Project 4 Activities

1) MPI Workflows

   a) Fortran modules as subroutines/libraries

   b) work with ISIP on MPI issues for Kepler

2) Turbulence CPO

   a) establishment of data structure (supercedes 2008 efforts)

   b) work on HDF5 (evtl parallel) read/write modules

3) Wrapper/Interface for general turbulence codes

   a) eases implementation by various authors

4) ongoing benchmark efforts

   a) HPCFF support, some porting issues solved, many codes work

5) transport modules to be imported (some exist already)

   a) simple formulae, transport models (eg ETAIGB, RITM)

   b) neoclassical codes (eg NCLASS)

Additional Activities for 2010

A) Validation

   a) task written out for 2010, will follow benchmark CPO experience

   b) first tests: do as benchmark when we obtain data case(s)
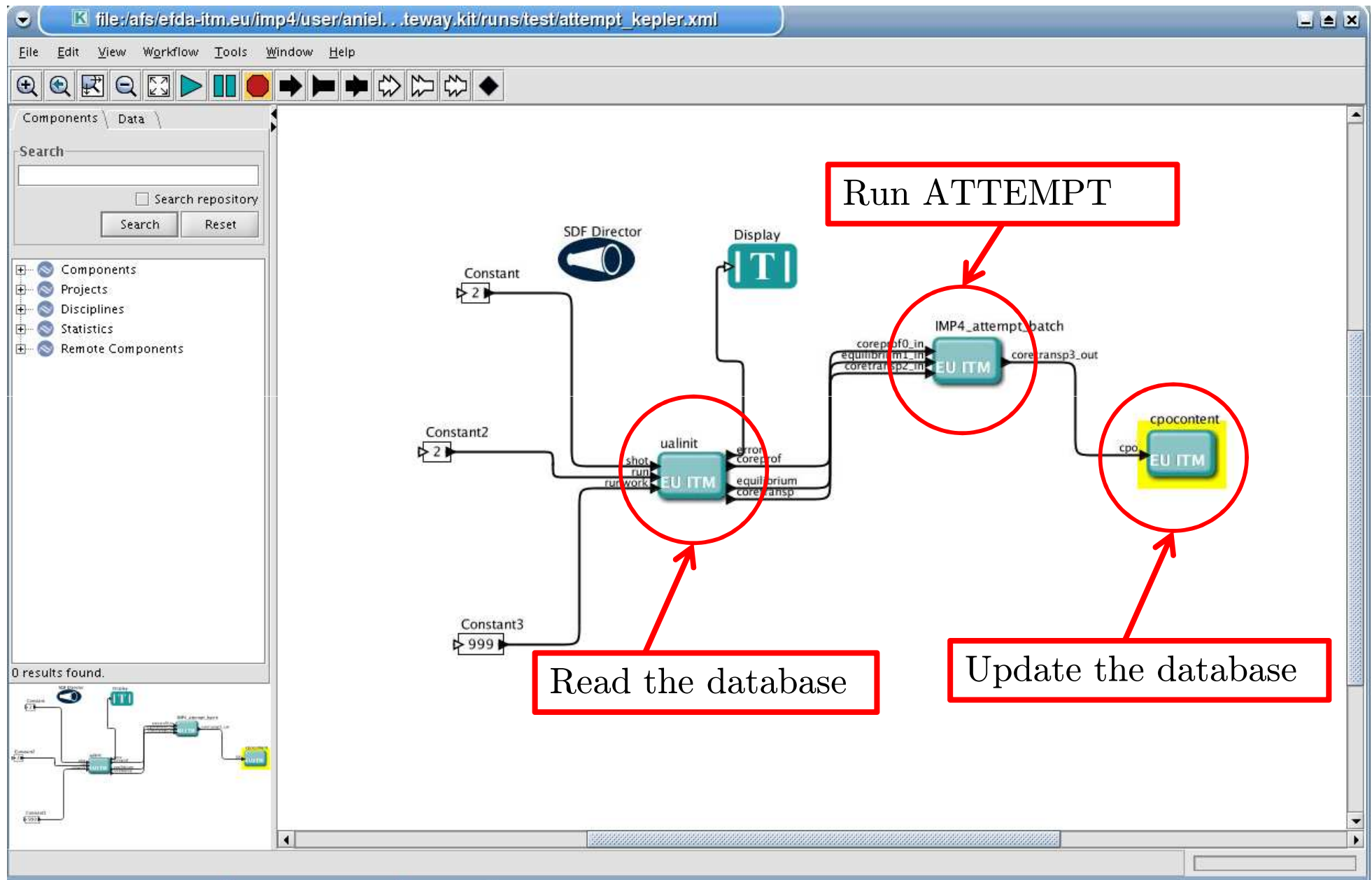
B) Neoclassical codes and transport modules

