

Ivan Geroy, Staff Hydrologist
USDA-NRCS Cooperative Snow Survey Program
Owyhee Drought Presentation, 4/23/2015

Ivan Geroy
4/23/2015



FEDERAL COOPERATIVE SNOW SURVEY PROGRAM
 FEDERAL STATES AND DISTRICTS
 COOPERATIVE SNOW SURVEYS

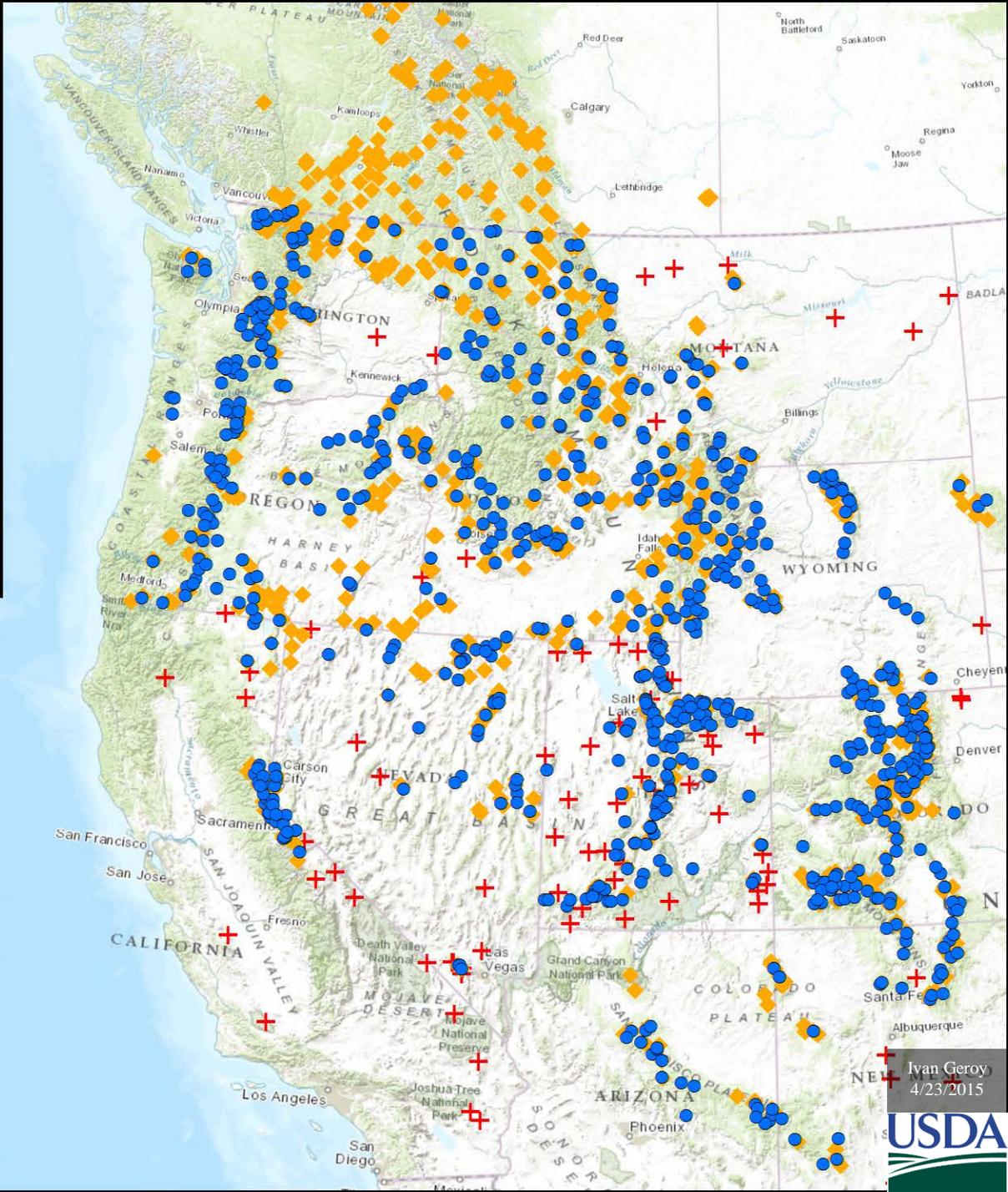
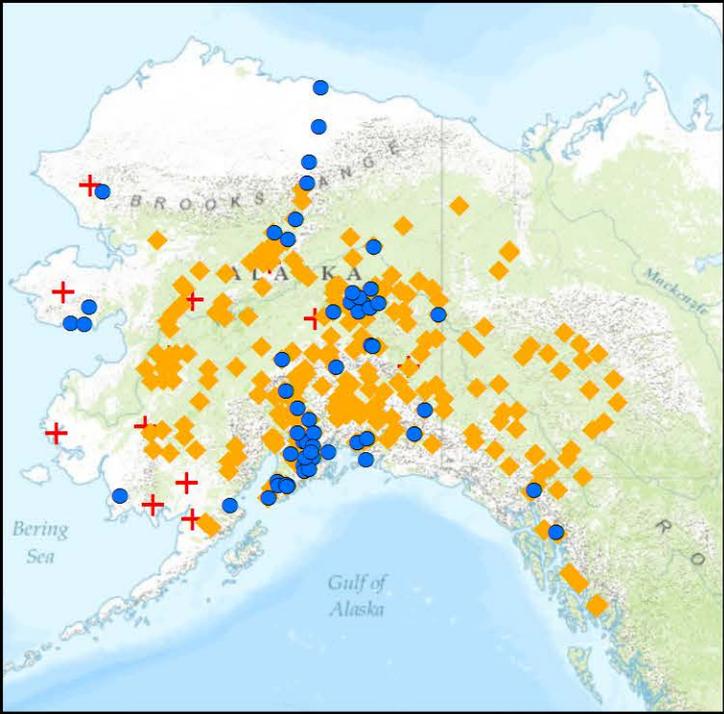
State: *Montana*
 Locality: *Blizzard Ridge*
 Section: *6 Chapin-Gallatin*
 Date: *Feb. 28, 1935* Snow Depth: *130* Wind: *P.E. Frosty*
 Time: *2:35 P.M.*

No.	Temp.	Wind	Dir.	Force	Humidity	Clouds	Vis.	Soil	Remarks
1	74								
2	91	29							
3	92	29							
4	85 1/2	26	62	25	27 1/2	29			
5	87	29	62	25	27	30			
6	87	29	62	25	27	29			<i>Ch. Damp</i>
7	85 1/2	26	62	25	27 1/2	29			
8	85 1/2	26	62	25	27 1/2	29			<i>Dry Soil</i>
9	85 1/2	26	62	25	27 1/2	29			
10	85 1/2	26	62	25	27 1/2	29			
11	86 1/2	26	62	25	27 1/2	29			<i>Needles</i>
12	86 1/2	26	62	25	27 1/2	29			
								<i>2 samples</i>	
								<i>255 29 Total</i>	
								<i>25.5 Average</i>	

NO. OF SNOW DRILLING HITS: *9*
 NO. OF SNOW SAMPLES TAKEN: *101, on samples 9 and 10.*
 NAME OF SURVEYOR: *W.E. Clark* DATE: *11 28 35* CHECKED BY: *G.C.*



The Federal Cooperative Snow Survey Program was created via appropriations bill on May 17th 1935 following years of severe drought in the western U.S.



National Snow Survey Program

- 839 Snotel Sites
- ◆ 1113 Snow Courses
- + 219 Scan Sites

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Idaho Data Collection Office Responsibilities

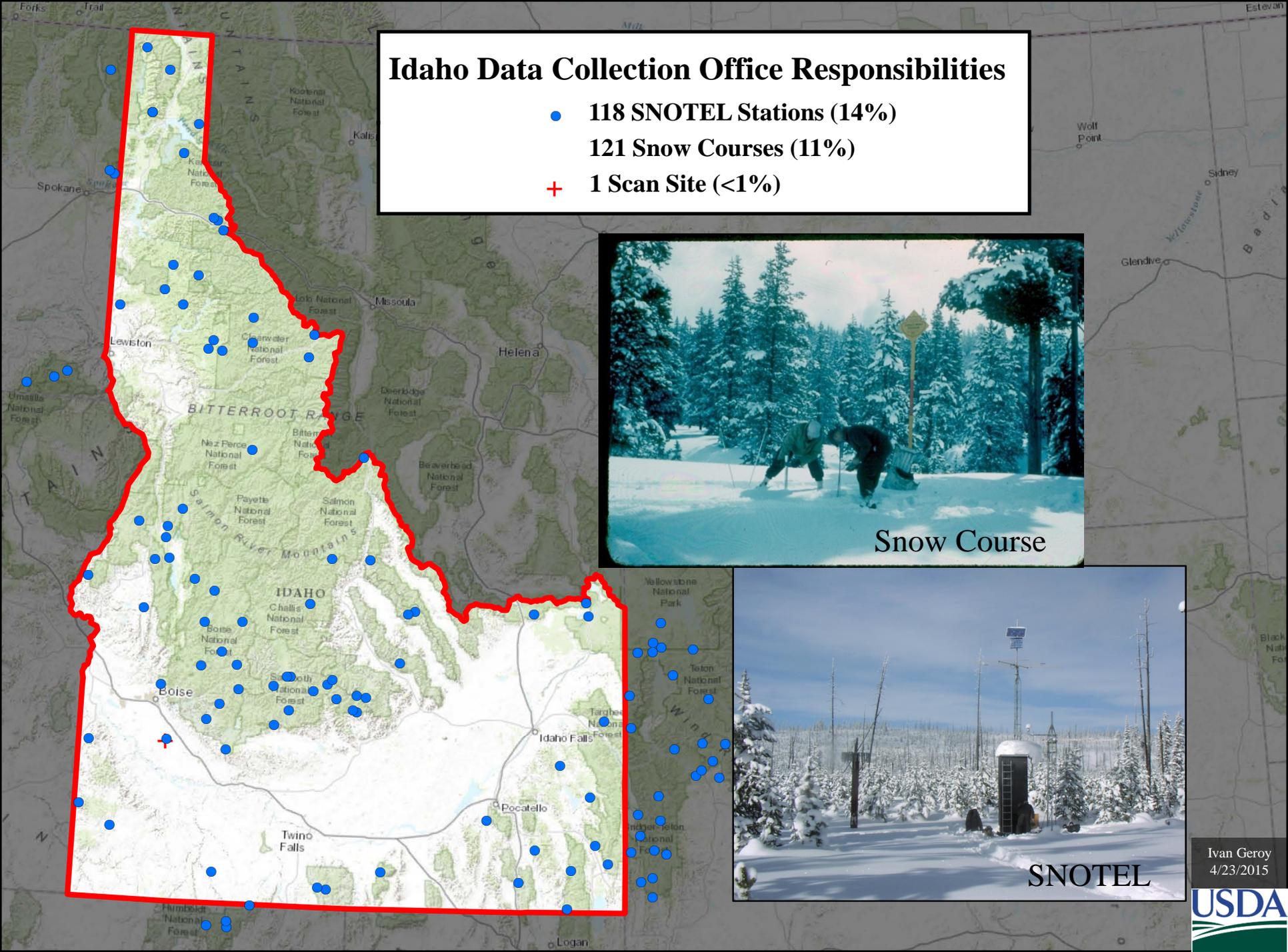
- 118 SNOTEL Stations (14%)
- 121 Snow Courses (11%)
- + 1 Scan Site (<1%)



Snow Course



SNOTEL



Solar Panels

Antenna

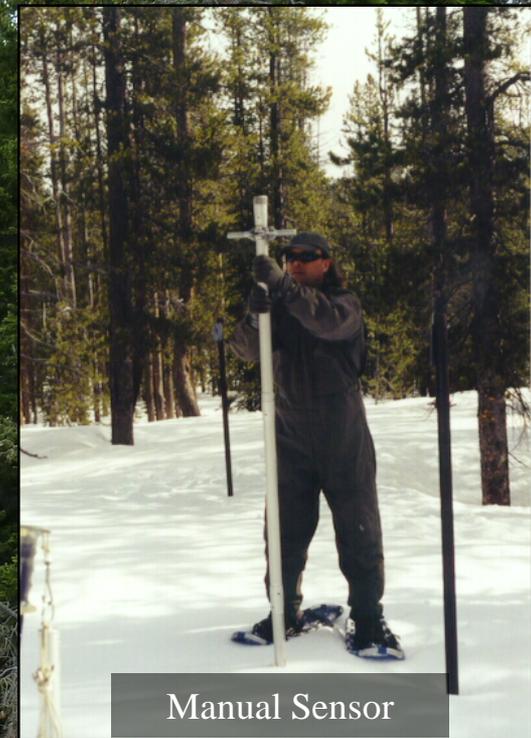
Temperature Sensor

Snow Depth Sensor

Site Shelter

Precipitation Gauge

Snow Pillow and Ground Truth Markers



Manual Sensor

Owyhee Country... Where are we at?



