

**MEMORANDUM OF AGREEMENT
FOR
USE OF SKAGIT RIVER BASIN DHSVM GLACIO-HYDROLOGY MODEL
AND
DATA SHARING
BETWEEN**

**UNIVERSITY OF WASHINGTON
SEATTLE CITY LIGHT
SKAGIT CLIMATE SCIENCE CONSORTIUM
UPPER SKAGIT INDIAN TRIBE**

This Memorandum of Agreement for Use of DHSVM Glacio-Hydrology Model for Skagit River Basin and Data Sharing ("MOA") is entered into by and between the University of Washington ("UW"); The City of Seattle, through its Seattle City Light department ("SCL"); Skagit Climate Science Consortium ("SC²"), and Upper Skagit Indian Tribe ("Upper Skagit Tribe") (collectively, the "Parties").

RECITALS

WHEREAS, since 2013, the UW, SCL, and SC², along with the Swinomish Indian Tribal Community and the Sauk-Suiattle Indian Tribe have been engaged in a cooperative effort to understand climate change scenarios of stream flows for certain rivers and tributaries in the Sauk, Suiattle, and Skagit River watersheds, and through those efforts have generated stream flow data using the Skagit Watershed Distributed Hydrology Soil Vegetation Model (DHSVM) coupled glacio-hydrology model, and several global climate models (the "Model");

WHEREAS, use and analysis of the stream flow data generated from the Model has been published in the Hydrologic Impacts of Climate Change in Skagit River Basin (2015), and the data and Model continue to be developed and refined for a public data share platform;

WHEREAS, the Upper Skagit Indian Tribe ("Upper Skagit Tribe") would like to utilize the Model to produce climate change forecast stream flows for additional tributaries and sub-basins of the Skagit Watershed, and would like to obtain from the other Parties certain existing data for stream flows;

WHEREAS, the Parties recognize that continuation, expansion and further development of the existing hydro-climatic modeling in the Skagit River Basin will enhance the information available to advance the collective understanding of how the hydrologic regimes in the watersheds will potentially be affected by climate change;

WHEREAS, to advance this objective, the Parties have agreed to provide the Model to the Upper Skagit Tribe for their use to conduct additional modeling in the Skagit River Basin. Use of the Model may include modifications and additional calibration of the Model by the Upper Skagit Tribe for new locations;

WHEREAS, the Parties will also provide to the Upper Skagit Tribe the existing model output data for several different global climate models and for two greenhouse gas emissions scenarios, including projections of daily and monthly streamflows at up to 20 locations in the Skagit River Basin, calculated exceedance probabilities, and calculated recurrence intervals for daily peak flows and 7-day average low flows;

WHEREAS, the Upper Skagit Tribe will provide the other Parties, and the Swinomish and Sauk-

Suitttle Tribes, all data generated from the Upper Skagit Tribe's use of the Model, as well as any data generated from any modified Model.

NOW THEREFORE, for and in consideration of the mutual understandings by the Parties, or individually referred to as Party, the Parties hereby agree:

1. Purpose of Agreement. The Parties enter into this MOA for the purpose of establishing the terms and conditions under which: 1) the Distributed Hydrology Soil Vegetation Coupled Glacio-Hydrology Model ("Model") may be utilized and modified by the Upper Skagit Tribe, and 2) data relating to use of the Model (the "Data") will be provided, received, used, disclosed and exchanged by and between the Parties.

2. Contact Information for Notices and Deliverables.

UW:

Name: Erkan Istanbuluoglu
Title: Associate Professor
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SC²:

Name: Jon Riedel
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La Conner, WA 98257
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SCL

Name: Crystal Raymond
Title: Climate Research and Adaptation Strategic Advisor
Address:
Phone Number: (206) 386-1620
Email: crystal.raymond@seattle.gov

