Spring CRFS Meeting
March 21, 2013
Salt Lake City, Utah
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 none 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.
Wyoming Site - Elkhart Park G.s. (468)

(Age: Wed Mar 20 17:41:05 PDT 2013)

"Provisional data, subject to revision"
Utah Site - Hole-in-rock (528)

(As of Wed Mar 20 17:43:26 EDT 2013)

**Provisional data, subject to revision**

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Graph showing snow water equivalent and average snow water equivalent from 2011-2010 for Utah Site, Hole-in-rock (528). The graph displays data from 2013-2012, indicating fluctuations in snow water equivalent over time.
Colorado Site - Tower (825)

(As of: Wed Mar 20 17:52:32 PDT 2013)

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- Snow Water Equivalent (in)
- Average Snow Water Equivalent (1981-2010) (in)
- Median Snow Water Equivalent (1981-2010) (in)
Colorado Site - Lake Irene (565)

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

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Colorado Site - Schofield Pass (737)

(As of: Wed Mar 20 17:55:06 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)
Colorado Site - Wolf Creek Summit (874)

(As of: Wed Mar 20 17:50:21 PDT 2013)

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Utah Site - Kolob (561)

(As of: Wed Mar 20 17:39:17 PDT 2013)

"Provisional data, subject to revision"
Colorado Site - Red Mountain Pass (713)

(As of: Wed Mar 20 17:56:28 PDT 2013)

"Provisional data, subject to revision"
Utah Site - Kolob (561)

(As of Wed Mar 20 17:59:17 PDT 2013)

"Provisional data, subject to revision"
Arizona Site - Promontory (705)

(As of: Wed Mar 20 18:30:51 PDT 2013)

"Provisional data, subject to revision"