

## Remote Scientific Leadership of the JET European Fusion Experiment from the U.S.

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The National Fusion Collaboratory Project: <http://www.fusiongrid.org/project/>  
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Dr. John deGrassie, Senior Research Scientist at the DIII-D National Fusion Facility in San Diego, recently was the Scientific Coordinator for an experiment on the JET European fusion experiment to study the effects of rf heating on toroidal rotation induced by neutral beam heating. US collaboration with JET, the largest operating tokamak in the world, has been ongoing for almost 20 years so US-based leadership of this experiment is not unique. What is unique, and represents a first for fusion research, is that Dr. deGrassie decided to remain in San Diego and lead the JET experiment using FusionGrid's remote collaboration services. Access Grid technology was used for multiple video images and a unified audio stream between San Diego and the JET control room. MDSplus data services allowed data to be analyzed in San Diego as soon as it was available to researchers in the control room. Web based displays gave Dr. deGrassie "real-time" tokamak information as well pulse cycle and general data analysis status. Since this work on JET, scientists from France, Germany, and Japan have successfully participated remotely in DIII-D experimental operation. The success of FusionGrid's remote collaboration services validates the National Fusion Collaboratory's design of the Collaborative Control Room and represents a model for the next generation burning plasma experiment including ITER. In the meantime, this technology will allow greater utilization of the existing U.S. experiments by a larger number of fusion research scientists as well as allowing a larger number of U.S scientists to participate in non-U.S. experiments.



*FusionGrid services were recently used by a scientist in San Diego to lead the JET fusion experiment in England. In the foreground is Dr. deGrassie in San Diego and on the screen is the JET control room and various JET data traces being discussed in real-time.*