

October 15th, 2020 Meeting Minutes

Moscow, UI Facilities Management, Jacks Creek Meeting Room (Video-Conference)

Attendance

X: In-person attendance

V: Video conference attendance

	UI: Alan Kolok, IWRRI, Director	V	WSU: Jeff Lannigan, Facilities Services
X	UI: Eugene Gussenhoven, Utilities & Engineering Director		WSU: Jason Sampson, Assistant Director, Environmental Services
V	Moscow: Tyler Palmer, Deputy Director Operations	V	Pullman: Cara Haley, City Engineer
V	Moscow: Anne Zabala, City Council Member	V	Pullman: Kevin Gardes, Director of Public Works
V	Moscow: Mike Parker Water Utility Manager	V	Pullman: Eileen Macoll, City Council Member
V	Latah County: Paul Kimmell (Chair), Citizen/County Representative	V	Whitman County: Mark Storey, Public Works Director/County Engineer
V	Latah County: Tom Lamar, County Commissioner	V	Whitman County: Art Swannack, County Commissioner

Visitors and Others:

Robin Nimmer (V), Alta Science and Engineering; Doug Jones (V), Idaho Department of Water Resources; David Hall (V), community member; Daniel Sturgis, Idaho Department of Water Resources; Kari Nichols (V), Mead and Hunt; Colt Shelton (V), JUB Engineers; Chris Beard (V), Washington Department of Ecology; Steve Robischon (V), PBAC; Korey Woodley (X), PBAC.

Action items indicated by: **

Action items where vote is required indicated by: ***

Call to Order:

Paul Kimmell called the meeting to order at 2:00 PM. Kimmell conducted introductions.

1) Approval of August 20th, 2020 Meeting Minutes

Eugene Gussenhoven made a motion to approve August 20th, 2020 meeting minutes as presented to the committee. The motion was second by Tyler Palmer. ***August 2020 meeting minutes were approved by consensus.

2) Public Comment for Items not on Agenda: None.

3) Presentations/Discussion:

- **Isotopes and Seismic Waves, Tracing Recharge at the Mountain-Front Interface, project update, Jeff Langman:** Langman provided a project update for PBAC using a PowerPoint presentation (attached below). Langman reported that they are almost finished collecting data for the field season and are beginning to process the data. Langman reminded committee members that the goals for these projects are to quantify recharge coming off Moscow Mountain, or the primary recharge zone. Langman said they are looking for slow and fast pathways of recharge through this zone using isotope signals. Langman said they also put a network of 11 different seismometers in the Moscow Mountain foothills area to look at fluxes to get a better quantification of the amount of water moving through the recharge zone.
- **Groundwater Pumping Update, Steve Robischon:** Robischon shared a PowerPoint Presentation (attached below). Robischon shared 2019 and 2020 (through August) pumping numbers. Robischon discussed the impacts COVID and weather have had on pumping during 2020. Robischon said that if pumping numbers remain consistent with what they have been in previous years, 2020 should be a record-breaking year for lowest pumping since the Ground Water Management Plan in 1992.
- **LEAP Update, Korey Woodley:** Woodley shared a screenshot of an email from Josh Palmer that provided an update on the LEAP Survey final report (attached below). Palmer reported some technical difficulties in producing the final report which have caused delays.

4) Unfinished Business

- **Subcommittee updates:**
 - **Research** – Kevin Gardes reported that there are no updates at this time.
 - **Communications** – Kimmell said they are waiting for the final LEAP report and they plan to meet with the subcommittee next month to discuss launching SEG.
 - **Budget Committee** – Eugene Gussenhoven reported that the final budget report has been shared. Gussenhoven said that there were a couple final points of feedback that were minor.
 - ***Tyler Palmer made a motion to approve the PBAC Budget Report with suggested committee member edits. Kevin Gardes second the motion. The motion passed by consensus.

5) Budget – Korey Woodley: Woodley presented the budget/account details from October 15th, 2020.

6) Other Reports and Announcements as Time Allows –

- **Paul Kimmell Reported that the virtual Palouse Basin Water Summit will be live on Facebook and YouTube on October 22nd from 6 – 8 PM.** Woodley explained that people can access the event by going to the Palouse Basin Water Summit website, PBAC website, or on the Water Summit Facebook page.
- **Next PBAC Meeting – Thursday, November 19th, 2020, 2:00 PM, Location TBD**

7) Adjourn at 3:45 PM

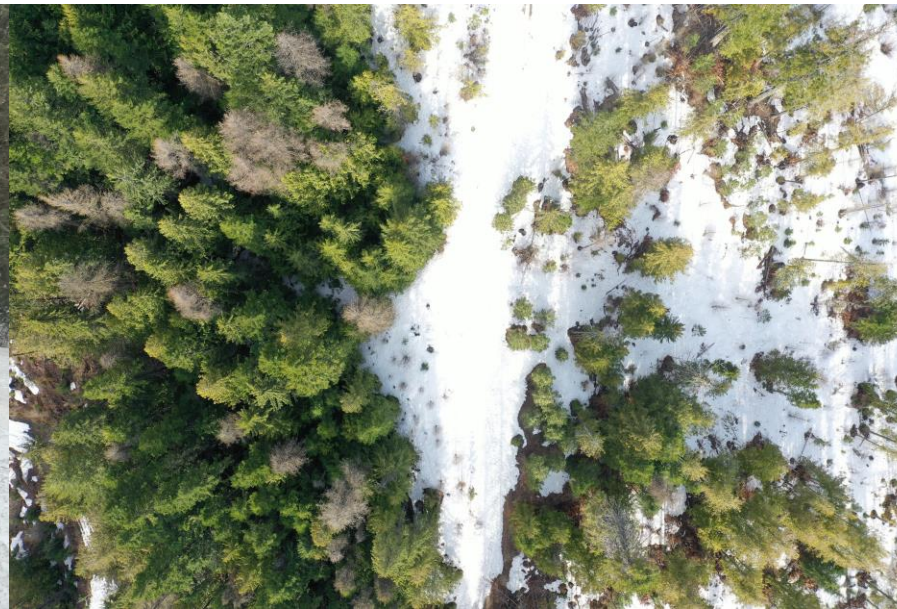
Korey Woodley, PBAC Executive Manager

Isotopes and Seismic Waves: Tracing Recharge at the Mountain-Front Interface

PALOUSE BASIN
AQUIFER
committee

PBAC and IWRRI

Jeff Langman, Geological Sciences
University of Idaho



Collaborators and colleagues



"The Dodds", UI
Natural Resources



Robert Kane,
UI Geology



David Behrens and
Wes Sandlin, UI Geology

Faculty:

James Moberly, UI Chemical Engineering

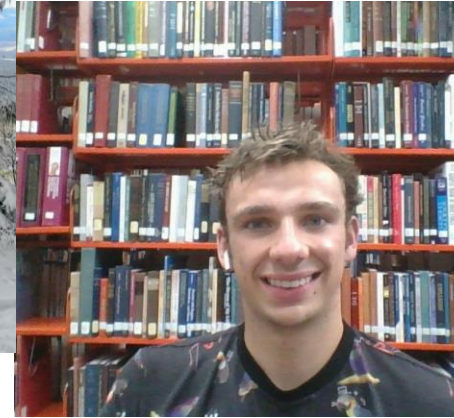
Kris Waynant, UI Chemistry

Erin Brooks, UI Soil & Water Systems

Tim Bartholomaus, UI Geology

Jan Boll, WSU Environmental Engineering

Quinn Buzzard, UI
Water Resources

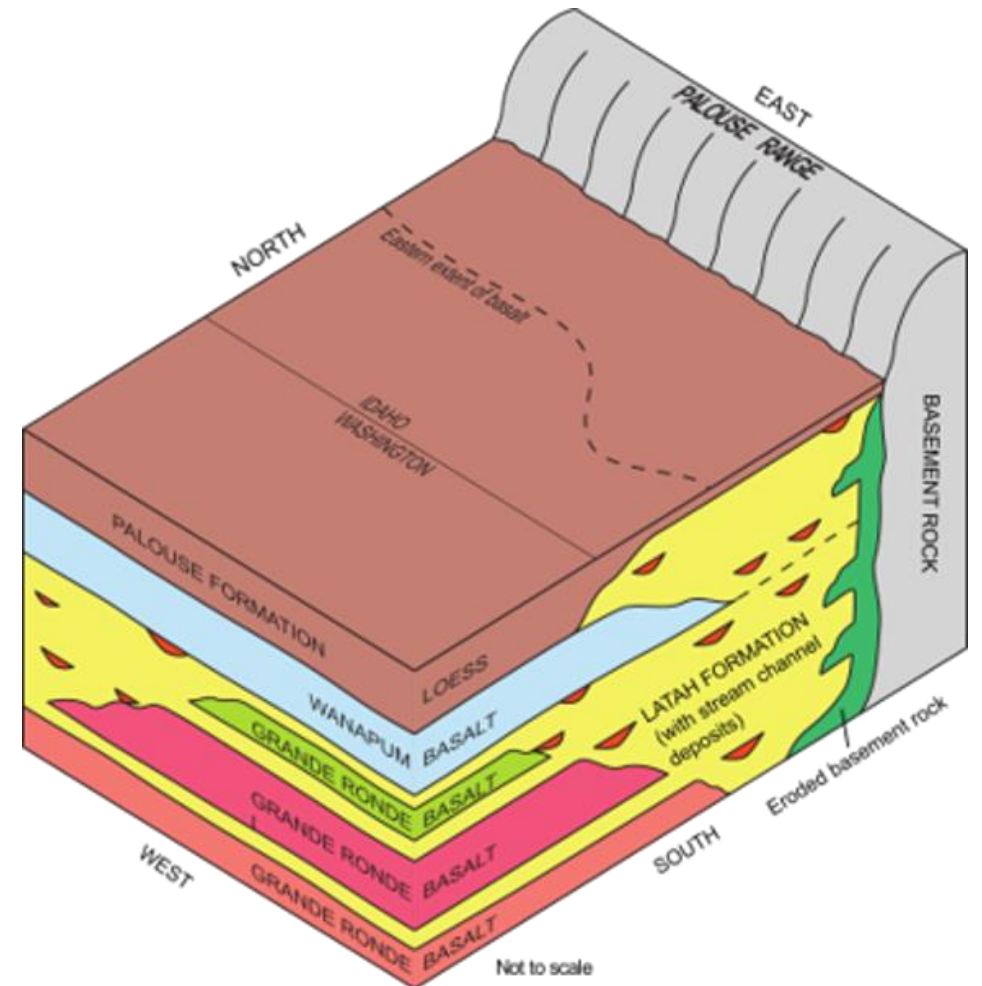
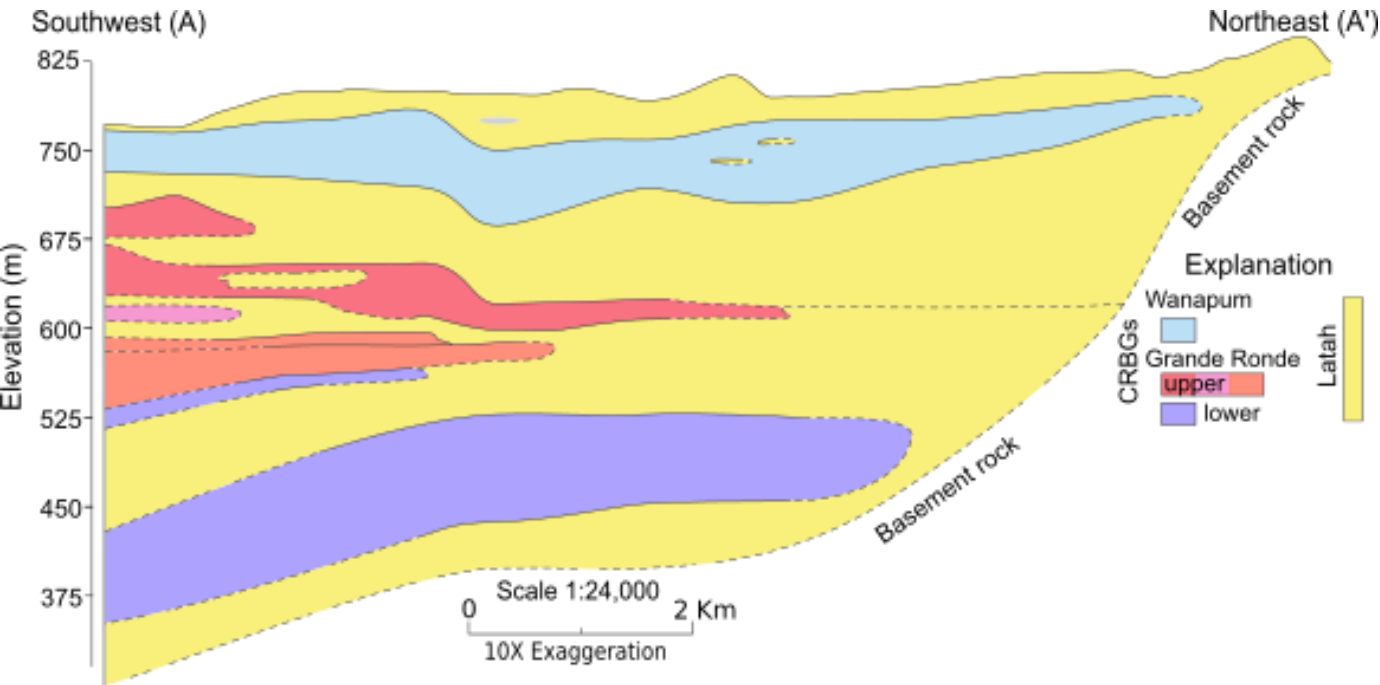


