

NNDC Report FY2013

M. Herman
National Nuclear Data Center
Brookhaven National Laboratory
Nuclear Data Week, Nov. 18-20, 2013



U.S. DEPARTMENT OF
ENERGY

Office of
Science

International Conference on Nuclear Data for Science & Technology

New York, March 4-8, 2013

- **Statistics**
 - Participants ~450
 - Talks 349
 - Posters 126
 - 5+ parallel sessions
 - Submitted for proceedings 372
- Work continues on processing submitted contributions => considerable strain on NNDC staff

NNDC Personnel Status FY2013

Personnel changes: Yvette Malavet-Blum retired

FY2013

Staff	FTE	Heads	FTE-USNDP	FTE-NCSP
Permanent	7.79	8	7.60	0.19
Temporary	2	2	2	0.00
Professional	2.92	4	2.76	0.16
Contractors	1.95	8	1.95	0.00
Total	14.66	22	14.31	0.35

Dramatic drop in non-USNDP funding



USNDP covered scientific staff goes up from 6.68 to 9.60 FTE

FY2012

Staff	FTE	Heads	FTE-USNDP	FTE-ARRA	FTE-OTHER
Permanent	8.3	8	6.24	0.98	1.08
Temporary	2	2	0.44	1.18	0.38
Professional	3.57	4	3.57		
Contractors	2.7	10	2.7		
Total	16.57	24	12.95	2.16	1.46

