

Spring CRFS Meeting
March 21, 2013
Salt Lake City, Utah

National Water
and Climate Center



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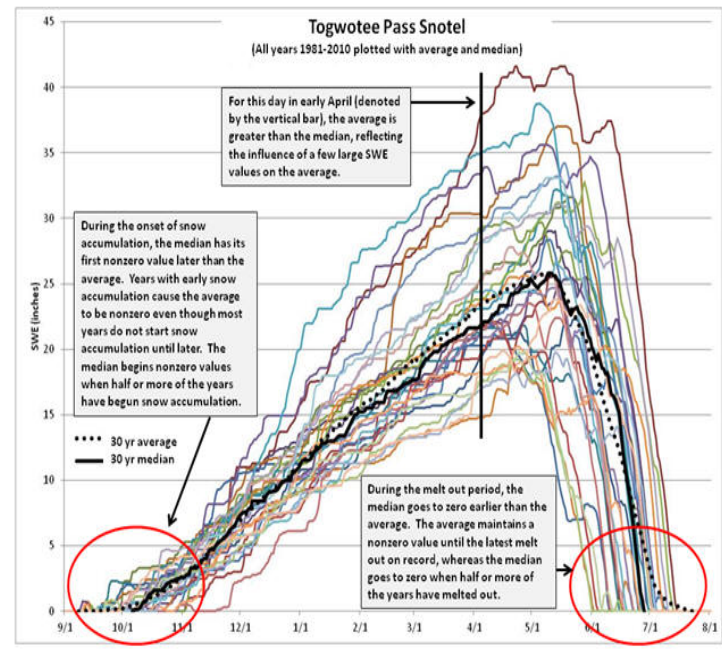
Median vs. Average to Describe Normal

What is the median and how is it different from the average?

Although *average* is a commonly-used and well understood statistic, *median* is also a common descriptor used to express a "middle" value in a set of data. This "middle" value is also known as the *central tendency*. Median is determined by ranking the data from largest to smallest, and then identifying the middle so that there are an equal number of data values larger and smaller than it is. While the average and median can be the same or nearly the same, they are different if more of the data values are clustered toward one end of their range and/or if there are a few extreme values. In statistical terminology, this is called *skewness*. In this case, the average can be significantly influenced by the few values, making it not very representative of the majority of the values in the data set. Under these circumstances, median gives a better representation of central tendency than average.

Why is the median preferable for SWE?

In general, snow water equivalent (SWE) for a given day over a historical period shows skewness. This is particularly evident at the onset of snow accumulation and near the time of melt out, when many years have very small or zero values and only a few have significant nonzero values. Skewness may also be noticeable throughout the year due to the presence of a few large snow years. In these cases, the median is typically different (usually smaller) than the average but better represents the central tendency of SWE than does the average. These effects are illustrated in the graphic.





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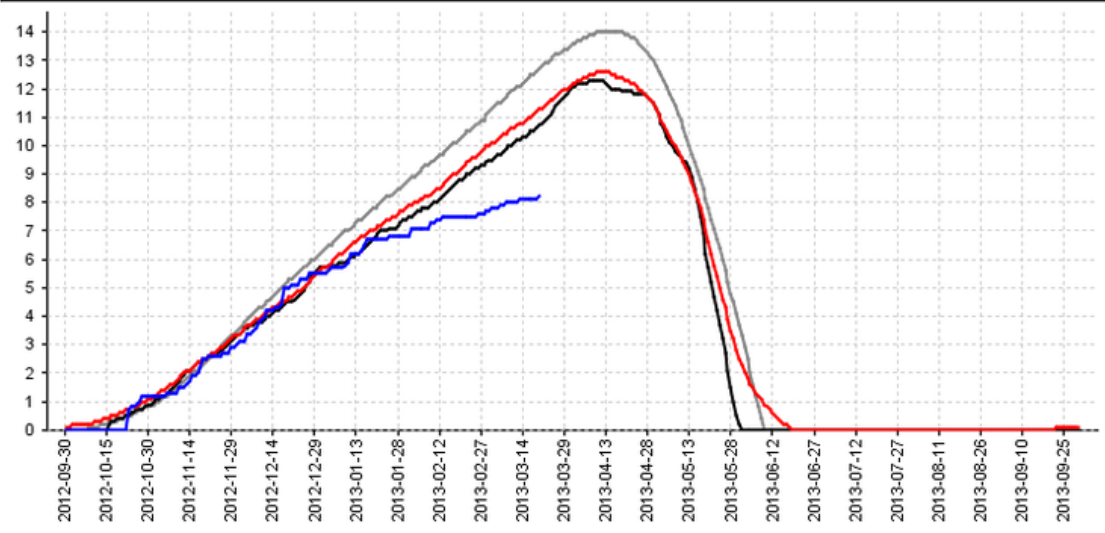
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Wyoming Site - Elkhart Park G.s. (468)