   a) NCLASS, RITM, *etc.* — being imported

C) Synthetic Diagnostics

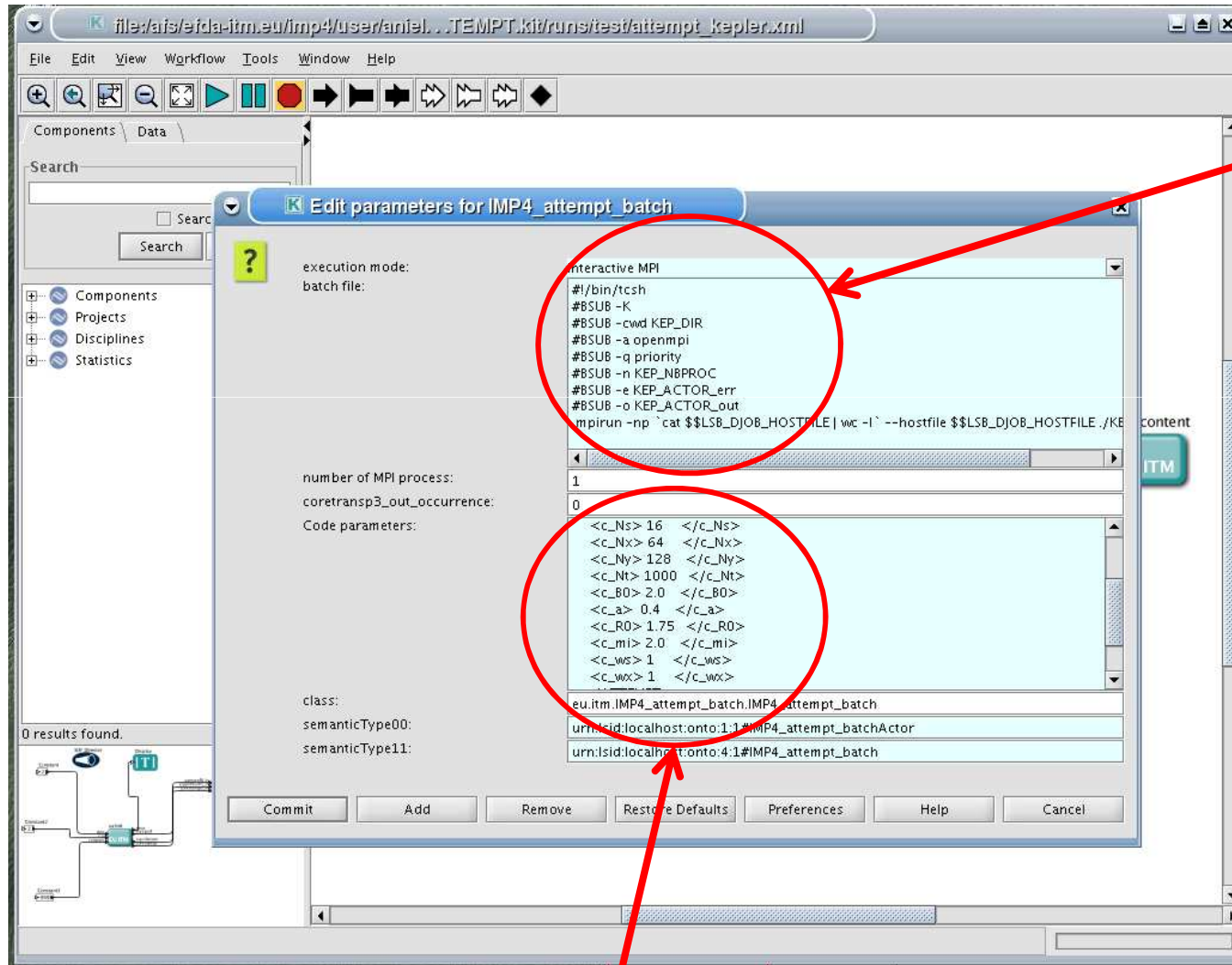   a) Code Camp with EDRG set for Dec 2010 (confirm dates?)

Kepler workflow

See also the poster
The IMP4 wrapper for running IMP4 codes in the UAL framework

MPI program to be run at the Gateway in batch

Code specific parameters

Benchmarking Problems

- for those who know: successful campaign exists (Falchetto et al PPCF 2008)

- now need to do using basic ITM rules
  - code uses solely CPOs as input, is a subroutine library
  - also useable in Fortran as well as Kepler workflows

- problem: stated desire for standard HDF5 CPO output
  - lots of reasons to wait while doing nothing (big PR problem on HPCFF)

- solution: do what is ready now
  - read `coreprof` and `equilibrium` CPOs from file using IMP4 tools
  - **post process** the data **after** it is written to file

- that way we actually do this on resources the HPCFF have given us

Deliverables

- modules for transport modelling by other IMPs
  - some turbulence information for experimental validation (later)

- turbulence, or "anomalous" transport modules
  - simple ones exist now (project ETAIGB)
  - other models are still in IMP3 transport codes
  - structure fairly standardised (CPO in/out ... see ETAIGB)
  - more modules to be delivered (starting with RITM)

- neoclassical:
  - simple module exists now (project NEOWES)
  - NCLASS code to be delivered
  - same interface structure as above

- linear stability:
  - somewhere on horizon (**not** turbulence codes)

- workflow scientific papers (eventually, ie, we want **no time pressure**)