

NEA/DB Progress Report

to the NRDC

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Akira Hasegawa, Hans Henriksson

With contributions from
Manuel Bossant, Pierre Nagel and Nicolas Soppera
OECD/NEA Data Bank

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 - ✓ Tools for the verification of EXFOR and CINDA

The NEA Data Bank 2007-2008

- ✓ Compilation of over **250 new EXFOR entries** of neutron and charged-particle induced data.
- ✓ Over **280 entries have been corrected** in 2008 for area 2 and O.
- ✓ **CINDA** database is now synchronised with IAEA/NDS and the **exchange** is re-established.
- ✓ New CINDA entries have been included and more are being prepared.
- ✓ WPEC Subgroup 25: "*Assessment of Fission Product Decay Data for Decay Heat Calculations*", published November 2007.
- ✓ WPEC Subgroup 26: "*Uncertainty and Target Accuracy Assessment for Innovative Systems Using Recent Covariance Data Evaluations*", published August 2008.
- ✓ The High Priority Request List, HPRL
 - ✓ 32 high priority, and 10 general requests. **31 new requests**, mainly SG26.
 - ✓ Pending requests regarding TAGS data (SG25)
 - ✓ More Japanese general requests submitted.

The NEA Data Bank 2007-2008 (2)

- **JANIS-3** was released in June 2007. An updated version was made available in February 2008. JANIS can be downloaded free of charge at www.nea.fr/janis/
- The **EVA** database contains a large number of evaluated nuclear data libraries. Nuclear data libraries recently added:
 - Proton activation data file (PADF-2007);
 - International reactor dosimetry file (IRDF-2002);
 - International cross-section standards.
 - Heavy elements and activation product decay data libraries (UKHEDD-2.6 and UKPADD-6.8 respectively)
- About 60 participants in the Joint Evaluated Fission and Fusion (**JEFF**) project met in November 2007 at the NEA and May 2008 in Aix-en-Provence.
- A new version of the JEFF radioactive decay data library, **JEFF-3.1.1/RDD**, was released in November 2007.

Training courses and workshops 2007-2008

- 26 November 2007, NJOY User Group Meeting, Issy-les-Moulineaux.
- 30 January - 1 February 2008, Course on Analytical Benchmarks (Case Studies in Neutron Transport Theory).
- 25-29 February 2008, Sensitivity and Uncertainty Analysis Training Course using SCALE TSUNAMI, Issy-les-Moulineaux.
- 7-11 April 2008, Training course on the MC code TRIPOLI-4.
- 12-16 May 2008, Introductory/intermediate MCNP/MCNPX training course, Lisbon
- 2-6 June 2008, REFIT-2007 Training course, EC-JRC-IRMM, Geel,
- 1-12 September 2008, Training course on EXperiment, Theory and Evaluation of Nuclear Data (EXTEND) held in Budapest. candide.nri.cz/extend.php.

Up-coming training courses and workshops

- 29 September - 3 October, Training Course on FLUKA, a fully integrated particle physics Monte Carlo simulation package, Issy-les-Moulineaux.
- 13 -17 October, Sensitivity and Uncertainty Analysis Training Course using SCALE TSUNAMI, KFKI Budapest.
- 27 - 31 October, Introductory/intermediate MCNP/MCNPX course, Garching.
- 18 November, Workshop on the Processing of Nuclear Data, Issy-les-Moulineaux.
- 21 November, NJOY User Group meeting, Issy-les-Moulineaux.
- 16 - 20 March 2009, Training course on Analytical Benchmarks: “Case Studies in Neutron Transport Theory”.
- 23 - 27 March 2009, MCNP6 Training course.

Working Party of international nuclear data Evaluation Co-operation (WPEC) Activities

- Subgroup C: *High Priority Nuclear Data Request List (HPRL)*
- Subgroup 25: *Assessment of fission product decay data for decay heat calculations (Final report printed Nov 2007)*
- Subgroup 26: *Nuclear data needs for advanced reactor systems (Report printed Aug 2008)*
- Subgroup 30: *Improvement of EXFOR accessibility and quality*
- Subgroup 31: *Meeting Nuclear Data Needs for Advanced Reactor Systems*, co-ordinator H. Harada,**
- Subgroup 32: *Unresolved resonance treatment for cross section and covariance representation*, co-ordinator L. Leal.**

EXFOR and CINDA compilations

EXFOR:

