Hooks to HAMMOZ in ECHAM

Sylvaine Ferrachat, 2014.04

Hook locations to HAMMOZ (simplified)

- **master**
  - **control**
    - **initialize**
      - ➡ **init_subm** → start HAM and tracers; start MOZ and tracers; start HAMMOZ; init. dry deposition; init emissions
    - **init_memory**
      - ➡ **init_subm_memory** → init. all hammoz streams
    - **stepon** *(time loop)*
      - ➡ **bc_list_read** → read new files/records if nec. *[cf boundary cond scheme]*
      - ➡ **stepon_subm** → compute some dep. for dust emissions
      - **scan1**
        - **gpc**
          - **physc**
            - *see details on next slide*
    - **free_memory**
      - ➡ **free_subm_memory** → free submodel memory

Hook locations to HAMMOZ in physics (simplified)

- **physc**
  - ➡ **physc_subm1** → secondary organic aerosols (SOA) processes
  - **cover scheme**
  - **radiation**
    - ➡ **radiation_subm1** → aerosol radiation
    - ➡ **radiation_subm2** → aerosol radiation diagnostics
  - **turbulence**
    - ➡ **vdiff_subm** → dry dep interface; emission interface
  - **radiation tendencies**
  - **gravity wave drag**
  - ➡ **physc_subm2** → SOA processes
  - **convection**
    - ➡ **cuflx_subm** → HAM gas chemistry dependencies; wet deposition of aerosols and gases; MOZ lightning
  - **stratiform cloud micro**
    - ➡ **cloud_subm1** → aerosols as cloud cond. nuclei; aerosols as ice nuclei
    - ➡ **cloud_subm2** → aerosol wet chemistry; wet deposition of aerosols and gases
  - ➡ **physc_subm3** → HAM gas chemistry; MOZ chemistry; HAM aerosol microphysics; aerosol sedimentation; SOA processes
  - **surface schemes**
  - ➡ **physc_subm4**
  - **satellite diags**