Development of a Use Cases for Validation and Predictive Modeling in the AToM SciDAC Project.[1] DMITRIY ORLOV, CHRISTOPHER HOLLAND, University of California, San Diego, NATHAN HOWARD, Massachusetts Institute of Technology, KYUNGJIN KIM, JIN-MYUNG PARK, Oak Ridge National Laboratory — We report on the development of the joint "use cases" database as part of the AToM (Advanced Tokamak Modeling) integrated modeling SciDAC project [1] to facilitate inter-SciDAC collaboration with the Center for Integrated Simulation of Fusion Relevant RF Actuators [2]. The cases presented here focus on an Alcator C-mod H-mode discharges with different off and on/off axis ICRF heating profiles resulting in different bulk confinement and core impurity contents. The ICRF heating results in no momentum input and the discharges only have intrinsic rotation that is low. We use the existing TGYRO and EPED workflows to predict thermal transport and infer impurity transport coefficients in each case. The goal is to identify impurity edge source rates via impurity transport modeling that best match experimental core radiation. As part of this effort, we also use the developed FASTRAN workflow to benchmark it using these low rotation C-mod cases and DIII-D H-mode discharges with high toroidal rotation. [1] https://scidac.github.io/atom/ [2] https://sites.google.com/view/rfscidac4

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