The wife and dog



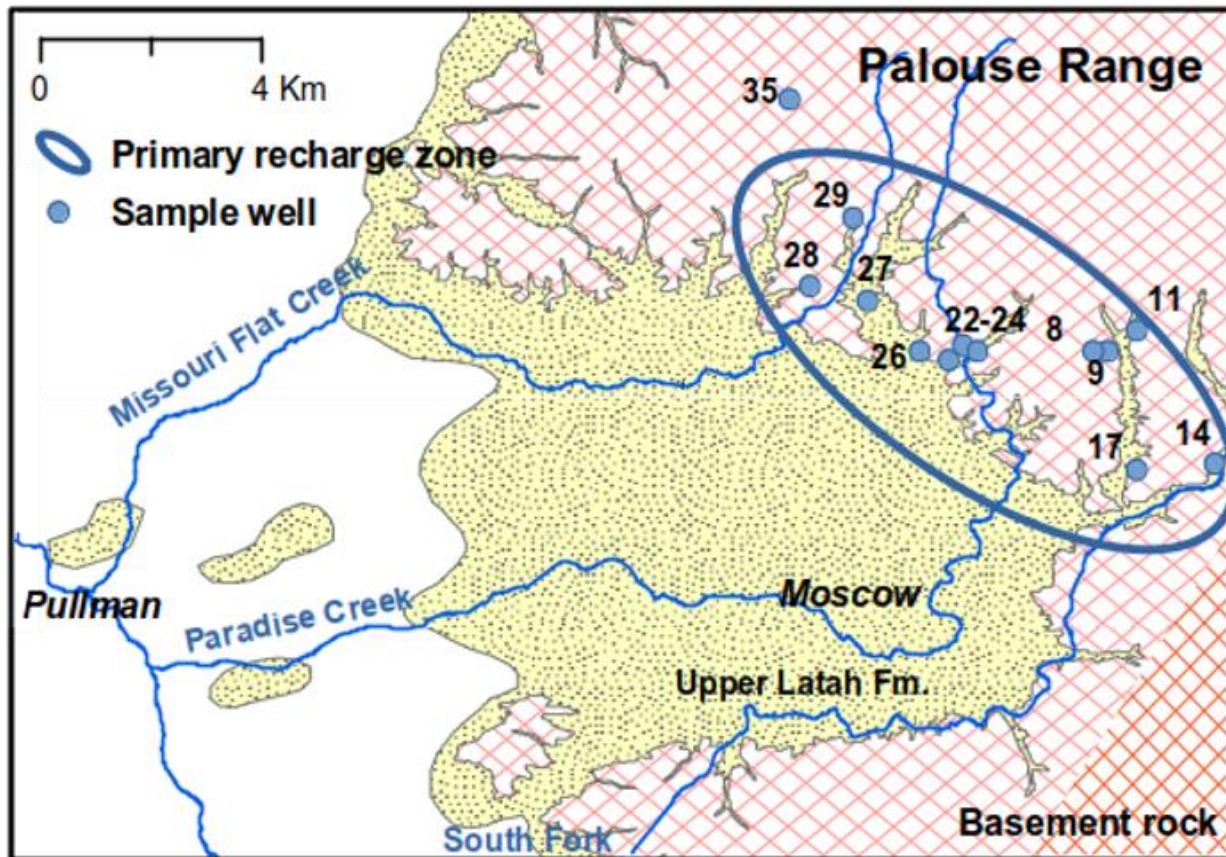
Goal: Trace recharge along the mountain front