(As of: Wed Mar 20 17:41:05 PDT 2013)

Provisional data, subject to revision

— Snow Water Equivalent (in)
 — Average Snow Water Equivalent (1981-2010) (in)
 — Median Snow Water Equivalent (1981-2010) (in)
 — Normal Snow Water Equivalent (1971-2000) (in)



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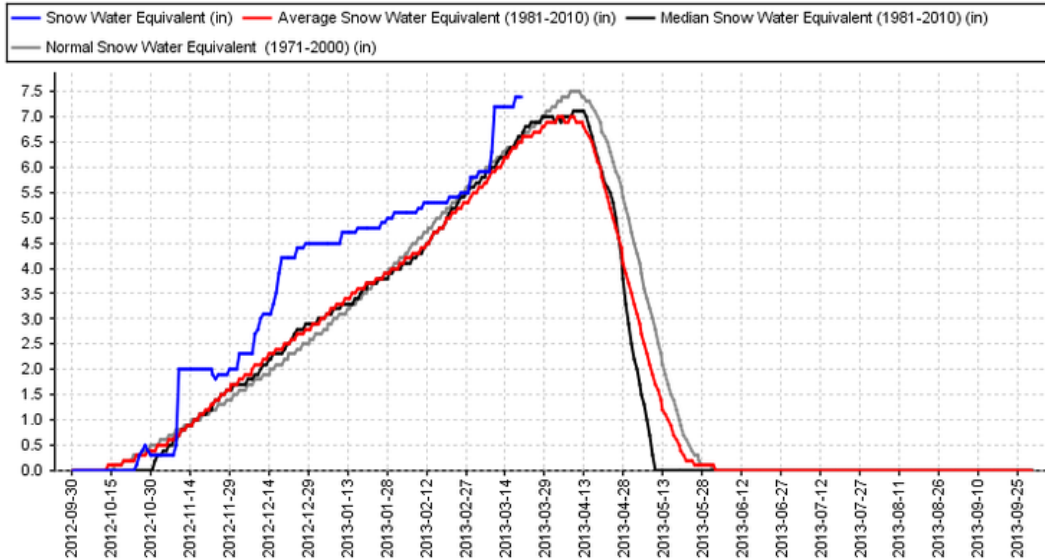
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Layout Units

Utah Site - Hole-in-rock (528)