Photo Courtesy of Ron Abramovich

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4/23/2015

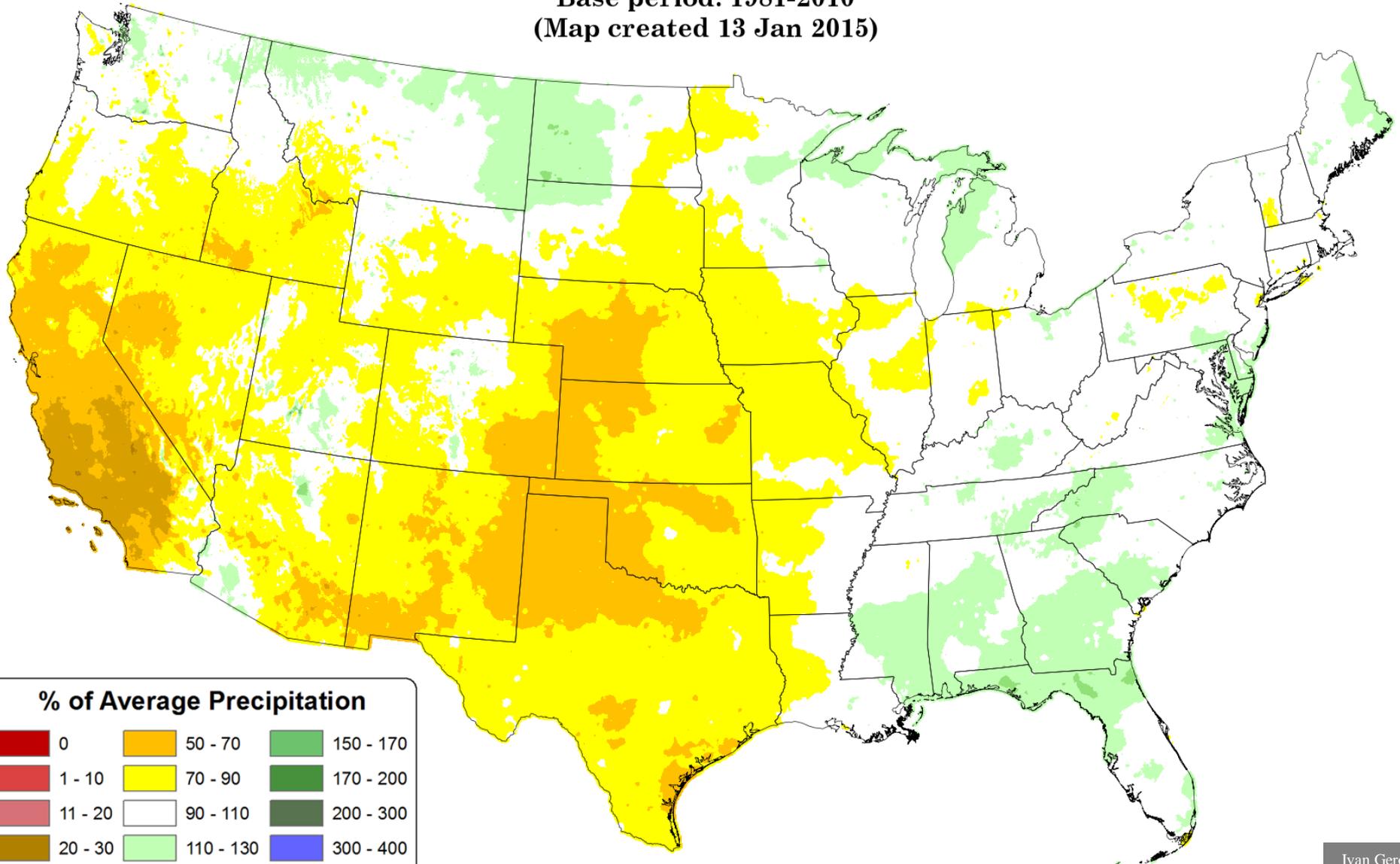


Total Precipitation Anomaly: May 2012 - April 2014

Period ending 7 AM EST 30 Apr 2014

Base period: 1981-2010

(Map created 13 Jan 2015)



% of Average Precipitation



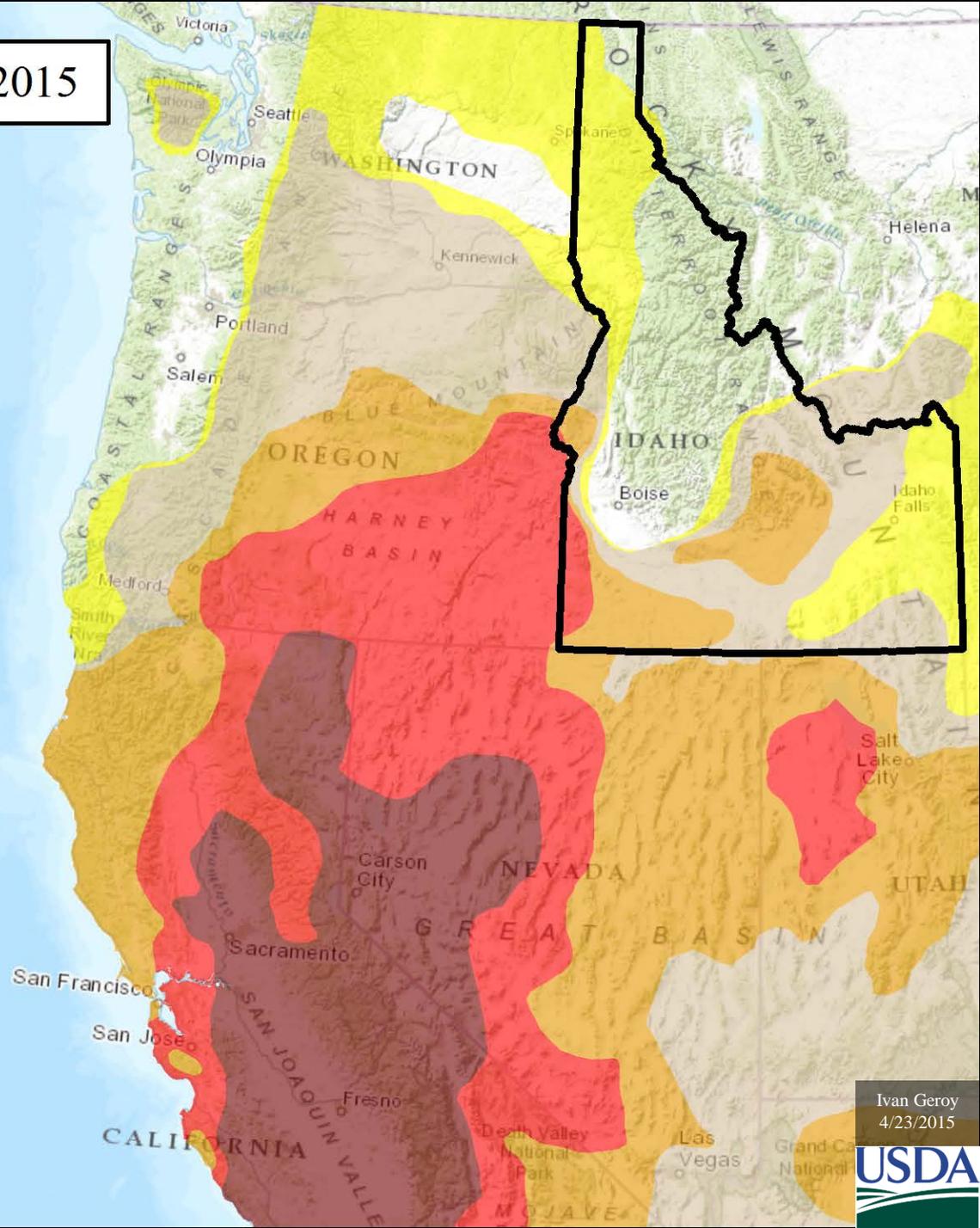
Copyright (c) 2015, PRISM Climate Group, Oregon State University