Can we quantify the recharge occurring along Moscow Mountain



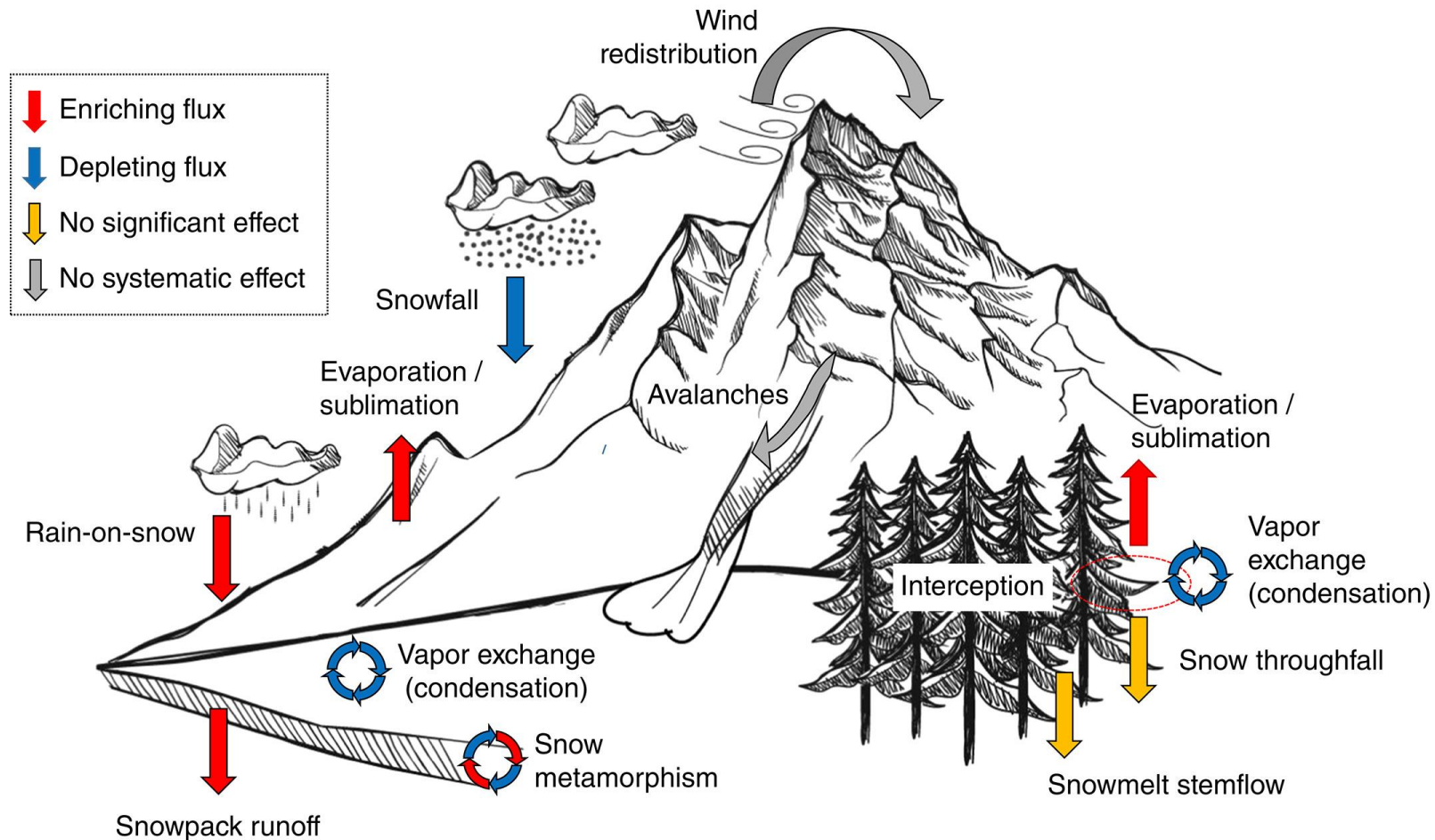
Overall Study Area

- Mountain-front interface and sedimentary units



Isotopes: Recharge tracers

Tracing the snow → snowmelt → creek → recharge → aquifer signal



Isotopes: New data + old data

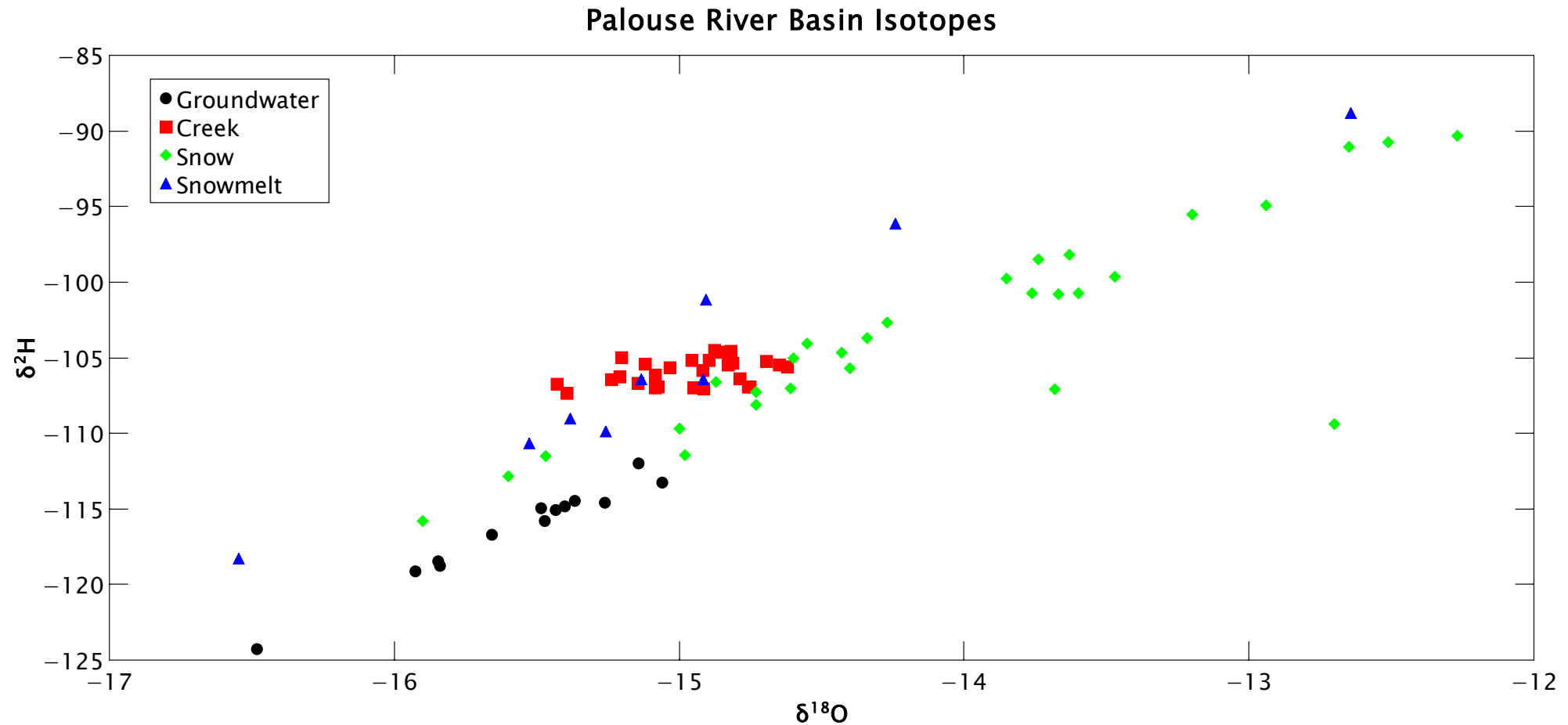
New: snow/rain, snowmelt, and creek isotope data ($\delta^{18}\text{O}$ and $\delta^2\text{H}$)

Old: groundwater isotope data ($\delta^{18}\text{O}$ and $\delta^2\text{H}$)



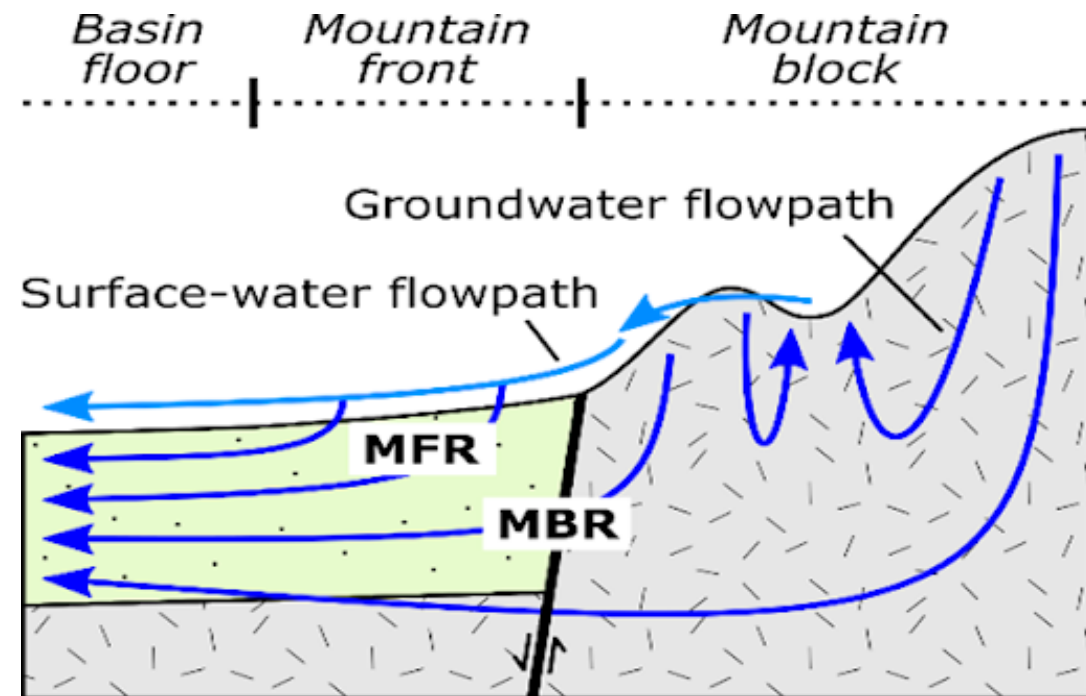
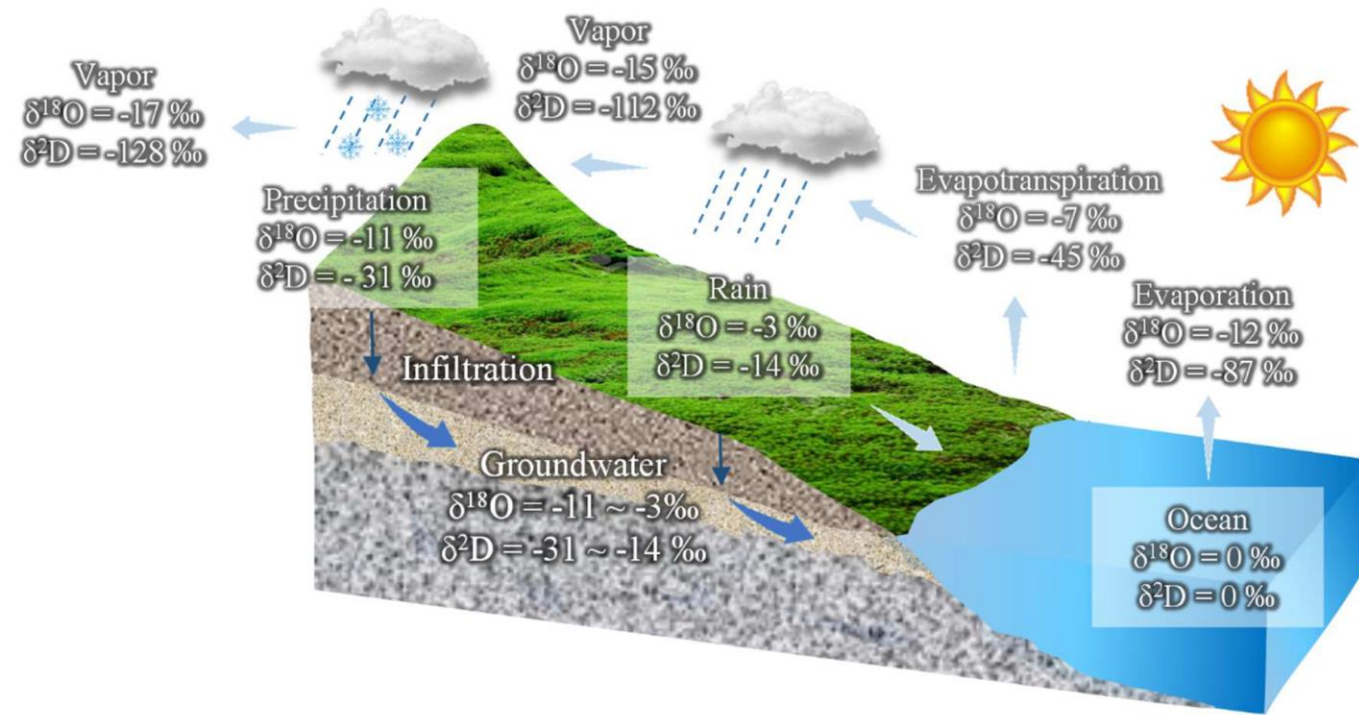
Isotopes: Source waters and pathways

- The most depleted snow/snowmelt/creek signals align with groundwater in the mountain-front interface



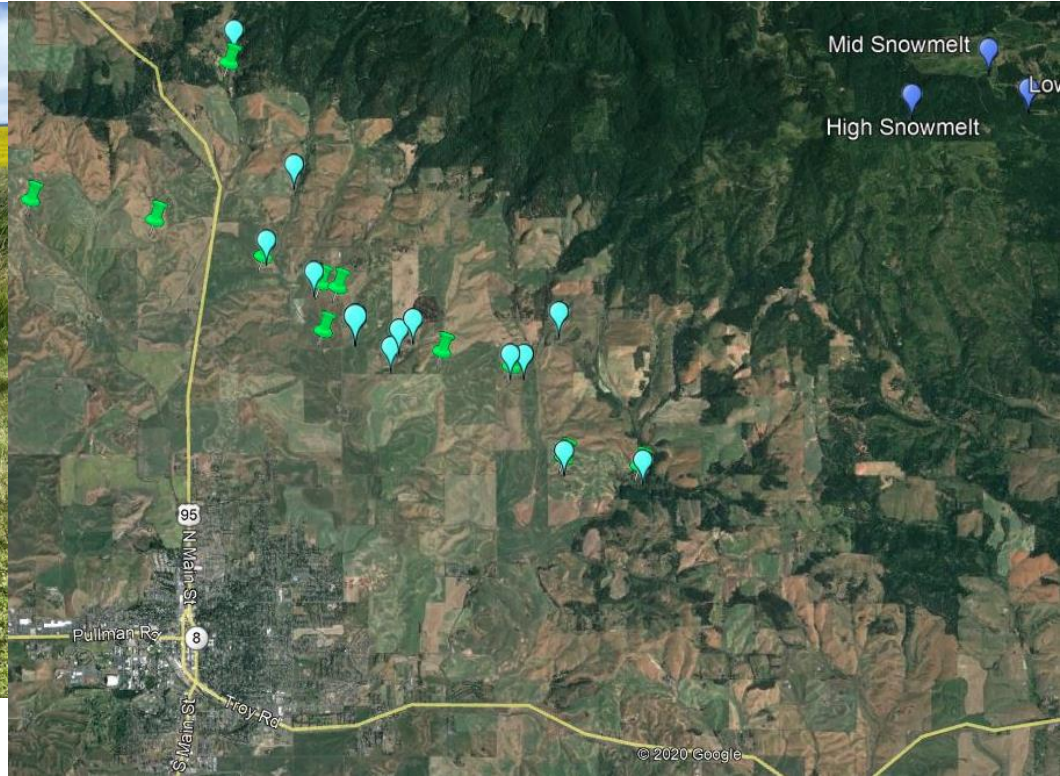
Isotopes to Seismic: Connecting pathways