- ✓ 97 new EXFOR entries on neutron data compiled for Area 2 since NRDC 2007
- ✓ 160 new EXFOR entries compiled on charged-particle data for Area O since NRDC 2007
- ✓ Corrected subentries since last NRDC meeting:
280 entries with 1710 subentries

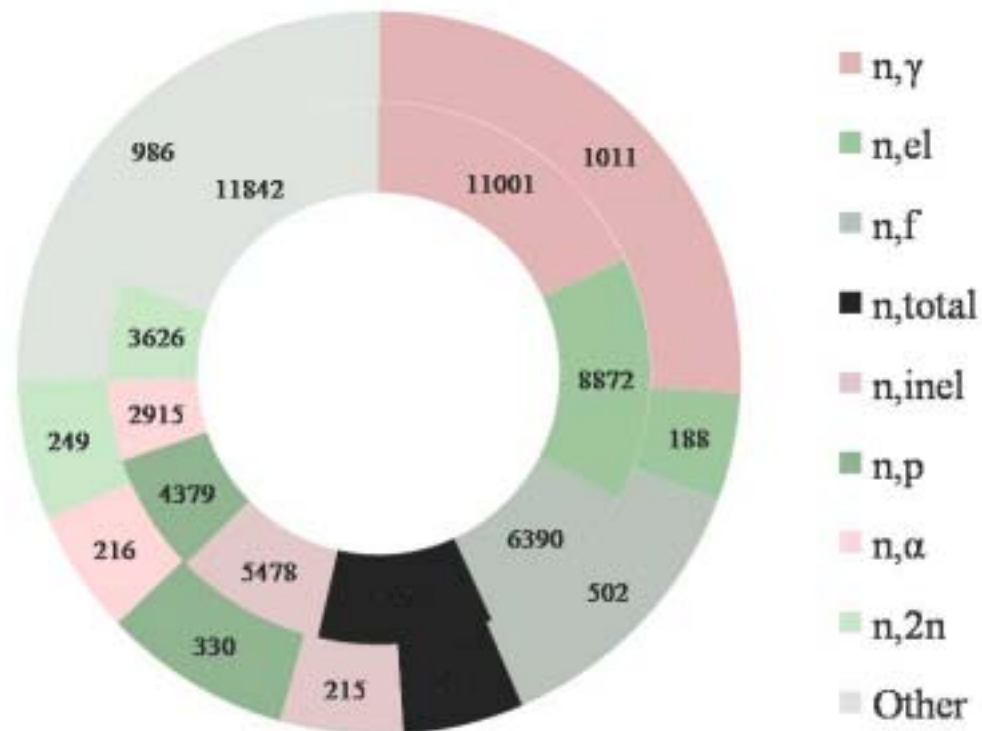
CINDA:

- ✓ Several new CINDA entries in preparation. Several data entries have been added in June and August 2008.
- ✓ More Japanese entries to be included soon.
- ✓ European entries will be included in the autumn.

EXFOR neutron induced data

Presented at the dosimetry conference in Alkmaar, ISRD-13:

