Progress of Parallel Validation Tools for Fusion Simulations as Applied to Synthetic Diagnostic Efforts

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The verification and validation (V&V) of fusion simulation codes is necessary to ensure proper support of ever-increasingly expensive experiments such as ITER. Synthetic diagnostics are an important and useful tool for these V&V efforts, and as such ar the focus of the Parallel Validation Tools for Fusion Simulations project. We will present our effort to develop standards, called schemas, for the data exchange between codes and synthetic diagnostics. We will will present the API for writing and reading HDF5 data complaint with the standards above in Fortran90, IDL, python, C and the VisIt visualization tool, enabling the user to decide the tool that works best to accomplish their goals. We will present data transformation routines and Python-based tools for transformations between various data formats. These schema will be demonstrated using an application of the synthetic diagnostic APIs to data from the GYRO code.