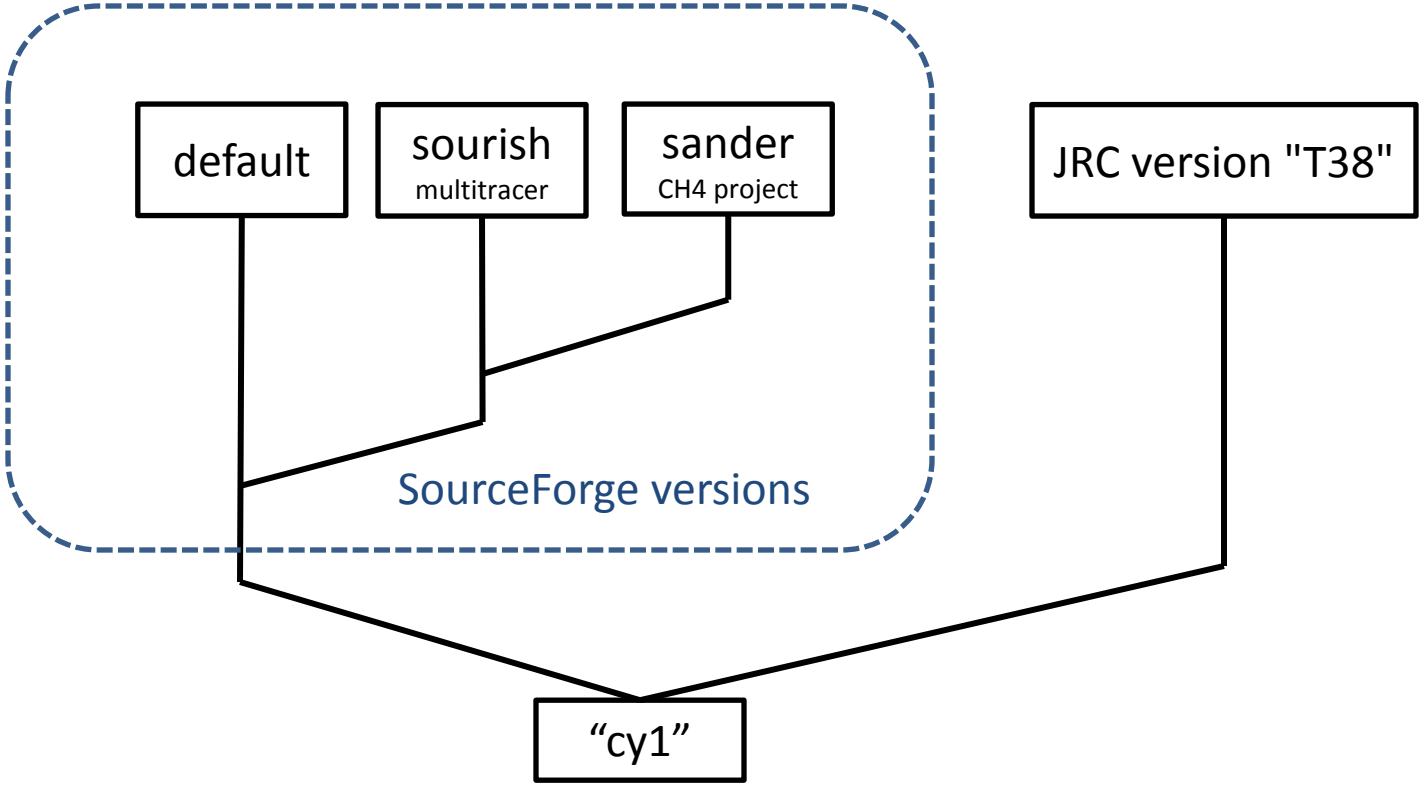