- Isotopes describe fast and slow pathways that help discriminate hydraulic properties of the mountain-front interface



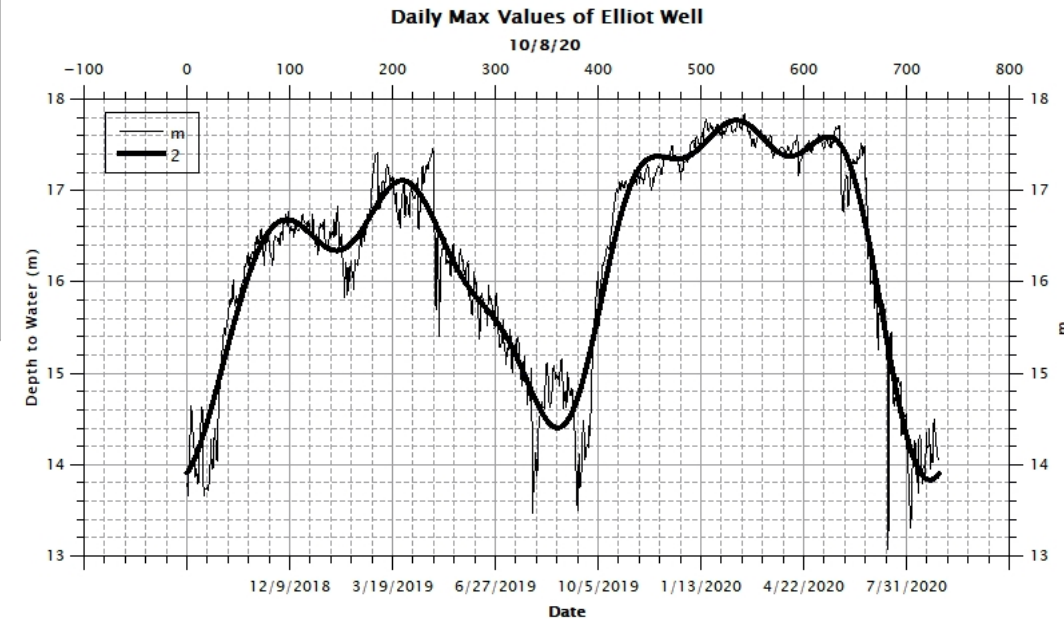
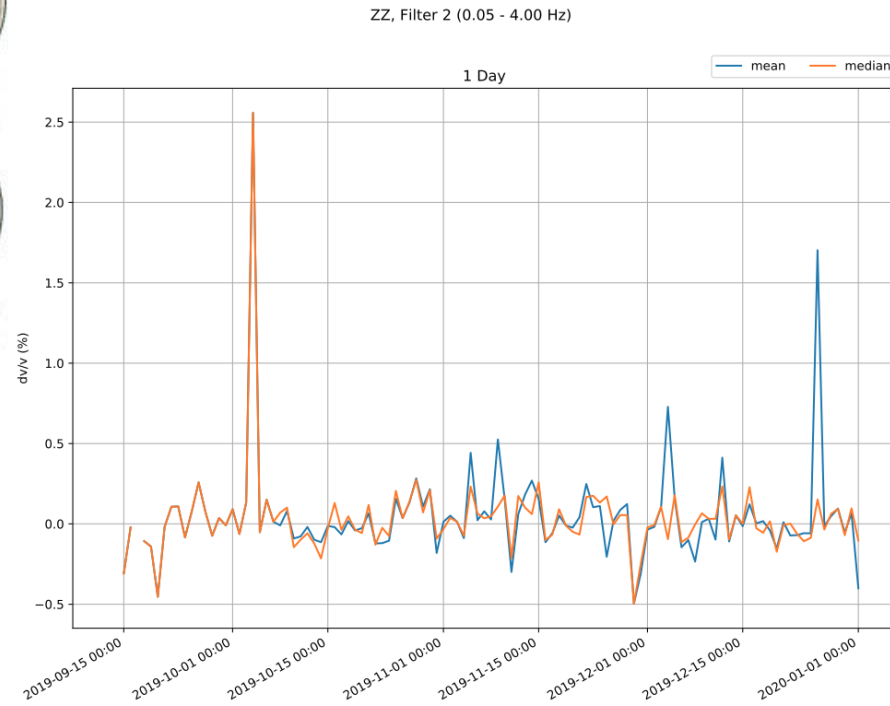
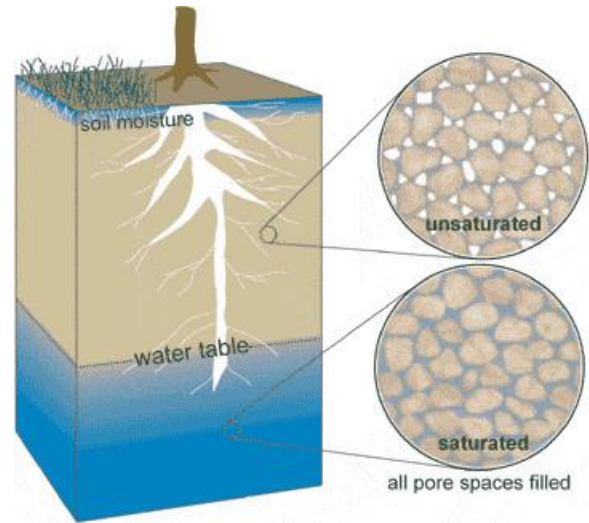
Seismic: Completed network installation

Aligned the seismic network to overlay the recharge zone wells



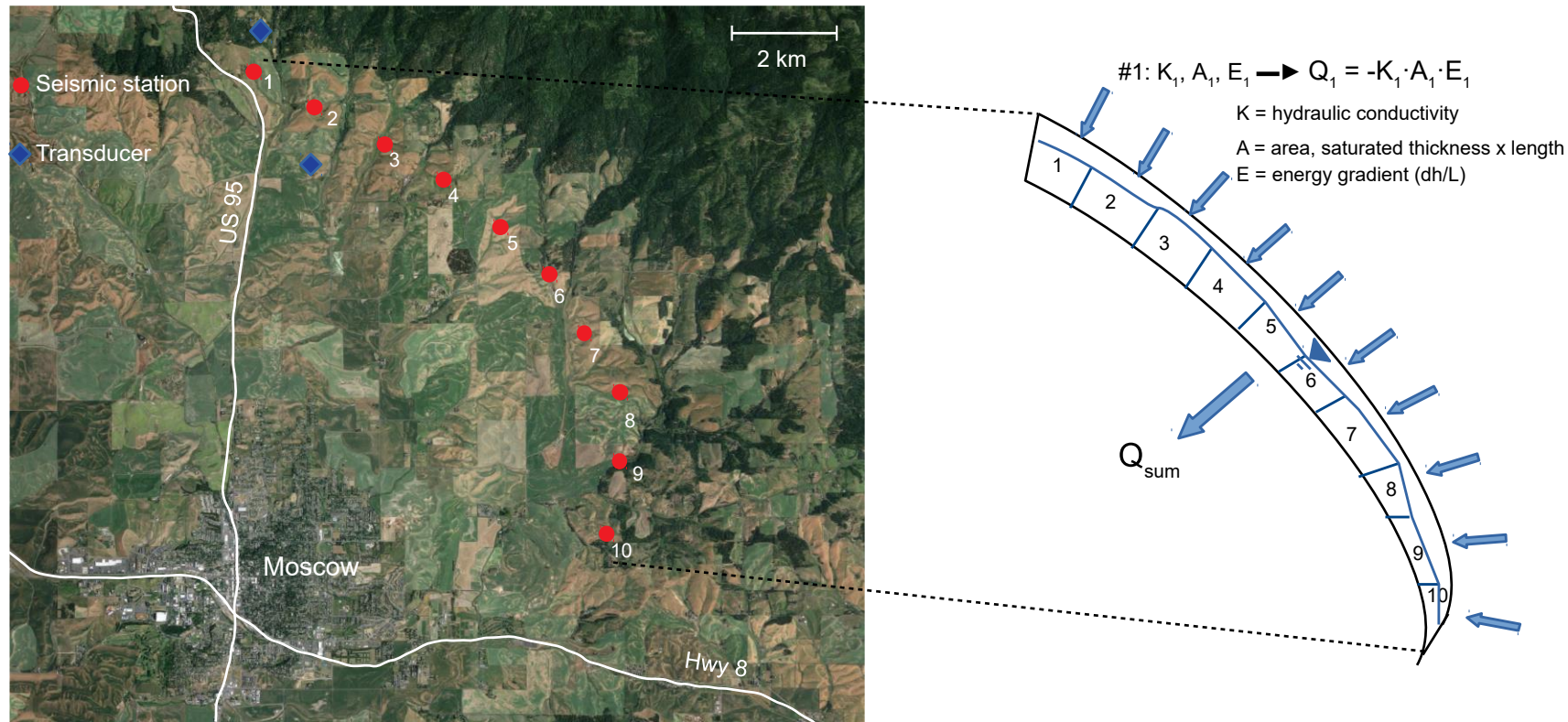
Seismic: Waves to changes in velocity

- Can we correlate change in velocity with water level



Seismic: Velocity + Water Level = Q

- Connect geology and hydraulic conductivity to produce Q
 - Need K = interpretation of geology (Bush et al)
 - Need E = water level from seismic stations





University of Idaho

College of Science

**THANK
YOU**

JEFF LANGMAN

PBAC Pumping
PBAC Meeting
October 15, 2020

Daily News – June 12, 2020

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University of Idaho and the city of Palouse, pumped 2.37 billion gallons of water in 2018 and 2.35 billion in 2019, according to PBAC.

Through April this year, 512 million gallons of water has been pumped — 62 million gallons fewer than the first four months of last year, or an 11 percent decrease. Woodley said May 2020 statistics

"It's interesting that the coronavirus has had almost a positive impact on a lot of our natural resources, but such a negative impact on society," said Woodley, noting improved air quality in addition to less water

being used.

She said people are generally more aware of the importance of water conservation than in the past, but they could be more conservative now because of the tanking economy.

According to the National Weather Service Climate Prediction Center, the Northwest is expected to have above normal temperatures and below normal precipitation from June to August, which would lead to increased pumping for irrigation purposes.