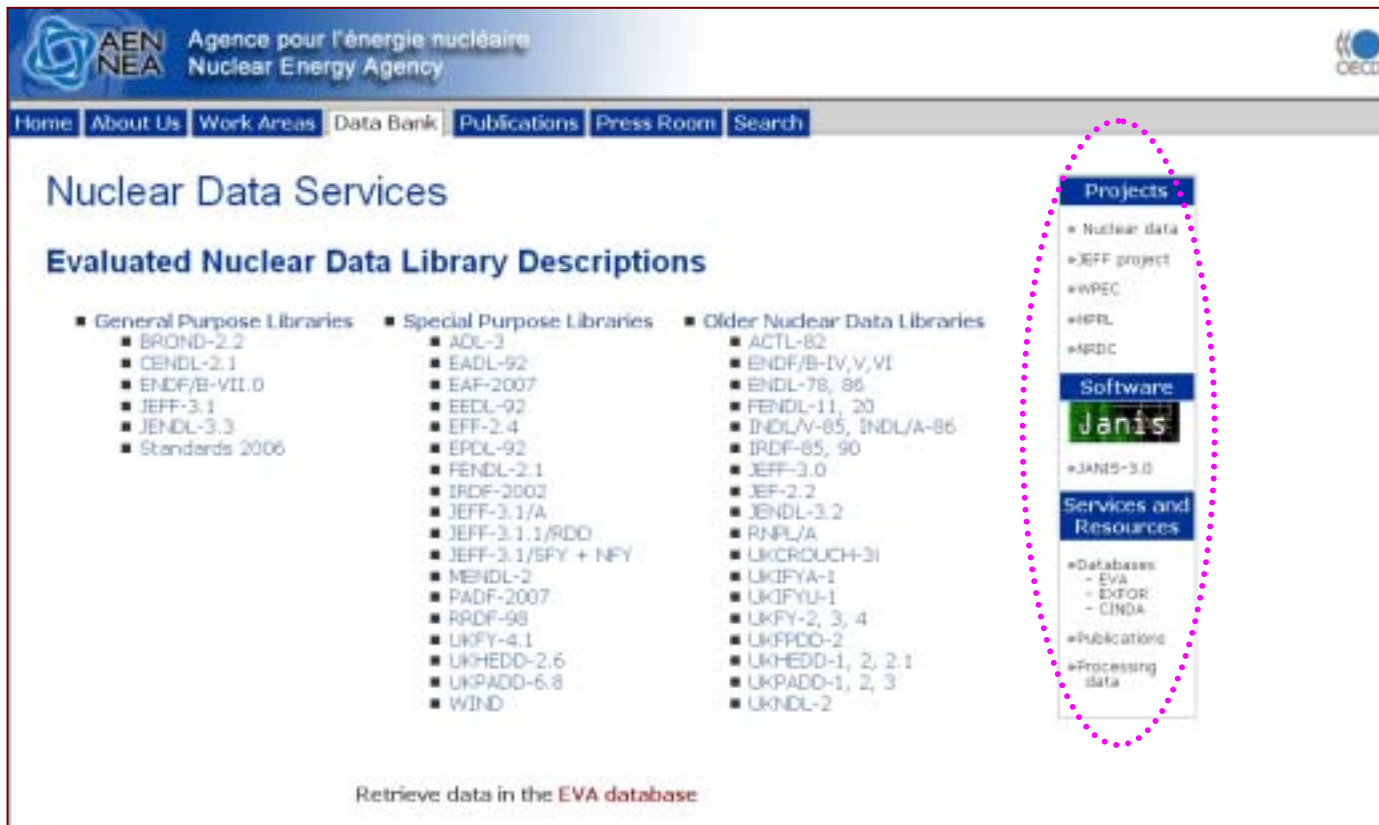
- ✓ There are about 61,000 neutron induced reactions available in EXFOR. Almost 16,000 of these were added since 2000.



Evaluated data in EVA

Evaluated data are collected at the NEA in the database EVA, accessible from the Web:

www.nea.fr/html/dbdata/eva



The screenshot shows the NEA Nuclear Data Services website. The main content area is titled "Evaluated Nuclear Data Library Descriptions" and is organized into three columns:

- General Purpose Libraries**
 - BROND-2.2
 - CENDL-2.1
 - ENDF/B-VII.0
 - JEFF-3.1
 - JENDL-3.3
 - Standards 2006
- Special Purpose Libraries**
 - ADL-3
 - EADL-92
 - EAF-2007
 - EEDL-92
 - EFF-2.4
 - EPDL-92
 - FENDL-2.1
 - IRDF-2002
 - JEFF-3.1/A
 - JEFF-3.1.1/RDD
 - JEFF-3.1/SPY + NFY
 - MENDL-2
 - PADF-2007
 - RRDF-98
 - UKFY-4.1
 - UKHEDD-2.6
 - UKPADD-6.8
 - WIND
- Older Nuclear Data Libraries**
 - ACTL-82
 - ENDF/B-IV, V, VI
 - ENDL-78, 86
 - FENDL-11, 20
 - INDL/V-85, INDL/A-86
 - IRDF-85, 90
 - JEFF-3.0
 - JEF-2.2
 - JENDL-3.2
 - RNFL/A
 - UKCROUCH-3i
 - UKFYA-1
 - UKIFYU-1
 - UKFY-2, 3, 4
 - UKPDD-2
 - UKHEDD-1, 2, 2.1
 - UKPADD-1, 2, 3
 - UKNDL-2

At the bottom of the main content area, there is a link: "Retrieve data in the EVA database".