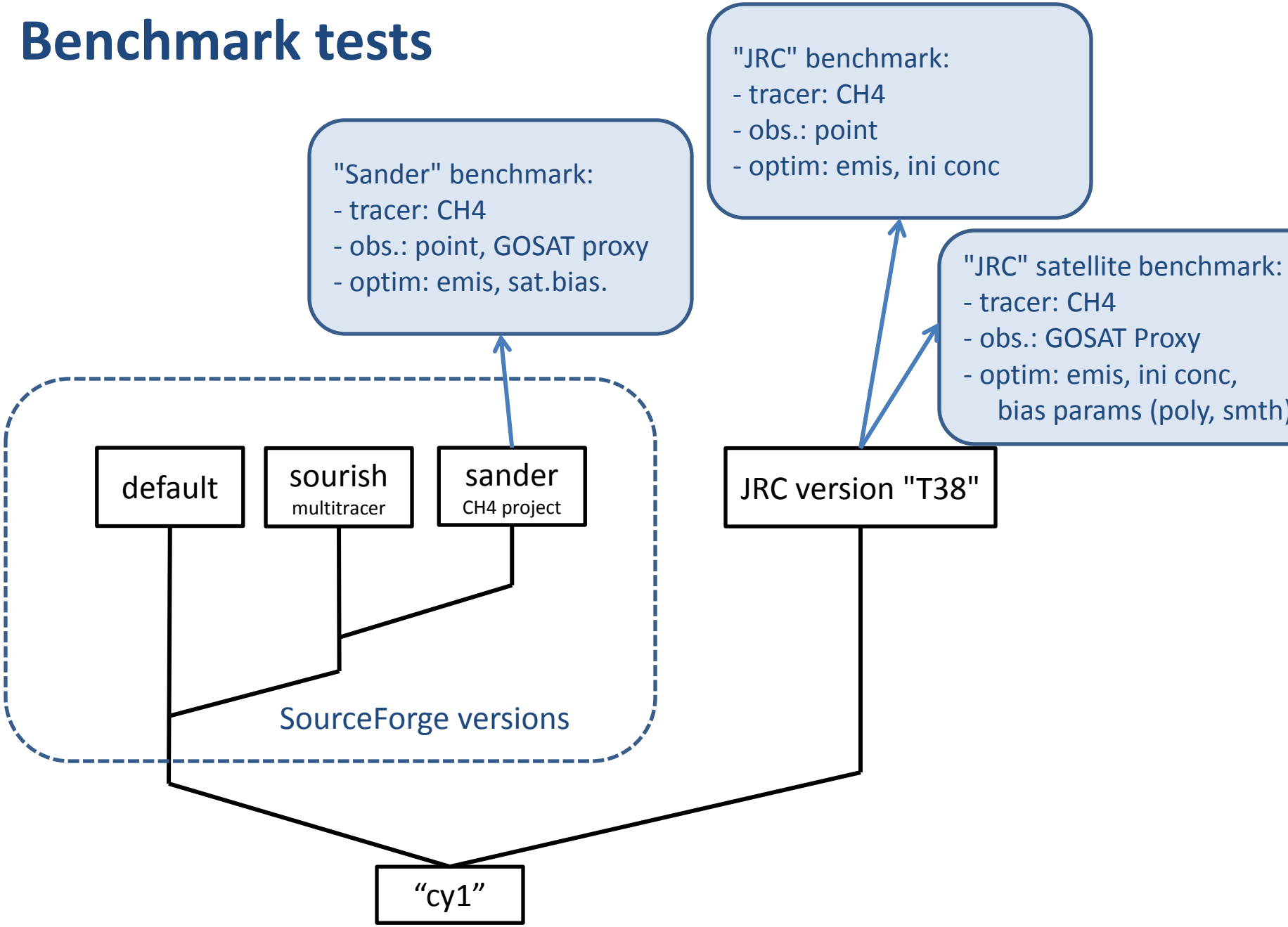
Merging 4D-var versions