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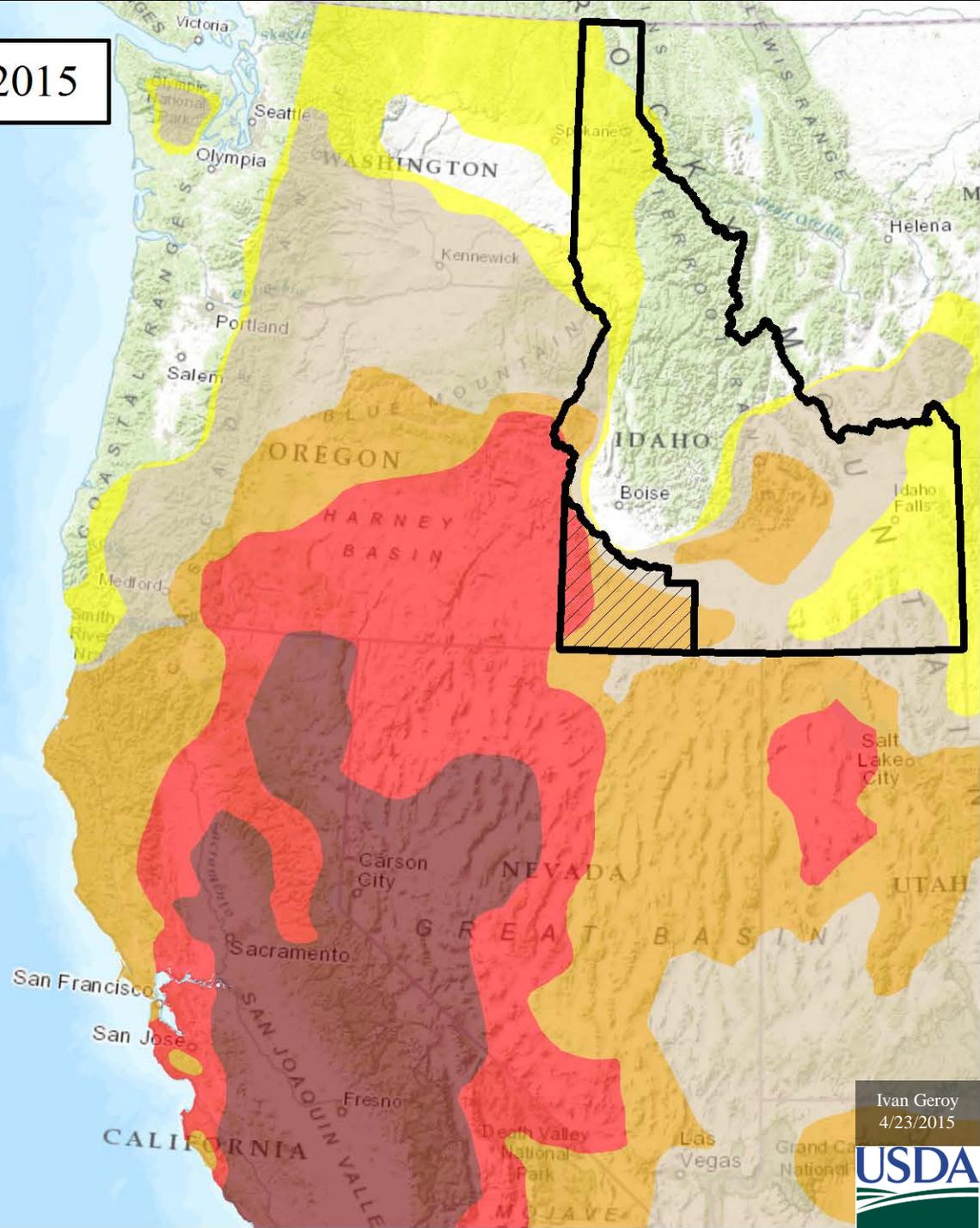
U.S. Drought Monitor 14 April, 2015

-  D0 Abnormally Dry
-  D1 Moderate Drought
-  D2 Severe Drought
-  D3 Extreme Drought
-  D4 Exceptional Drought



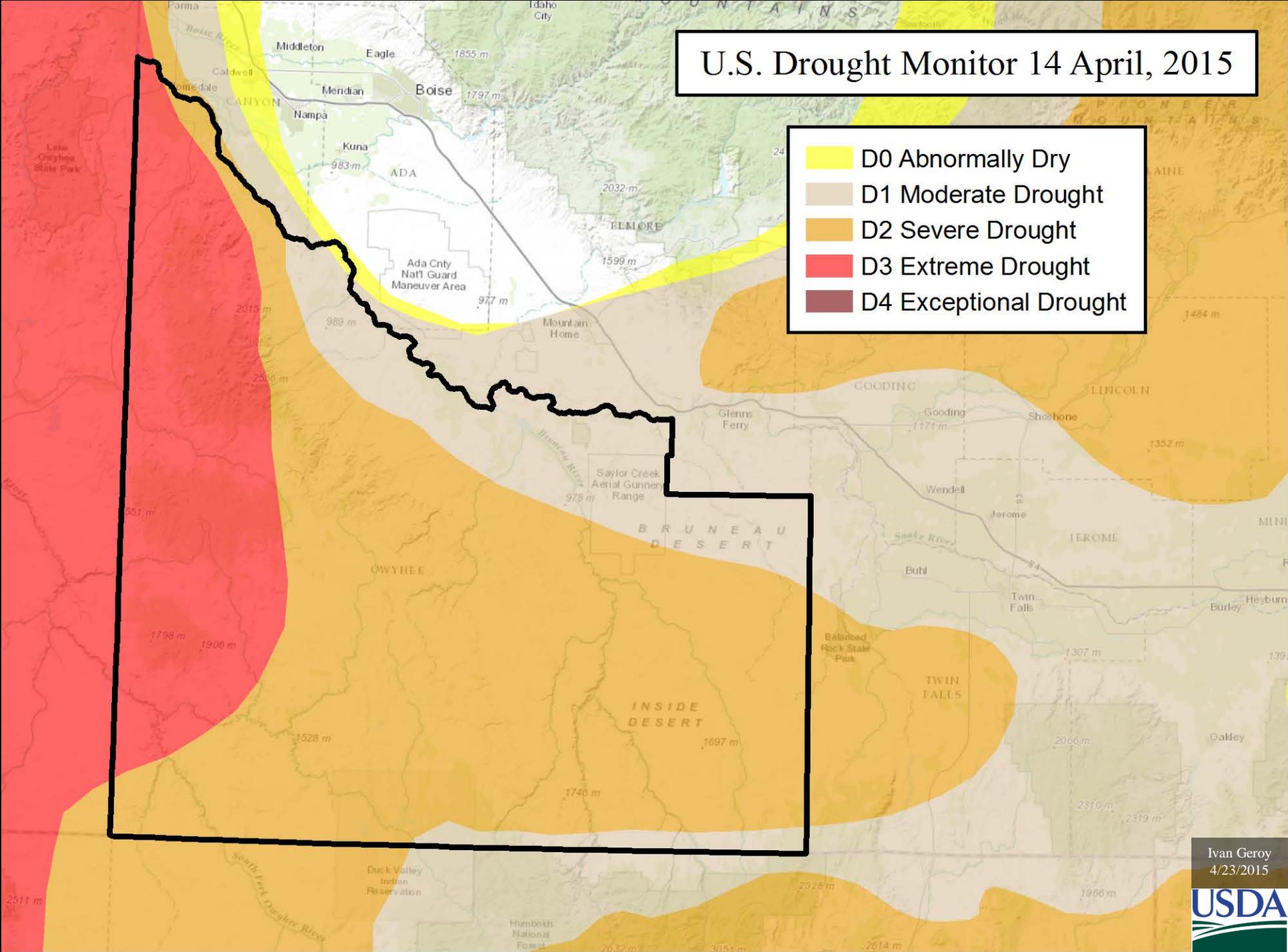
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U.S. Drought Monitor 14 April, 2015

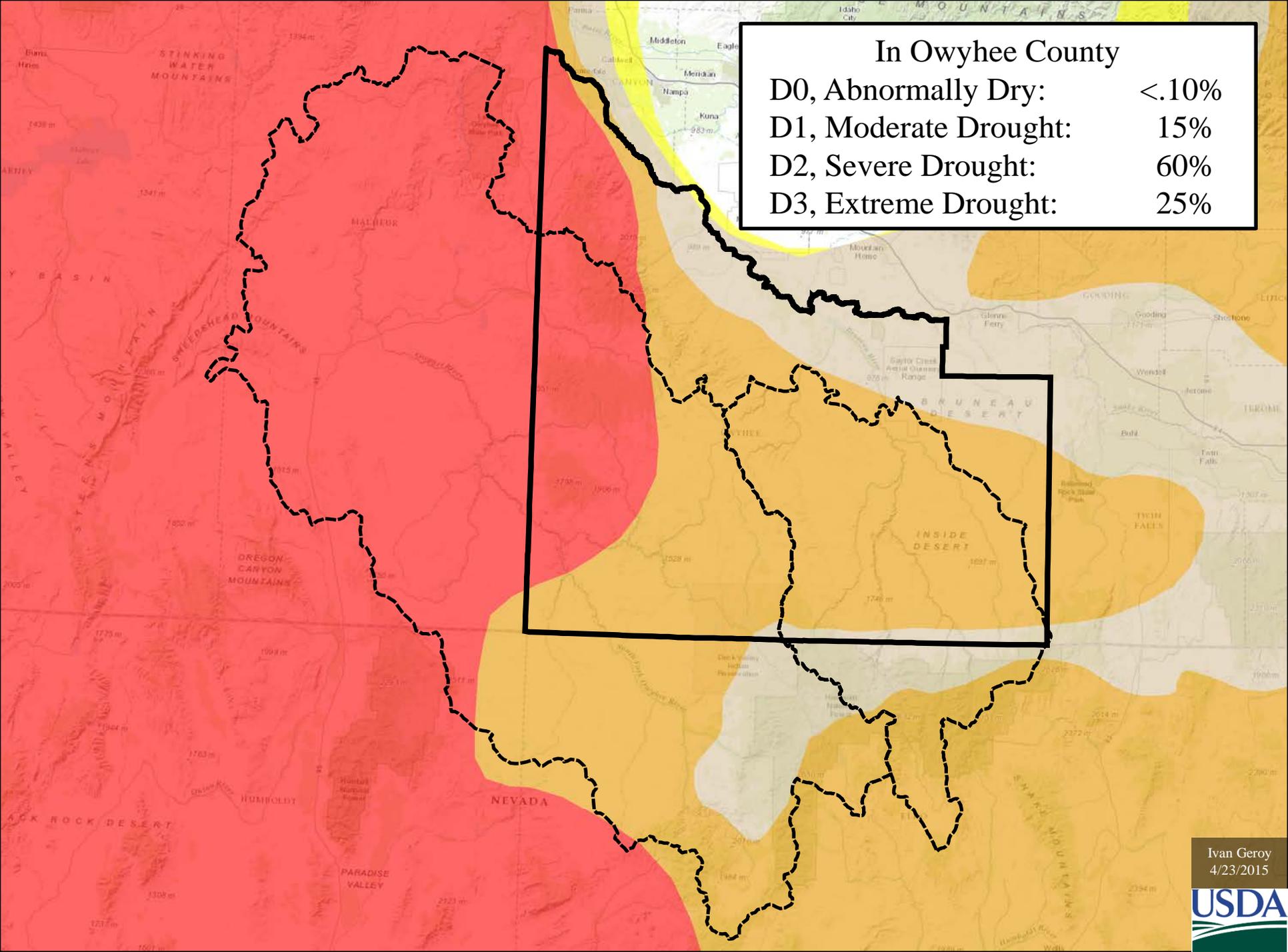
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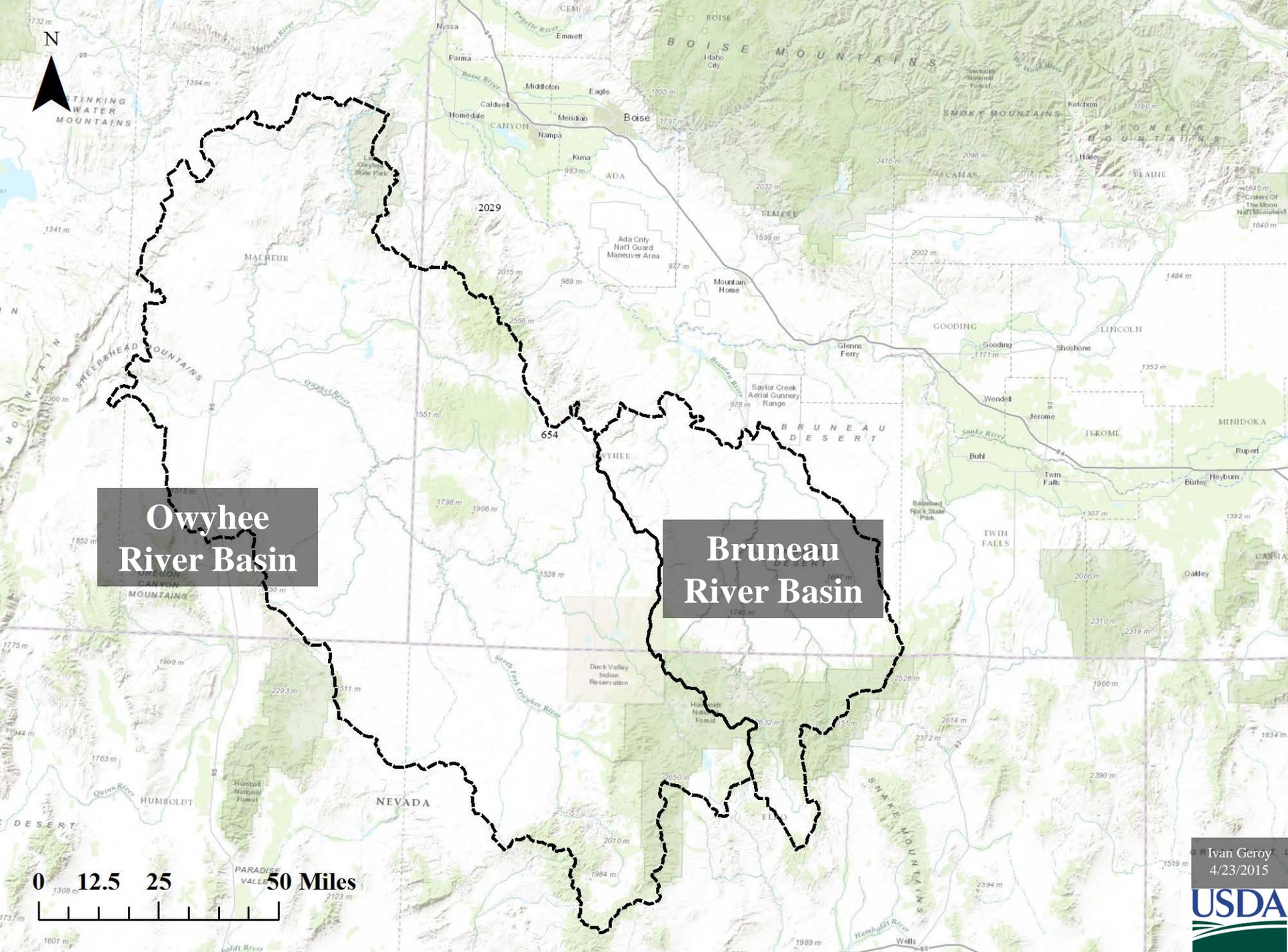
U.S. Drought Monitor 14 April, 2015