Upper Skagit Tribe

Name: Doreen Maloney
Title: General Manager and Director of Tribal Treaty Trust Resources
Address: 25944 Community Plaza Way
Sedro-Woolley, WA 98284
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3. Terms of Use. By using the Model and the data provided by the other Parties, the Upper Skagit Tribe agrees to be bound by the provisions of this MOA. The Model and all data produced by the Model up to the effective date of this MOA is a result of prior joint efforts of SCL, UW, and SC², starting in 2013, as well as input and cooperation from the Swinomish Indian Tribe (2014- 2015) and Sauk-Suitttle Indian Tribe (2016 – 2017). All materials and data shall remain the property of the Party or Parties to whom it belongs in accordance with prior agreements between the Parties. No license under any patent, copyright, trademark or trade secret is granted or implied for the Model, or for any related materials or data transferred to the Upper Skagit Tribe. The Model and data provided to the Upper Skagit Tribe pursuant to this MOA is for the use of the Upper Skagit Tribe. The other Parties

to this MOA grant a limited, non-exclusive, non-transferable right to use the Model and the data provided pursuant to this MOA. All other uses, including the transfer of the Model or any portion of the data by the Upper Skagit Tribe to another party or agency must be authorized by the other Parties to this MOA. Any modified versions of the Model and data produced through the use of the Model or modified Model by the Upper Skagit Tribe shall be shared with the other Parties to this MOA, and with the Swinomish and Sauk-Suiattle Indian Tribes.

4. Indemnification. Errors may exist in the Model or data input into or produced by the Model. The Upper Skagit Tribe agrees to accept the Model and data provided by the other Parties as is, with all faults, and the Upper Skagit Tribe agrees to assume all risk and responsibility for the use or modification thereof; and the Upper Skagit Tribe further agrees to release, indemnify and hold harmless the other Parties, their officers, elected officials, agents, and employees from all claims (including demands, suits, penalties, losses, damages, or costs of any kind whatsoever) arising from or in connection with any use or modification of the Model, or data input or produced by the Model provided by the other Parties or by any modified Model.
5. No Warranty Express or Implied. THE UW, SCL, SC2 MAKE NO REPRESENTATION OR WARRANTY OF ANY KIND, INCLUDING ANY WARRANTY OF MERCHANTABILITY OR WARRANTY FOR FITNESS OF USE FOR A PARTICULAR PURPOSE, EXPRESS OR IMPLIED, WITH RESPECT TO THE MODEL OR DATA PROVIDED TO THE UPPER SKAGIT TRIBE.
6. Governing Law; Venue. This MOA shall be governed by and construed in accordance with the laws of the State of Washington and any action brought to enforce any provision or obligation hereunder shall be brought in a court of competent jurisdiction in King County, Washington
7. No Assignment. Neither Party shall have the right to assign or otherwise transfer its rights or obligations under this MOA, in whole or in part, without the prior written consent of the other Party.
8. Termination. This MOA may be terminated upon thirty (30) days advance written notice to the other Party. Termination of this MOA shall not extinguish any obligations accrued hereunder at the time of termination, and such obligations shall survive termination to the extent necessary to permit their complete fulfillment or discharge. The effective date of this MOA shall be determined by the date affixed hereto by the Party last signing this MOA.

In consideration of the terms, conditions, and covenants contained herein, the Parties have executed this Memorandum of Agreement by having their authorized representatives affix their signatures below:

THE CITY OF SEATTLE: SEATTLE CITY LIGHT

BY: *Lynn Best*

PRINTED NAME: *Lynn Best*

TITLE: *Chief Environmental Officer*

DATE: *2/16/18*

UNIVERSITY OF WASHINGTON

BY: *Erkan Istanbuloglu*

PRINTED NAME: Erkan Istanbuloglu

TITLE: Assoc. Prof.

DATE: 3/5/2018

SKAGIT CLIMATE SCIENCE CONSORTIUM

BY: *Jon L. Riedel*

PRINTED NAME: Jon L. Riedel

TITLE: Chair, Skagit Climate Science Consortium

DATE: 17 August 2017

UPPER SKAGIT INDIAN TRIBE

BY: *Joreen M. Maloney*

PRINTED NAME: JOREEN M. MALONEY

TITLE: USIT GENERAL MANAGER

DATE: 8/22/17