The right sidebar contains a menu with the following items:

- Projects**
 - Nuclear data
 - JEFF project
 - WPEC
 - HPPL
 - ARDC
- Software**
 - Janis**
 - JANS-3.0
- Services and Resources**
 - Databases
 - EVA
 - EXFOR
 - CINDA
 - Publications
 - Processing data

Web retrievals

Statistics 2004-2007 of the NEA Data Bank

Service	2007	2006	2005
CINDA	1 852	1388	897
EVA Searches	7 410	8017	13 843
EXFOR Searches	10 712	11 563	13 368
EVA downloads	227 313	56 150	54 956
EXFOR downloads	22 761	18 698	13 694
JANIS	486 247	361 770	216 520
Web pages: NDS	165 602	139 471	121 060

The Joint Evaluated Fission and Fusion (JEFF) project

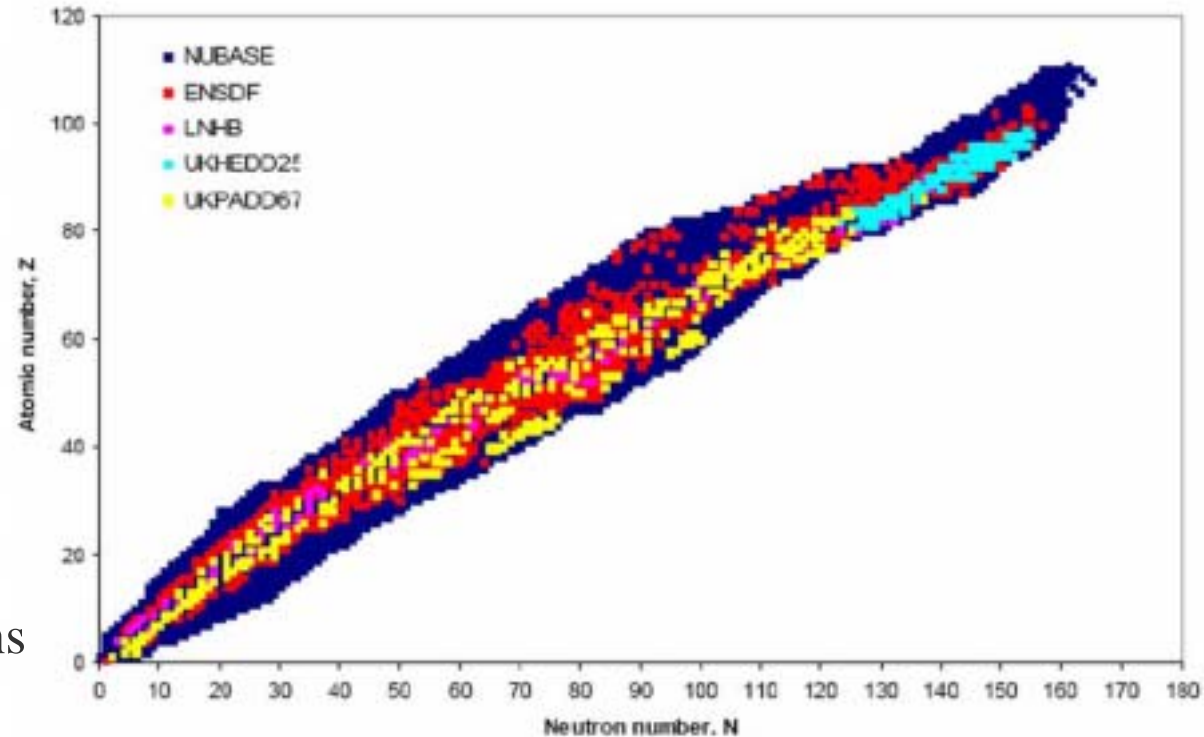
- Latest version, JEFF-3.1, released in May 2005.
- General purpose library: 381 isotopes with incident neutron data.
- Thermal scattering law data: 9 materials/moderators.
- Activation library based on EAF-2003:
 - 12,600 reactions on 774 targets up to 20 MeV.
- Radioactive decay data library:
 - 3852 nuclei, of which 226 are marked as stable.
- Spontaneous and neutron induced fission yields library:
 - JEFF-3.1/SFY, 19 isotopes from ^{232}Th to ^{245}Cm .
 - JEFF-3.1/NFY, 3 isotopes: ^{242}Cm , ^{244}Cm and ^{252}Cf .
- Proton library: **26** isotopes.
- Main reference: JEFF Report 21, *The JEFF-3.1 Nuclear Data Library*, OECD/NEA, Nov. 2006.