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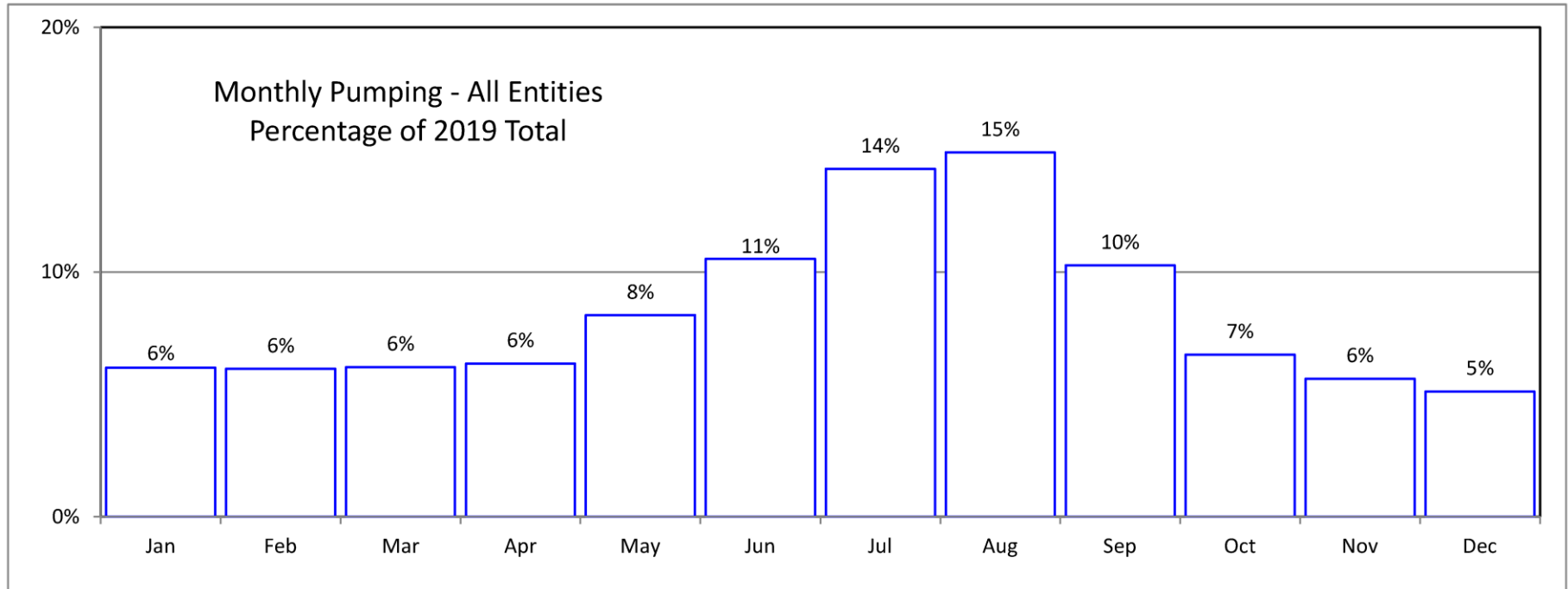
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2019, according to figures

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Ballpark Assumptions (Covid)



Students Gone: $(1/2)$ March + April + $(1/2)$ May

For 2019 = $(1/2)(6\%) + (6\%) + (1/2)(8\%) = 13\%$

Student Population: $\approx 40\%$ of Total Population

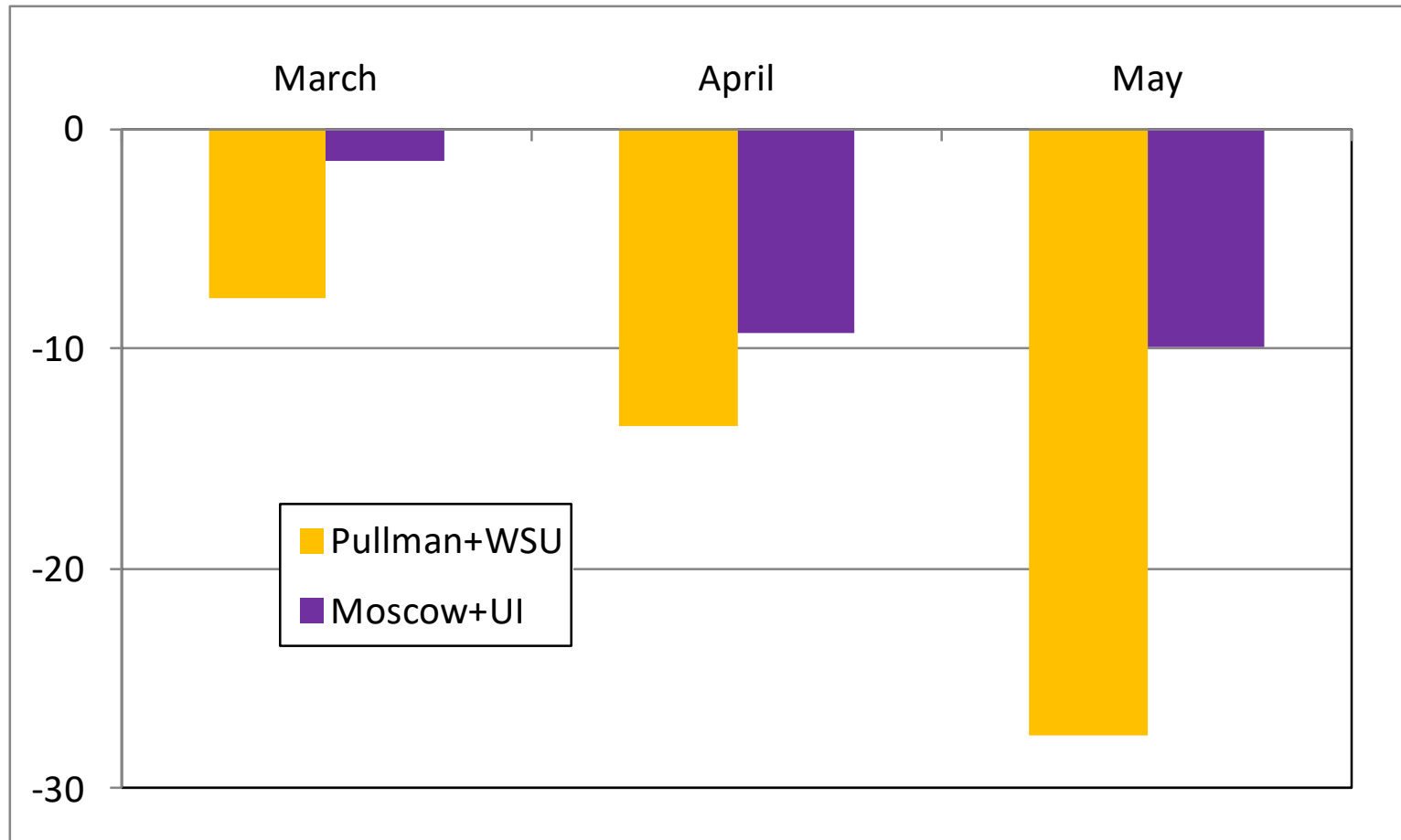
Max Savings = 40% of $13\% = 5.2\%$ of Annual Water Use

If only $\frac{1}{2}$ of Students went Home = 2.6% of Annual Water Use

Expected Savings - Covid (Ballpark): 60 - 120 MG

2020 Pumping – Difference from 2019

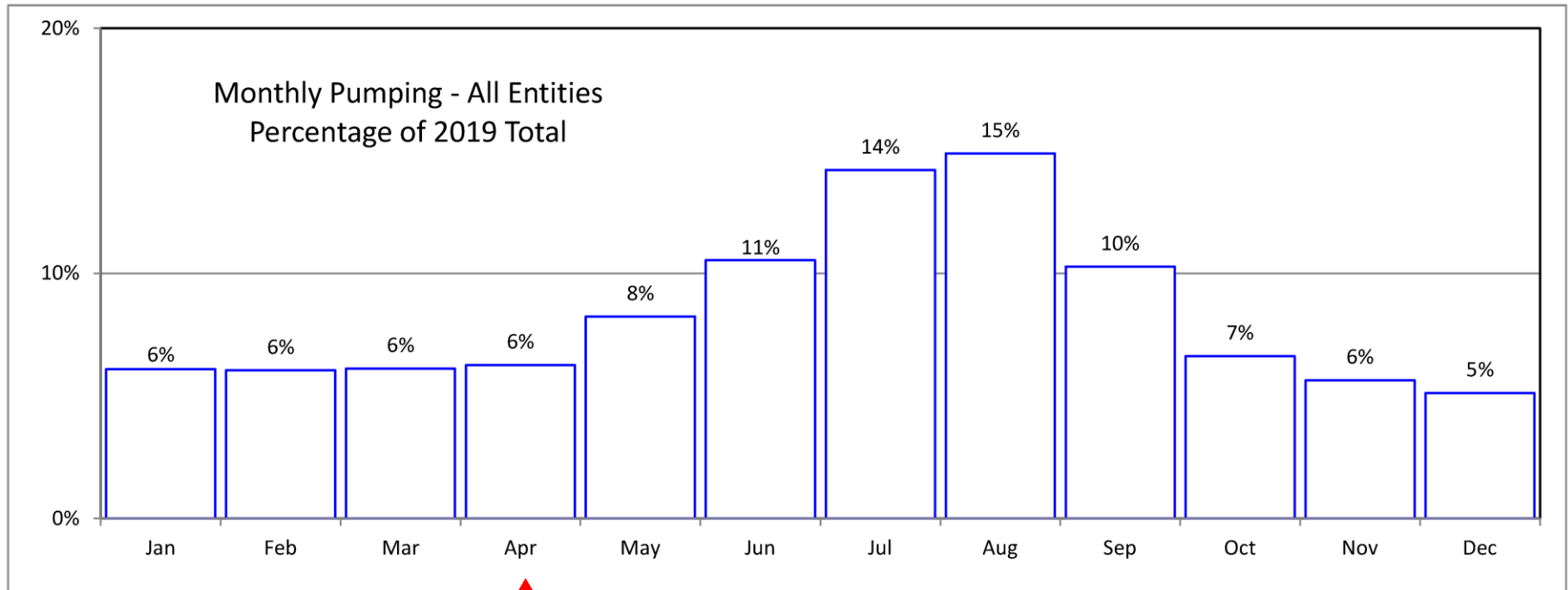
Million Gallons



Total Difference from 2019: 69.5 MG ($\approx 3\%$ of 2019 Total)