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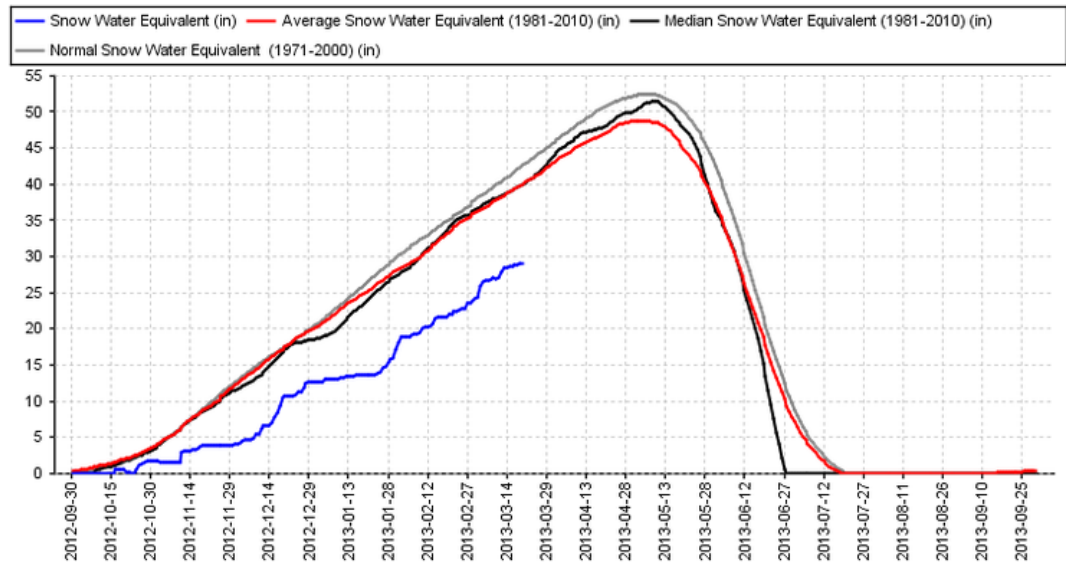
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Layout Units

Colorado Site - Tower (825)

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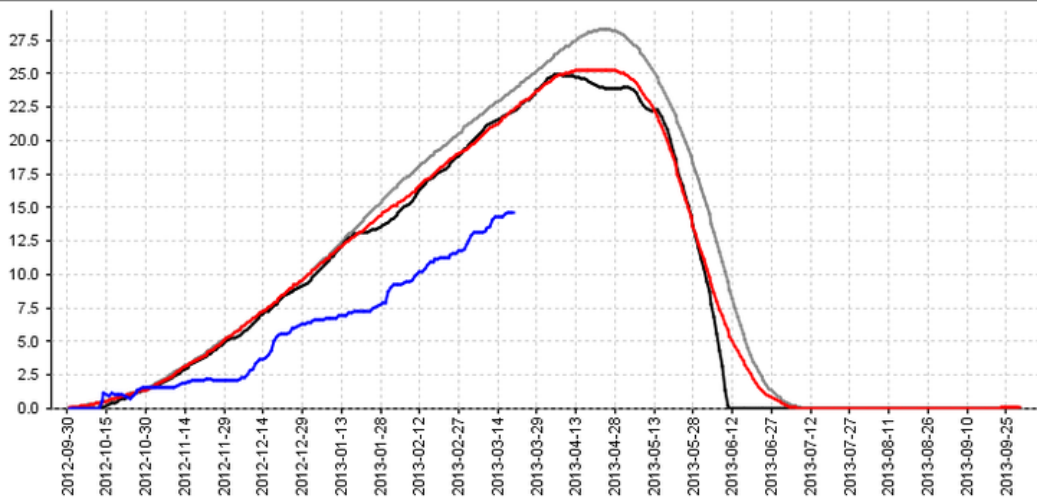
Layout Units

Colorado Site - Lake Irene (565)

(As of: Wed Mar 20 17:54:07 PDT 2013)

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— Snow Water Equivalent (in) — Average Snow Water Equivalent (1981-2010) (in) — Median Snow Water Equivalent (1981-2010) (in)
— Normal Snow Water Equivalent (1971-2000) (in)