- D0 Abnormally Dry
- D1 Moderate Drought
- D2 Severe Drought
- D3 Extreme Drought
- D4 Exceptional Drought

In Owyhee County	
D0, Abnormally Dry:	<.10%
D1, Moderate Drought:	15%
D2, Severe Drought:	60%
D3, Extreme Drought:	25%



In Owyhee County	
D0, Abnormally Dry:	<.10%
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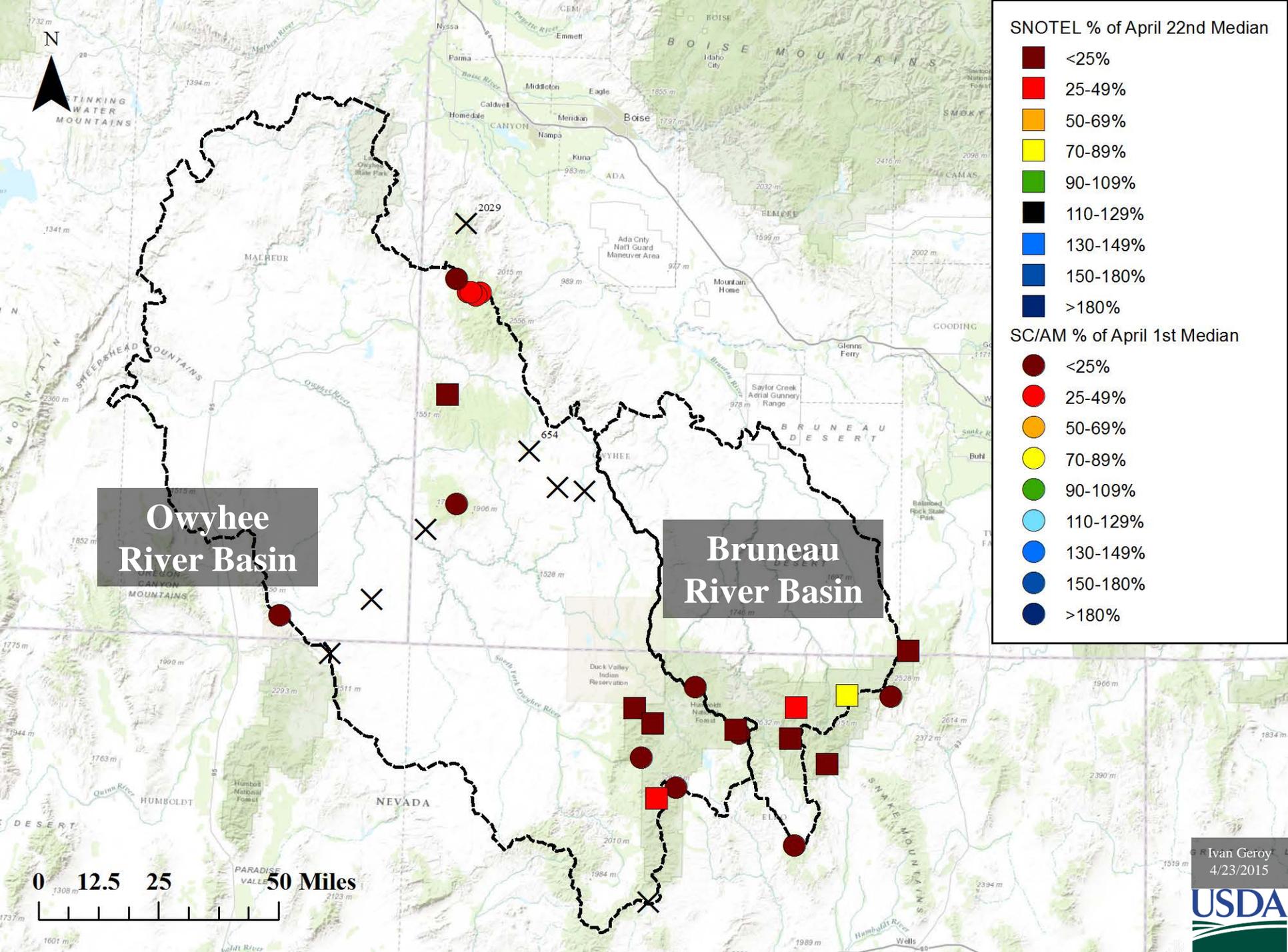
Owyhee
River Basin

Bruneau
River Basin

0 12.5 25 50 Miles

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4/23/2015





SNOTEL % of April 22nd Median

- <25%
- 25-49%
- 50-69%
- 70-89%
- 90-109%
- 110-129%
- 130-149%
- 150-180%
- >180%

SC/AM % of April 1st Median

- <25%
- 25-49%
- 50-69%
- 70-89%
- 90-109%
- 110-129%
- 130-149%
- 150-180%
- >180%

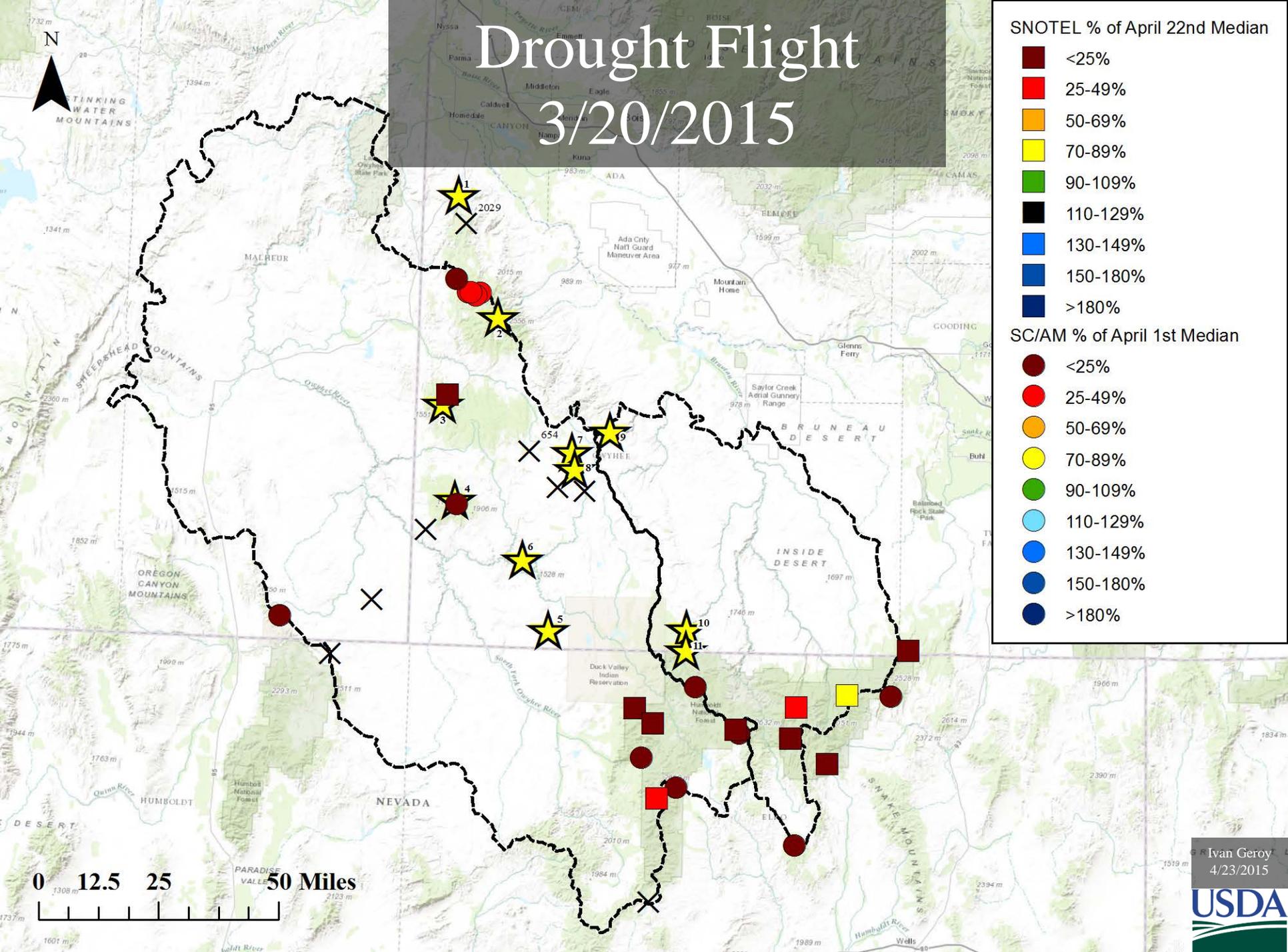
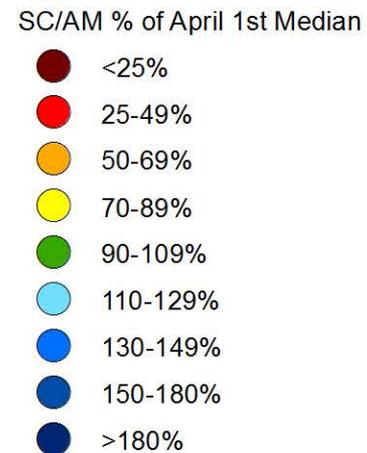
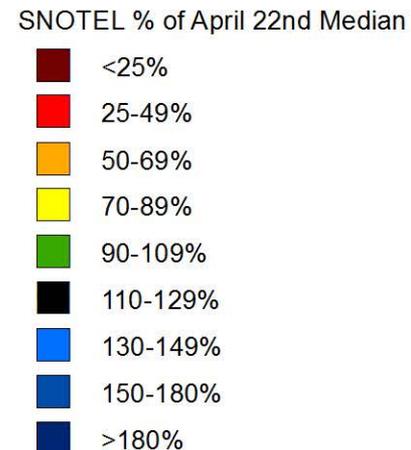
Owyhee River Basin

