

Mandate

The Joint Evaluated Fission and Fusion File (JEFF) Project

Chair: Mr Arjan PLOMPEN (EC)

Vice-Chair: Robert W. MILLS (United Kingdom)

Member(s): All NEA member countries

Date of creation: 1 October 1981

End of mandate: 30 June 2018

Mandate:

- Established at the meeting of the NEA Steering Committee in October 1981
- Prolonged at the 15th meeting of the Executive Group on the Nuclear Science Committee [NEA/SEN/NSC/EG(2006)4]
- Progress Report for 2005, Work in Hand in 2006 and Programme of Work for 2007 [NEA/SEN/NSC/EG(2006)2]
- Approved at the 18th Meeting of the Executive Group of the Nuclear Science Committee, [NEA/SEN/NSC/EG(2009)4]
- Prolonged at the 19th Meeting of the Executive Group of the Nuclear Science Committee [NEA/SEN/NSC/EG(2010)4]
- Mandate extended at the 22nd Meeting of the Executive Group of the Nuclear Science Committee [NEA/SEN/NSC/EG(2013)4]
- Mandate extended at the 23rd Meeting of the Executive Group of the Nuclear Science Committee [NEA/SEN/NSC/EG(2014)8]
- Mandate extended at the 24th Meeting of the Executive Group (Data Bank Management Committee) of the Nuclear Science Committee [NEA/SEN/NSC/EG(2015)6]

Extract from a room document distributed at the 24th Meeting of the Executive Group (Data Bank Management Committee) of the Nuclear Science Committee on 10 June 2015

"Scope and general objectives

The objectives of the Joint Evaluated Fission and Fusion (JEFF) Nuclear Data Library Project (The Project) are to develop, compile, verify, validate, document, distribute and promote high-quality sets of evaluated nuclear data in standard formats for a wide range of scientific and technical applications, with a specific focus on fission and fusion applications, under the JEFF library label. A guiding principle of the Project is to issue improved files while preserving the demonstrated performance of earlier versions.

The Project assesses the needs for nuclear data improvements and addresses those needs by initiating the necessary measurements, evaluation and benchmarking efforts in participating institutions. The results of these efforts by member countries are contributed to the Project.

The Project member countries actively involve nuclear data users and evaluators from their member institutions to provide feedback on libraries and improved nuclear data evaluations.

The Project relies on the NEA Data Bank to implement and co-ordinate a comprehensive QA process involving verification, testing and benchmarking tasks according to well-defined criteria.

Participation

The Project is a collaborative effort between NEA Data Bank member countries. Participation to the Project is on a voluntary basis, where each participating organisation is responsible for covering the cost of its own contributions.

The project maintains official links with major international Nuclear Data projects and institutions, in particular:

- The Joint Research Centre of the European Commission (EC),
- The International Nuclear Data Committee (INDC) and the Nuclear Data Section (NDS) of the IAEA,
- EURATOM-funded activities: Fusion For Energy (F4E) and the EU Framework Programme for Research and Innovation HORIZON2020 Nuclear Data Projects,
- The TENDL Nuclear Data Library initiative.

The Project collaborates with other similar national efforts or projects aimed at improving evaluated nuclear data through active participation in the NEA Working Party on International Nuclear Data Evaluation Co-operation (WPEC).

The Project is open to contributions from other countries or institutions, and provides a framework for co-operative activities between participants.

Management

The Project is established under the governance of the NEA Data Bank Management Committee. The governance of the Project is ensured by the JEFF Co-ordination Group (JEFF CG) composed of up to two representatives of each Data Bank member country (See list in Annex 1), who are nominated by their respective country representative to the Data Bank Management Committee.

The JEFF Project Chair and Vice-Chair are appointed by the JEFF CG for a three-year renewable term.

The CG and the Secretariat may invite a limited number of specialists to participate as observers in CG meetings.

The CG selects its representatives to the NEA Working Party on International Nuclear Data Evaluation Co-operation (WPEC).

The Data Bank Management Committee is asked to renew or nominate new national representatives to the JEFF CG at the beginning of each Mandate, and may change or confirm their national representatives at any time by notifying the NEA Secretariat.

