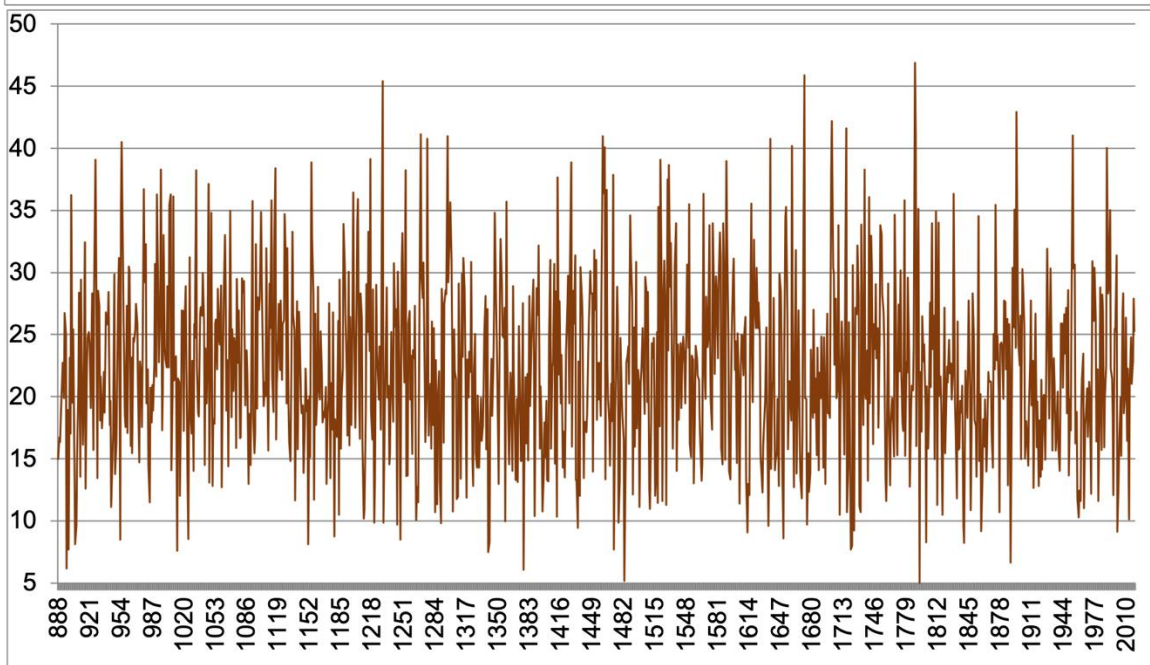
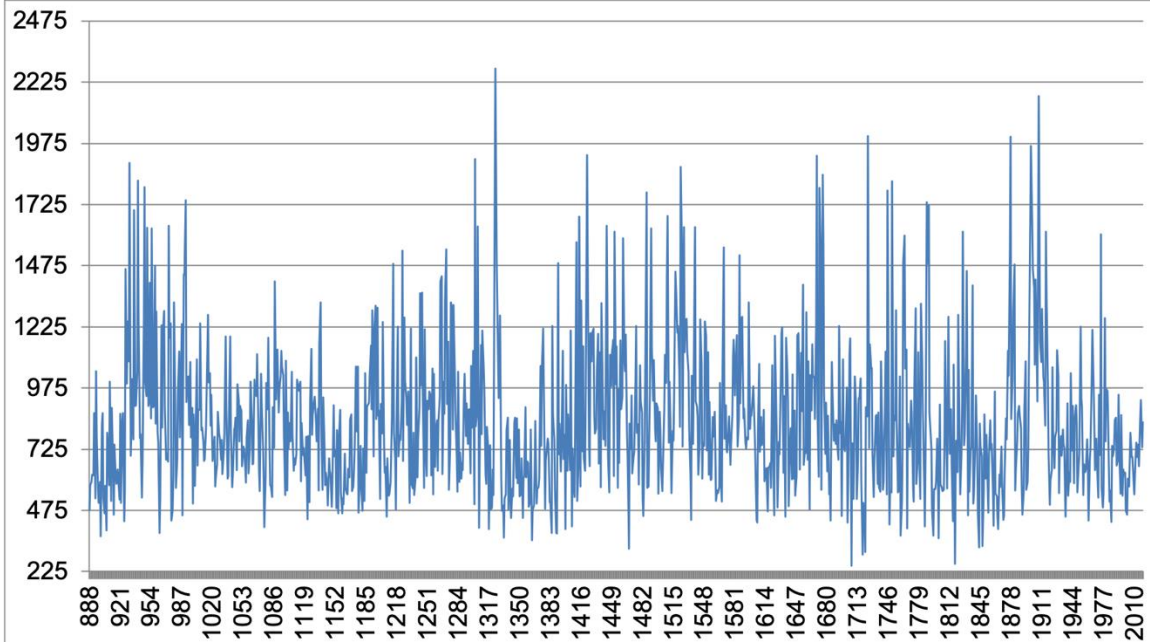


Global Water Futures 2021 Operations Team Meeting – Project Reporting Template

Instructions: All GWF projects are asked to provide a summary update on their activities and accomplishments in preparation for the upcoming Operations Team meeting. **Please submit these by email to chris.debeer@usask.ca by no later than December 2.** These will be used to help guide discussions and breakout synthesis activities and will be made generally accessible on our website in advance of the meeting.

Project Name:	Assessing the future projection of soil moisture and streamflow in the Canadian Prairie region relative to tree-ring reconstructions of the past millennium
Our major accomplishments to date are:	
<ul style="list-style-type: none"> • Tree-reconstructions of the annual and warm season flow of the Assiniboine, North Saskatchewan and Athabasca Rivers • Hydrological (MESH) modeling of these river basins • Forcing the MESH model with outputs from an ensemble of runs of CanRCM4 • Assimilation of the paleo and projected hydroclimate to investigate the extent to which future soil moisture and streamflow departs from the hydroclimate of the past millennium. 	
Our current activities are:	
<ul style="list-style-type: none"> • Forcing a calibrated MESH model of the Athabasca River basin with various climate model simulations: pre-industrial, historical and RCP8.5 • Downscaling tree-ring reconstructions of the Athabasca River at three gauges to weekly streamflow estimates over the past millennium • Comparing the various model simulations and reconstructions of the hydrology of the Athabasca River basin, in terms of the spectral and statistical properties of these time series. 	
The main accomplishments expected by the end of the project are:	
<ul style="list-style-type: none"> • Comparison of the short-term variability in hydroclimate (streamflow and soil moisture) between future projections and the paleohydrology of the North Saskatchewan, Athabasca and Assiniboine River basins • Conclusions and recommendations regarding the extent to which climate models, and thus the climate forcing of hydrological models, is lacking certain modes of natural variability that are evident in longer (proxy) hydrological records • In collaboration with technical experts in the energy, mining and agricultural sectors, apply the new knowledge to an assessment of climate risks to industrial water supplies. 	
Here is a key visual from the project (figure, photo, table, graph, etc.)	



Maximum and minimum weekly flow, North Saskatchewan River near Deer Creek, 888-2019