bank (DB) of the OECD Nuclear Energy Agency (NEA) provides scientists 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 over the years until the replacement of all of them in 2012:

2009, September	Emmeric Dupont	replaced Hans Henriksson,
2010, January	Jim Gulliford	replaced Enrico Sartori,
2010; September	Franco Michel-Sendis	replaced Yolanda Rugama,
2011, May	Kiyoshi Matsumoto	replaced Akira Hasegawa as Head of the NEA DB,
2012, May	Andrea Ventura	will replace Pierre Nagel as IT-system manager of the DB.

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 continuous efforts to check the content of the database and retransmit corrected entries.

Neutron induced data (Area 2)

In 2011, 26 new and 105 updated entries were compiled by the Data Bank for area 2. In the first months of 2012, the corresponding figures are 23 new and 30 revised entries.

Charged particle induced data (Area O)

In 2011, the Data Bank compiled 93 new entries and updated 35 others for area O. The corresponding figures for the first months of 2012 are 36 new and 7 updated entries.

The following table shows more detailed statistics of recent NEA transmissions.

Year	Trans	Entry	
		New	Updated
2010	2218	11	10
	2219	4	4
	2220	8	4
	2221	7	9
	2222	0	33
	2223	16	14
	2224	3	18
	2225	0	125
	O041	78	22
	O042	0	30
	Total	127	269
2011	2226	2	76
	2227 ¹	1	18
	2228 ¹	23	11
	O043	0	11
	O044	46	8
	O045	0	13
	O046	47	3
		Total	119
2012 (1 st quarter)	2229 ¹	3	7
	2230 ¹	12	11
	2231 ²	8	12
	O047 ¹	36	7
		Total	59

¹ Status = PRELIM

² Status = to be submitted as PRELIM

3.2 Bibliographic data compilation

As discussed during the NRDC2010 meeting (see NEA DB 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

The Joint Evaluated Fission and Fusion (JEFF) library combines the efforts of the JEFF, European Fusion File (EFF) and European Activation File (EAF) Projects to produce a common set of evaluated nuclear data mainly for fission and fusion applications. The library contains a number of data types, including neutron and proton interaction data, radioactive decay data, fission yields and thermal scattering law data. The latest version of the JEFF library, JEFF-3.1.2, was released in February 2012. Updates include new hafnium evaluations and more complete gamma-production data for fission products in the General Purpose file. JEFF-3.1.2 data are available on the NEA website at www.oecd-nea.org/dbdata/jeff.

In the context of the preparation of the next major release of the library, JEFF-3.2, a first test library named JEFF-3.2T1 was issued in March 2011. The NEA Data Bank produced a JANIS Book to compare preliminary JEFF-3.2T1 data with other evaluated and experimental data in May 2011. 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 helped assess the overall quality of JEFF-3.2T1 data and will 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). A new JANIS Book is in preparation for charged-particle-induced reactions.

3.4 The JANIS software

The JANIS software allows the user to display and compare nuclear data from EXFOR and all recent major evaluated libraries (e.g. JEFF, ENDF/B, JENDL, EAF, CENDL, BROND). The new JANIS 3.3 version implements new features such as searches over ranges of nuclide Z and A numbers; the possibility to save plots in PDF format; display of the radioactive nuclide production index from the ENDF File 8; display of neutron and proton drip lines and automatic detection of the file format to open or import. It also includes improvements in ergonomics, memory usage and plot aspects. JANIS 3.3 is available online through Java Web Start technology since October 2011 and an updated version will be distributed on DVD in 2012 together with the new JEFF-3.1.2, ENDF/B-VII.1 and TENDL-2011 libraries. 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 (e.g. WP2012-25,26,34). These codes are based on the JANIS software and use EXFOR dictionaries (see WP2012-13). They are used at the Data Bank to peer review EXFOR files submitted to NRDC as well as the EXFOR Master file shared among Data Centres. 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 WP2012-39).

3.5 Web services to nuclear data users

The nuclear data services are provided through direct on-line access to NEA databases, which are also available through the JANIS software. The statistics for these services are given in the following table and graph. Find out more about Data Bank databases at www.oecd-nea.org/dbdata/databases.htm.

Number of visits to the NEA web site

	Number of Visits		
	2011	2010	2009
Computer Programs	111 922	136 028	210 872
Abstracts	57 262	78 173	145 010
Web Pages	53 394	57 034	64 667
Program Retrievals	1 266	821	1 195
Nuclear Science	124 419	113 238	122 055
Nuclear Data	47 724	47 951	49 331
Janis (web+soft)	84 873	70 542	53 803
Searches	15 080	17 709	15 027
Eva Search	11 430	13 018	10 190
EXFOR Search	2 429	2 982	2 837
CINDA Search	1 221	1 709	2 000
Thermochemical database (TDB)	14 039	11 677	12 011
Other Databases	7 238	4 350	4 498
HPRL	1 679	1 551	1 268
SFCOMPO	4 867	2 373	2 136
RTFDB	692	426	1 094

Number of requests in the JANIS database

