The Norwegian Climate Prediction Model (NorCPM) repository
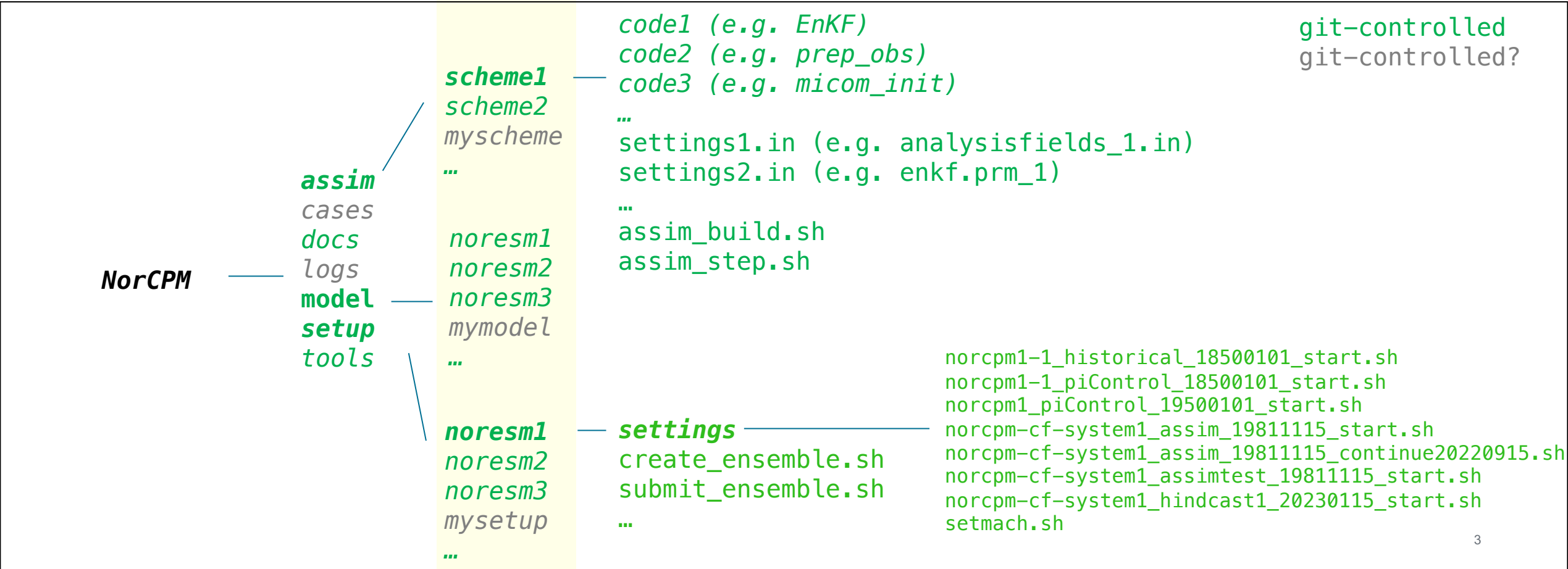
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Features of NorCPM structure

➢ NorCPM (NorESM+assimilation) code, scripts and settings in single git-repository

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

➢ Automated experiment customization via setting files and command line options

➢ Compilation of assimilation and model code on-the-fly for each experiment

➢ Flexibility to add mulitple models and assimilation schemes

➢ Improved logging of building and running

➢ Documentation: basic user-guide and examples for running NorCPM

NorCPM

- 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


```
                                              code1 (e.g. EnKF)              git-controlled
                                              code2 (e.g. prep_obs)          git-controlled?
                          scheme1             code3 (e.g. micom_init)
                          scheme2
                          myscheme            …
                          …                   settings1.in (e.g. analysisfields_1.in)
            assim                             settings2.in (e.g. enkf.prm_1)
            cases
            docs          noresm1             …
            logs          noresm2             assim_build.sh
NorCPM      model         noresm3             assim_step.sh
            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 in the nn9039k project space

```
mkdir -p /cluster/projects/nn9039k/people/$USER
cd /cluster/projects/nn9039k/people/$USER
git clone https://github.com/NorESMhub/NorCPM.git NorCPM
```

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

```
cd /cluster/projects/nn9039k/people/$USER/NorCPM/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 in the nn9039k project space

```
mkdir –p /cluster/projects/nn9039k/people/$USER
cd /cluster/projects/nn9039k/people/$USER
git clone https://github.com/NorESMhub/NorCPM.git NorCPM
```

Install NorESM2

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

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

```
./create_ensemble.sh settings/noresm2–lm_odaday_10mem_19960101pgchiu.sh
```

Submit experiment

```
./submit_ensemble.sh settings/noresm2–lm_odaday_10mem_19960101pgchiu.sh
```