

TM5-MP/4D-VAR DEVELOPMENT STATUS

- › Codes on <https://svn.knmi.nl/svn/> (not on *gitlab* yet ...)
 - › TM5-4DVAR/branches/cams-ch4/ : 4D-var loop
 - › TM5-MP/branches/adjoint2/ : TM5-MP version incl. adjoint
- › An "Installation Support" day was held on Feb 19
 - › Testing the 4D-var code (CH4 demo) on various systems
 - › Support available for interpreting error messages ...
 - › Planning similar day Feb 2022 ?

The screenshot shows a web browser displaying the 'TM5-MP Installation Support' page on a Wiki. The page has a blue header with navigation tabs: Overview, Activity, Roadmap, Issues, Documents, Wiki (selected), Files, and Repository. Below the header, the page title is 'TM5-MP Installation Support' with a 'History' link. The content includes an 'Online meeting' notice for Feb 19, 2021, followed by 'Meeting links' (BlueJeans and Teams) and a 'Proposed agenda' with a list of activities. There are also sections for 'Guides and tutorials' and 'Tips and tricks'. The 'Tips and tricks' section contains two code blocks: one for test suite settings and another for a specific parameter setting.

```
testsuites/comp2runs/base-test-main.rc
```

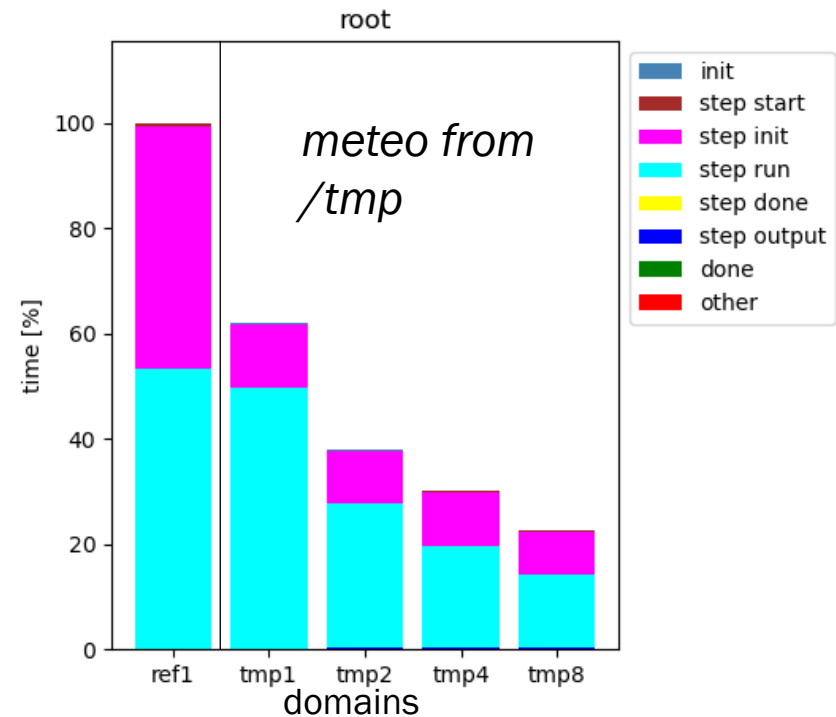
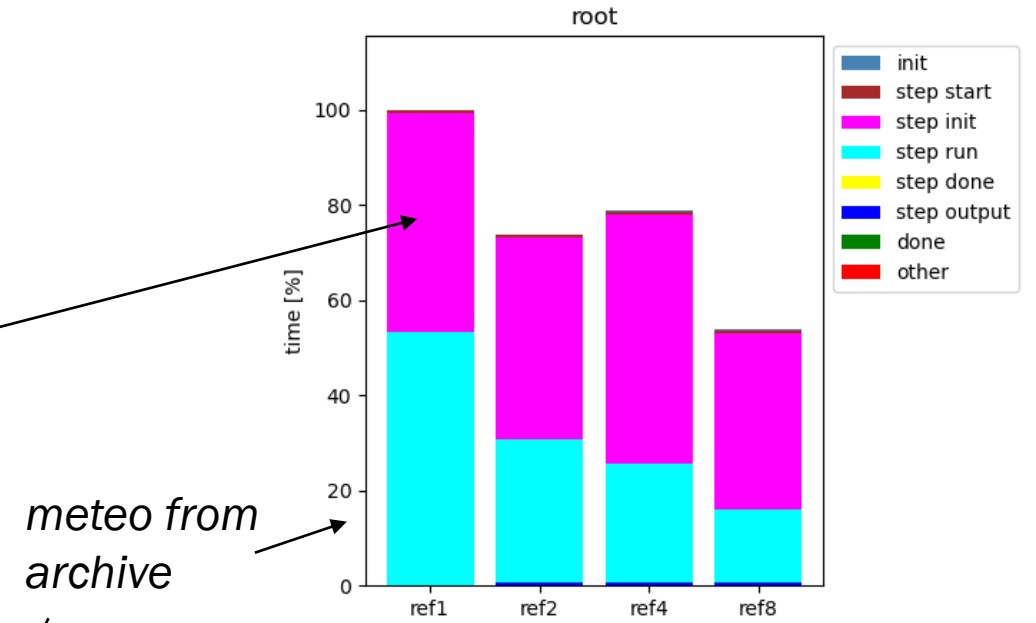
```
! base/meteo.F90  
logical, parameter :: use_incorrect_sp = .true.
```

