# Hands-on exercises: hydro fabric preparation and HPC

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# Course timeline

14:30 - 16:30 GMT+3

# Recall of hydro-fabric preparation:

Principals: https://github.com/QingYang6/CREST_tutorial/blob/main/Course_2_Building_CREST_model_hydro-fabric_forcing_and_settings.pdf

Practice examples: https://github.com/QingYang6/CREST_tutorial/blob/main/Files_prepare.ipynb, https://github.com/QingYang6/CREST_tutorial/blob/main/Practice_Hydrofabric.ipynb

# Recall of hydro-fabric preparation:

File structure: https://github.com/QingYang6/CREST_tutorial/blob/main/Course_3_Operational_CREST_workflow_and_model_runtime_setting.pdf

Example project:

https://github.com/QingYang6/CREST_tutorial/tree/main/training_project/Wadi (basin shape)

https://github.com/QingYang6/CREST_tutorial/tree/main/training_project/MidWestCoast (rectangle shape)

# Software for HPC:

1. Windows:

Putty,

WinSCP

2. MAC:

Terminal, iTerm2

FileZilla

# Computation resources:

```
matlab       up   infinite      3    mix ncmcn[617-619]
matlab       up   infinite      3   idle ncmcn[620-622]
```

ncmcn620 for hydrodev

/g/home/hydrodev/.bashrc

Run MATLAB interactively

ssh ncmcn620

matlab

Share folder: /p1g/shared/hydro_train/

# CREST resources:

CREST Model: /g/model/hydro/model/NCM_Operation_CREST/CREST_3.0

Parsed WRF for CREST:
/g/model/hydro/hydrowork/CREST_work/Extracted_WRF/forcast_test

/g/model/hydro/hydrowork/CREST_work/Extracted_WRF/forcast_test/2024102718UTC

/g/model/hydro/hydrowork/CREST_work/Extracted_WRF/forcast_test/2023082100UTC

/g/model/hydro/hydrowork/CREST_work/Extracted_WRF/forcast_test/2024080500UTC

# Automatically setup training projects for CREST run:

1. Upload the training projects to HPC.
2. Login through terminal, ssh ncmmn1.
3. Change path to the training project, cd <path>.
4. chmod +x ./Setup_TimeLocation.sh.
5. Run ./Setup_TimeLocation.sh with specify input parsed WRF.

Example run:

./Setup_TimeLocation.sh /g/model/hydro/hydrowork/CREST_work/Extracted_WRF/forcast_test/2024102718UTC

6. Submit CREST tasks through bash script:

sbatch run_LSRT.sh

sbatch run_LS.sh

sbatch run_RT.sh

# CREST related results:

1. Streamflow current prediction:

/g/model/hydro/hydrowork/CREST_Output/Events/Real_time_forecast

2. Flood quantile warning:

/g/web/CREST