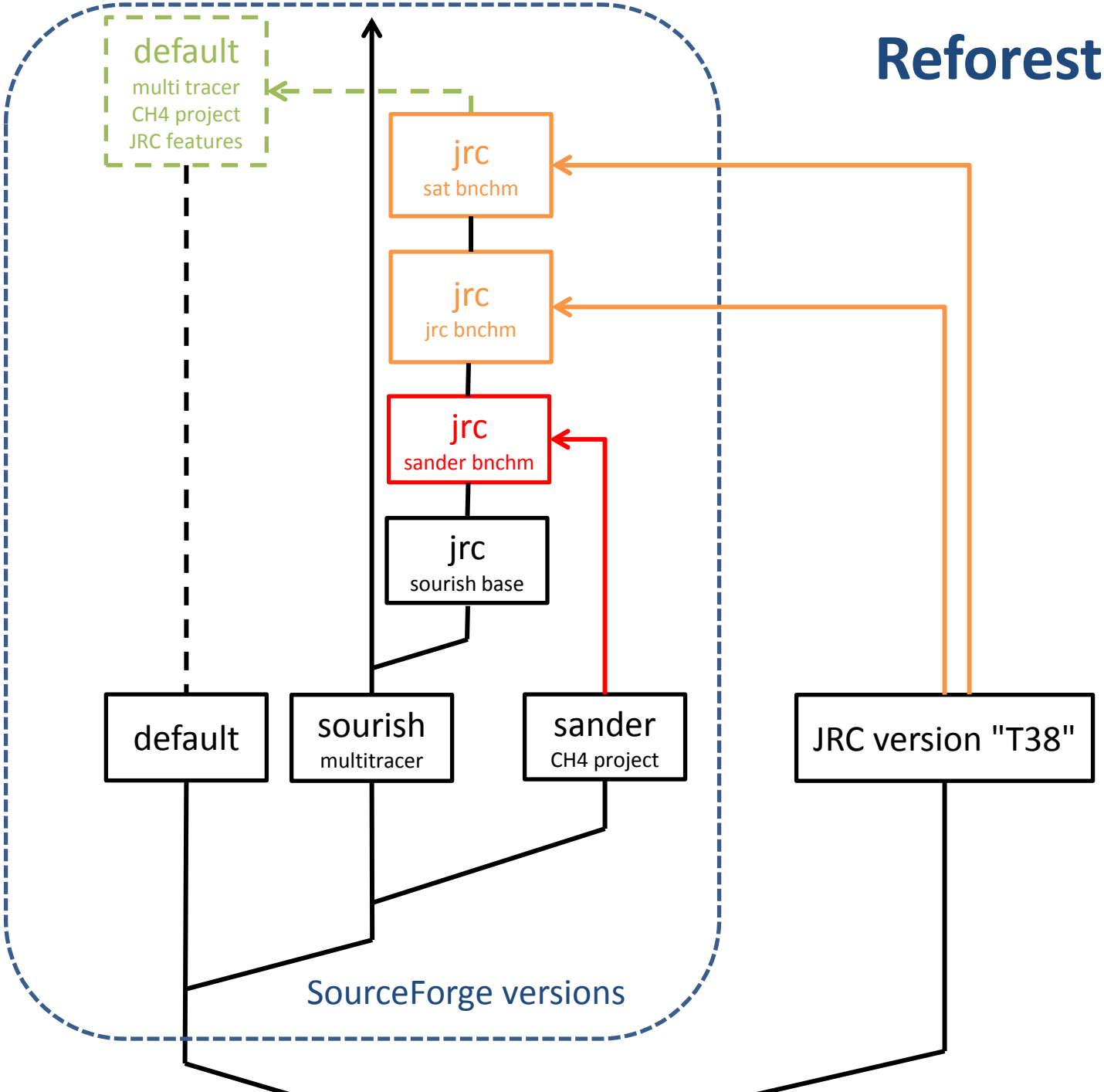
- original versions considered in “merge” project:



