



Search 'DSM' 'autoplot 100'

Search Archive:

Go!

[<< Previous](#) [Next >>](#)

2867 Views Wagering on ASOS Temperatures

Permalink: [ID #1469](#)

Date: 2024-12-04 10:39 AM

Author: Daryl Herzmann

Tags:

From the "I can't believe I am writing this news item department"... It appears that wagering/betting on air temperatures from Airport/ASOS weather stations has become a thing. Since the IEM website has a number of [services emitting this data](#), my INBOX has gotten a number of questions in this space and there is, reasonably so, a lot of confusion.

TL;DR. Official ASOS temperatures that go into "daily" max/min summaries are **2 minute averages of 2-5 second sampled data** reported in integer (whole degree) Fahrenheit.

The Source of Confusion

There are a number of data sources on the Internet that report data from the ASOS in whole degree Fahrenheit, but were sourced from data without the two minute average and/or subject to rounding pain with the upstream source data being in whole degree Celsius.

Next TL;DR. I don't know of any near realtime source of temperature data in whole degree F that uses the two minute averaging and not subject to the F to C to F round tripping problem.

Frequently Asked Questions

1. What are sources of ASOS high/low temperatures that have integer Fahrenheit fidelity?
 - A. The METAR 6-hourly summary, which looks like so **10017 21017**, [Example](#)
 - B. The Daily Summary Message, which is emitted by the ASOS and has something looking like **331616/ 090255**

[Example](#)

C. The CLI/CF6 Message, which is a NWS product and will get some manual quality control in some instances. [CLI Example](#), [CF6 Example](#).

2. Your website has near-realtime 5 minute data, but temperatures are all missing. Huh?

Welcome to the year [2016](#) when I discovered this problem and intentionally set this data to missing to avoid confusion.

3. I am just wagering on "top of the hour" temperatures, surely this is straight forward?

Oh boy. If by "top of the hour" you mean the METAR reported T-group temperature found at the "synoptic reset time" report, the answer is unfortunately **no**. So the 1970s called and automated hourly reports were made a number of minutes prior to the top of the hour to allow time for these reports to be centrally collected and analyzed on a map. So sites have their hourly "reset time" at some minute between :50 and :59 after the hour. The reported temperature at this time is typically labelled as the top of the hour temperature, but it technically came a few minutes prior. Additionally, during active weather, the ASOS may generate a special METAR a few minutes prior to the reset time and if insignificant changes happened afterwards, it will skip the report at the "reset time". A temperature change of 1 degree within these few minutes may not be reported. It gets worse.

The common understanding is that the METAR T-group exists to provide 0.1 degree Celsius resolution necessary to convert back to whole degree Fahrenheit. I believed this for many moons before doing a closer check of the actual data and finding all kinds of horrors. It is very possible that the 0.1 degree C T-Group temperature is different from the integer Celsius mandatory integer C temperature. Within the ASOS manual, it does not make the conventional claim that T-group temperature should jive with the integer C temperature (!!). In fact, it calls the T-group temperature as the "hourly temperature", but offers no further details on what exactly that means.

So what is the "top of the hour" temperature? Who knows at this point. There is a [nerdy Github discussion](#) about this within a python based METAR parser, for those intersted.

4. The IEM website sometimes shows a daily high/low temperature different than other websites. What gives?
This typically is due to the IEM ingesting the Daily Summary Message (DSM), which tends to come before the CLI and has a reliable max/min temperature. The IEM also attempts to appropriately use the 6 Hour METAR max/min, which other sites may not be using.
5. The IEM website offers 1 minute ASOS data, albeit delayed, but manual max/min calculations do not match! Why?
The IEM processes an one minute interval dataset made available by NCEI and provides a [downloadable archive](#). While this dataset does have whole degree Fahrenheit fidelity, it **does not use two minute averaging**, so the values are not directly considered in the daily summary. Additionally, it is delayed by 12-36 hours due to the manual phone collection method of retrieving the data by NCEI.

Last Updated: 17 Dec 2024 8:00 AM

IOWA STATE UNIVERSITY

College of Ag

Department of Agronomy

Department of Agronomy

716 Farm House Ln


Ames, IA 50011

akrherz@iastate.edu

 [Facebook](#)

 [Twitter](#)

 [Github](#)

 [YouTube](#)

 [RSS](#)

Copyright © 2001-2025
Iowa State University
of Science and Technology
All rights reserved.

[Non-discrimination Policy](#)

[Privacy Policy](#)

[Digital Access & Accessibility](#)