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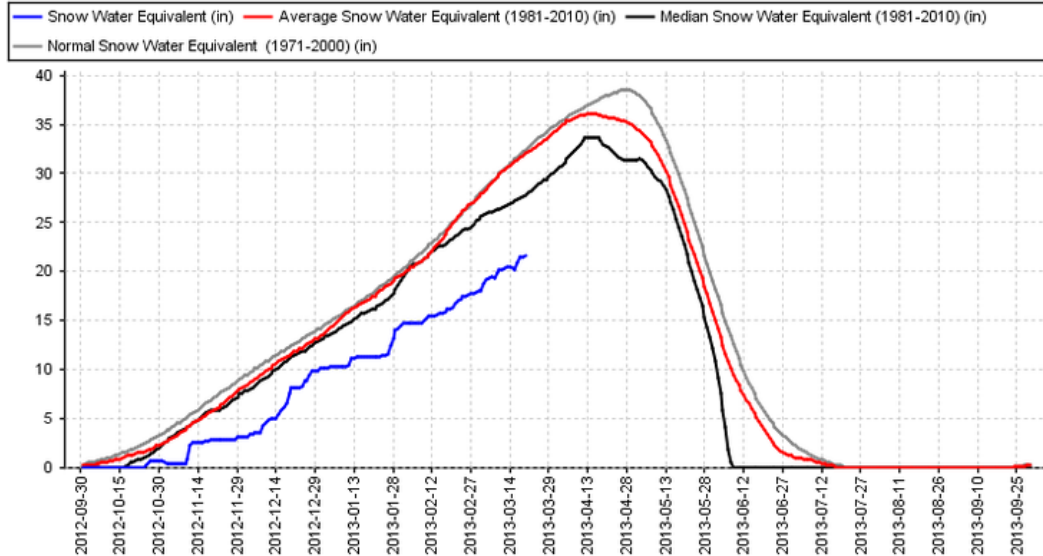
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Layout **Units**

Colorado Site - Schofield Pass (737)

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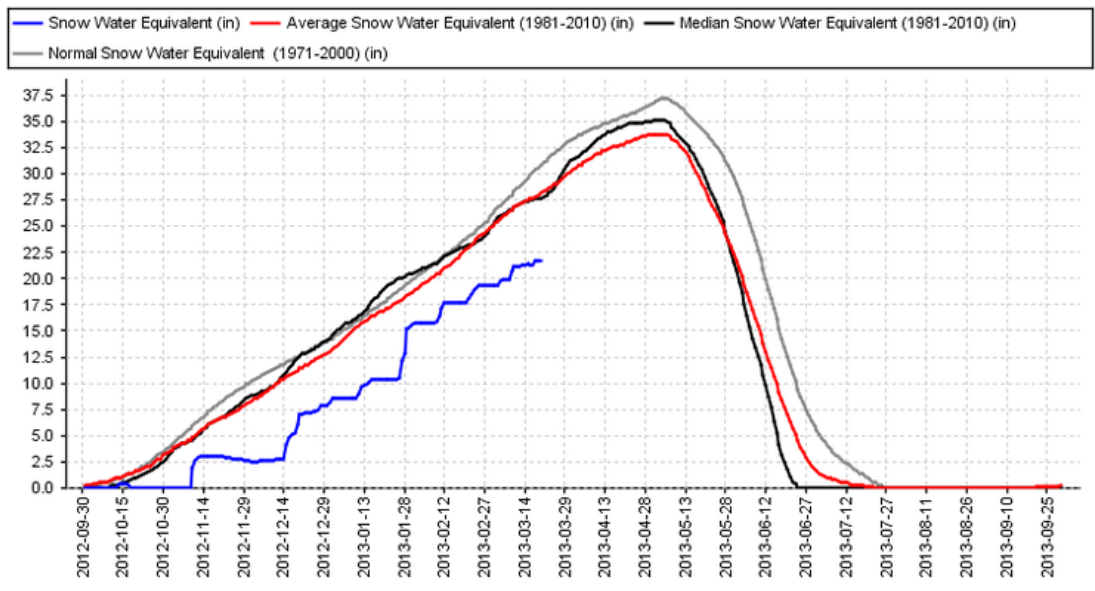
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Colorado Site - Wolf Creek Summit (874)

