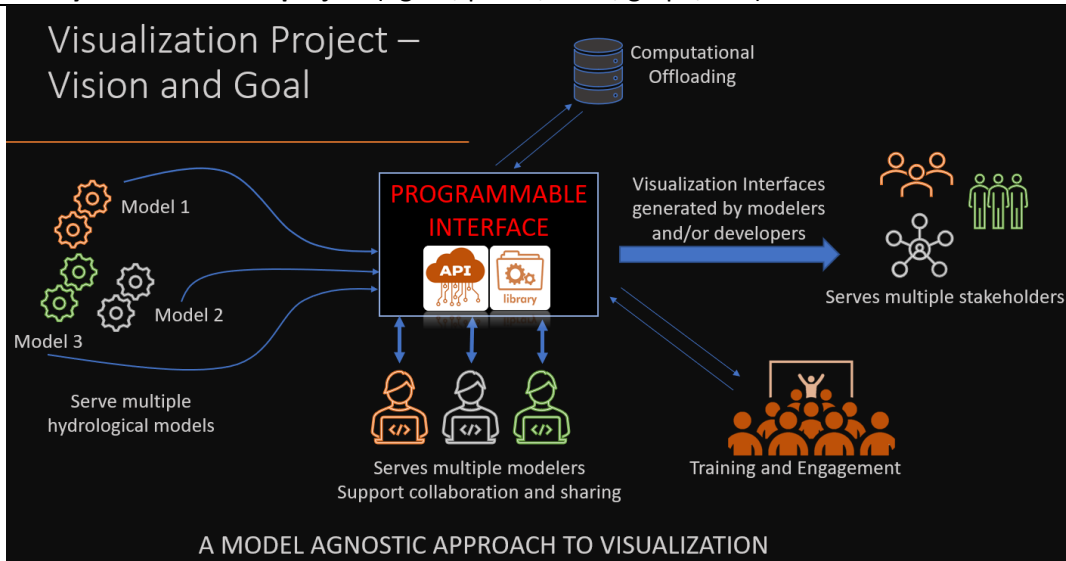


## Global Water Futures 2021 Operations Team Meeting – Project Reporting Template

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](mailto: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.

|   |  |
|---|--|
| <b>Project Name:</b>  | GWF Visualization Task Force – Visualization Platform for Modelers |
| <b>Our major accomplishments to date are:</b>   |  |
| <ul style="list-style-type: none"><li>• Created a proof of concept for a programmable, model-agnostic visualization platform for use by GWF Core Modelling Researchers that provides clear added value beyond what is currently available</li><li>• (Spring/Summer 2021)</li><li>• Designed a server-based scalable back-end and front-end architecture for modelers</li><li>• Created APIs for data import and manipulation (Spring/Summer 2021)</li><li>• Set up documentation and code samples to start the next phase of collaborative development and code reviews (Fall 2021)</li><li>• Developed a research prototype (Fall 2021)</li></ul>  |  |
| <b>Our current activities are:</b>  |  |
| <ul style="list-style-type: none"><li>• Continue regular meetings with core modelling team</li><li>• User modeling to prepare the interface for collaborative development</li><li>• Beta version (Winter/Spring 2022)</li><li>• Engagement and Training (Summer/Fall 2022)</li><li>• Production Release (Fall 2022)</li></ul>   |  |
| <b>The main accomplishments expected by the end of the project are:</b>   |  |
| <ul style="list-style-type: none"><li>• Creating a sustainable visualization platform to be used by modelers and resources to train other end-users and modellers beyond GWF. The platform is expected to support the following activities.<ul style="list-style-type: none"><li>○ Model Agnostic approach to vis (Model output → programmable interface → Vis.)</li><li>○ Scalable (Functional scalability, Computational offloading to the cloud, Administrative scalability – multiple organizations)</li><li>○ Interactive (Data Exploration)</li><li>○ Programmable (Customizable, Transparent, Incremental, Dashboard)</li><li>○ Collaborative (Share visualizations, data, programs)</li><li>○ Data Analytics (Visual comparison, derived variables, auto-summarization, scenario analysis, decision making)</li></ul></li></ul> |  |

Here is a key visual from the project (figure, photo, table, graph, etc.)