Bruneau River Basin

0 12.5 25 50 Miles

Drought Flight

3/20/2015



Site Desig	Network	Site Name	Earliest Sample	# Times Sampled	Snow Water Equivalent (in)			Comments
					2015	1981-2010 Median	% of Median	
All Snow Course and Aerial Marker Data are from the 1st of April Reading								
16G09	AM	Battle Creek - Aerial Marker			0.0	0.0	N/A	
16G10	AM	Bull Basin - Aerial Marker			0.0	0.0	N/A	
16H06	AM	Columbia Basin - Aerial Marker	1964	49	0.0	7.6	0%	Tied with 8 others for lowest on record.
16F13	SC	Democrat Creek	1970	45	2.0	6.2	32%	12th lowest on record.
16F12	SC	Dobson Creek	1970	45	13.0	27.2	48%	2nd lowest on record.
15H07	SC	Fry Canyon	1941	75	0.0	4.8	0%	Tied with 8 others for lowest on record.
15H05	SC	Gold Creek	1936	76	0.0	2.0	0%	Tied with 11 others for lowest on record.
17G06	AM	Lookout Butte - Aerial Marker			0.0	0.0	N/A	
17G04	AM	Louse Canyon - Aerial Marker	1959	55	0.0	3.2	0%	Tied with 15 others for lowest on record.
15H20	AM	Merritt Mountain - Aerial Marker	1965	47	0.0	5.5	0%	Tied with 8 others for lowest on record.
15H25	SC	O'Neil Creek	1986	32	0.0	2.8	0%	Tied with 15 others for lowest on record.
17H06	AM	Quinn Ridge - Aerial Marker			0.0	0.0	N/A	
16G11	AM	Red Canyon - Aerial Marker	1967	53	0.0	4.1	0%	Tied with 6 others for lowest on record.
16F09	SC	Reynolds West Fork #2	1970	46	11.6	23.9	49%	3rd lowest on record.
16F11	SC	Reynolds-Dobson Divide	1970	45	7.6	24.2	31%	Lowest on record.
15H19	AM	Stag Mountain - Aerial Marker	1964	49	0.0	4.3	0%	Tied with 10 others for lowest on record.
16F06	AM	Succor Creek - Aerial Marker	1961	53	0.0	8.0	0%	Tied with 4 others for lowest on record.
16G12	AM	Vaught Ranch - Aerial Marker			0.0	0.0	N/A	
All SNOTEL Data are from the 22nd of April Reading								
321	SNOTEL	Bear Creek	1979	35	4.8	18	27%	Lowest on record
336	SNOTEL	Big Bend	1979	37	0	0.7	0%	Meltout 3/16, tied earliest on record.
454	SNOTEL	Draw Creek	1984	32	0	4.5	0%	Melted out 4/10, second earliest on record.
476	SNOTEL	Fawn Creek	1981	35	0.3	14.1	2%	Second lowest on record.
548	SNOTEL	Jack Creek Upper	1979	37	4.9	15.8	31%	Second lowest on record.
573	SNOTEL	Laurel Draw	1980	36	0	1.2	0%	Melted out 4/11, 7th earliest on record
654	SNOTEL	Mud Flat	1981	35	0	0	N/A	Meltout 2/10, earliest on record.
698	SNOTEL	Pole Creek R.S.	1981	35	14.8	20.2	73%	8th lowest on record.
2029	SNOTEL	Reynolds Creek	2000	15	0	0	N/A	Meltout 3/13, 5th earliest on record.
746	SNOTEL	Seventysix Creek	1979	37	0	3.3	0%	Meltout 3/28, earliest on record
774	SNOTEL	South Mtn.	1979	31	0	9.8	0%	Meltout 4/15, 5th earliest on record.
811	SNOTEL	Taylor Canyon	1981	35	0	0	N/A	Meltout 1/19, 5th earliest on record.
871	SNOTEL	Wilson Creek	1991	25	0	9.4	0%	Meltout 4/11, second earliest on record.

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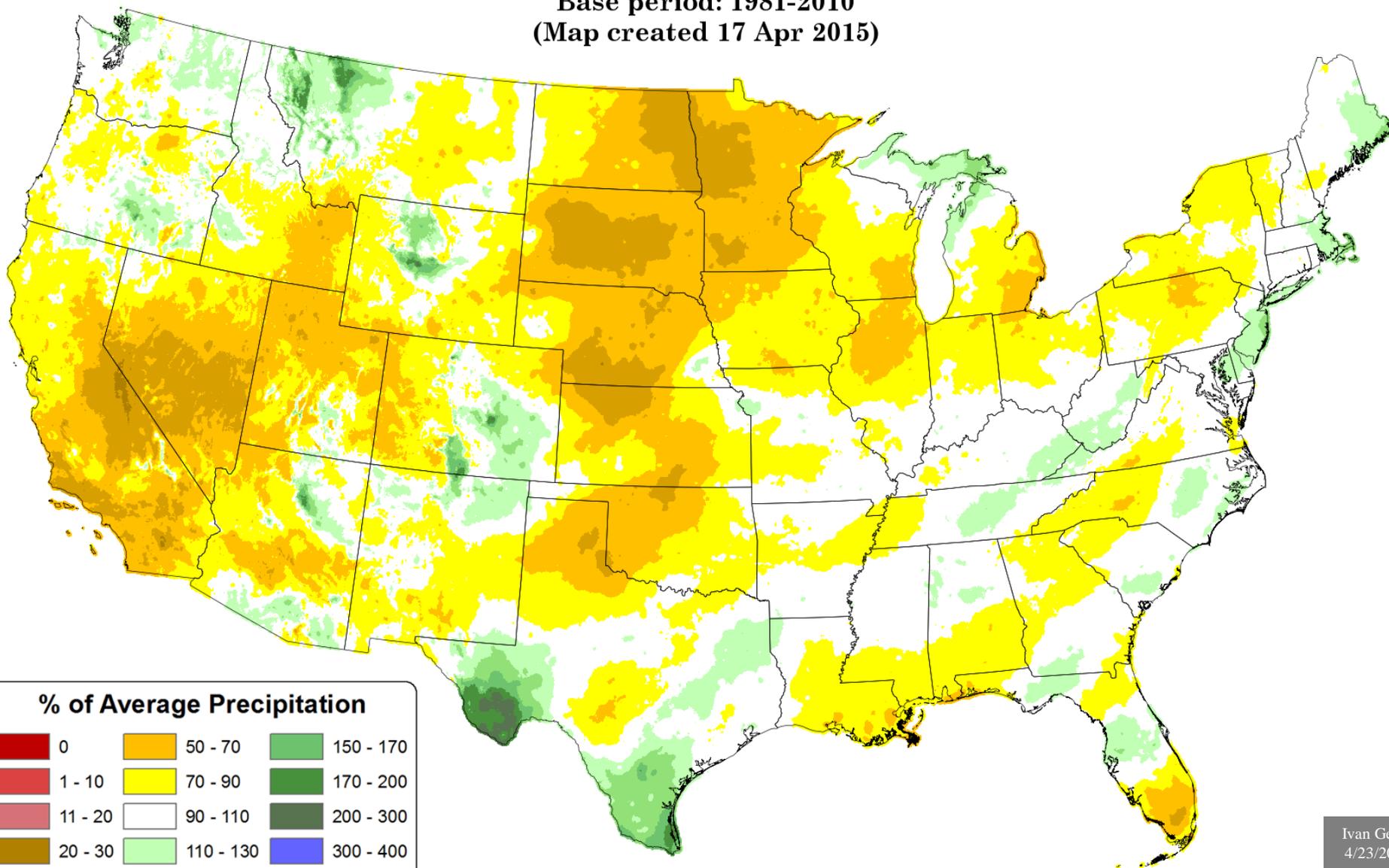
14 out of 31 are tied for, or at record lows.

Total Precipitation Anomaly: October 2014 - March 2015

Period ending 7 AM EST 31 Mar 2015

Base period: 1981-2010

(Map created 17 Apr 2015)



% of Average Precipitation

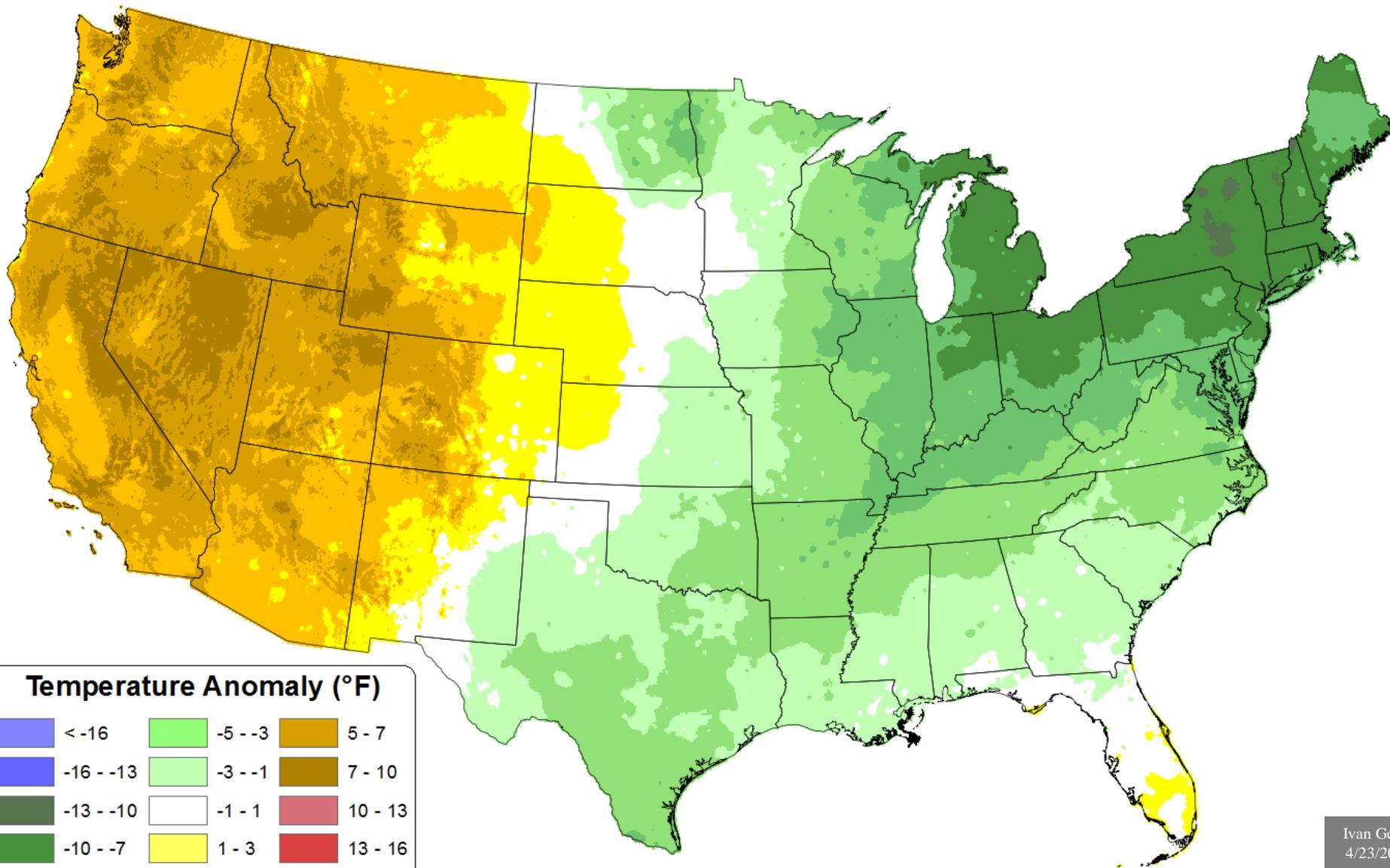
0	50 - 70	150 - 170
1 - 10	70 - 90	170 - 200
11 - 20	90 - 110	200 - 300
20 - 30	110 - 130	300 - 400
30 - 50	130 - 150	> 400