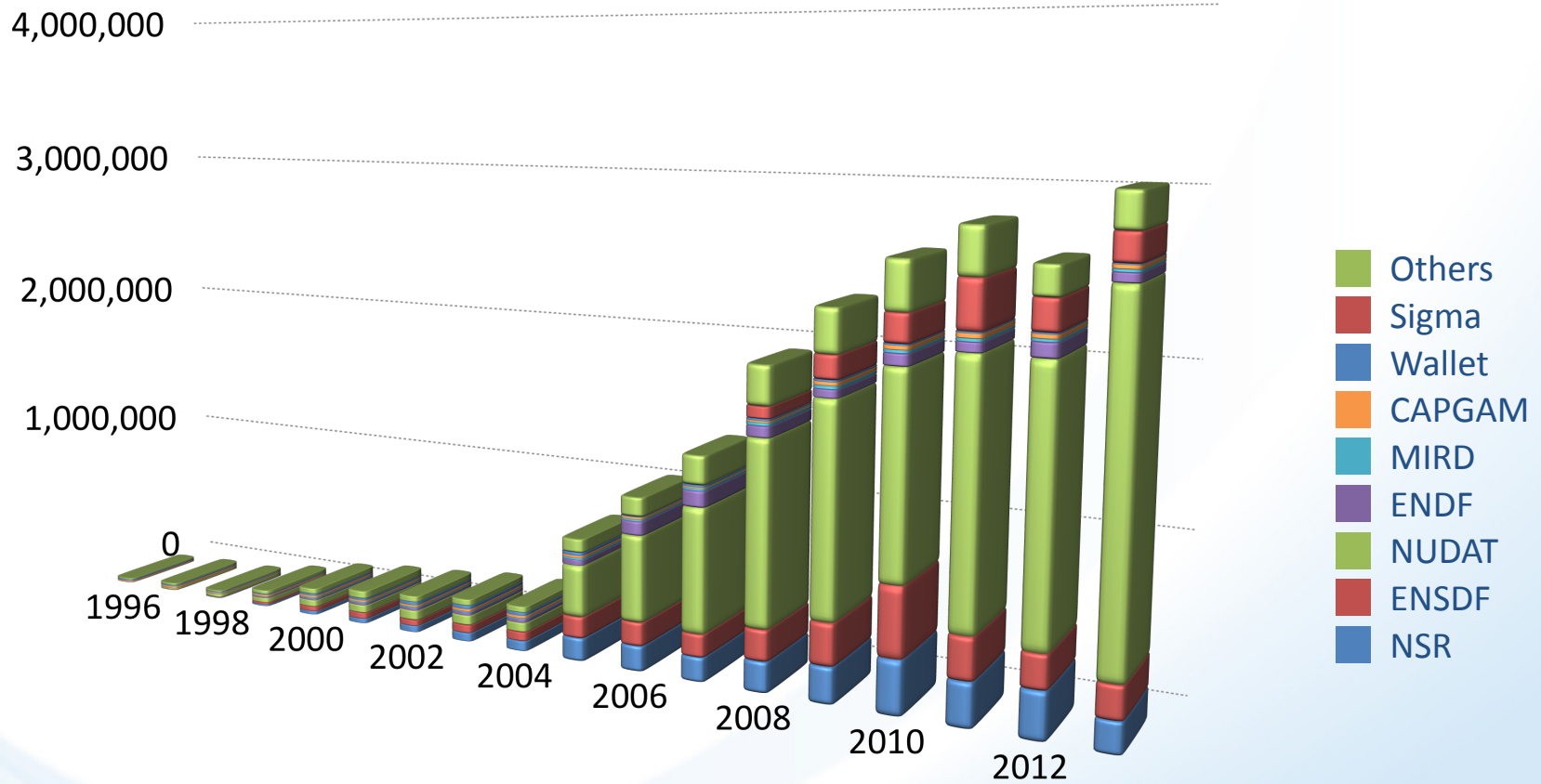
Coordination and reporting

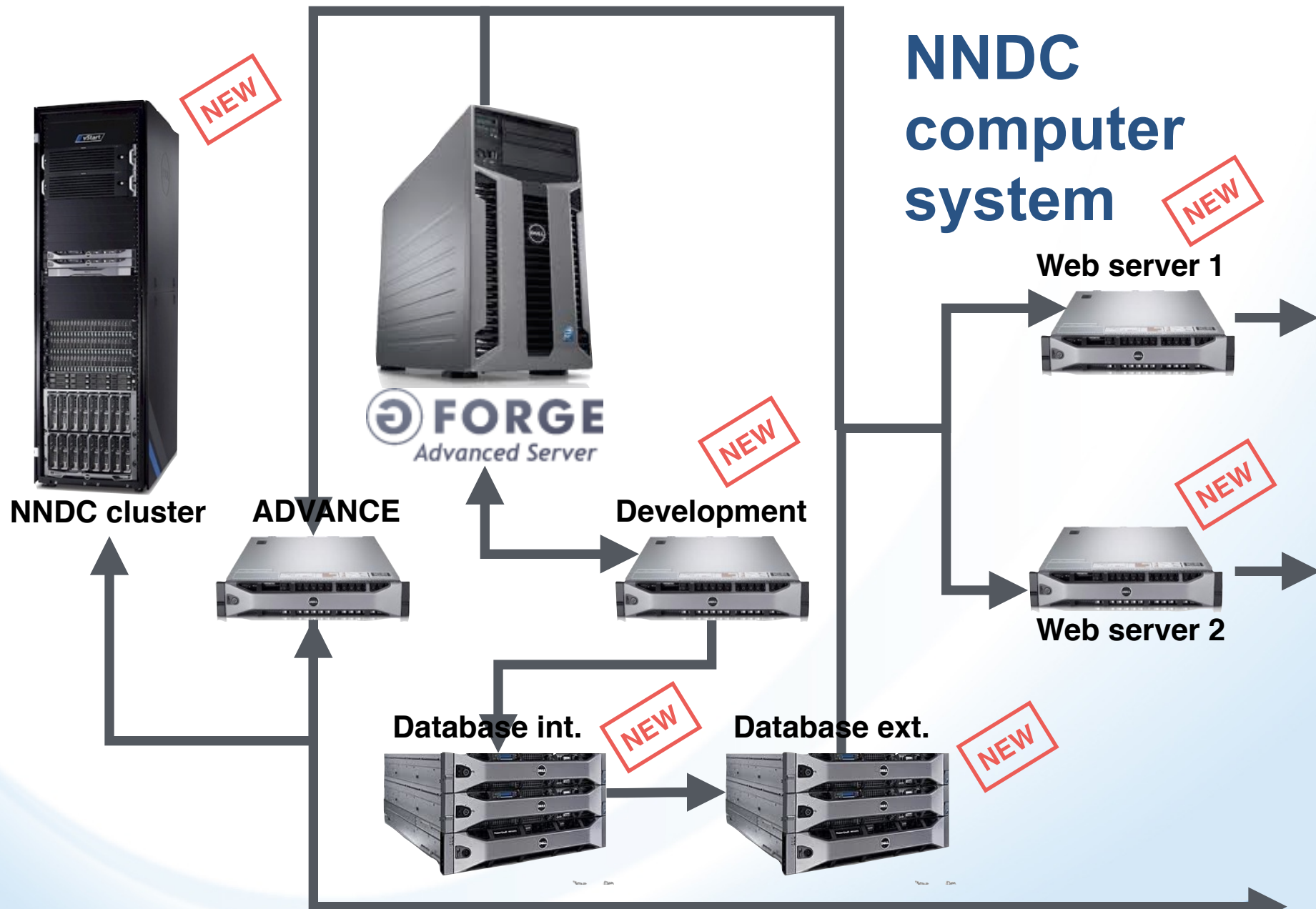
- CSEWG-USNDP Annual Meetings held (Nov 2012)
Summary and Minutes issued (Jan 2013)
- USNDP Budget Briefing FY15 at DOE-SC (Feb 2013)
- USNDP Report FY12 & Workplan FY14 issued
(April/June 2013)
- NSDD meeting held in Kuwait (Jan. 2013)
- NRDC meeting IAEA (April 2013)
- WPEC + WPEC SG's meetings in Paris
(May 2013); CIELO pilot project established
- DNP meeting at Newport (
- Workshop on Reactor Neutrinos (INT, Nov. 2013)
- Work on Report FY13 started in October
- Work on Work plan FY13 will start early
next year