https://dev.knmi.nl/projects/tm5mp/wiki/TM5-MP_Installation_Support/

TM5-MP/4D-VAR

SPEEDING UP I/O

- › For single tracer versions (CH4), much time spent on reading meteo (and speed depends on how busy it is on the network ...)
- › On TNO/HPC3: meteo archive via network (slow), but computing nodes have fast SSD `"/tmp"`
- › Tested: copy meteo to `"/tmp"` before run
 - › strong decrease in overall run time
 - › better parallel speedup achieved



TM5-MP/4D-VAR

SPEEDING UP I/O

› But ...

- › size of /tmp is limited (70 Gb?)
- › 1 year 6x4x25 meteo is ~30 Gb,
1 year 3x2x34 meteo is 160 Gb

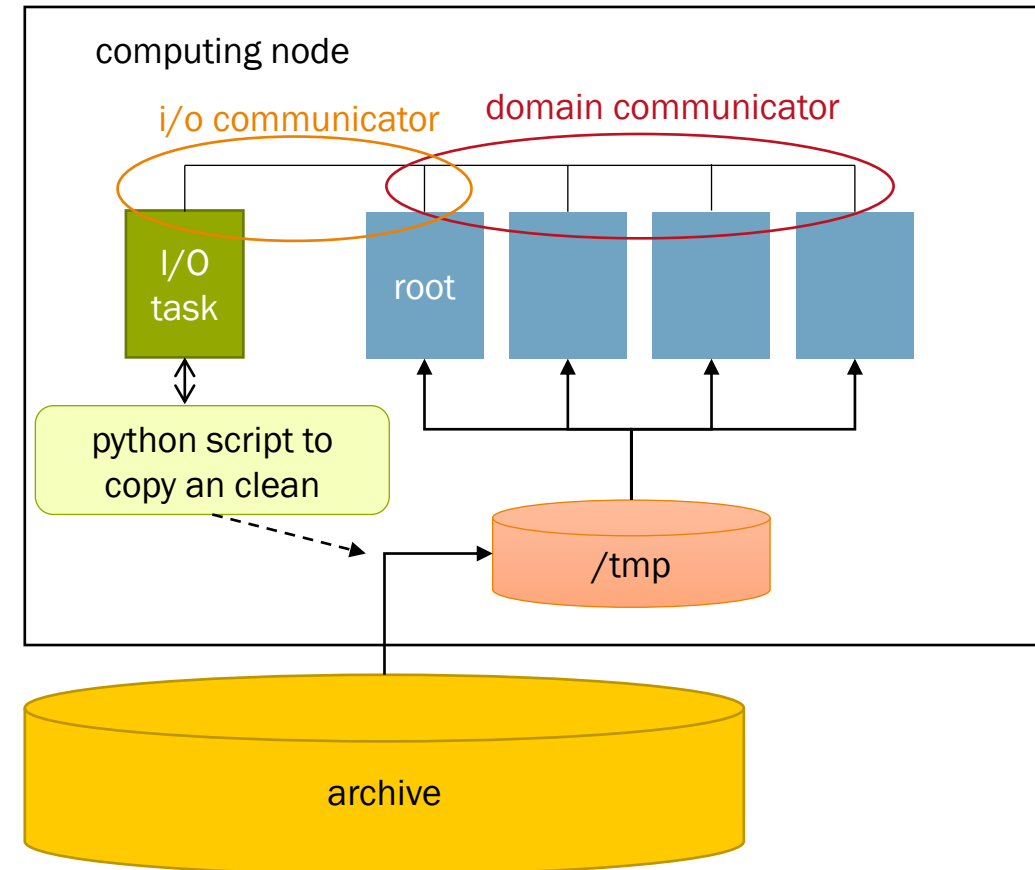
› In progress: assign extra cpu for I/O tasks