Daily Mean Temperature Anomaly: January 2015 - March 2015

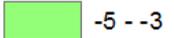
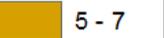
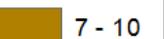
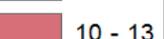
Period ending 7 AM EST 31 Mar 2015

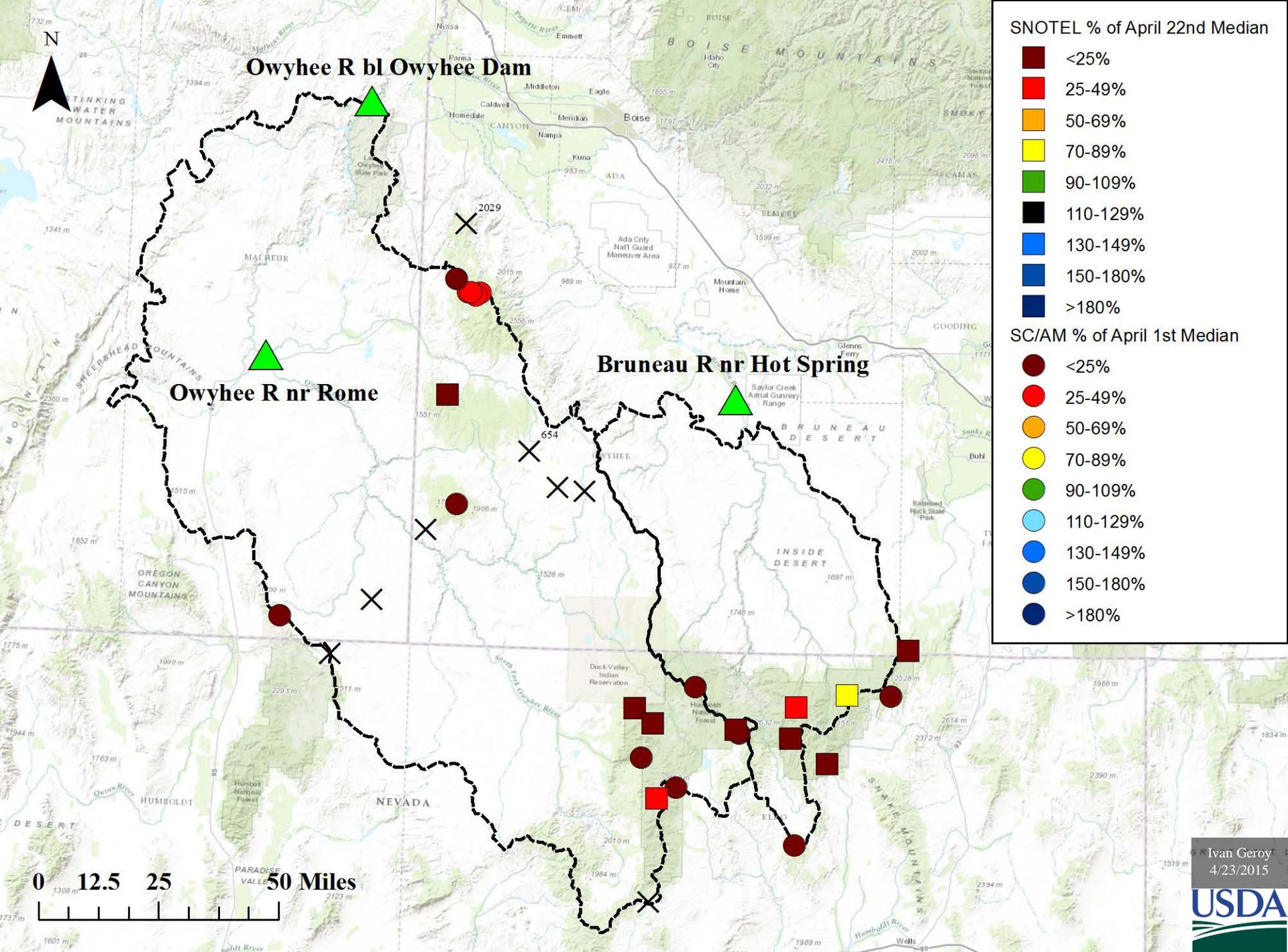
Base period: 1981-2010

(Map created 02 Apr 2015)



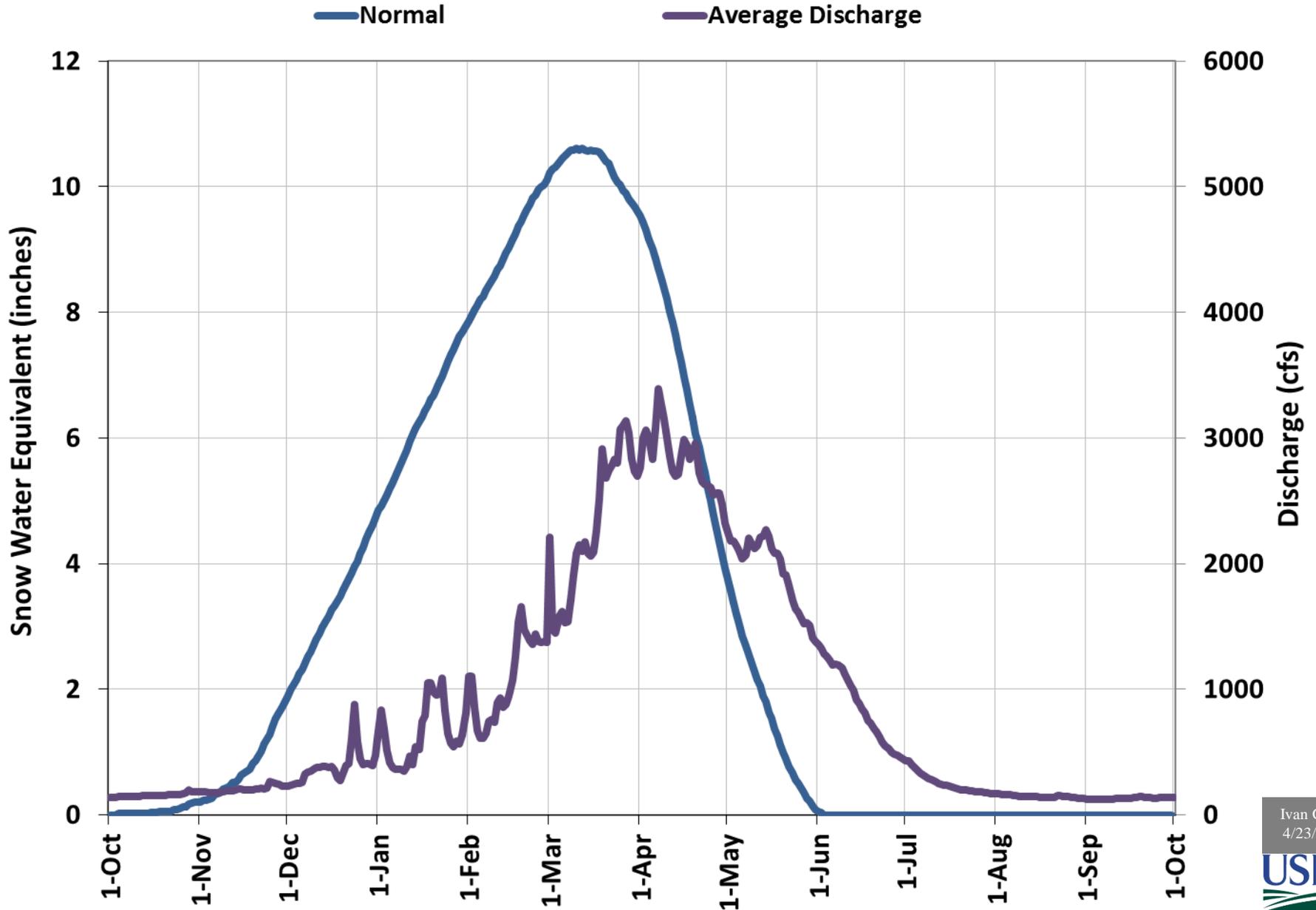
Temperature Anomaly (°F)

 < -16	 -5 - -3	 5 - 7
 -16 - -13	 -3 - -1	 7 - 10
 -13 - -10	 -1 - 1	 10 - 13
 -10 - -7	 1 - 3	 13 - 16
 -7 - -5	 3 - 5	 > 16



