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Task order for chill model work:

* **1. Run daily met data through chillR to produce chill unit outputs**
  + **Future & modeled historical scenarios**
    - **Shell script**: run-chill-model\_modeled.sh
    - **R script**: chill-model\_modeled.R
    - **File output**: /fastscratch/mbrousil/maca\_v2\_vic\_binary/\*model\*/\*scenario\*/chill\_output\_data\_\*lat\*\_-\*long\*.txt
  + **Observed historical**:
    - **Shell script**: run-chill-model\_historical-observed.sh
    - **R script**: chill-model\_historical-observed.R
    - **File output**: /fastscratch/mbrousil/historical/UI\_historical/VIC\_Binary\_CONUS\_to\_2016/chill\_output\_data\_\*lat\*\_-\*long\*.txt
* **2. Move outputs to /data/hydro/users/mbrousil in same file structure**
* **3. Process data output from chill model to aggregate**
  + **Future & modeled historical scenarios**
    - **Shell script**: array-modeled\_data.sh
    - **R script**: chill-model\_process\_modeled\_data.R
    - **File output**:
      * Seasonal summary: /fastscratch/mbrousil/chill-figs/chill-data-summary-\*model\*\_\*scenario\*.txt
        + Columns:

".id" (originating file name)

"Chill\_season" (years included in chill season)

"sum" (sum chill units)

"thresh\_50" (days after Sept 1 to reach 50 unit threshold)

"thresh\_75" (days after Sept 1 to reach 75 unit threshold)

"sum\_J1" (sum chill units by Jan 1)

"sum\_F1" (sum chill units by Feb 1)

"sum\_M1" (sum chill units by March 1)

"sum\_A1" (sum chill units by April 1)

"year" (end year of chill season)

"model" (model name)

"scenario" (rcp 4.5, rcp 8.5, or historical)

"lat" (latitude from original filename)

"long" (longitude from original filename)

* + - * Summary for full historical period or future decadal groups: /fastscratch/mbrousil/chill-figs/chill-data-summary-stats-\*model\*\_\*scenario\*.txt
        + Columns:

"lat"

"long"

"median\_50" (median days after Sept 1 to reach 50 unit threshold)

"median\_75" (median days after Sept 1 to reach 75 unit threshold)

"median\_J1" (median sum chill units by Jan 1)

"median\_F1" (median sum chill units by Feb 1)

"median\_M1" (median sum chill units by March 1)

"median\_A1" (median sum chill units by April 1)

“year” (only if future data; 2040s, 2060s, or 2080s)

"model"

"scenario”

* + **Observed historical**:
    - **Shell script**: observed-historical\_data.sh
    - **R script**: chill-model\_process\_obs\_hist\_data.R
    - **File output**:
      * Seasonal summary: /fastscratch/mbrousil/chill-figs/chill-data-summary-obs\_hist.txt
        + Columns:

".id" (originating file name)

"Chill\_season" (years included in chill season)

"sum" (sum chill units)

"thresh\_50" (days after Sept 1 to reach 50 unit threshold)

"thresh\_75" (days after Sept 1 to reach 75 unit threshold)

"sum\_J1" (sum chill units by Jan 1)

"sum\_F1" (sum chill units by Feb 1)

"sum\_M1" (sum chill units by March 1)

"sum\_A1" (sum chill units by April 1)

"year" (end year of chill season)

"model" (model name)

"scenario" (rcp 4.5, rcp 8.5, or historical)

"lat" (latitude from original filename)

"long" (longitude from original filename)

* + - * Summary for full historical period: /data/hydro/users/mbrousil/chill-figs/chill-data-summary-stats-obs\_hist.txt
        + Columns:

"lat"

"long"

"median\_50" (median days after Sept 1 to reach 50 unit threshold)

"median\_75" (median days after Sept 1 to reach 75 unit threshold)

"median\_J1" (median sum chill units by Jan 1)

"median\_F1" (median sum chill units by Feb 1)

"median\_M1" (median sum chill units by March 1)

"median\_A1" (median sum chill units by April 1)

"model"

"Scenario"

* **4. Move outputs to /data/hydro/users/mbrousil in same file structure**
* **5. Create figures**
  + **Maps**
    - **Shell script**: create-model-maps.sh
    - **R Script**: chill-model-maps.R
    - **File output**:
      * /data/hydro/users/mbrousil/chill-figs/accum-\*month\*\*scenario\*.png
      * /data/hydro/users/mbrousil/chill-figs/thresh\*50 or 75\*\_\*scenario\*.png
  + **Scatterplot figures** 
    - **Shell script**: create-model-plots.sh
    - **R Script**: chill-model-plots.R
    - **File output**:
      * /data/hydro/users/mbrousil/chill-figs/chill-plot\_accum-\*month\*1.png
      * /data/hydro/users/mbrousil/chill-figs/chill-plot\_thresholds
* **Other files**:
  + List of locations of interest (295): listoffilesforMatt.txt
  + Classifications of cool/warm location by lat/long: LocationGroups.csv