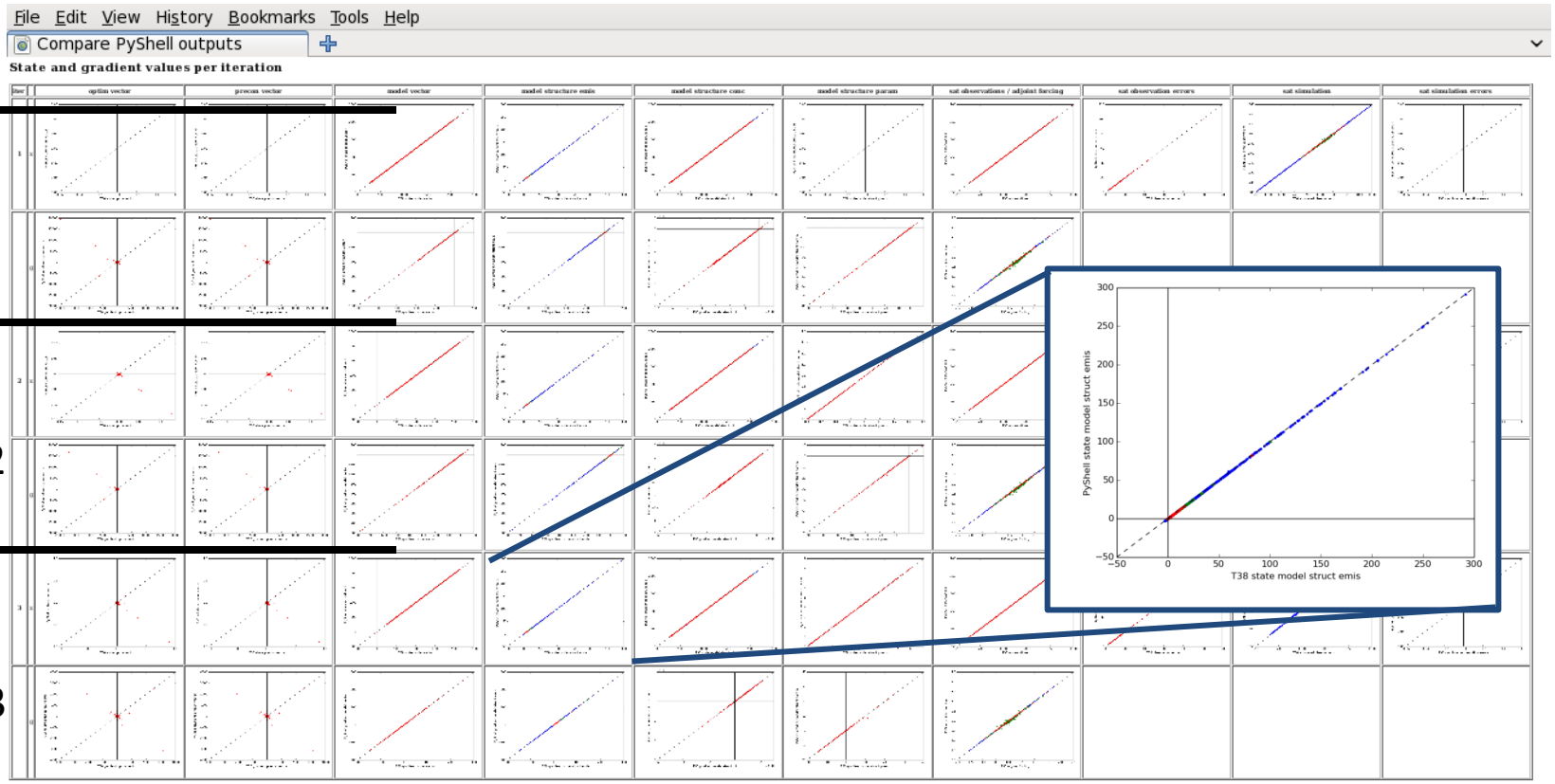
Benchmark tests



Reforestation



Comparison of benchmark results



iter 0001 — fwd, adj

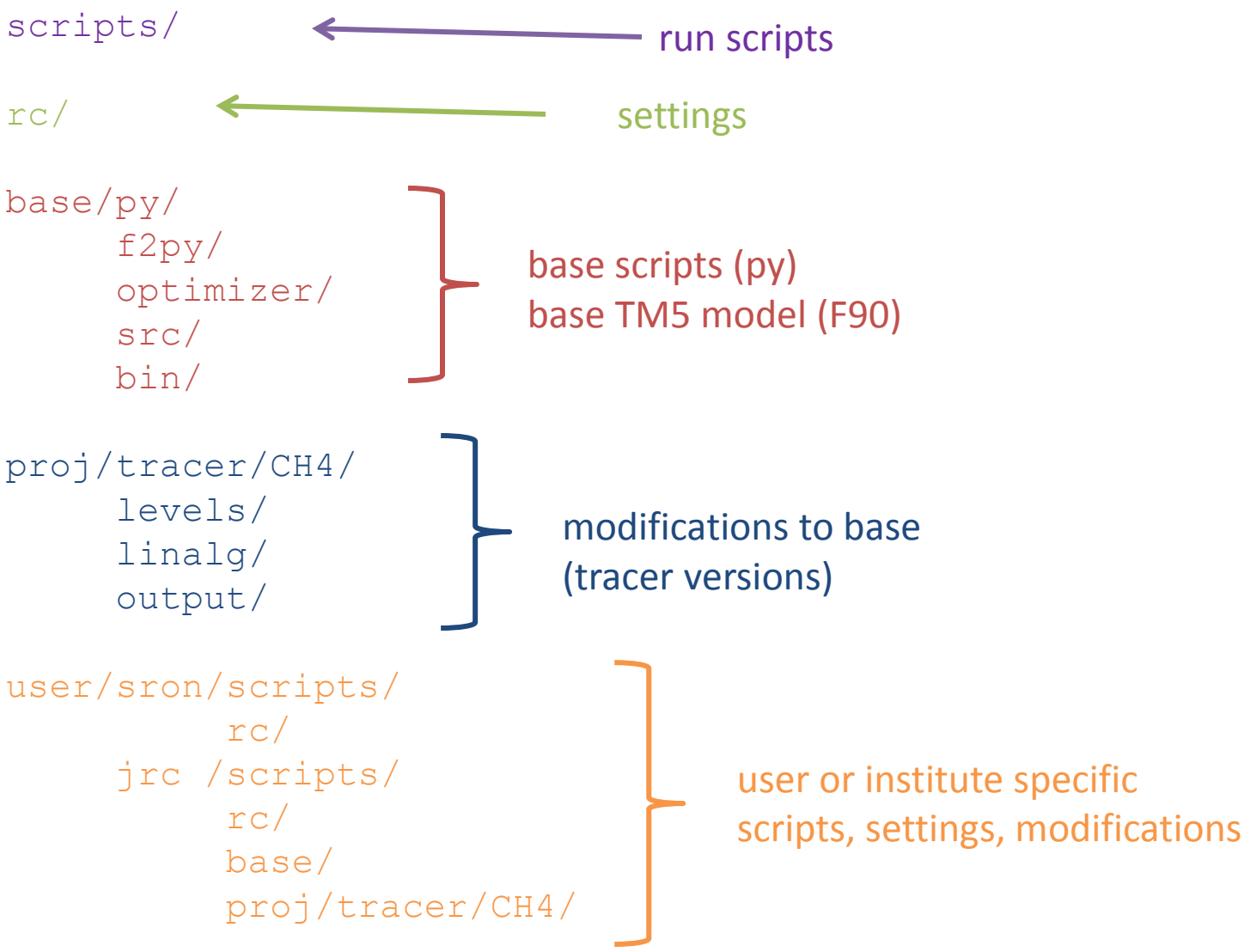
iter 0002 — fwd, adj

iter 0003 — fwd, adj

xo, xc, x, emis, inic, bias, obs, forc, obs.err, sim, sim.err

Remaining differences between "JRC" and "PyShell" results:
- different averaging of orography for satellite operator
- differences in eigenvalue computations