- › I/O tasks copies next input/output to/from local disk to archive, while other tasks perform calculations

› Towards "XIOS" server?

<https://forge.ipsl.jussieu.fr/ioserver>

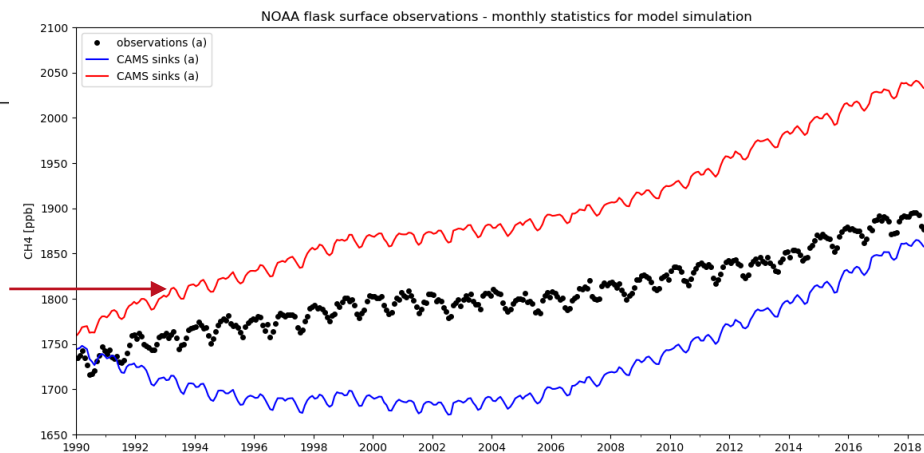
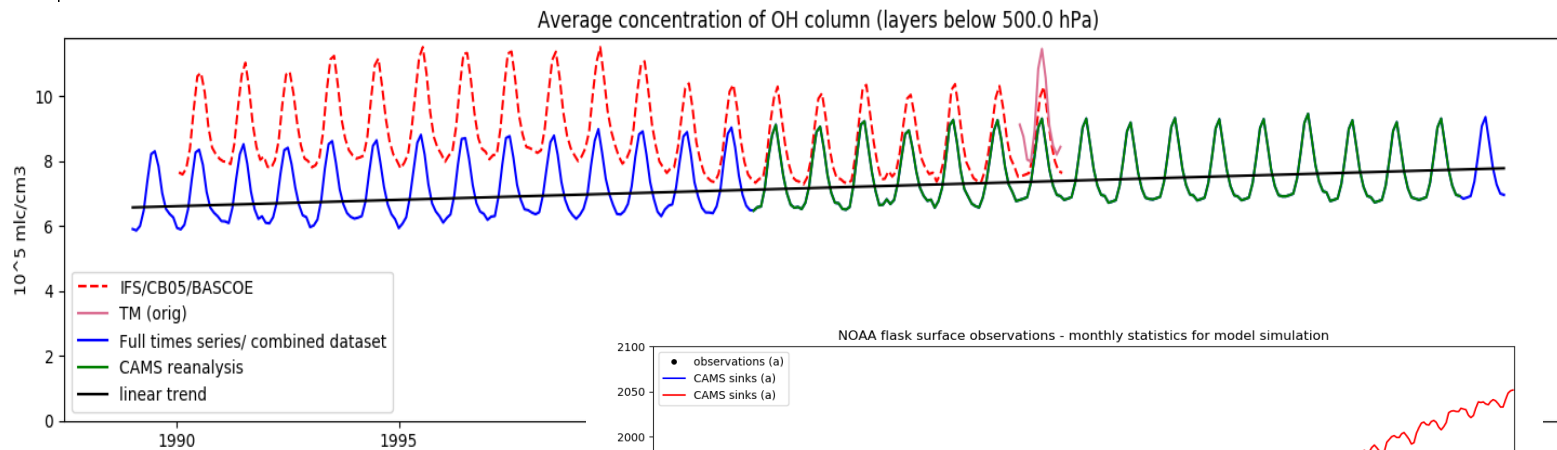
Note that results are VERY machine specific!