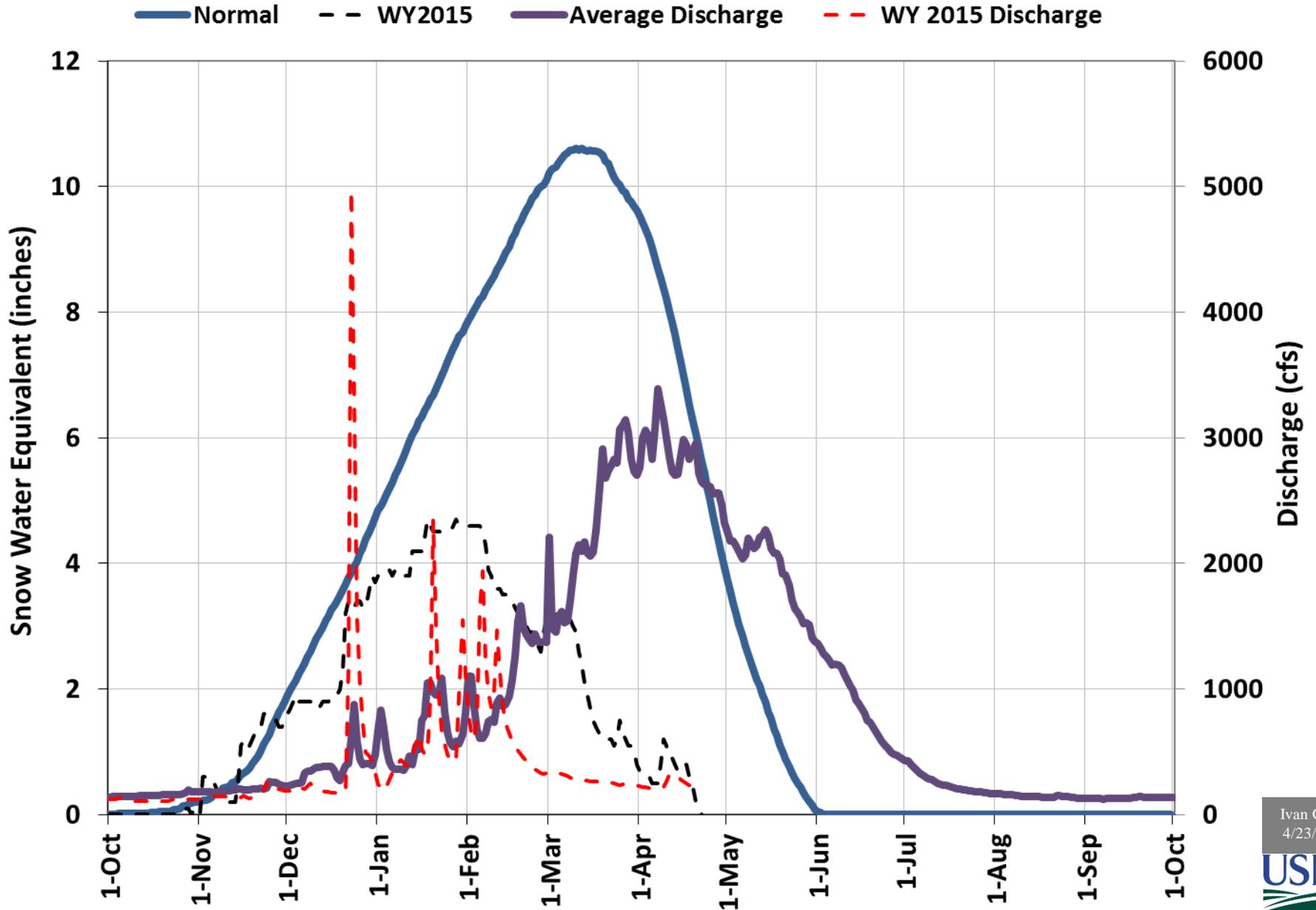
Owyhee Basin 2015 Snowpack Comparison Graph (7 sites), Owyhee River nr Rome

Based on Provisional SNOTEL data as of Apr 22, 2015

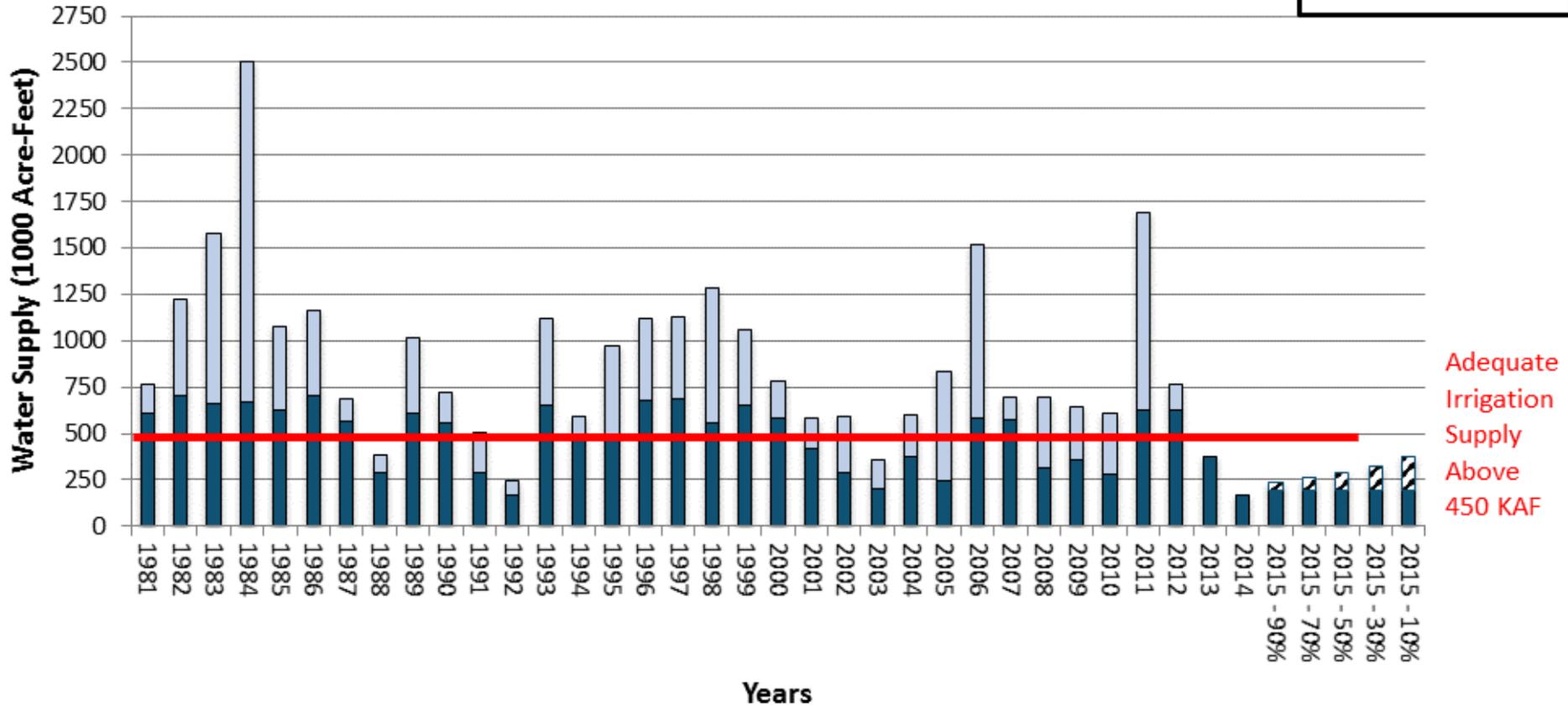


Owyhee Basin 2015 Snowpack Comparison Graph (7 sites), Owyhee River nr Rome

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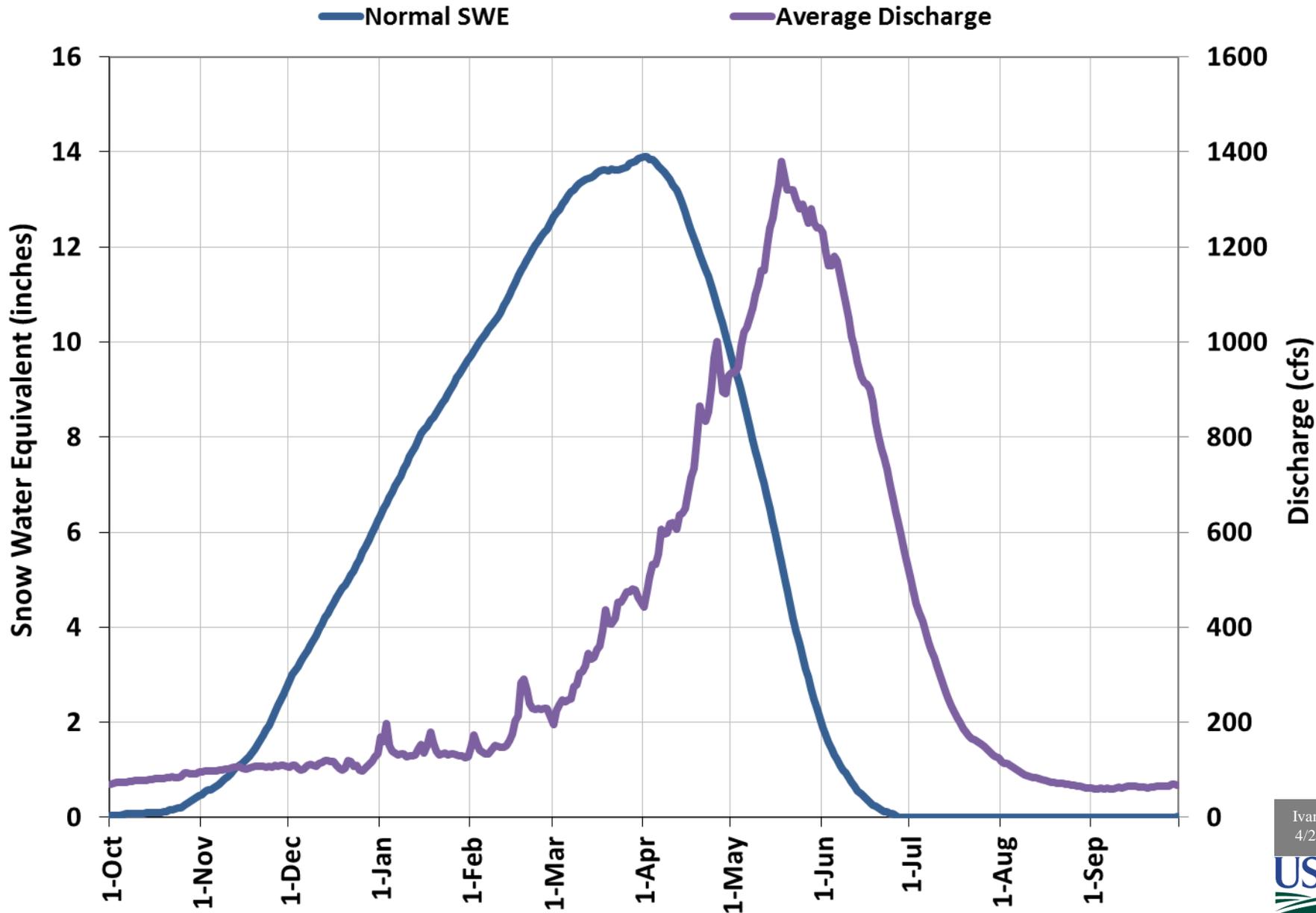


