Status Report of JAEA Nuclear Data Center

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1. General

Nuclear Data Center of Japan Atomic Energy Agency (JAEA) is working on the nuclear data evaluation for Japanese Evaluated Nuclear Data Library JENDL. The newest JENDL is JENDL-4.0 whose compilation was completed in March 2010. The evaluation and it's related works are performed in the cooperation with Universities, Research Organizations and Companies in Japan through Japanese Nuclear Data Committee.

The number of Nuclear Data Center staff members is 7 including one technical assistant as of April 1, 2010. The manpower is not enough for the evaluation and related work. But it is not anticipated to get a new member in a near future. The budget is obtained from MEXT (Ministry of Education, Culture, Sports, Science and Technology), but is annually decreasing after establishment of JAEA. We are seeking another fund to compensate the decreasing budget.

2. Evaluation

Main work of evaluation is to compile the JENDL library. The compilation of the newest version JENDL-4.0 was finished in March, 2010. The project of JENDL-4.0 started officially at 2005. The data of the previous JENDL library, JENDL-3.3, are extensively examined and updated based on the recent measured data and new calculations. The data of newly added nuclides are due to the request of the users. The JENDL-4.0 library includes neutron induced reaction data of 405 nuclides and one natural element. The covariance data are included for 95 nuclides covering all actinide nuclides in

JENDL-4.0 from Ac to Fm. The comparison of number of contained nuclides is shown in Table 1.

Table 1 Comparison of data in JEFF, ENDF and JENDL

Library	JEFF-3.1.1	ENDF/B-VII.0	JENDL-4.0
Publication Year	2009	2006	2010
No. of nuclides	381	393	405+1
γ-ray data	139	206	354
Ang. depended neutron spectra	83	170	318
Covariances	37	26	95

The comprehensive benchmark tests have been performed and the tests have shown good performance of the JENDL-4.0 library for both of thermal and fast reactor systems.

The internal procedure for public release is now being taken in JAEA. The JENDL-4.0 library will be officially open to public soon.

The development of JENDL High Energy File has almost stopped after the release of JENDL High Energy File 2007 (JENDL/HE-2007). The JENDL/HE-2007 file contains neutron and proton induced reaction data of 106 nuclides for energy up to 3 GeV. There are several data still unevaluated. In the next 5 years, those remained data will be included in JENDL/HE. They are the reaction data of ^{9}Be, ^{10,11}B and so on. Final JENDL/HE file is expected to include the reaction data of 132 nuclides.

3. CINDA Compilation

Papers on neutron induced reaction data published in Japanese journals and reports are surveyed. Total of 202 entries were sent to NEA Data Bank from April 2009 through March 2010.

It becomes rather difficult to keep the CINDA compilation activity because of decreasing staff members. Other centers outside Japan have not done the CINDA compilation. The advantage of CINDA is to cover not only experimental information but also the information relating to theory and evaluation over the world. If CINDA does not include such information

outside Japan, the CINDA compilation seems to become meaningless.

4. Web Service

The data related to JENDL are provided on our web site (http://wwwndc.jaea.go.jp/index.html). The monthly downloaded data size of the last Japanese fiscal year (2009/4/1 to 2010/3/31) is shown in Fig.1. The share by the country is shown in Fig.2.

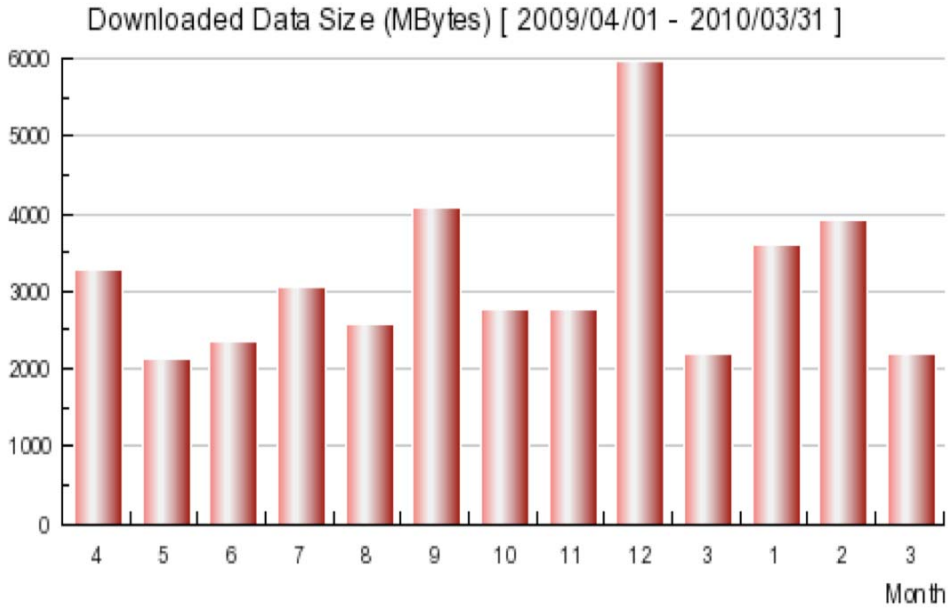

Fig.1 Down loaded Data Size in 2009 fiscal year (MBytes)

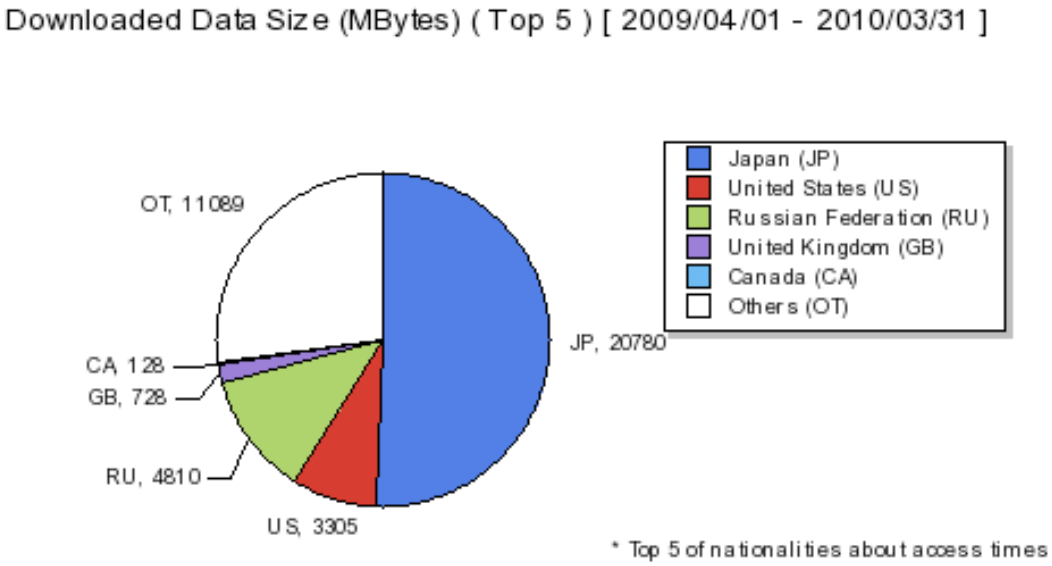

Fig. 2 Downloaded data by countries