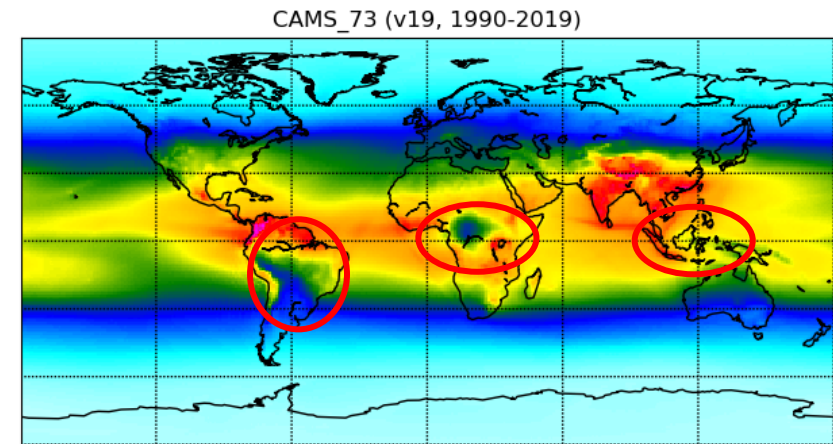
TM5-MP/4D-VAR

ATMOSPHERIC SINKS FOR CH4

- › Latest CAMS_73 CH4 inversions (v19r1, 1990-2019):
 - › tropospheric OH from CAMS ReAnalysis (2003-2018) and IFS/CB05/BASCOE runs (1990-2008), harmonized into timeseries with linear trend