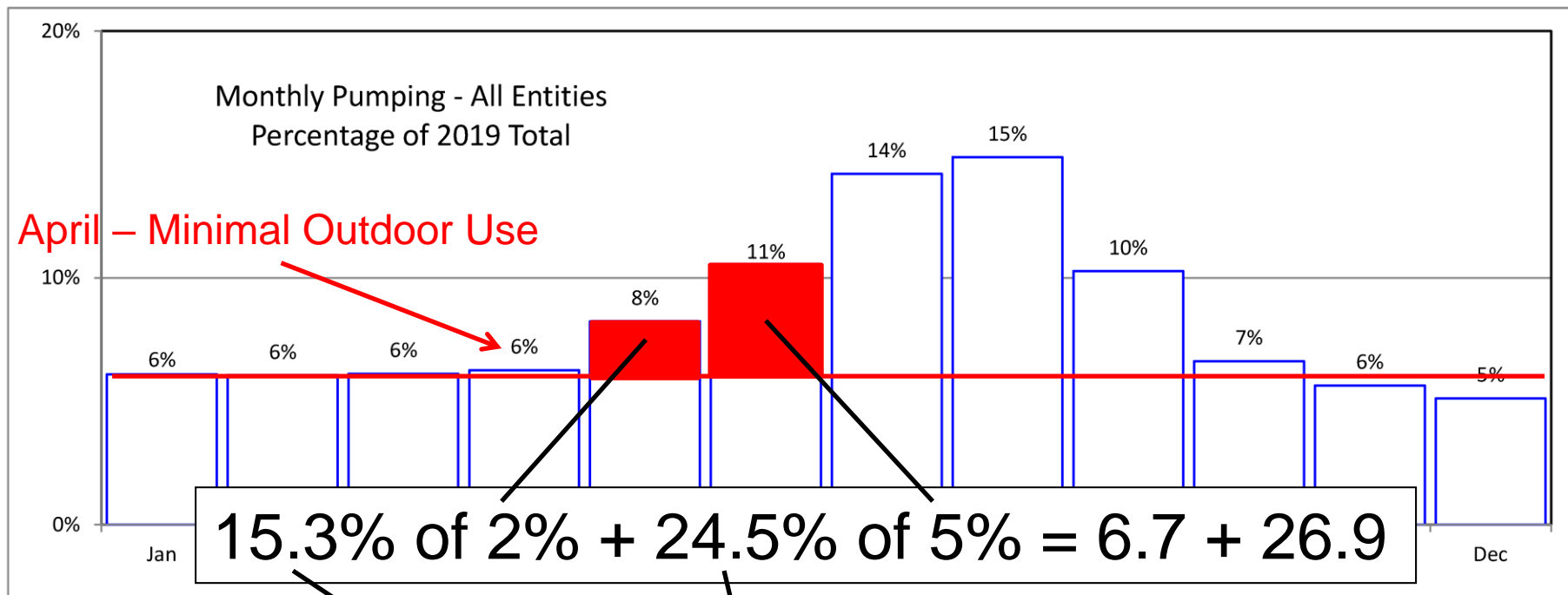
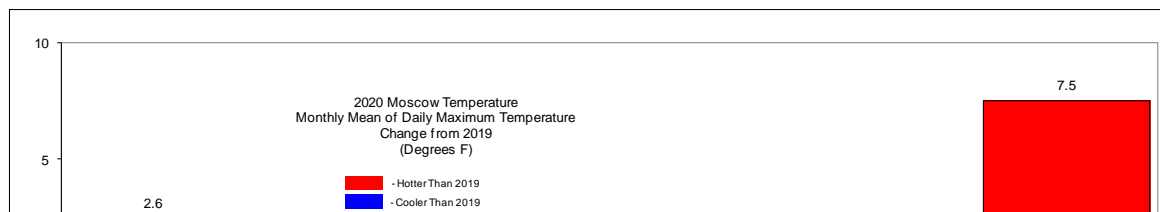
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2019 Combined Monthly Pumping – Percentage of Annual Total

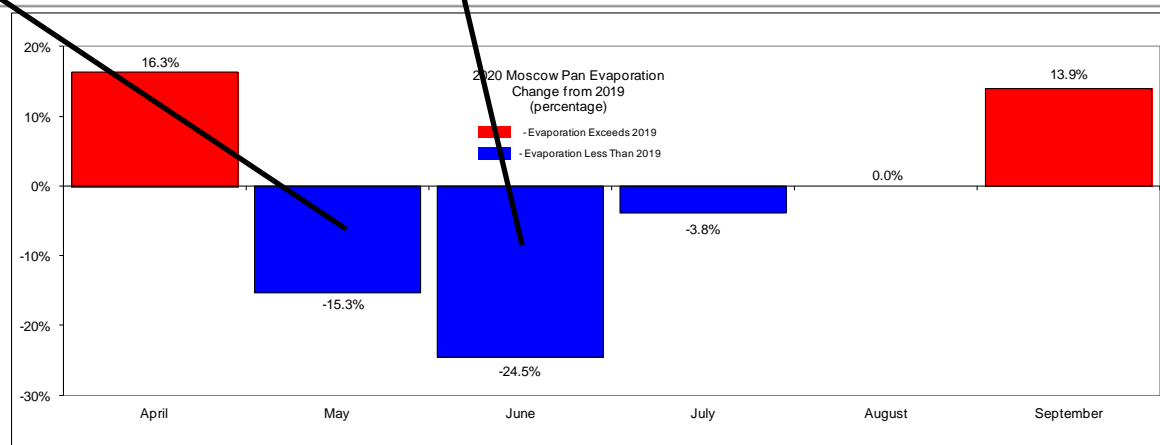


April – Minimal Outdoor Use

2020 vs. 2019 - Moscow Plant Science Farm



Pan Evap



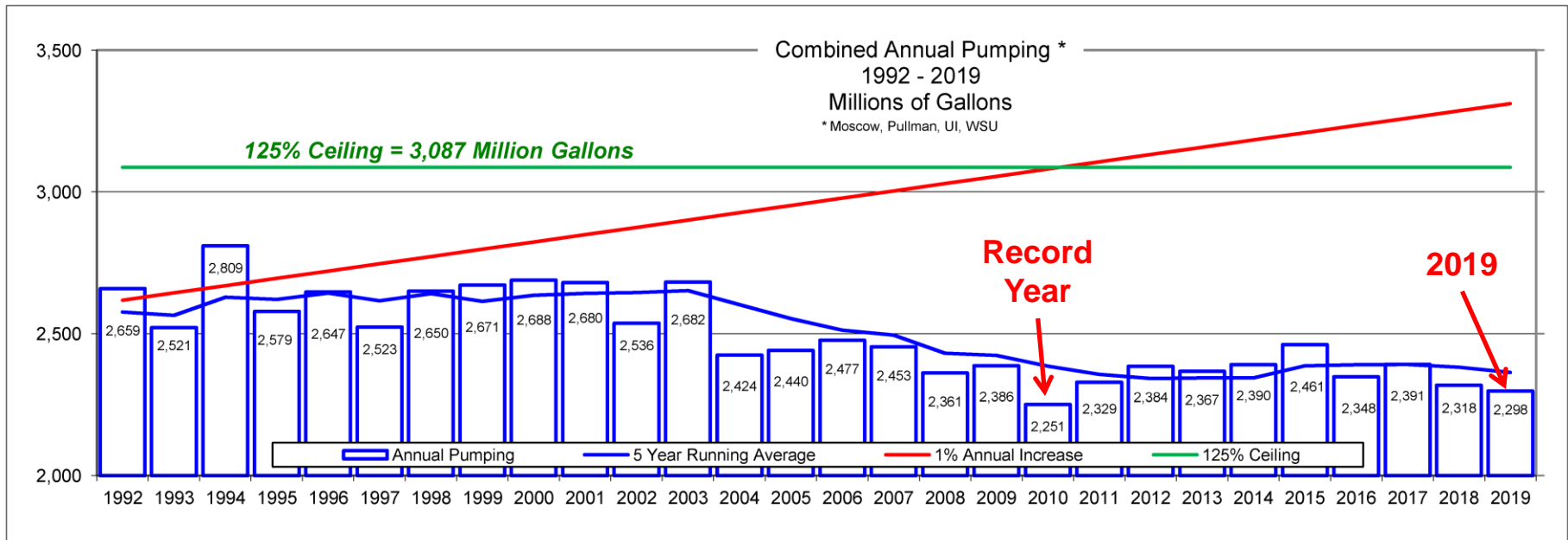
Covid + Spring (through mid-June) Weather Savings

Assume first ½ of May is both Covid and Weather

Covid = $69.5 - \frac{1}{2}$ of May Weather = $69.5 - 3.4 = 66.1$ MG

Weather = May + ½ of June = $6.9 + 13.5 = 20.4$ MG

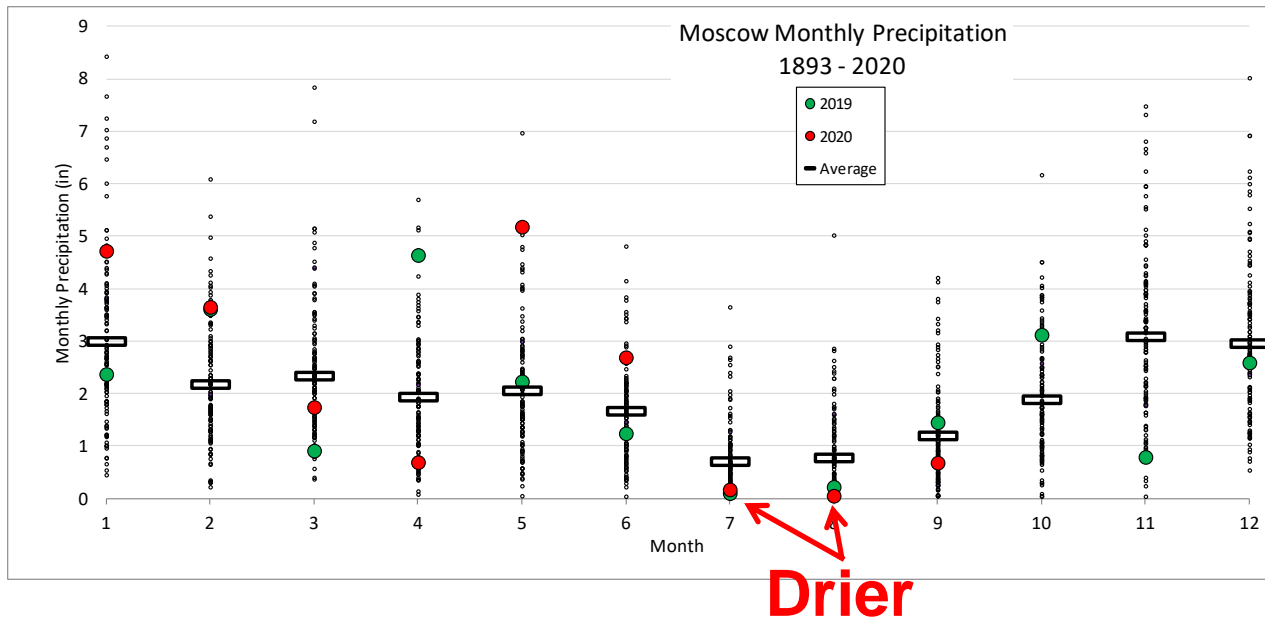
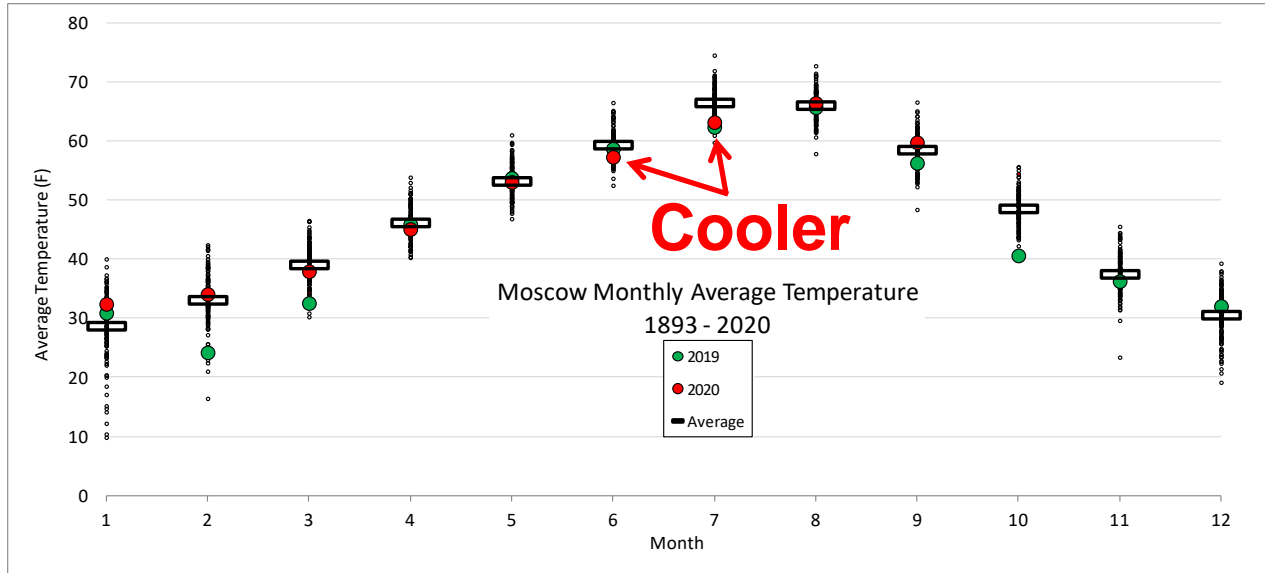
Total Covid + Weather Savings = 86.5 MG



