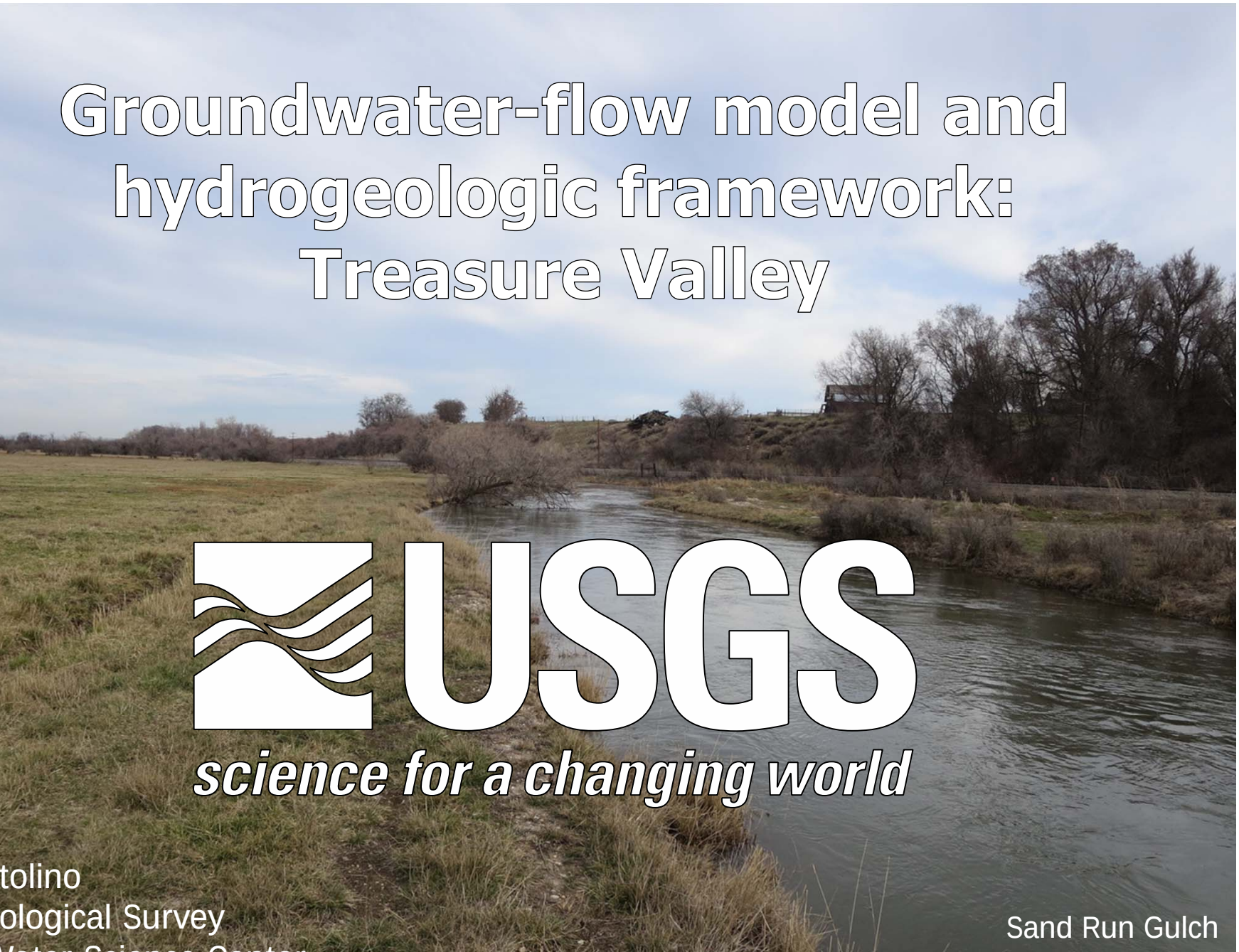
Groundwater-flow model and hydrogeologic framework: Treasure Valley