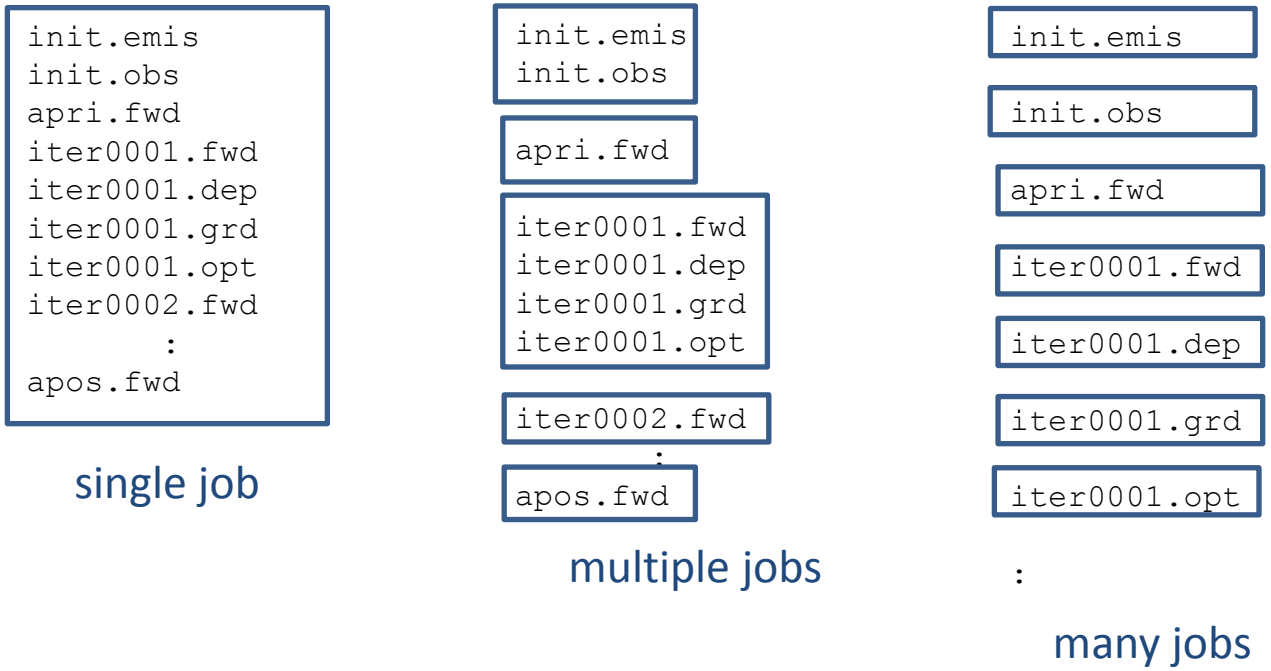
New source tree



New base version

- optimization of:
  - emissions
  - initial concentrations
  - satellite bias (polynomial and smooth)
- inversion of:
  - ground based observations
  - satellite observations
    - for JRC runs: re-grid to 1x1
- optimizers:
  - M1QN3 (through job chain)
  - ConGrad (single job)

- New job chain for base ?
  Collect tasks in one or more batch jobs:



  - Each job obtains only the resources (memory!) needed
  - Single job for queue systems with long waiting time

New developments

- Work started under JRC "LOT3" framework:
  - Increase meteo timestep from 6 hr to 3 hr
  - Temporal interpolated meteo

  } TM5 "v4" features

  - Bias correction for ground observations
  - Support for "Rodenbeck" approach
    (provide baseline concentrations for regional inversions with other inversion system)