NorCPM-CF – A NorCPM setup for Climate Futures

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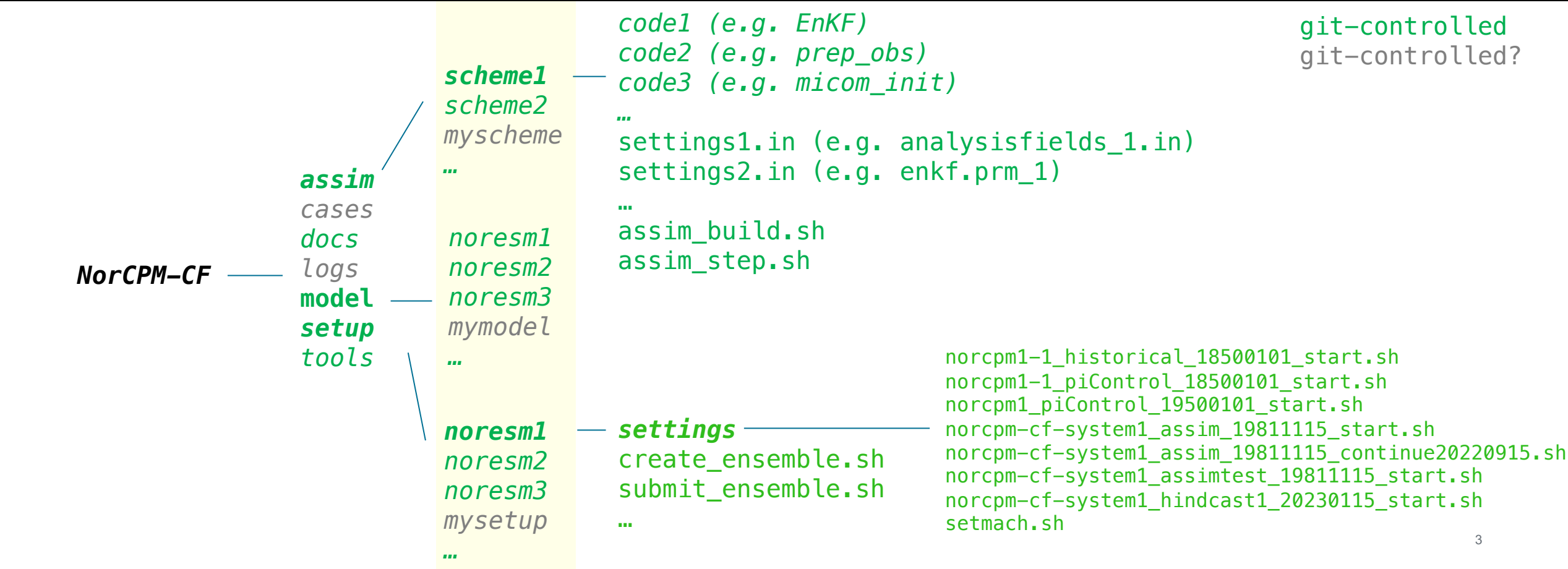[3]NANSEN ENVIRONMENTAL AND REMOTE SENSING CENTER

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Features

➢ NorCPM (NorESM+assimilation) code, scripts and settings in single git-repository
https://github.com/BjerknesCPU/NorCPM-CF

➢ NorCPM (NorESM+assimilation) input data in single location on Betzy
/cluster/shared/noresm/inputdata

➢ Full experiment customization via setting files and command line options (allows better git-version control because scripts remain more "static")

➢ Code compilation for each experiment (ensures consistency, traceability, portability)

➢ Flexibility to add mulitple models and assimilation schemes in a structured and organized manner

➢ Rigerous logging of building and running the system (traceability, reproducability)

➢ Documentation: user-guide with examples for running NorCPM

https://github.com/BjerknesCPU/NorCPM-CF

NorCPM-CF

- allows **multiple *assimilation schemes* and *experiment setup environments*** – multiple users can contribute to the same repository without interfering with each other's work
- flexible; structured and organized; fully version controlled
- suitable for use with NorESM1, NorESM2 and later versions


```
                              scheme1          code1 (e.g. EnKF)                    git-controlled
                              scheme2          code2 (e.g. prep_obs)                git-controlled?
                              myscheme         code3 (e.g. micom_init)
                                               …
                              …                settings1.in (e.g. analysisfields_1.in)
               assim                           settings2.in (e.g. enkf.prm_1)
               cases                           …
               docs             noresm1        assim_build.sh
NorCPM-CF      logs             noresm2        assim_step.sh
               model            noresm3
               setup            mymodel
               tools            …                                    norcpm1-1_historical_18500101_start.sh
                                                                     norcpm1-1_piControl_18500101_start.sh
                                                                     norcpm1_piControl_19500101_start.sh
                              noresm1          settings               norcpm-cf-system1_assim_19811115_start.sh
                              noresm2          create_ensemble.sh     norcpm-cf-system1_assim_19811115_continue20220915.sh
                              noresm3          submit_ensemble.sh     norcpm-cf-system1_assimtest_19811115_start.sh
                              mysetup          …                      norcpm-cf-system1_hindcast1_20230115_start.sh
                              …                                       setmach.sh
```

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Tutorial for performing an assimilation experiment using NorESM1-ME

Install NorCPM-CF in the nn9039k project space

```
mkdir -p /cluster/projects/nn9039k/people/$USER
cd /cluster/projects/nn9039k/people/$USER
git clone ssh://git@github.com/BjerknesCPU/NorCPM-CF.git NorCPM-CF
```

Set up a NorESM1-ME assimilation test experiment with 4 members

```
cd /cluster/projects/nn9039k/people/$USER/NorCPM-CF/setup/noresm1
./create_ensemble.sh settings/norcpm-cf-system1_assimtest_19811115.sh
```

Submit experiment

```
./submit_ensemble.sh settings/norcpm-cf-system1_assimtest_19811115.sh
```

Tutorial for performing an assimilation experiment using NorESM2-LM

Install NorCPM-CF in the nn9039k project space

```
mkdir –p /cluster/projects/nn9039k/people/$USER
cd /cluster/projects/nn9039k/people/$USER
git clone ssh://git@github.com/BjerknesCPU/NorCPM–CF.git NorCPM–CF
```

Install NorESM2

```
cd /cluster/projects/nn9039k/people/$USER/NorCPM–CF/setup/noresm2
./install_noresm2.sh
```

Set up a NorESM2-LM assimilation test experiment with 10 members

```
./create_ensemble.sh settings/noresm2–lm_odaday_19960101.sh
```

Submit experiment

```
./submit_ensemble.sh settings/noresm2–lm_odaday_19960101.sh
```