# GRAY: quasi-optical ray-tracing code for ECH&CD
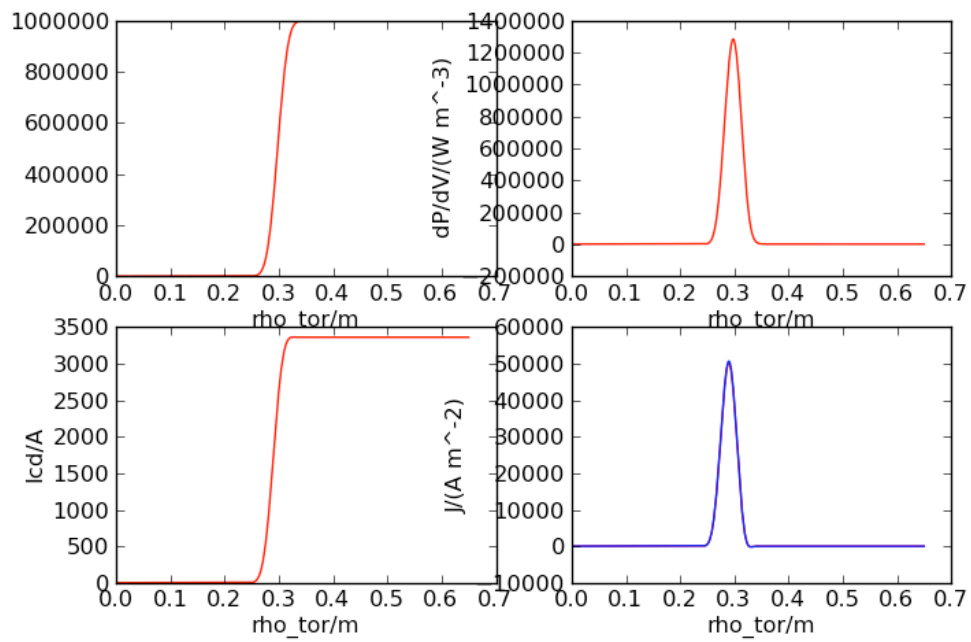
## Code Status

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- Code ported to Gateway and adapted to ITM framework
  - I/O of physics data through CPOs
    - Input: Coreprof, Equilibrium, Antennas
    - Output: Waves (partial)
  - Code specific parameters in XML format
  - Data structure 4.08a
    - single test case: machine TEST, shot 5, run 67

- writeECant module to initialize missing Antennas CPO

- Kepler actors tested as "standalone"
  - Basic workflow: read CPOs, fill Antennas, run GRAY, write CPOs

- Benchmark started with TORBEAM
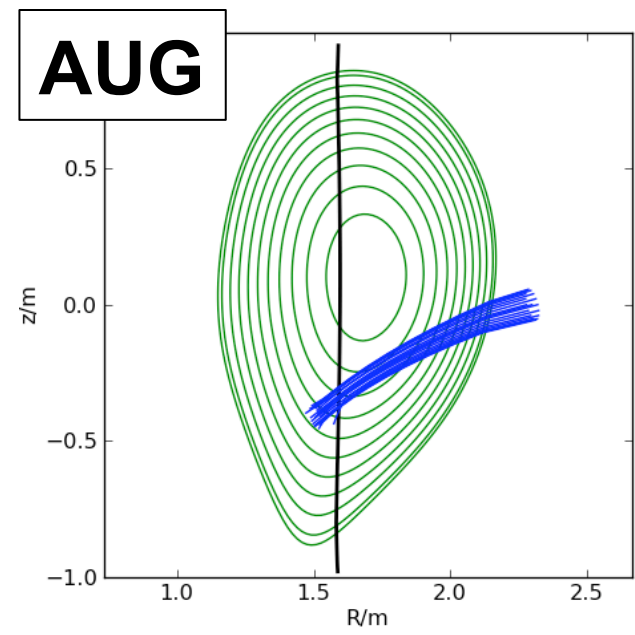  - Outputs compared through text files

- ## Project created under Gforge
  - Code moved under SVN revision control

- ## CPOs I/O completed
  - Waves CPO stores both 1D profiles (flux averages) and detailed data along ray trajectories

- ## Developed datajoiner waves2sources
  - "translates" Waves to Coresource
  - First step towards integration with ETS

- ## Data structure updated to 4.08b and 4.09a
  - More test cases added: TEST 5,67, AUG 20116,502, JET...
- ## Some discussion about handling of 2D equilibrium data
- ## Successfully integrated in IMP5HCD and ETS workfows!