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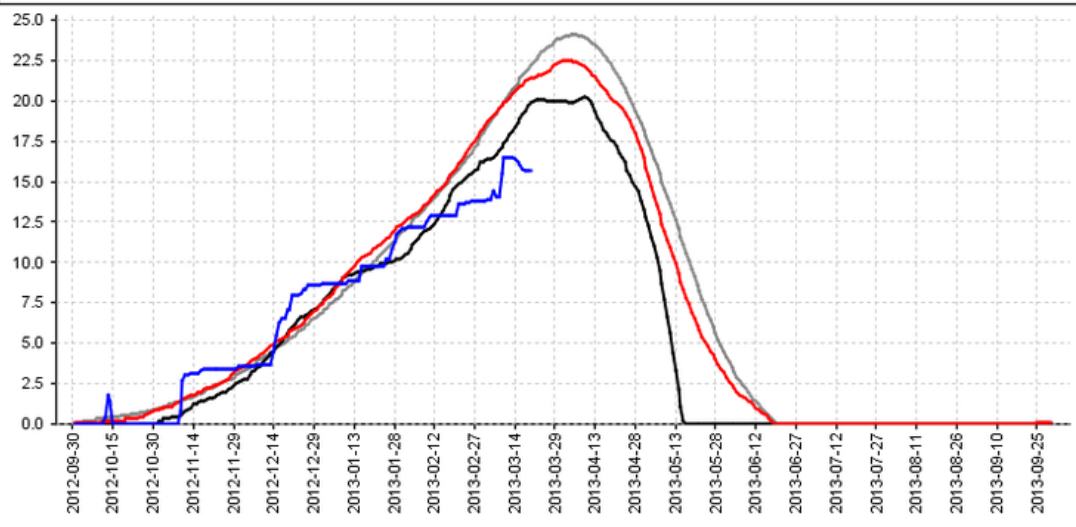
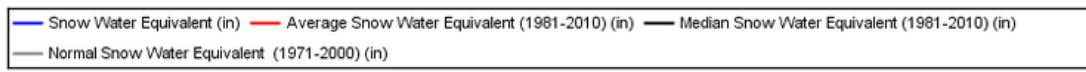
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Utah Site - Kolob (561)

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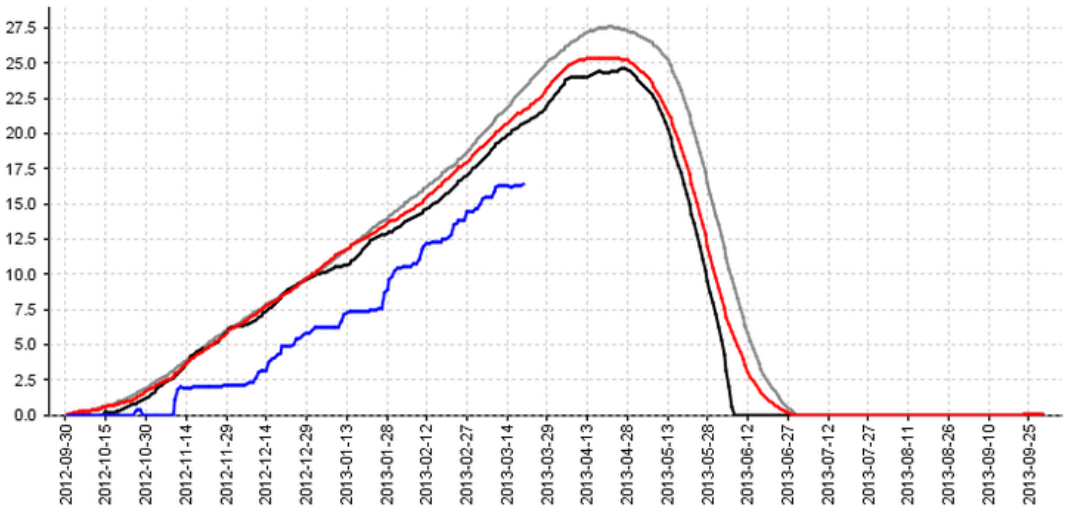
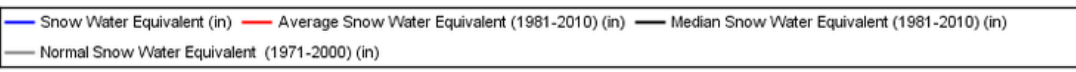
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Layout Units

Colorado Site - Red Mountain Pass (713)