Method of work

The JEFF CG is responsible for defining a programme of work at the start of each mandate period and reviewing its mandate for approval by the NEA Data Bank Management Committee. In particular, for each new official JEFF library release, a detailed list of evaluation priorities and a list of evaluated files that are targeted as deliverables should be produced at the start of the mandate.

The JEFF CG is responsible for giving the final approval of all updates of the JEFF libraries and for scheduling their official release.

The CG has the capability to form appropriate working groups (WG) to carry out the specific tasks in the programme of work. The CG nominates WG co-ordinators among JEFF participants. Working group co-ordinators may call for specific WG meetings to be held and are requested to attend CG

meetings to report on the WG progress. JEFF working groups do not have the status of official OECD bodies.

For the 2015-2018 period, JEFF Working Groups and co-ordinators are listed in Annex 1.

Working Groups report recommendations, progress in accomplishment of deliverables and actions arising from their meetings to the JEFF CG.

Role of the Data Bank

The Data Bank is Secretariat to the JEFF Project. As such,

- The Data Bank is responsible for organising JEFF meetings and Nuclear Data Weeks in consultation with the CG.
- The Data Bank is responsible for the publication and distribution of JEFF documents, updating the corresponding web pages, and for producing official summary records of each CG meeting.
- The Data Bank is responsible for the assembly, release and distribution of JEFF official libraries. It is also responsible for collecting users' feedback, maintaining up-to-date information, and archiving past file versions and records.
- In consultation with the JEFF CG and with approval of the Head of the Data Bank, the Secretariat may seek specific Data Bank support for targeted actions that ensure the delivery of JEFF's programme of work.

In addition to carrying out the Project secretariat tasks, and as part of broader nuclear data services to member countries, the Data Bank also provides a number of services associated with the JEFF files. The platform that provides these services is described in Annex 2. It includes

1. elementary operations on JEFF files such as graphical and tabular display, comparisons, etc.;
2. consistency checks of new or modified files to diagnose possible errors or inconsistencies and deliver a human-readable explanation of these errors;
3. conversion from ENDF-6 to various pointwise or multigroup formats, and access to pre-processed application libraries;
4. file testing and benchmarking using "open" databases such as ICSBEP and IRPhE;
5. sensitivity analyses, derivation, visualization and analyses of trends.

Using this integrated platform, the Data Bank manages all JEFF libraries, including beta or test versions. The platform collects users' requests and feedback, and co-ordinates candidate file/library testing and benchmarking.

In addition, the Data Bank maintains mailing lists of nuclear data experts from member countries who have agreed to address technical questions regarding evaluation, formats, processing, and benchmarking.

Rationale for future developments

A major endeavour for the JEFF Project is to issue a fully consistent library, "complete" with all needed data (neutrons and other incoming particles, incident energies, target nuclides, reaction types, outgoing products and properties) and associated covariance information, which can be reliably used for a large spectrum of applications, and which has a proven performance level equal or better than that of the present JEFF-3.2 library. This long term goal is associated with the JEFF-4 library, a first version of which could be issued around 2021, if sufficient resources are contributed by member countries. This long-term goal requires that the JEFF file evaluation and benchmarking process be revised to be made more coherent and efficient, with the Data Bank taking an increased role in servicing the Project, networking the various contributions, helping streamline and rationalize as many tasks as possible, in particular file testing and benchmarking activities.

JEFF libraries are distributed by the Data Bank in the form of computer files through a dedicated webpage. The data files and the results of the Project activities are available without restrictions to authorised users in participating countries. Information developed within the Project is distributed via the Secretariat.

Deliverables

The main deliverables of the JEFF Project are improved and extended JEFF libraries in the interest of member states' applications and related technological development. The libraries are verified, tested, validated (benchmarked), and documented.

For the present mandate:

1. The first deliverable is the JEFF-3.3 release for which the development plan is given in Annex 3. This version will end the JEFF-3 series. The list of projects/activities for which this release is developed is given in Annex 3.
2. The second deliverable is the development, testing and commissioning of an automated platform for nuclear data file integration, verification, testing and benchmarking (NDEC). This platform will be first used for the production and selection of JEFF-3.3 file candidates and then subsequent versions.
3. The third deliverable is a JEFF report and a publication, preferably in a peer-reviewed journal, of the released library.
4. The fourth deliverable is to spell out the objectives and implementation plan for the future release of JEFF-4.