NNDC Web retrievals

last year's drop recovered





Compilation

NSR (Pritychenko, Betak*)

- Total: 3,430 new articles (1,822 key-worded)
- 86 database content updates
- 211,010 Web retrievals worldwide
- NSR Dictionaries content update
 - 1,683 new authors
 - 10 new journals
 - 166 new reactions
 - 483 new nuclides

Compilation (cont.)

EXFOR (Pritychenko, Hlavac*, Schwerer*)

- 147 new entries, 54 modified entries
- NNDC highlights
 - Kammerdiener thesis in cooperation with S. Mashnik (LANL)
 - Four charged particles papers update (~1000 subentries)
 - Digitizing effort - 1,359 figures (51,906 data points)

B(E2) (Pritychenko, Singh)

- 36 nuclides

Double-beta decay (Pritychenko)

- 22 nuclides

*) contractors

ENSDF evaluation

- **Evaluated:** 7 mass chains ($A=60, 158, 180, 231, 243, 257, 259$); 73 nuclides
- **Published:** 9 mass chains ($A=150, 156, 211, 231, 251, 253, 255, 257, 259$)
- **Reviewed:** 6 mass chains: McCutchan (2), Tuli (1), Browne (2), Nica (1)

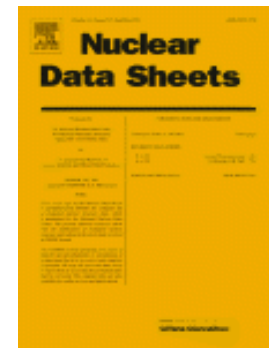
ENDF/B development

- Upgrading infrastructure and evaluation methodology
 - Advancing assimilation approach (talk by S. Hoblit)
 - improving priors
 - including PFNS and nu-bars in assimilation
 - changing to direct assimilation using MCNP
 - multi-experiment adjustment
 - multi-material adjustment
 - dealing with nonlinearity and PPP
 - Angular distributions in collaboration with T. Kawano (talk by D. Brown)
 - Coupled-Channels potential for rare-earth solid-rotor nuclei (talk by G. Nobre)
 - Updating EMPIRE code (talk by M. Herman)
 - EXFOR mining (talk by J. Hirdt)
 - Implementation of the ADVANCE system (talk by D. Brown)
- Plans for FY14
 - Complete Zr evaluations as a test bench for CIELO's iron undertaking
 - Initiate iron evaluation project within CIELO

