

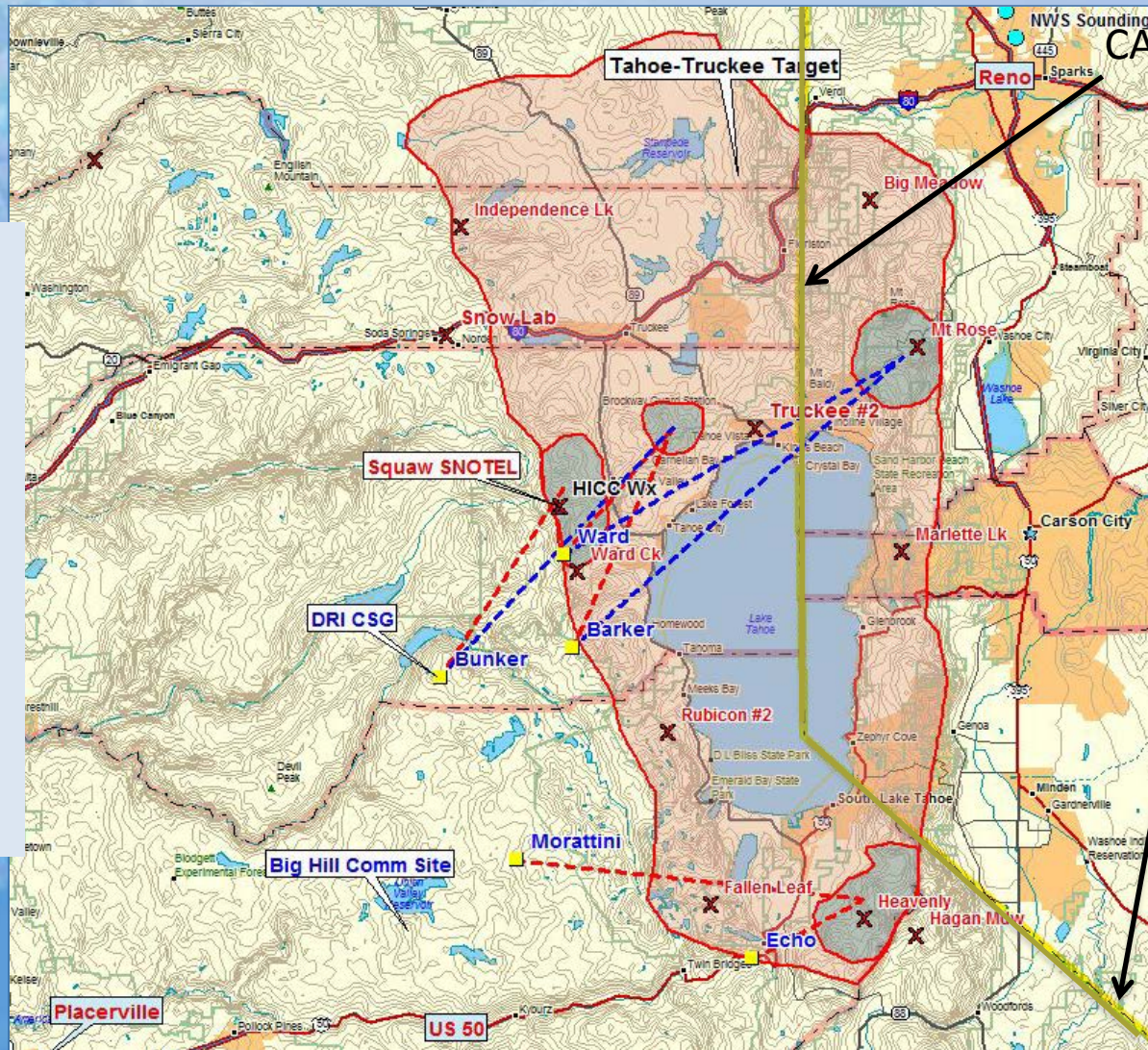
# Overview of DRI Cloud Seeding Program Results for Water Year 2014 and Plans for WY2015

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Western Regional Water Commission Meeting  
September 17, 2014

# WY2014 results Tahoe-Truckee Basin



Sierra Nevada  
Mountain Range  
CA/NV border:

Dashed blue lines  
show pathways  
from ground  
generator sites  
(in blue) to  
SNOTEL sites (in  
red)

# Tahoe-Truckee WY2014 Generator Statistics

## Generator Hours by Month



## Seeding Events by Month



Total # of Seeding Events just under 60% of normal;

No events in November; most productive events in December, February, March

# Estimated Water Augmentation for Tahoe-Truckee Basin WY2013 and WY2014

0.25 mm = 0.00328 ft

1 sq mile = 640 acres.