USGS

science for a changing world

tolino
ological Survey

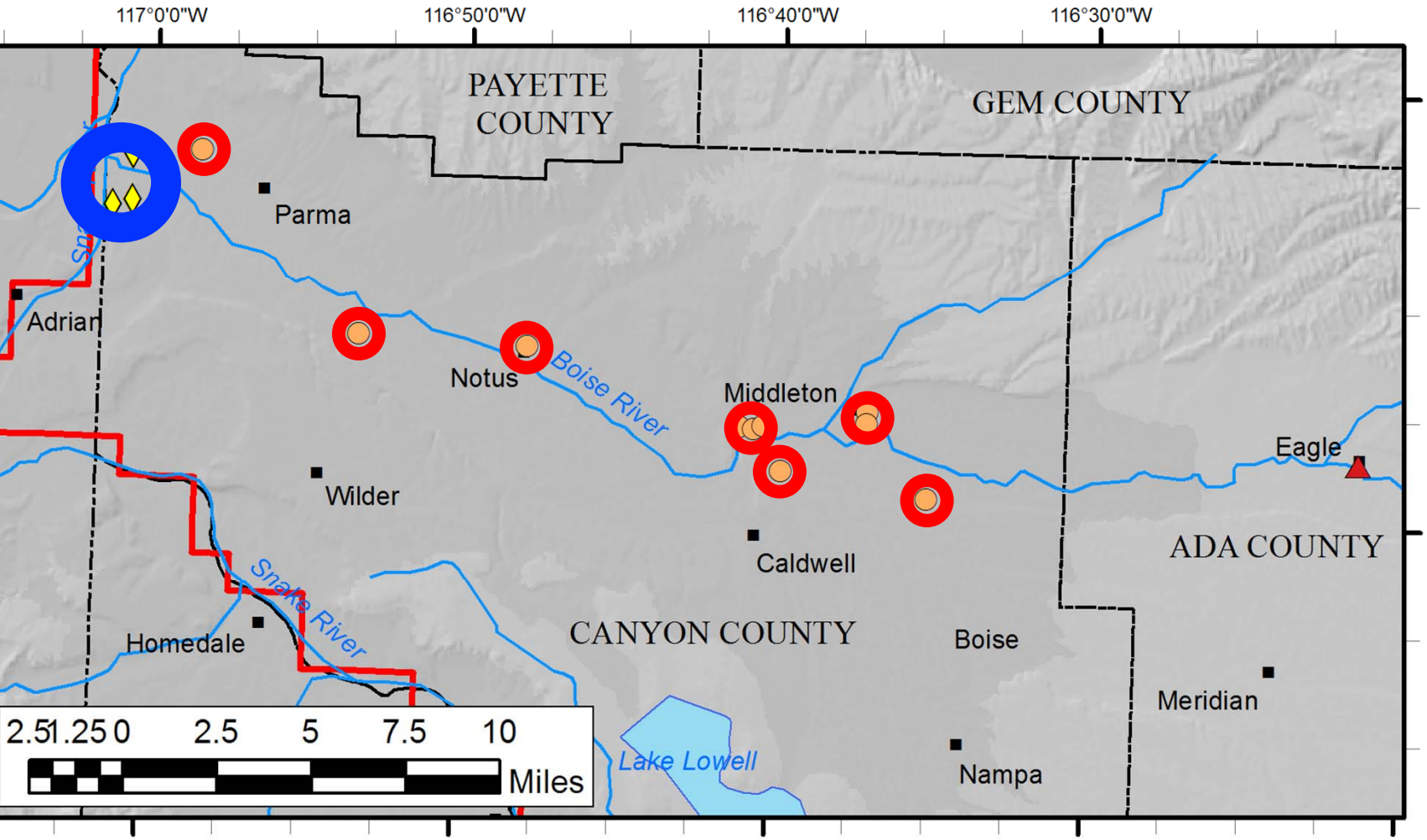
Sand Run Gulch

roundwater budget, mean 1967-1997 conditions

Budget Component	Inflows		Outflows	
	Volume (acre-ft/yr)	Percentage of total inflow	Volume (acre-ft/yr)	Percentage of total outflow
page	702,375	48%	--	--
arm infiltration (irrigation and precipitation)	674,699	46%	--	--
underflow (north of Payette River)	59,389	4.1%	--	--
ecipitation (non-irrigated lands)	23,470	1.6%	--	--
ecipitation (domestic, commercial, municipal, strial lands)	1,793	0.12%	--	--
ater discharge to drains	--	--	785,216	51%
ater discharge to rivers	--	--	501,802	33%
(irrigation)	--	--	136,147	8.9%
(domestic, commercial, municipal, and)	--	--	85,834	5.6%
ischarge to wetlands	--	--	21,339	1.4%
ischarge to Lake Lowell	--	--	3,752	0.24%
	1,461,726		1,534,090	

Schmidt and others (2008) and Sukow (2012)

Ten new streamgages on drains



...plus three manual sites

Hydrogeologic framework

three-dimensional hydrogeologic framework
odel (3D HFM) of the aquifer system

asis for the groundwater-flow model: 291 wells.