JEFF-3.1.1 Radioactive Decay Data Library

Released Nov 2007

Changes in nuclei:

- +59 from UKPADD-6.7
- -44 from NUBASE,
- -13 from ENSDF,
- -2 from LNHB
- Inclusion of TAGS data (Greenwood et al.) for ~ 25 nuclei
- U-238, nuclei $Z > 70$, Sr-89, Am-242 corrections from the feedback page



Report by end 2008

M. Kellett (IAEA)

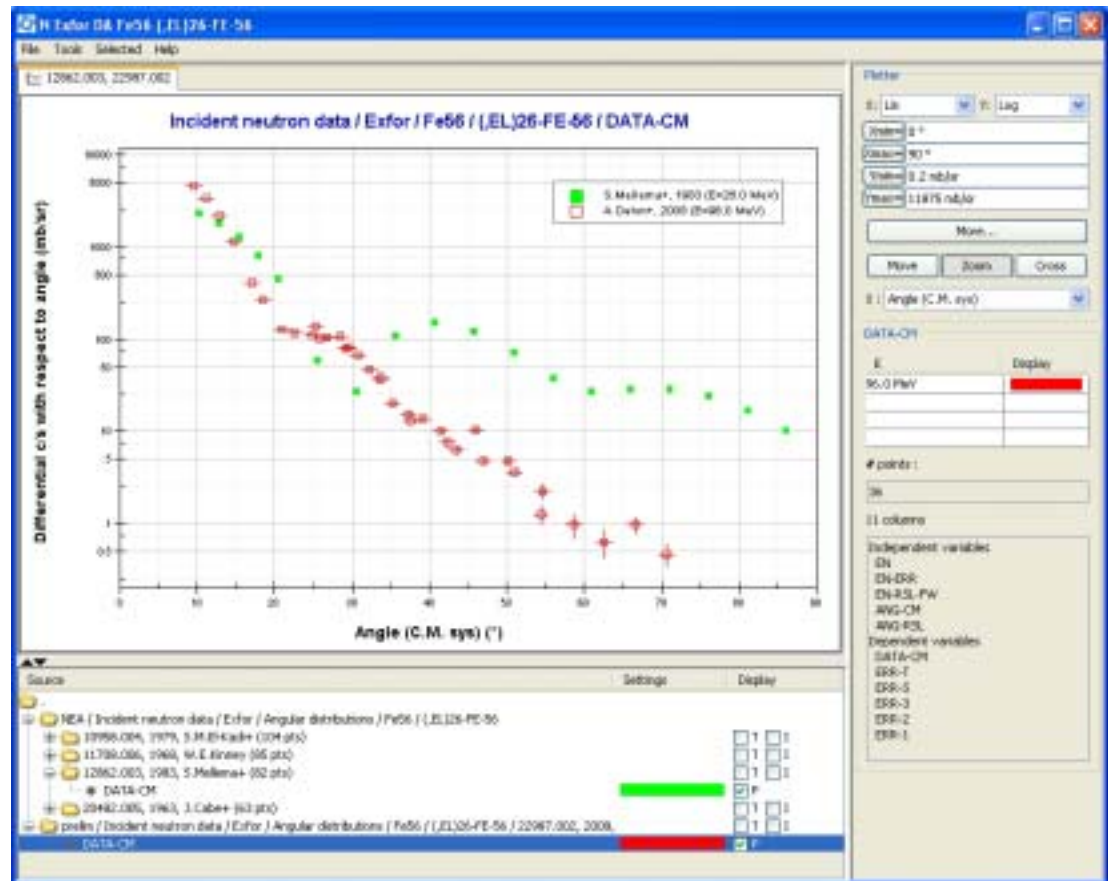
Corrected library release: JEFF-3.1.1

- ✓ Based on recent feedback on JEFF-3.1 such as:
 - ✓ Na-23: MF=4. The data is given in the wrong frame as LCT = 2 (Brown).
 - ✓ Ca-46: The total cross section (MF=3/MT=1) below 1 keV is zero, while the capture cross section is not zero; the total is not the sum of all cross sections (Sinitsa and Pescarini).
 - ✓ U-233: MF=5/MT=16,17,91 Q-value, threshold and spectra. A strict interpretation of the original spectra would lead to the generation of too many neutrons below 0.2 eV, jefdoc-1217 (Sublet).
 - ✓ Pu-239: Upper limit unresolved resonance range (Dupont).
- ✓ To be published in the end of 2008
(together with JEFF Report 22 publication)

