**Interactive Mode** (20 core, 2 GB/core):

interact -c 20 --mem=2000

ssh lac-###

htop -u belinsky

**Key Generation**

ssh-keygen -t rsa -b 4096

ssh -XY <username>@gateway.hpcc.msu.edu (part in red unsure about)

local terminal (copy public key to server)

scp ~/.ssh/myKey\_pub username@hpcc.msu.edu:example.txt ~/ssh/myKeyCopy.pub

Append public key to authorized\_keys

cat myKeyCopy.pub >> authorized\_keys

**Using R 4.4.1:**

module load R/4.4.1 UDUNITS/2.2.28-GCCcore-13.2.0 GDAL/3.9.0-foss-2023b CMake/3.27.6-GCCcore-13.2.0 imkl/2023.2.0 BLIS/0.9.0-GCC-13.2.0

**Using R 4.4.2: (don’t need BLIS, IMKL, FLEXIBLAS)**

module load UDUNITS/2.2.28-GCCcore-13.2.0 GDAL/3.9.0-foss-2023b CMake/3.27.6-GCCcore-13.2.0 imkl/2023.2.0 BLIS/0.9.0-GCC-13.2.0 libiconv/1.17-GCCcore-13.2.0 Java/21.0.2 FlexiBLAS/3.3.1-GCC-13.2.0 powertools

module load UDUNITS/2.2.28-GCCcore-13.2.0 GDAL/3.9.0-foss-2023b CMake/3.27.6-GCCcore-13.2.0 libiconv/1.17-GCCcore-13.2.0 Java/21.0.2 powertools

export PATH=$HOME/R/bin:$PATH

Need in batch job (not sure why or when this is needed…)

**Other Stuff**

#sed: replace s/this/with\_this/globally

# write each opt$objective to a .chk file -- target: prereq -- $<: prerequisite, $@: target

find $(pwd) -type f -regex '.\*chp[123]/.\*\_RTMB\.R')

# save and restore your module setup

module save r

module restore r

**Installing R 4.4.2**

wget http://cran.rstudio.com/src/base/R-4/R-4.4.2.tar.gz

tar -xvfz R-4.4.2.tar.gz

cd R-4.4.2

mkdir ~/R

./configure --prefix=$HOME/R --enable-R-shlib

./configure --prefix=$HOME/R --with-blas="-L$HOME/openblas/lib -lopenblas" --with-lapack --enable-R-shlib

./configure --prefix=$HOME/R --with-blas="-L$HOME/openblas/lib -lopenblas" --with-lapack --enable-R-shlib

module load libiconv/1.17-GCCcore-13.2.0 Java/21.0.2

make && make install

export PATH=$HOME/R/bin:$PATH

**Installing OpenBLAS:**

wget <https://github.com/OpenMathLib/OpenBLAS/releases/download/v0.3.29/OpenBLAS-0.3.29.tar.gz>

tar -xvfz OpenBlas\*

mkdir ~/openblas

cd OpenBLAS-0.3.29

make PREFIX=$HOME/openblas

make install PREFIX=$HOME/openblas

# these can be put in the ~/.bashrc file

export LD\_LIBRARY\_PATH=$HOME/ openblas /lib:$LD\_LIBRARY\_PATH

export PATH=$HOME/ openblas /bin:$PATH

export PKG\_CONFIG\_PATH=$HOME/openblas/lib/pkgconfig:$PKG\_CONFIG\_PATH

**Run makefile :**

export R\_LIBS\_USER=/mnt/home/belinsky/Rlibs

cd /mnt/home/belinsky/spacetime

FLEXIBLAS=IMKL make -j

**Questions:**

SLURM history

R:

wget https://cran.r-project.org/src/base/R-4/R-4.3.1.tar.gz

tar -xzvf R-4.3.1.tar.gz

cd R-4.3.1

./configure --prefix=$HOME/local --with-blas="-L$HOME/local/lib -lopenblas" --with-lapack

make -j$(nproc)

make install

**Packages:**

Set the libpath

.libPaths("/mnt/research/QFC/Rlibs")

This overrides .Renviron

Units: need libudunits2-dev

* It exists in headless but not RStudio

**Terra package** (for rnaturalearth) – need netCDF

module load netCDF/4.9.2-gompi-2023b

**INLA:**

install.packages("INLA",repos=c(getOption("repos"),INLA="<https://inla.r-inla-download.org/R/stable>"), dep=TRUE)

**rnaturalearthhires**

remotes::install\_github("ropensci/rnaturalearthhires")

install.packages(

"rnaturalearthhires",

repos = "https://ropensci.r-universe.dev",

type = "source"

)

**gsl** 🡪 module load GSL/2.7-GCC-13.2.0

**runjags** 🡪 JAGS/4.3.2-foss-2023a (but, FOSS/2023b in already used – by what??)

**Git Push in RStudio:**

The first time you do a Push you must do:

env -i HOME="$HOME" /usr/bin/git push

(and it will do an authentication)

After that

git push

Will work

**Set up HPCC for R:**

alias r='module purge; \

module load R/4.4.1-gfbf-2023b \

UDUNITS/2.2.28-GCCcore-13.2.0 \

GDAL/3.9.0-foss-2023b \

CMake/3.27.6-GCCcore-13.2.0 \

libiconv/1.17-GCCcore-13.2.0 \

git/2.42.0-GCCcore-13.2.0 \

powertools; \

export R\_LIBS\_USER="/mnt/home/***belinsky***/Rlibs"'

Make sure R\_LIBS\_USER is not set in .Renviron

**Snippets in RStudio:**

To be useful, snippet names need to have at least 3 characters

snippet rpath

.libPaths("~/Rlibs")

snippet qpath

.libPaths("/mnt/research/QFC/Rlibs")