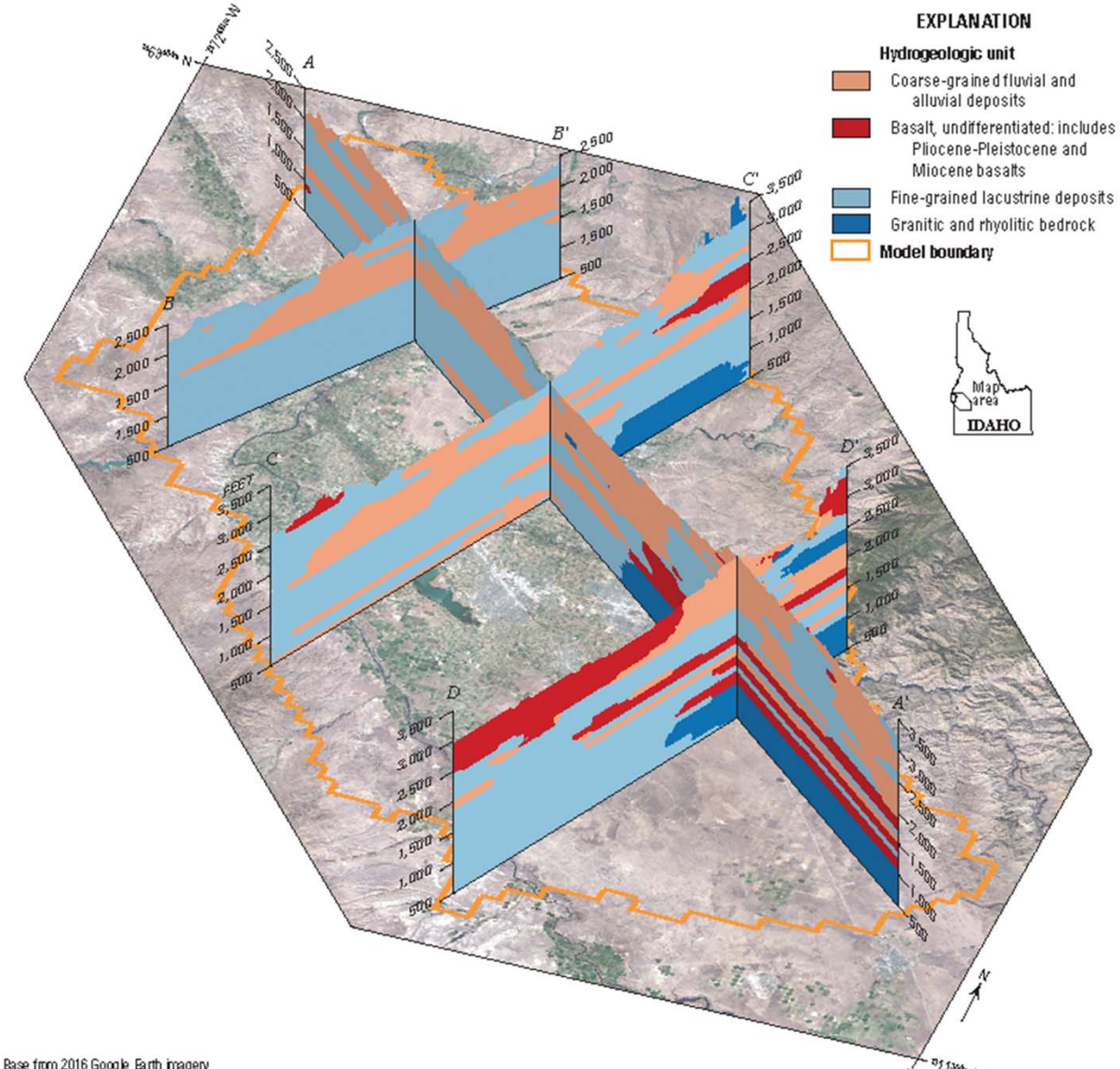
our major hydrogeologic units:

- Coarse-grained fluvial and alluvial deposits
- Pliocene-Pleistocene and Miocene basalts
- Fine-grained lacustrine deposits
- Granitic and rhyolitic bedrock

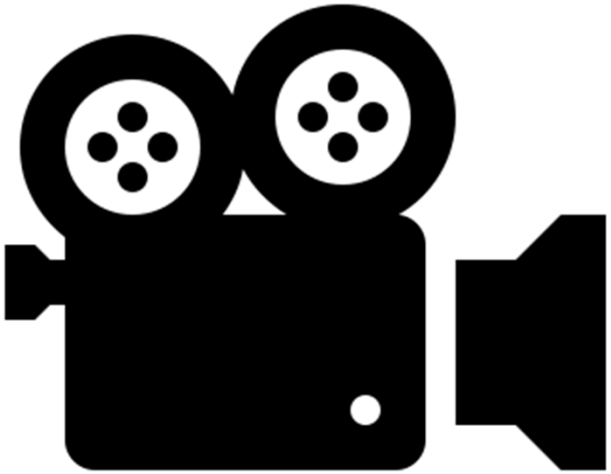
eleased in January along with the data

- https://doi.org/10.3133/sir20195138
- https://doi.org/10.5066/P9CAC0F6

Hydrogeologic framework



Groundwater-flow model

- Model area will be approximately the same as Johnson's (2013) model
- 1-month stress periods; 1986-2015 (360-mos)
- Tentatively planning on 1-mi^2 cells
- Six model layers
- Hydrogeologic units are from the hydrogeologic framework
- Model code will be MODFLOW 6
- Model release planned for the end of 2021

Framework model animation