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ITER遠隔実験に向けた技術検討 (1. 全体計画)
Technical study for ITER Remote Experiment (1. Overall Plan)

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ITER Remote Experimentation Centre (REC) is planed as one of three sub-projects of International Fusion Energy Research Centre (IFERC) under the agreement between the Government of Japan and the European Atomic Energy Community for the joint implementation of the Broader Approach (BA) activities in the field of fusion energy research. Here, the three sub-projects are DEMO Design and R&D Coordination Centre (DDA &R&D), Computational Simulation Centre (CSC), and REC.

The objectives of the REC activities are to identify the functions and solve the technical issues for the construction of the REC for ITER at Rokkasho, and to develop the remote experiment system and verify the functions required for the remote experiment by using the JT-60SA facilities in order to make the future experiments of ITER efficiently implemented.

The preliminary scope for the implementation in the REC are the following technical issues to be solved: 1) Effective remote experiment system: easy-to-use of REC, effective data access/viewing, and effective shot analyses with simulation, 2) Effective data transfer of the huge amount of plasma data, 3) Effective storage method of huge data, and related issues. Main functions to be developed as the remote experiment system will be 1) Setting of experiment parameters, shot scheduling, real time data streaming, communication by video-conference between the Rokkasho-site and other-sites, 2) Data transfer: transfer of the huge amount of data between on-site and off-site, and the network around the REC room, 3) Storage system: store/access the huge amount of data, database management, 4) Data analysis software: the data viewing of the diagnostic data on the storage system, 5) Simulation: estimation of the shot performance and the analysis of the plasma shot.

The concept of the shot schedule of remote experiment is shown in Fig.1. Remote-site researcher can prepare the shot parameters in the same manner as the on-site researcher, and the shot schedule will be sent to the same shot schedule storage to proceed the remote experiment.

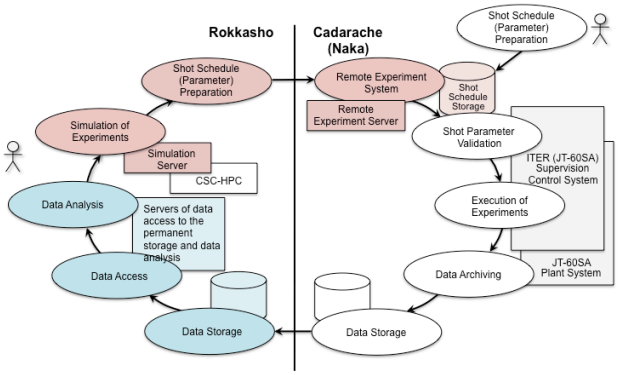

Fig.1 Concept of the shot schedule of the remote experiment