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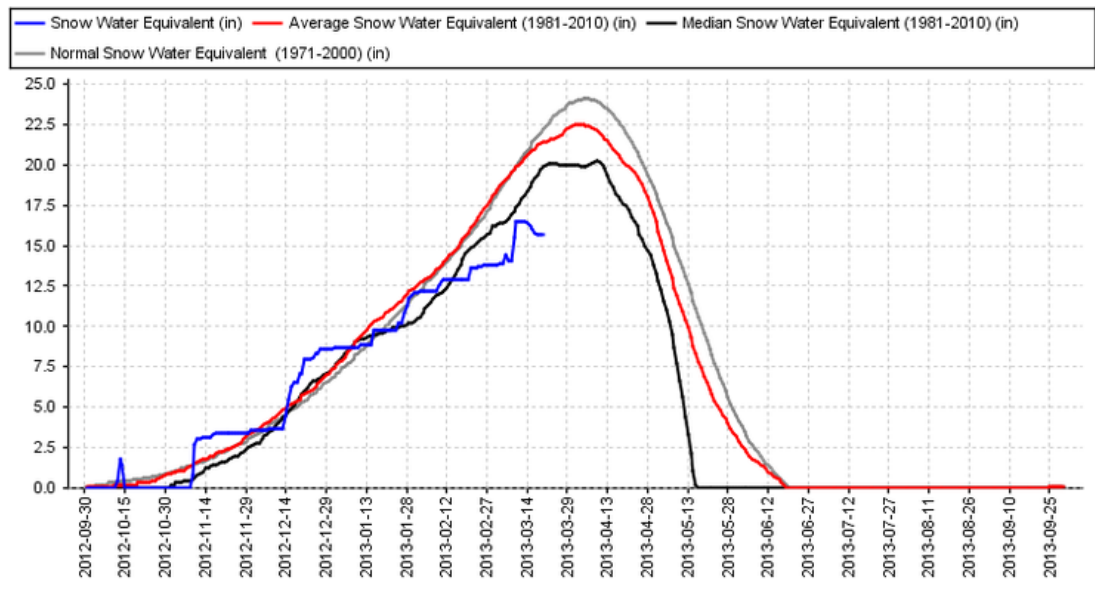
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Utah Site - Kolob (561)

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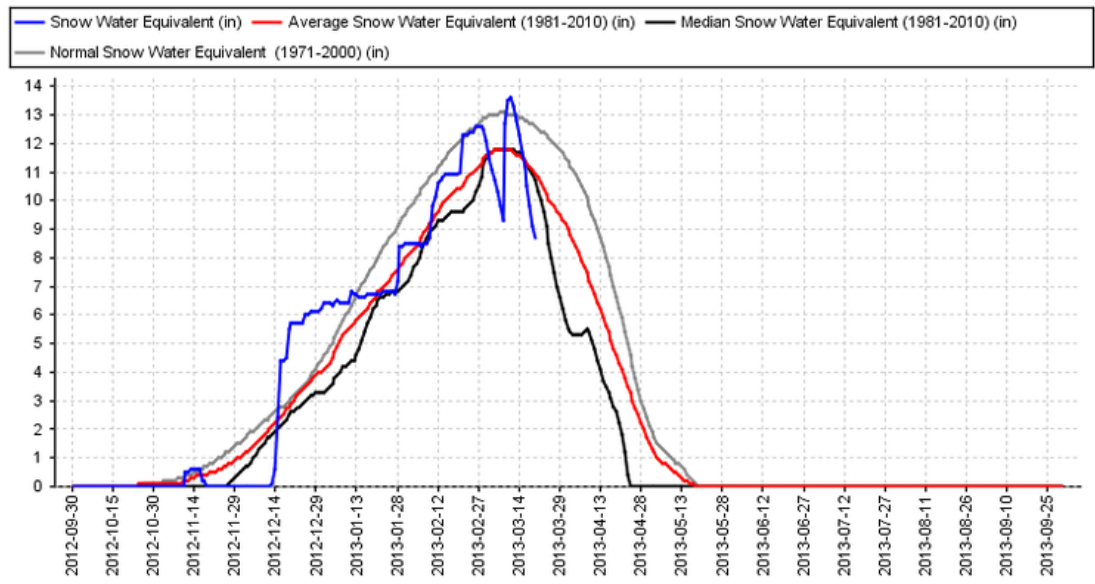
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Arizona Site - Promontory (705)

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