Apr 1 Historic and Forecasted Surface Water Supply Owyhee Basin



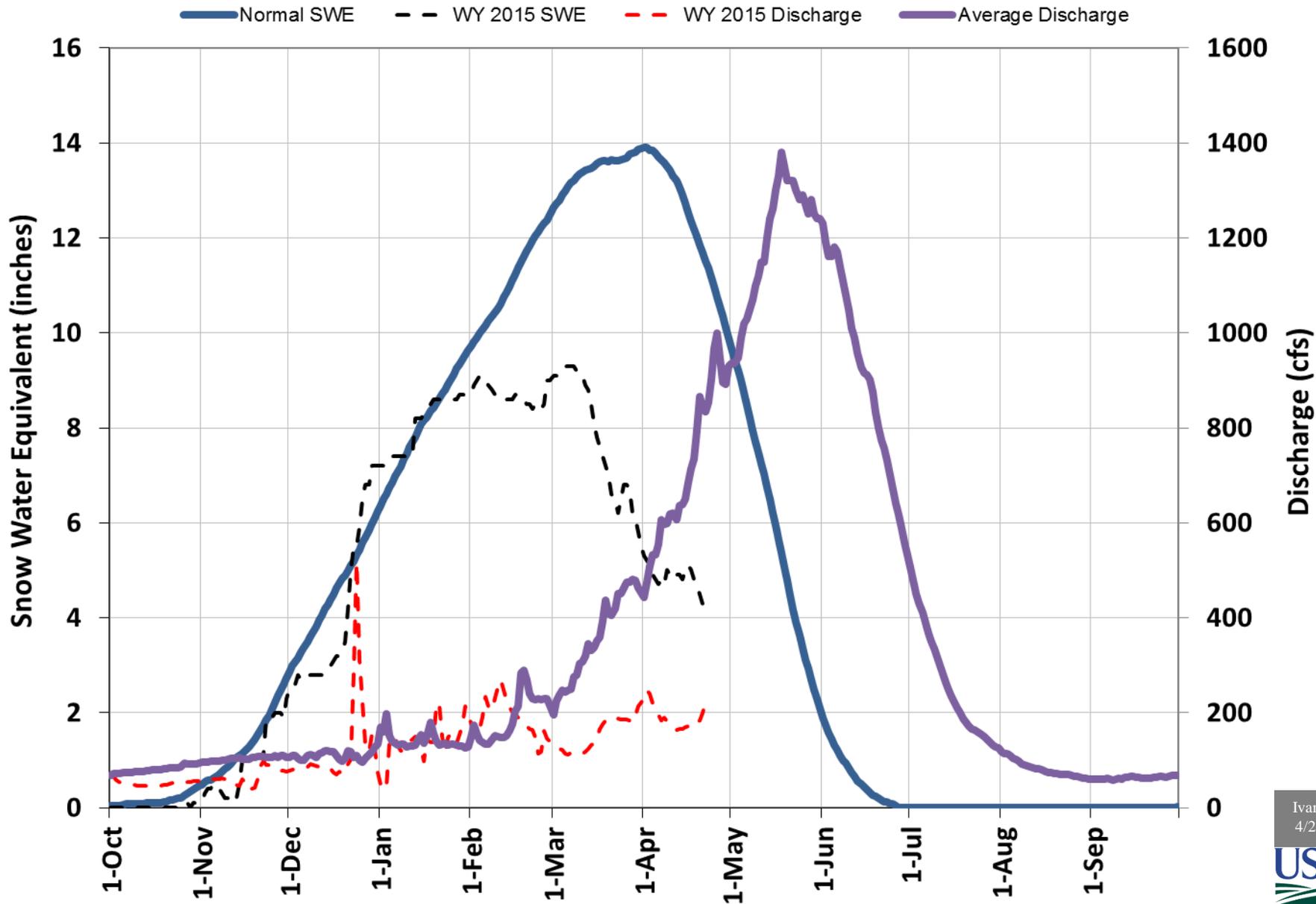
Bruneau Basin 2015 Snowpack Comparison Graph (5 sites), Bruneau River nr Hot Springs Discharge

Based on Provisional SNOTEL data as of Apr 22, 2015



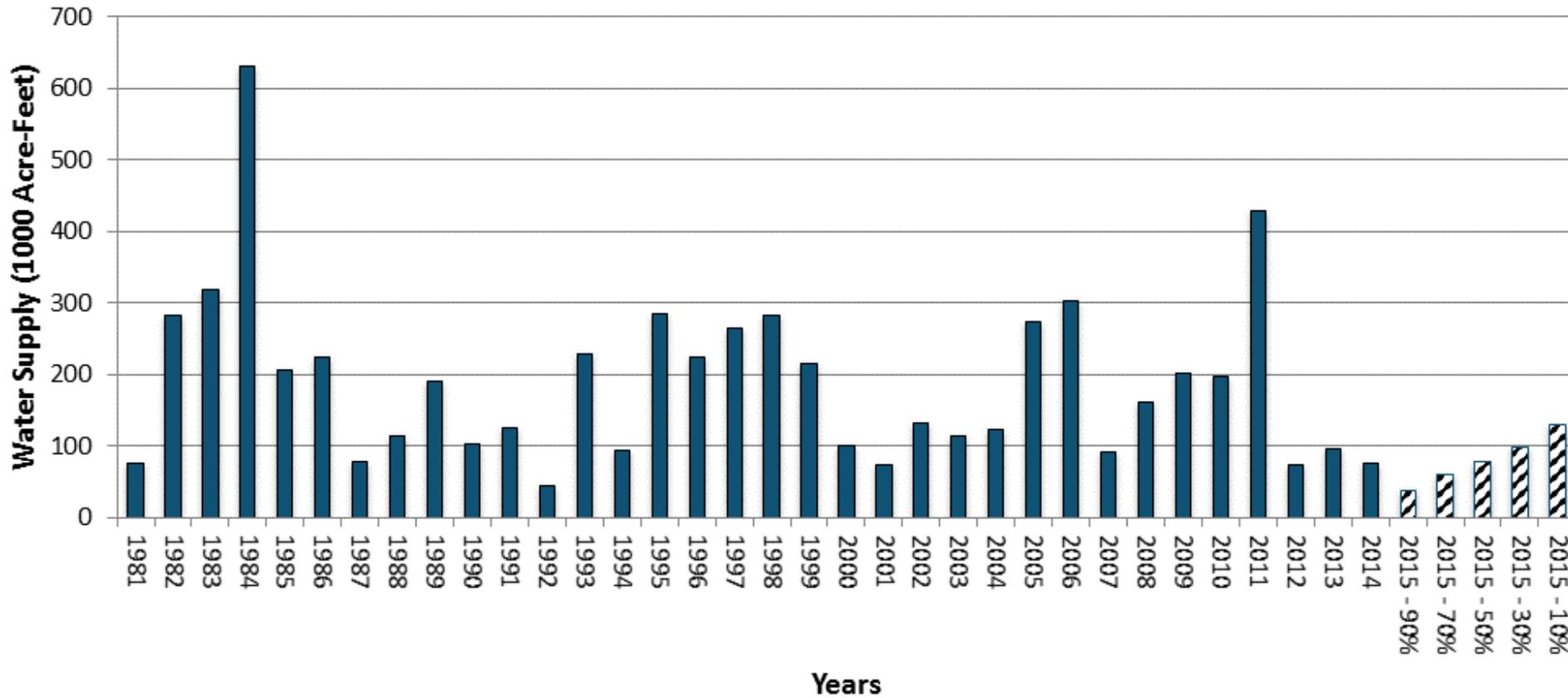
Bruneau Basin 2015 Snowpack Comparison Graph (5 sites), Bruneau River nr Hot Springs Discharge

Based on Provisional SNOTEL data as of Apr 22, 2015



Apr 1 Historic and Forecasted Surface Water Supply Bruneau Basin

■ Bruneau R nr Hot Spring



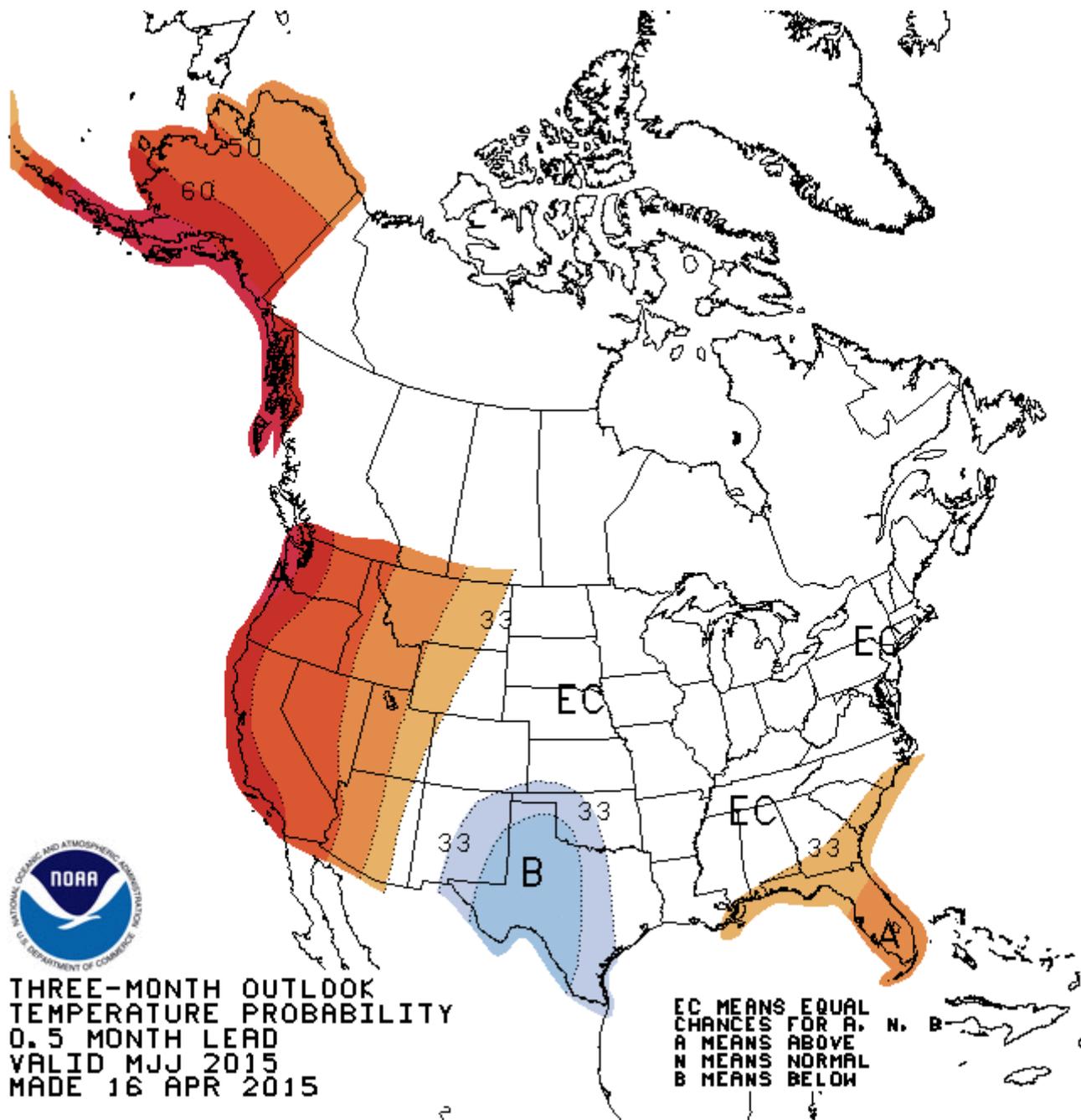
What about the future?



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Ivan Geroy
4/23/2015





THREE-MONTH OUTLOOK
 TEMPERATURE PROBABILITY
 0.5 MONTH LEAD
 VALID MJJ 2015
 MADE 16 APR 2015

EC MEANS EQUAL
 CHANCES FOR A,
 A MEANS ABOVE
 N MEANS NORMAL
 B MEANS BELOW



Ivan Geroy, Hydrologist
USDA-NRCS Snow Survey Program
9173 W. Barnes Dr.
Boise, ID, 83709
Office: (208) 685-6921
Ivan.Geroy@id.usda.gov