2019 – Record Year (2010) Pumping = $2,298 - 2,251 = 47$ MG

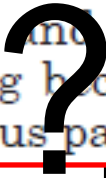
(2020 Covid + Weather Savings) > (2019 – Record Year Pumping)

Moscow UI Plant Science Farm



Daily News – June 12, 2020

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Pumping – Moscow + UI
April 2020 vs April 2019

Total Water Savings = 9.26 MG

Assume Minimal Outdoor Water Use

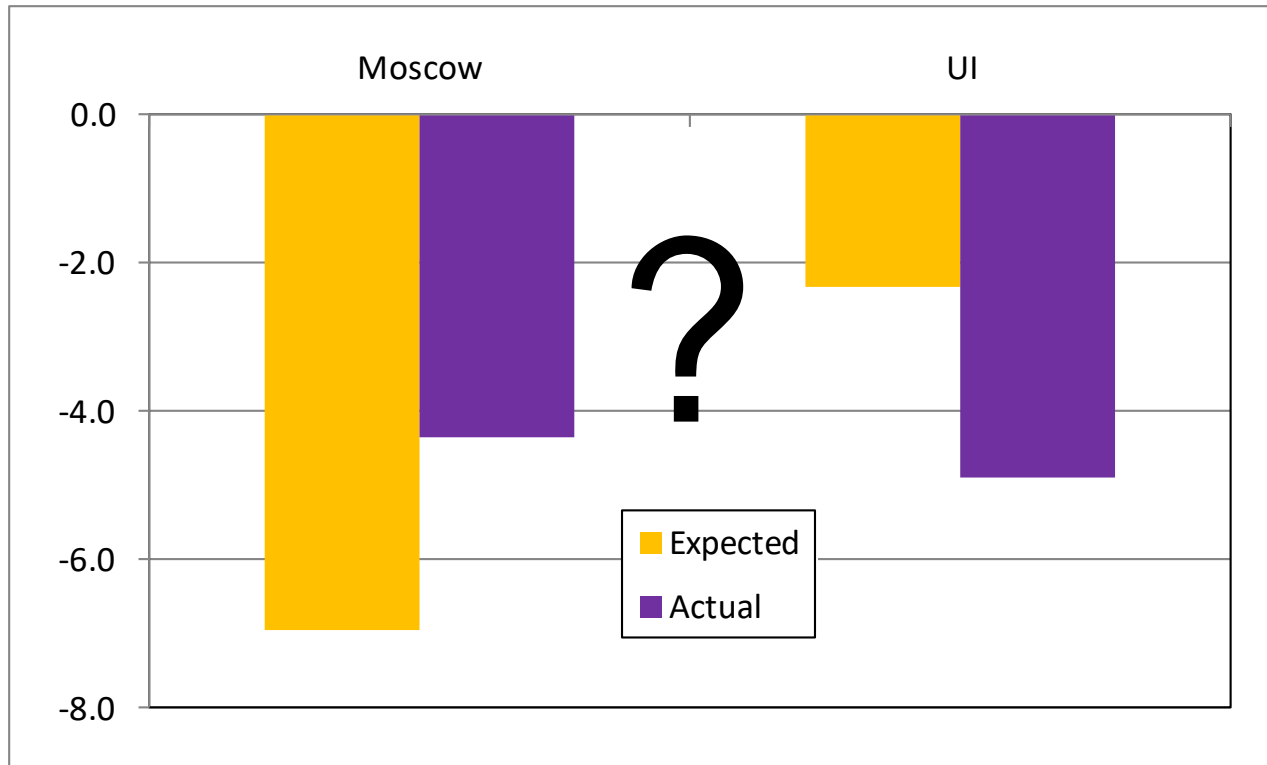
Assume all Savings from UI Students Leaving