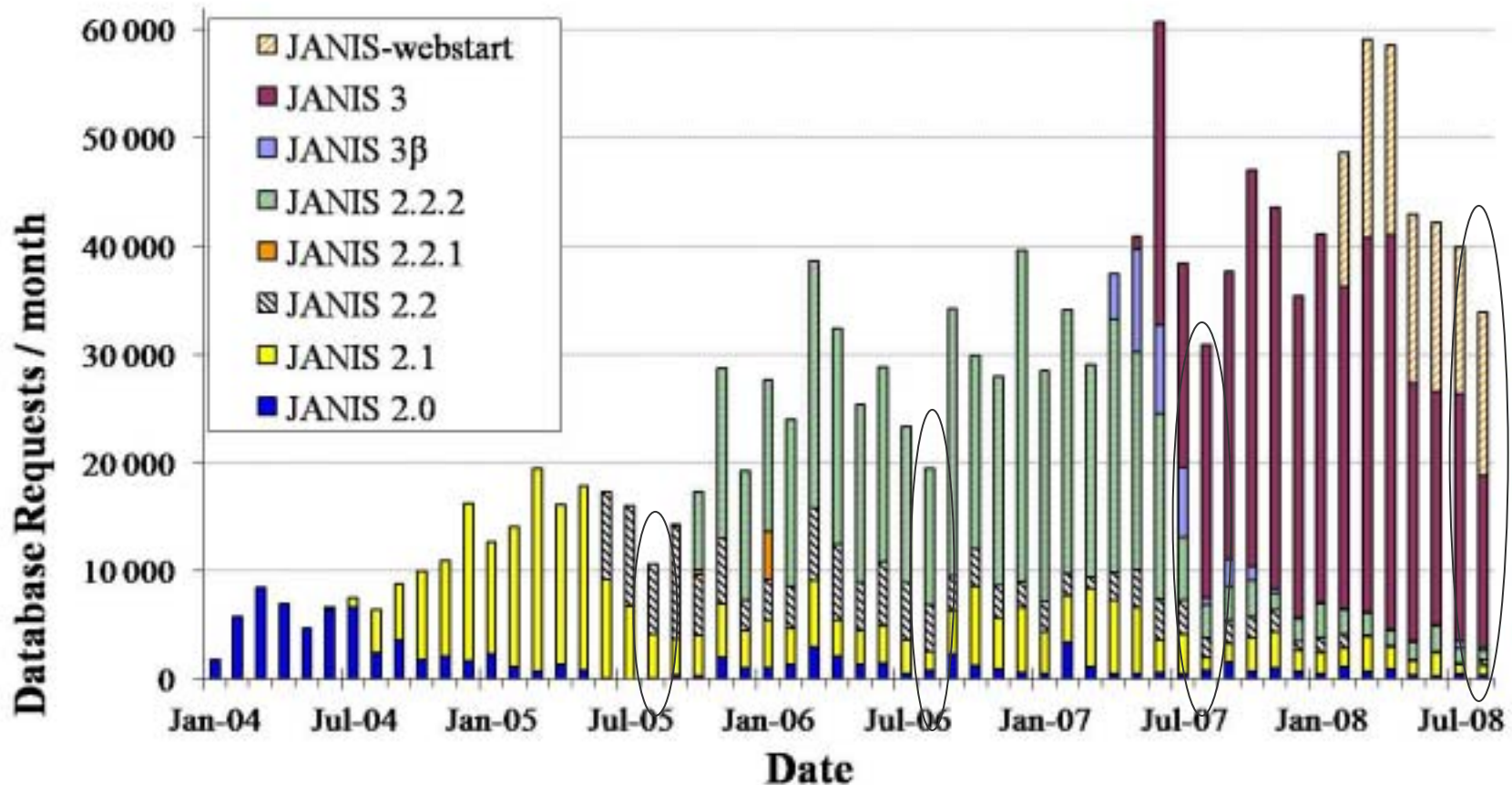


Newest version from February 2008

- ✓ Bug fixes regarding EXFOR format
- ✓ Improved plotting functionality
- ✓ Better export possibilities
- ✓ Extended EXFOR Search
- ✓ Still free download from www.nea.fr/janis (DVD on request)
- ✓ Further development:
 - ✓ Web application
 - ✓ Improved coverage of data such as photonuclear and covariances



Requests to the JANIS database



JANIS statistics, January 2004 – August 2008. Note, JANIS-webstart is the most recent version when launching the program on the web.