Improved trend
in global CH4

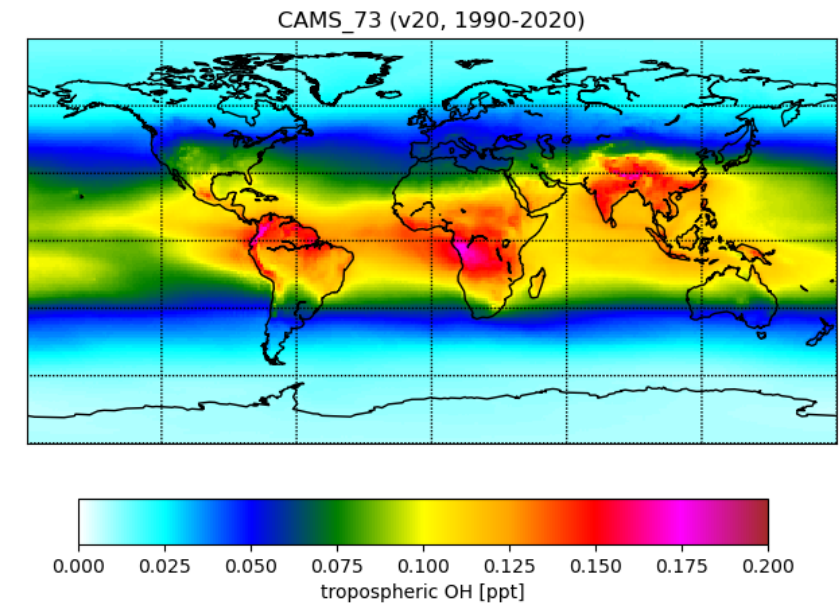
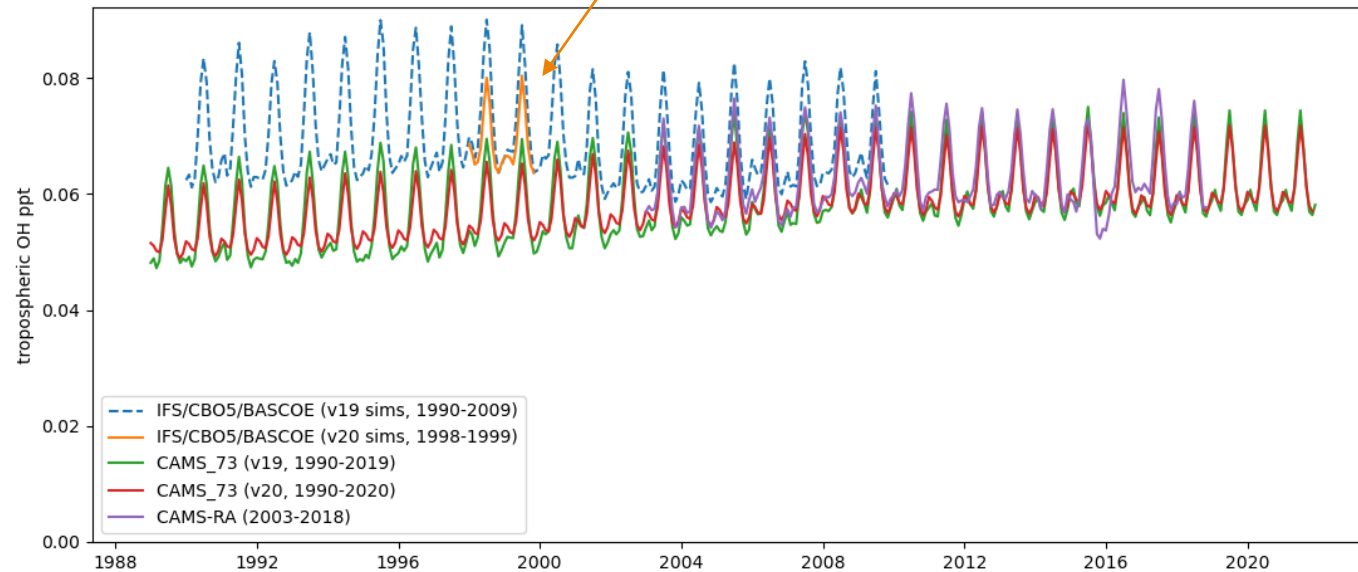


OH above tropical forest too low ?

TM5-MP/4D-VAR

ATMOSPHERIC SINKS FOR CH4

- › CAMS_73 CH4 inversions (v20r1, 1990-2020):
 - › New IFS/CBO5/BASCOE runs (1998-1999) with updates in CO from forest fires
 - › Used these for spatial pattern, but v19r1 for year-to-year trend



Higher OH above tropical forest