October 1, 2020

Dynamical Downscaled Climate Information project - for Minnesota's climate projections

Color key: white cells = insufficient; *light gray cells and italic letters = better/intermediate;* dark gray = best

	What Minnesota has had available to date	What the DNR will have available	What Minnesota needs
Model type (downscaling)	Statistical	Physical/Dynamical	Physical/Dynamical
Geographic region	National coverage	Minnesota only	Minnesota or local region only
Coverage of Minnesota	100%	*99.x% (small parts of extreme north missing)*	100%
Resolution (accounting for local weather information)	N/A (statistical models do not account for weather)	*10-km scale: accounts for some weather, but not individual thunderstorms*	4-km (quarter township): accounts most "mesoscale" weather including thunderstorms
Purpose for creation of datasets	*Develop national standardized data*	*Aid agricultural, pest, and water-valuation research projects in Minnesota*	Specifically to produce best possible climate scenario data for Minnesota
Time coverage	Continuous through 2099	Two slices: 2040-59, 2080-99	Continuous through 2099
Time units of analysis	Monthly	*Monthly, seasonal, annual, by time slice*	Hourly, daily, monthly, seasonal, annual, multi-annual for any desired time period
Available variables:	Pre-determined: temperature, precipitation, counts of days above thresholds	*Predetermined by parent research projects, and secondarily by DNR budget: Temp, precipitation for sure; Possibly snow depth, evapotranspiration, solar radiation, soil moisture*	User-determined beforehand: temperature, precipitation, snowfall, snow depth, relative humidity, evapotranspiration, runoff, soil moisture, heat index, wind chill, wind speed, thunderstorm frequency, severe weather parameters, metrics of extremes, anything requested by user and deemed feasible

Relation to LiDAR: None directly, though LiDAR layers could be used in conjunction with climate data to aid decision-making and planning.
Relation to Atlas 14: None.