Assume 25% of Students Live on-Campus

Expected Savings: Moscow: 6.95 MG, UI: 2.32 MG

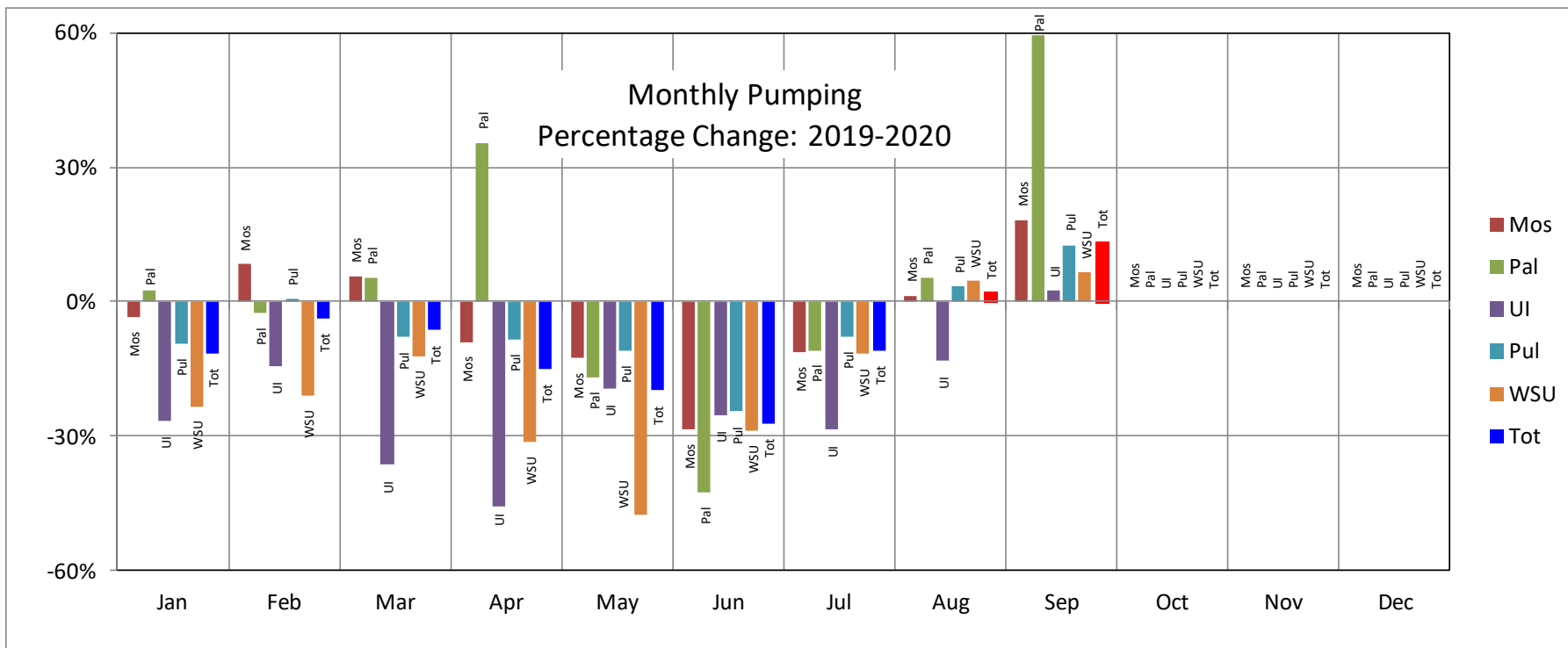
Covid Water Savings – Moscow + UI

April 2020 vs April 2019

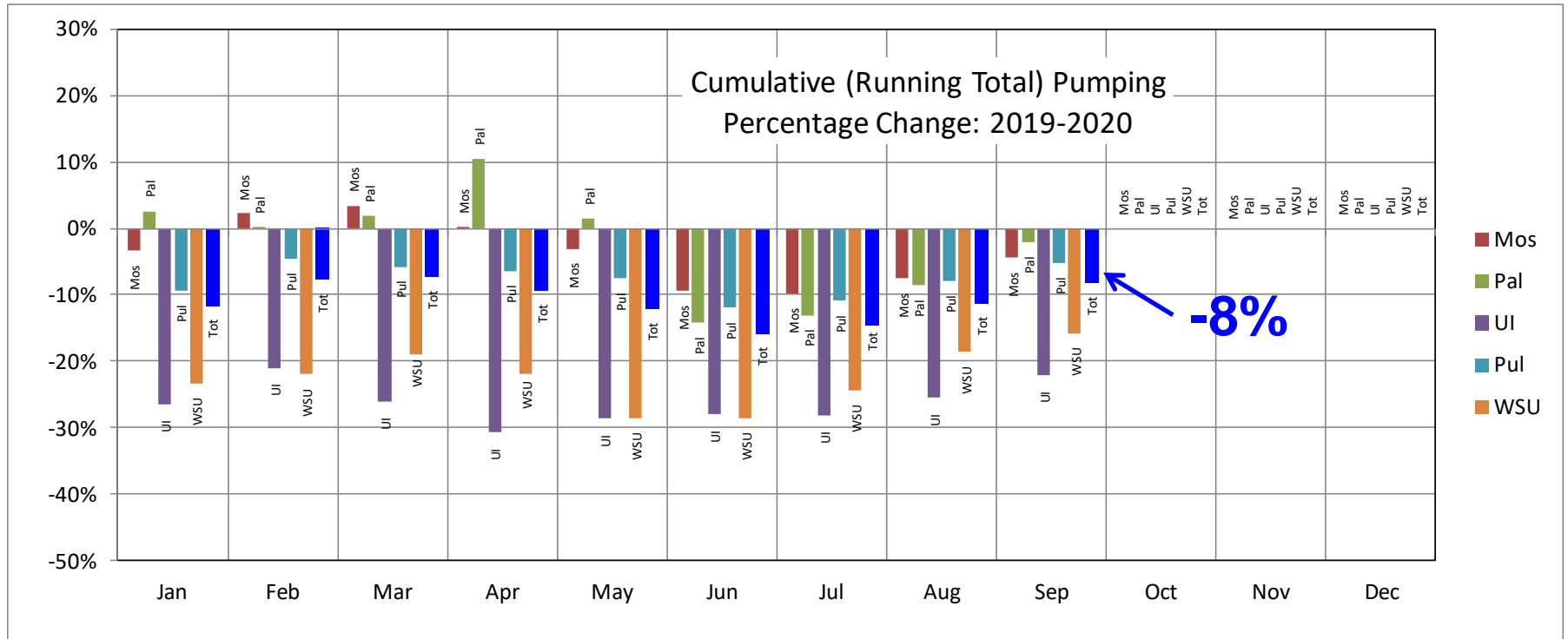


Work From Home

Monthly Pumping 2020 vs 2019

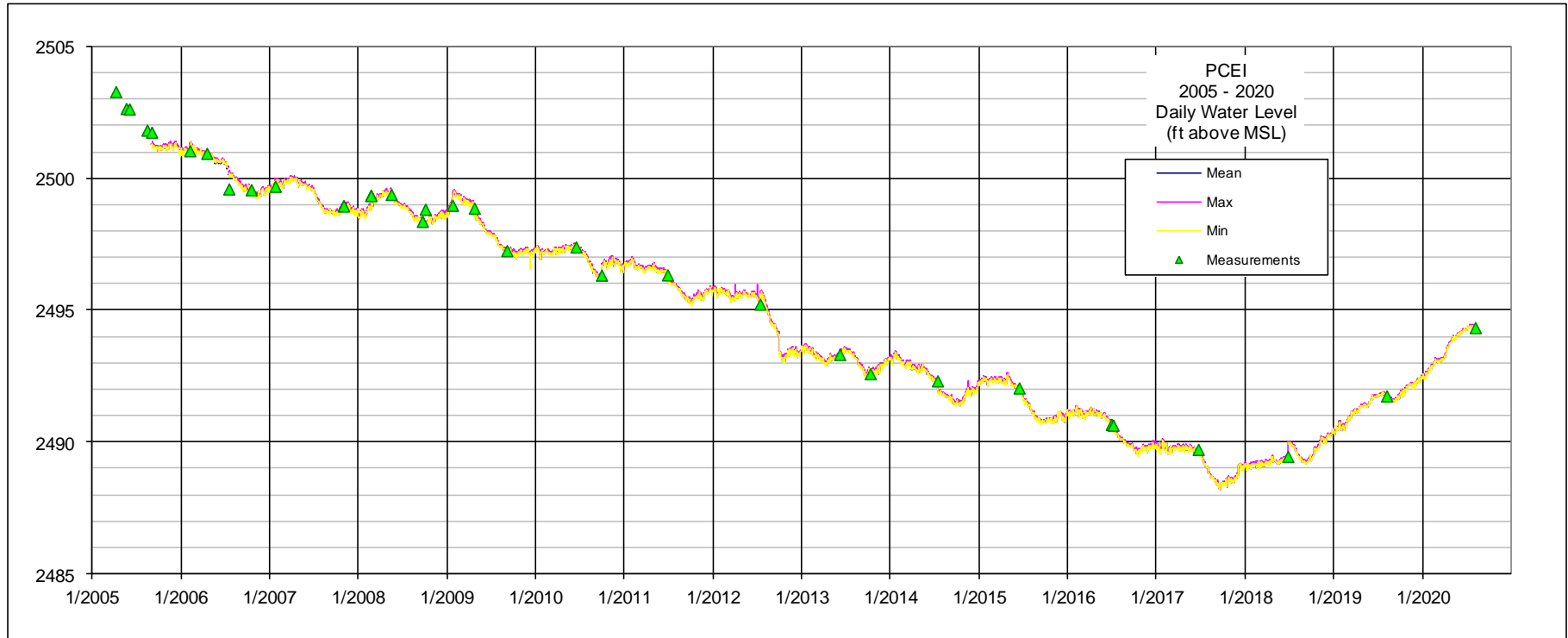


Cumulative Pumping 2020 vs 2019



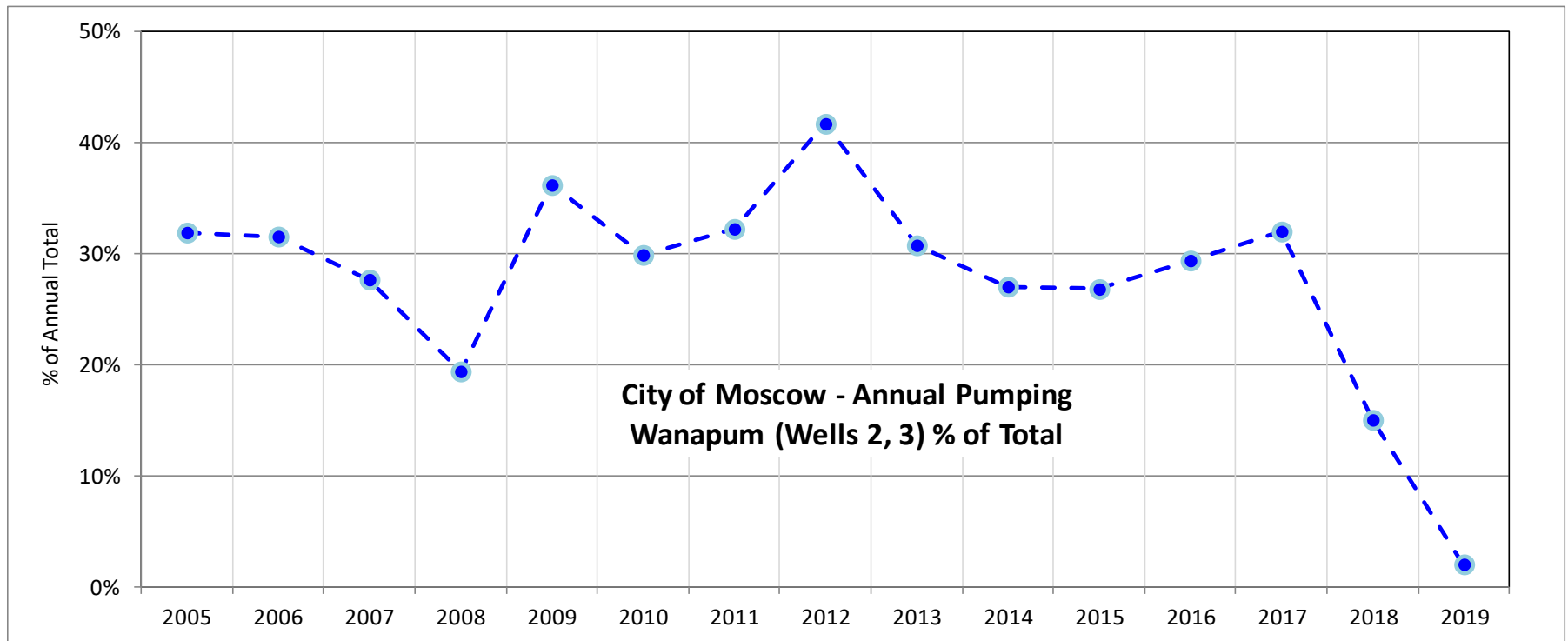
-2% at Year End Required to Break Record

Water Levels

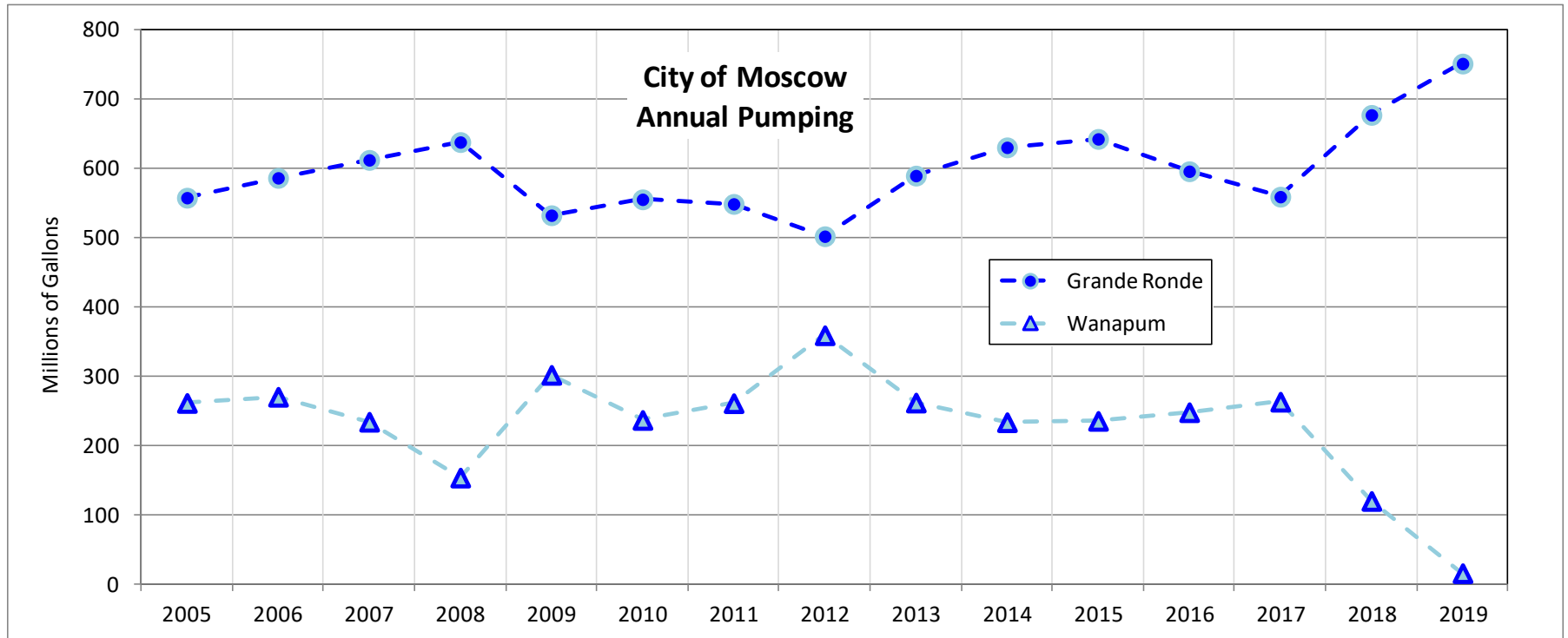


PCEI (Wanapum) Monitoring Well
Daily Hydrograph (2005 – 2020)

Moscow Wanapum Pumping (% of Total) 2005 - 2019



Moscow Annual Pumping (MG) 2005 - 2019



Questions?