Publications

- NNDC authored
 - papers 8
 - reports 3
 - talks 28
- NDS Special issue on nuclear reaction data published in Dec. 2012 (editor Oblozinsky) pp. 332
 1. Modern Nuclear Data Evaluation with the TALYS Code System
 2. Benchmarking ENDF/B-VII.1, JENDL-4.0 and JEFF-3.1.1 with MCNP6
 3. Experimental Nuclear Reaction Data Uncertainties: Basic Concepts and Documentation
 4. Determination of Resonance Parameters and their Covariances from Neutron Induced Reaction Cross Section Data
 5. ORNL Resolved Resonance Covariance Generation for ENDF/B-VII.1
 6. Neutron Thermal Cross Sections, Westcott Factors, Resonance Integrals, Maxwellian Averaged Cross Sections and Astrophysical Reaction Rates...
 7. Generalized Nuclear Data: A New Structure (with Supporting Infrastructure) for Handling Nuclear Data

Nuclear Data Sheets



1. **Volume 114, Issues 8–9;** (August–September 2013)
 1. Nuclear Data Sheets for $A = 75$, Negret, Singh
 2. Nuclear Data Sheets for $A = 251–259$ (odd), Browne, Tuli
2. **Volume 114, Issues 6–7;** (June–July 2013)
 3. Nuclear Data Sheets for $A = 211$, Trieste 2012
 4. Nuclear Data Sheets for $A = 231$, Browne, Tuli
3. **Volume 114, Issues 4–5;** (April–May 2013)
 5. Nuclear Data Sheets for $A = 150$, Basu, Sonzogni
4. **Volume 114, Issues 2–3;** (February–March 2013)
 6. Nuclear Data Sheets for $A = 31$, Ouellet, Singh
 7. Compilation of directly measured nuclear spins of ground states and long-lived isomers, MacDonald, Karamy, Setoodehnia, Singh
5. **Volume 114, Issue 1;** (January 2013)
 8. Nuclear Data Sheets for $A = 89$, Singh
6. **Volume 113, Issue 12;** (December 2012), Reaction Data Issue
7. **Volume 113, Issue 11;** (November 2012)
 9. Nuclear Data Sheets for $A = 156$, Reich
8. **Volume 113, Issue 10;** (October 2012)
 10. Nuclear Data Sheets for $A = 92$, Baglin
 11. Nuclear Data Sheets for $A = 115$, Blachot

FY13 Metrics Table

<i>NSR Compilations</i>	<i>3403</i>
<i>EXFOR Compilations</i>	<i>147</i>
<i>XUNDL Compilations</i>	<i>0</i>
<i>ENSDF Evaluations submitted</i>	<i>73</i>
<i>ENDF Evaluations</i>	<i>0</i>
<i>Dissemination (in thousands)</i>	<i>3030^{*)}</i>
<i>Articles</i>	<i>8</i>
<i>Reports</i>	<i>3</i>
<i>Invited Talks</i>	<i>28</i>

^{*)} Subject to refinement

A-chains to be submitted in FY14: 7

A-chains to be submitted in FY15: 7

FY13 FTE Table

<i>PhD Permanent</i>	<i>7.6</i>
<i>PhD Temporary</i>	<i>3.95</i>
<i>Tech. & Admin.</i>	<i>2.76</i>
<i>Grad. Student</i>	<i>0.2</i>
<i>Total</i>	<i>14.51</i>