For WY2013: estimated snow water increase from seeding is:

$W_s = 1232 \text{ h} \times 0.25 \text{ mm/h} \times 0.00328 \text{ ft/mm} \times 35 \text{ sq mi} \times 640 \text{ acres/sq mi} \times 0.92 \approx \underline{20,819 \text{ acre-feet.}}$

For WY2014:

$W_s = 916.7 \text{ h} \times 0.25 \text{ mm/h} \times 0.00328 \text{ ft/mm} \times 35 \text{ sq mi} \times 640 \text{ acres/sq mi} \times 0.89 \approx \underline{15,032 \text{ acre-feet.}}$

WY2014 very near the longer-term avg. of # seeding hours/water augmentation **DESPITE far fewer number of events**

# Fiscal Issues: Main Seeding Program

- Expected WY2015 Budget: \$200K TMWA, \$100K match from WRWC as in past years
- Hire of 75% FTE meteorologist (to replace cadre of other part-time DRI staff not dedicated to program)
- Reduction of Tech staff by one (1)
- Overall FTEs for WY2015 are reduced from past two years as overall DRI budget picture has led to:
  - IDC rate increases since 2012
  - Fringe rates increases since 2012 (esp. for techs)
  - Truck use rates increases since 2012 of nearly 40%
- Unsure if we will have problems from this, will be working with Commissioners Hartung & Jung to secure ski resort funding


**Desert Research Institute**

**Title: Cloud seeding project for Tahoe and Truckee Basins for WY2015**

**Sponsors: Truckee Meadows Water Authority and Western Regional Water Commission**

**Period: 10/01/2014 - 09/30/2015**

	Rate	TWMA Budget		WRWC Budget		Total Project Budget
		Units	Amount	Units	Amount	Amount
<b>Labor</b>						
Tilley, J.	\$10,195.00	1.00	\$10,195	1.00	\$10,195	\$20,390
McDonough, F.	\$5,889.00	1.00	\$5,889	1.00	\$5,889	\$11,778
Texeira, K.	\$1,600.00	1.75	\$2,800	1.75	\$2,800	\$5,600
Dean, J.	\$6,663.00	1.75	\$11,660	1.39	\$9,262	\$20,922
Juchtzer, J.	\$4,855.00	1.75	\$8,496	1.39	\$6,748	\$15,244
Huggins, A. (hourly)	\$67.00	4.00	\$268	4.00	\$268	\$536
<b>Total Labor</b>			<b>\$39,308</b>		<b>\$35,162</b>	<b>\$74,470</b>
<b>Fringe Benefits</b>						
Professional	47.30%		\$7,608		\$7,608	\$15,215
Technologist	60.60%		\$12,215		\$9,702	\$21,917
Grad Student	22.00%		\$616		\$616	\$1,232
Hourly	3.60%		\$10		\$10	\$19
<b>Total Fringe</b>			<b>\$20,448</b>		<b>\$17,935</b>	<b>\$38,383</b>
<b>Total Salary and Fringe Benefits</b>			<b>\$59,756</b>		<b>\$53,097</b>	<b>\$112,853</b>
<b>Operating Costs</b>						
General supplies			\$977		\$435	\$1,412
DRI 4x4 vehicle expenses (per day)	\$100	46	\$4,600	10	\$1,000	\$5,600
Cloud Seeding Solution (100 gallons)	\$5,800	6.9	\$40,020	0.8	\$4,640	\$44,660
Propane and nitrogen	\$940	7	\$6,580		\$0	\$6,580
ATT - Verizon data lines	\$50	36	\$1,800		\$0	\$1,800
Generator Parts	\$500	4.52	\$2,260		\$0	\$2,260
Snowmobile expenses	\$300	3	\$900		\$0	\$900
Shop equipment expenses	\$1,450	1	\$1,450		\$0	\$1,450
<b>Total Operating Costs</b>			<b>\$58,587</b>		<b>\$6,075</b>	<b>\$64,662</b>
<b>Total Direct Costs</b>			<b>\$118,343</b>		<b>\$59,172</b>	<b>\$177,515</b>
<b>Indirect Costs</b>	69%		<b>\$81,657</b>		<b>\$40,828</b>	<b>\$122,485</b>
<b>TOTAL COST</b>			<b>\$200,000</b>		<b>\$100,000</b>	<b>\$300,000</b>



Thanks for Your Attention!  
Questions?