### Programmable Interface & GeoMap

```
Code
```

```
1 # Initialize a Geo map with an unique name of the map.  
2 # function : initializeMap  
3 # param : chart_name - string - name of the chart  
4 # chart_name = "Chart1"  
5 initializeMap(chart_name)  
6  
7 # Define Animation control once at the beginning and add it into Geo map with chart.  
8 # function : addAnimationInfoToChart  
9 # param 1 : chart_name - string - name of the chart  
10 # param 2 : year_from - int - start year of the animation (e.g. 1 Jan 2008)  
11 # param 3 : year_to - int - end year of the animation (e.g. 31 Dec 2013)  
12 # param 4 : animation_info - object (dictionary)  
13 # # "title" -> Title of the animation panel  
14 # "position" -> Position of the animation panel (bottomright, bottom  
15 # "title" -> "No Animation",  
16 # "position" -> "bottomright",  
17 }  
18 addAnimationInfoToChart(chart_name, 2009, 2013, animation_info)  
19  
20 # Define layer name and corresponding variable  
21 layer_name = "Scalar SWE"  
22 layer_name_1 = "Scalar Canopy Wat"  
23 variable_name = "scalarwat"
```

Time Series Comparison Chart

- Grayscale
- Streets
- Satellite
- Scalar SWE (kg m-2)
- Scalar Canopy Wat
- Diff of SWE and CanWAT

Diff of SWE and CanWAT

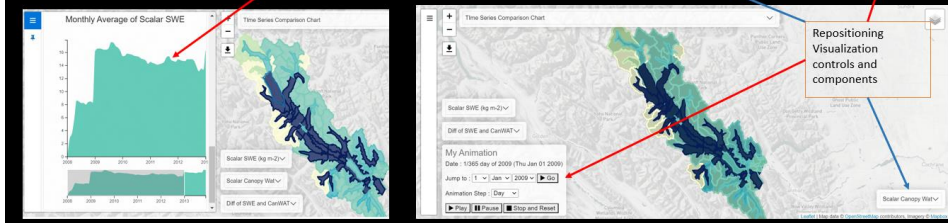
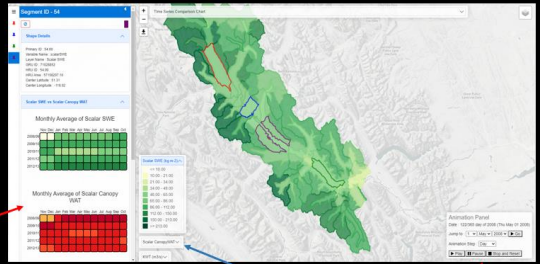
Scalar Canopy Wat

Scalar SWE (kg m-2)

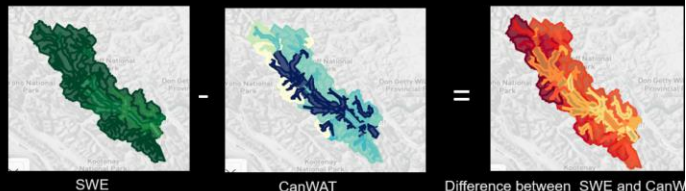
My Animation  
Date: 1/365 day of 2009 (Thu Jan 01 2009)  
Jump to: 1 Jan 2009  
Animation Step: Day  
Play Pause Stop and Reset

# Easy Interface Customization

Various charts can be added to the side panel from the programming interface



# Creating Derived Variables as Needed



```

Code
Run Clear
140 drawGeoChart(chart_name, layer_name_1, 'geoJSONs/bow
141
142
143
144 layer_name_2 = 'Difference of SWE and CanopyWat'
145 expression = '$$scalarSWE$$ - $$scalarCanopyWat$$'
146
147 # Define Color List for a specific layer of the Geo
148 # function : addColorListToGeoChart
149 # param 1 : chart_name - string - name of the chart
150 # param 2 : layer_name - string - name of the layer
151 # param 3 : color_list - array of string - list of a
152 color_list = ['#ffffcc', '#fedd00', '#feb24c', '#feb
153 addColorListToGeoChart(chart_name, layer_name_2, col
154
155
156 # Define Legend Info for a specific layer of the Geo
157 # function : addLegendToGeoChart
    
```

