NEA Data Bank

Progress Report 2013-2014

NRDC Meeting, Smolenice, Slovakia
May 6-9, 2014

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 staffs work in close co-operation with the secretaries of the Nuclear Science (NS) Working Parties (WP), especially in the field of computer codes and libraries benchmarking, integral experiments, nuclear data evaluation, 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's current membership consists of 24 countries in Europe, North America (Mexico) and the Asia-Pacific region.

The Data Bank is governed by the 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.

The Data Bank is composed of 18 staffs working on both Data Bank and Nuclear Science related activities (plus additional NEA related activities when relevant). One full-time equivalent man-year is allocated to NRDC activities. One of the administrators (E. Dupont) in charge of nuclear data services will be leaving the NEA this summer after 5 years of services and will be replaced as soon as possible.

3. Nuclear Data Services

The Data Bank maintains large databases containing evaluated, experimental and bibliographic data and makes them available online to scientists and engineers in its 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. Continuous efforts are made to check the content of the database and retransmit corrected entries.

Neutron induced data (Area 2)

In 2013, 35 new and 223 updated entries were compiled by the Data Bank for area 2. In the first months of 2014, the corresponding figures are 19 new and 154 revised entries.

Charged particle induced data (Area O)

In 2013, the Data Bank compiled 69 new entries and updated another one for area O. The corresponding figures for the first months of 2014 are 49 new and 89 revised entries.

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

Year	Trans	Entry	
		New	Updated
2010	**Total**	**127**	**269**
2011	**Total**	**119**	**140**
2012	**Total**	**133**	**238**
2013	2233	15	10
	2234	0	196
	2235	15	8
	2236	5	9
	O050	69	1
	Total	**104**	**224**
2014 (1st quarter)	2237	8	4
	2238[1]	11	150
	O051	48	23
	O052[1]	1	66
	Total	**68**	**243**

3.2 JEFF project

The Joint Evaluated Fission and Fusion File (JEFF) project is a collaboration between NEA Data Bank member countries to produce common sets 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-3.2, was released in March 2014. JEFF-3.2 is a major update of the general purpose neutron library which contains, in particular, new evaluations of neutron data for actinides, more complete gamma production data and has been revised and expanded to include neutron data for 472 nuclides or elements. JEFF-3.2 data are available on the NEA website at www.oecd-nea.org/dbdata/jeff.

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[1] Status = PRELIM

3.3 JANIS software

The JANIS software allows the user to display and compare evaluated and experimental nuclear data from large international databases (e.g. JEFF, ENDF/B, JENDL, EAF, CENDL, BROND for evaluated data, and EXFOR for experimental data). A new version of JANIS was released online and on DVD in September 2013. JANIS 4 introduces a Web interface, as well as major new features to display fission yields on 2D colour maps, to plot, tabulate and compare user's data in simple text format, as well as the possibility to save and restore JANIS state (plot, table, settings, etc.). 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. These codes are based on the JANIS software and use EXFOR dictionaries. 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. A standalone version of the JANIS Trans checker is integrated into the EXFOR-Editor developed at VNIIEF and a Web version is available for online use at www.oecd-nea.org/janisweb/trans-checker.

In line with recommendations from WPEC Subgroup 30, new methods have been developed and implemented in Data Bank tools to cross-check experimental data (EXFOR) and evaluated data (e.g. JEFF) with the objective to further improve the quality of both databases.

3.4 Web services to nuclear data users

The online nuclear data services are now provided through direct access to the NEA databases taking advantage of the new Web interface of JANIS, which allows online browsing, searching and displaying nuclear data in a more user-friendly environment. The online services also include JANIS Books, comprehensive compilations of cross-section curves of experimental and evaluated data. JANIS Books are available for nuclear reactions induced by neutrons, photons and light-charged particles. Online Books are based on JANIS Web in order to allow the users to zoom in the plots, access complementary information and plot additional data. The statistics for online services are given in the following table and graph. Find out more about NEA nuclear databases at www.oecd-nea.org/dbdata/databases.htm.

Number of visits to the NEA web site for nuclear data related activities

	Number of Visits		
	2013	2012	2011
Nuclear Science	157 707	124 489	124 419
Nuclear Data	45 380	46 954	47 724
Janis (web+soft)	116 894	95 621	84 873
Searches			
EVA (Evaluated Files)[2]	11 218	15 936	11 430
EXFOR[2]	1 993	2 729	2 429
CINDA[2]	644	1 488	1 221
High Priority Request List	2 118	2 312	1 679

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[2] Access to the legacy web retrieval tools and databases were discontinued in the second half of 2013. Users are now redirected to JANIS Web and associated databases.

Number of requests per month to the JANIS database