

## Step

## Project Task

- 1 Polish existing 2-pager description of GL Ensemble
- 2 Literature review of CMIP5 and NARCCAP - interested in model performance for the Great Lakes region (if possible) or next best (likely Eastern US or US). Each article should be added to glisaclimate.org in the Ensemble project space. A short paragraph about the article and important points should be added to the notes section of the resource page. Take notes of how models were evaluated.
- 3 Literature review of model evaluation - focus on metrics that have been developed for evaluating model performance. For each article worth noting, add it as a resource to glisaclimate and provide notes for it.
- 4 Model Documentation Review - A resource page for CMIP5 and NARCCAP should be added (if they do not already exist) and appropriate tags should be noted (model resolution, variables, etc). Special attention should be given to documenting model outputs (variables in their datasets). Any documents that discuss the models in technical detail should be included as links on the resource page.

- 5 Data Structure Review - on the resource pages for CMIP5 and NARCCAP data create a table of important data characteristics that will be used when developing code for analysis later in the project. The table should include the date range of available data, spatial coverage (US and/or Canada), array structure (is the data organized by date, lat, lon?), whether or not there are data over the lakes, etc.
- 6 Review GLISA's past projects and create a list of climate parameters or weather events that have been important to the stakeholders we've worked with in the past (i.e., extreme rainfall events, lake-effect snowfall, heat events, etc.)
- 7 Using the climate parameter's list, identify what model output variables or model information is needed to be able to say something about each item. (Additional literature review may be required) For example, heat events will need information about temperature (daily highs and lows is better than average) and humidity. This task may not have a clear "answer" for each item, but the more challenging items will inform our information gaps.

8 Start collecting information about the evaluation metrics in a table on [glisacclimate.org](http://glisacclimate.org) - create a new wiki within the project space. The table will be based on the climate parameter list. This table will include information that we need to know about the models for their evaluation. Present the table in an organized manner (i.e., group metrics that are provided by the model documentation - are there lakes? - vs metrics that require analysis).

9 The next steps of this project will be determined in part by the findings of the previous steps. Any metrics that have clearly defined analyses can be coded (preferably in python using UV-CDAT capabilities with detailed notes) and models can be evaluated. The codes should be written in a way that is most flexible for using other data sets as input for evaluation. Ultimately, I foresee a large table of evaluation metrics being produced where a user can look up the metric that is meaningful to the practitioner and determine which models are most appropriate to use. From here we will need to then develop a means of constructing ensembles, performing ensemble analysis, and translating results to stakeholders in ways that are meaningful.

Deliverable(s)	Expected Effort
Description will be available online and in print form	2 hours
1) resource page in glisaclimate.org with appropriate tags for each article that is collected; 2) a paragraph (or more) of notes on each resource page about important points from the articles	10-15 hours
Additional resources for the project regarding model evaluation with narratives attached	10-15 hours
1) resource page in glisaclimate.org with appropriate tags for each dataset; 2) associated links to model documentation	15-20 hours

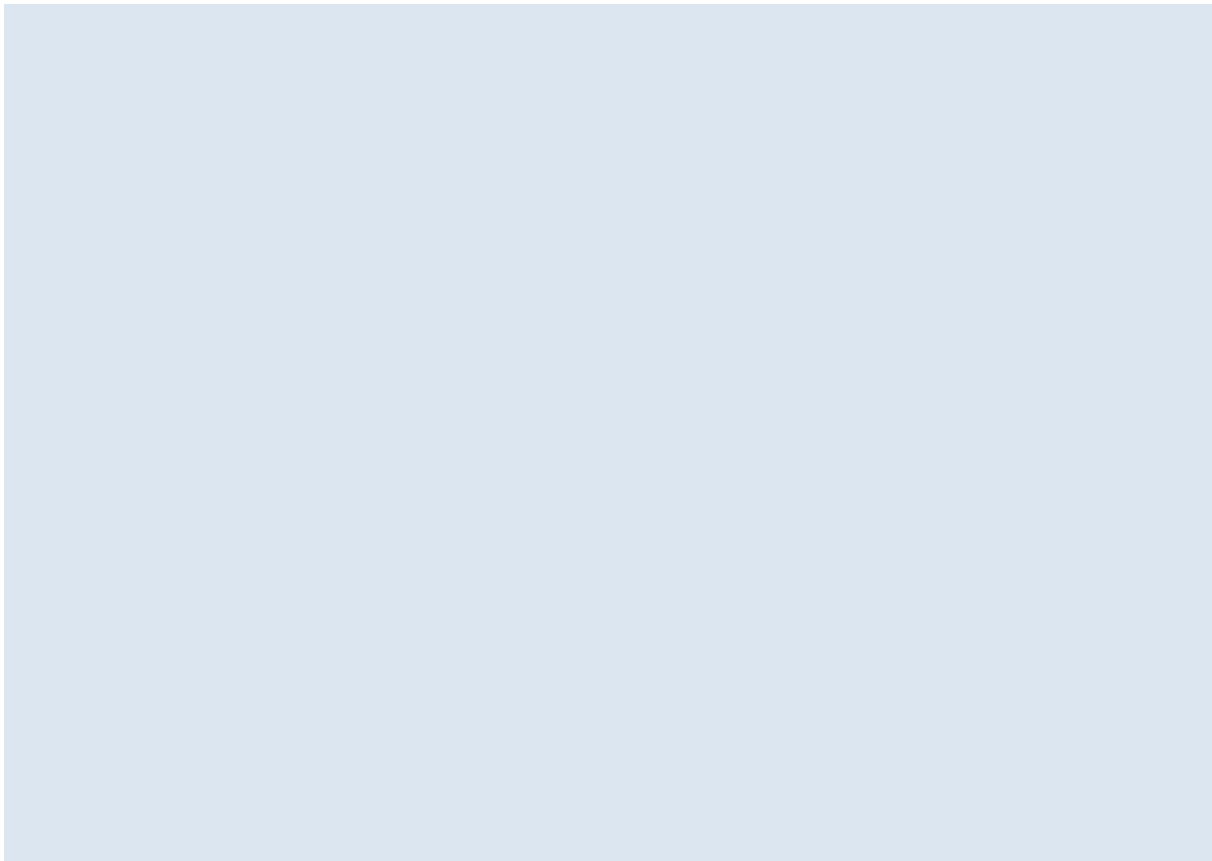
Details of the data structure will be made available in a table format for others who wish to use the data. 10 hours

A wiki page on glisaclimate that contains a list of climate parameters or weather events that are important to stakeholders. This list will inform what we want to evaluate in the models 5-10 hours

This further develop the list of model variables and features and associated model evaluation metrics 10 hours

A wiki page on glisaclimate that contains a table of evaluation metrics for the models

5 hours for initial set of models; ongoing effort long-term



**\*\* Highly Technical  
Expertise Required  
(working with data) \*\***





