

Tahoe Science Program Quarterly Progress Report

P084: Development of an Online Watershed Interface to predict the effects of forest and fire management on sediment and phosphorus loads in surface runoff in the Lake Tahoe Basin

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QUARTER: October - December, 2015

Deliverables	Task	Start Date	End Date	Status Update	Percent Complete
IGO, Task Order, or Initial Funding Transfer	Initiate project	7/1/12	11/20/12	Received first and second year's funding. Still awaiting final year's funding	80%
Agreements	Establish agreements	1/1/13	5/30/13	Complete	100%
Inventory/assessment/monitoring	Install a server specific for this project	1/1/13	12/31/13	Complete	100%
	Carry out rainfall simulations on landings	9/1/12	12/31/13	Complete	100%
	Carry out concentrated flow simulations on landings	10/1/12	1/31/13	Complete	100%
	Incorporation of DEM and Soil layers on server	2/1/13	7/31/13	Complete	100%
	Incorporation of groundwater flow	2/1/13	7/31/13	The computer codes for incorporating the base flow are nearly complete.	81%
	Incorporation of nutrient and fine sediment prediction into WEPP output	2/1/13	7/31/13	Modeling continues. We have a framework, but need to complete base flow and flood routing first.	76%
	Incorporate flood and sediment routing	7/1/13	1/31/14	The new WEPP model with the sediment routing developed by Wang, 2010 is on the server. Now addressing bugs in the computer code	90%
	Validation	7/1/13	1/31/14	Awaiting completion of interface	

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Scientific reports, systems, or related products	Draft peer-reviewed manuscript	2/1/14	9/30/14	Addressed peer-review comments of a Journal of Hydrology paper on WEPP watershed assessment of hydrology and sediment transport for five watersheds in the Tahoe Basin	80%
	Final report	6/1/14	4/30/16	Project Extended due to delayed funding	
Stakeholder Meetings		1/1/13	12/31/14	Two onsite meetings completed with stakeholders	100%
Outreach/training	Workshop	4/1/14	7/31/14	Planning on April, 2016 Workshop	
Contract Administration	Quarterly report	1/1/13	12/31/14	This is the 13 th of 14 reports	93%
	Yearly report	1/1/13	12/31/15	Two out of three reports completed	67%

The overall goal of this project is to develop an online watershed GIS interface to predict the effects of forest and fire management on sediment and nutrient loads in surface runoff in the Tahoe Basin. A secondary goal was to compare the performance of two styles of rainfall simulator that had been used for past research in the basin.

Project Management

Funding for the final year of the project was made available. We can now recover expenses accrued during the latter half of the year.

Phosphorus Modeling

An additional part time programmer has been hired through the University of Idaho to assist in getting the P modeling incorporated into the online interface. In a separate, but potentially useful approach, the ARS has shared some work that has been done to incorporate P modeling within the WEPP model, rather than within the interface. We will pursue this option as well to determine the best approach for the Tahoe Basin.

Manuscripts

The manuscript we had been working on during the year was published:

Brooks, E.S., M. Dobre, W.J. Elliot, J.Q. Wu and J. Boll. 2016. Watershed-scale evaluation of the Water Erosion Prediction Project (WEPP) model in the Lake Tahoe basin. *Journal of Hydrology*, 533(2016) 389-402.

A copy of this manuscript will be submitted with this report.

Next Quarter

We will continue to work on incorporating the base flow, flood routing, and P delivery routines into the online model. The final report will be drafted.