EFDA **Task Force**
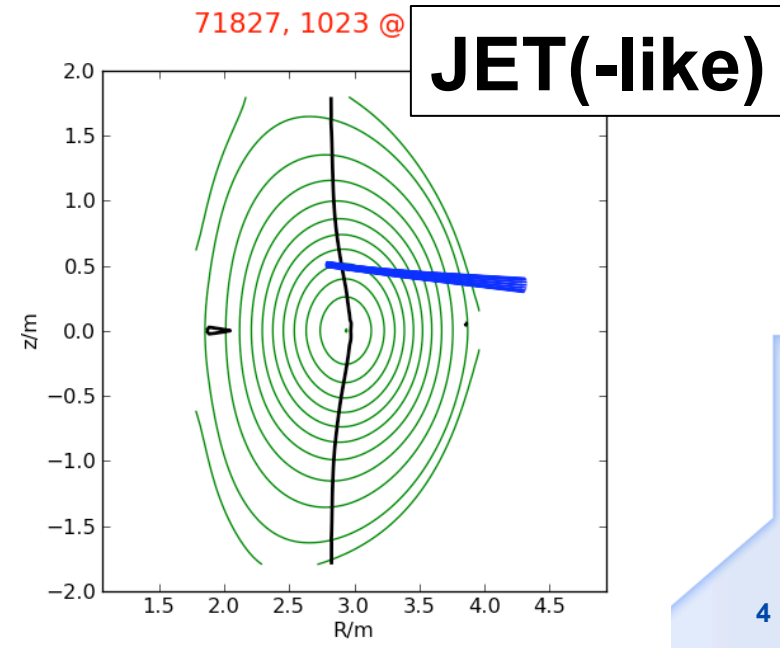EUROPEAN FUSION DEVELOPMENT AGREEMENT
INTEGRATED TOKAMAK MODELLING

# New test cases

Waves 2/2 (20116, 1502 @ 0.1 s)

20116, 1502 @ 0.1 s

**AUG**

71827, 1023 @

**JET(-like)**

- A few examples of waves CPO output with test cases...
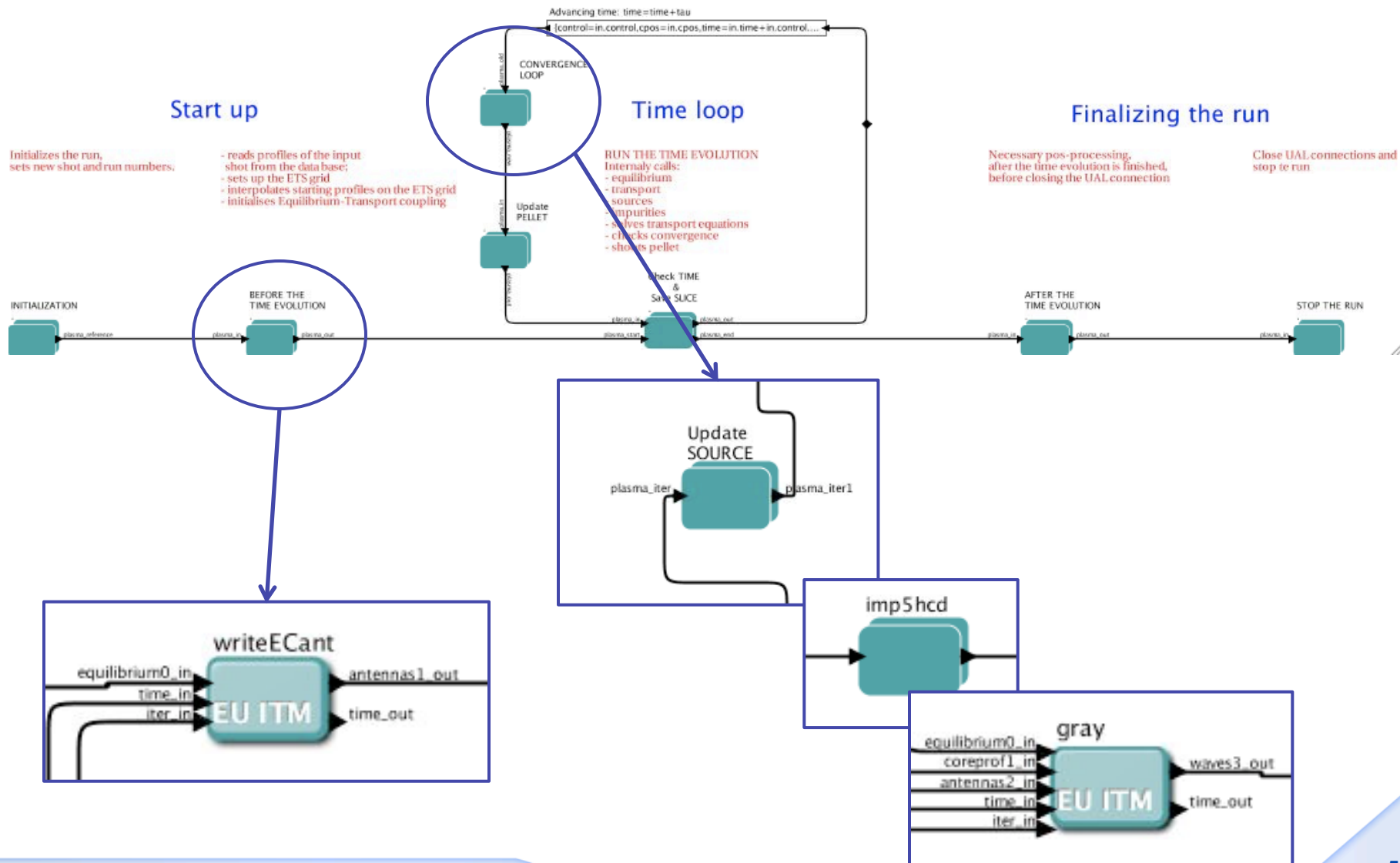
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- Gray inside ETS workflow...

- Restart benchmarking work
  - Momentum conservation model for CD (Marushenko) added
  - Benchmark now possible with TORBEAM and TRAVIS

- More testing inside ETS

- Start writing code documentation...