# **Remote Weather Observations**

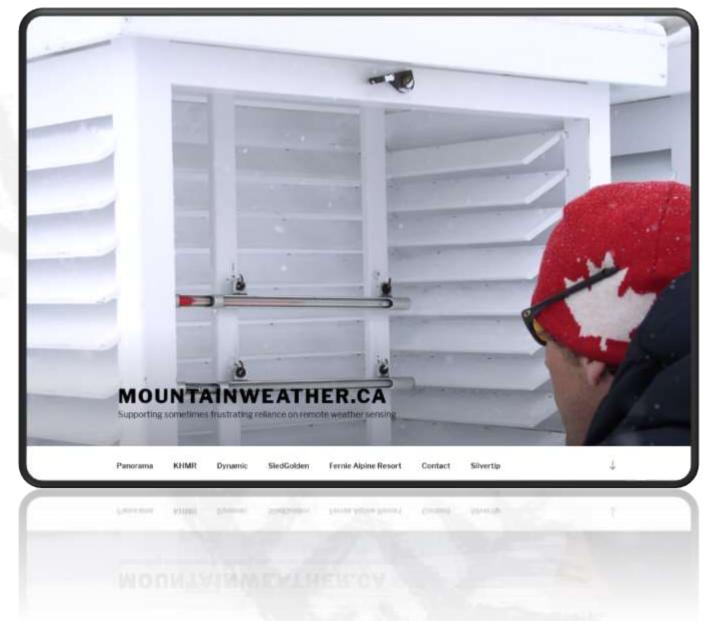
a tutorial:

understanding automated weather stations and interpreting the data

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## What is Remote Weather Data?

- A reading taken from data provided by an automated remote instrumentation that is viewed on a computer.
- Typically called "telemetry"
- Useful in monitoring conditions remotely, either nearby in your operation area or a location



# Station types and their consideration

Instrumentation and measurement parameters are chosen to meet the specific needs of the owning organization.

#### Examples:

- Highway roadside locations help in managing snow removal typically at the location furthest from the office and with the worst conditions.
- Snow pillow sites help in forecasting river flows during run-off so they are typically represent key drainages, are at specific elevations and are accurate on a monthly time scale.
- Avalanche weather locations are chosen to represent a primary contributory measurement specific to the operator's typical avalanche problem such as snow fall, air temperature, winds, or solar input. They are often relied on for near real time observations or standard daily observations.
- Climate monitoring and airport stations may provide useful data depending on location.







# Typical weather stations for avalanche forecasting



# Wind Site



## Snowfall Site



Snow Water Equivalent Site

# Automated stations for avalanche forecasting

- Typically a wind or a snowfall site.
  - Wind sensors at a snowfall site give an indication of local drifting or wind effect on snowfall measurements.
  - A wind site may have a snow depth sensor located 100 m away in a protected area.
- Automated sites can be stand alone or part of a weather plot where manual observations are also taken.
- Snow pillow sites are useful if one understands the nuances and limitations of the sensors.

Typical sensors / measurements taken at an automated weather station for avalanche forecasting

TaTemperature AirRHRelative Humidity

Dew Point Calculated based on Ta and RH



Ta

## Typical sensors / measurements taken at an automated weather station for avalanche forecasting

Incoming

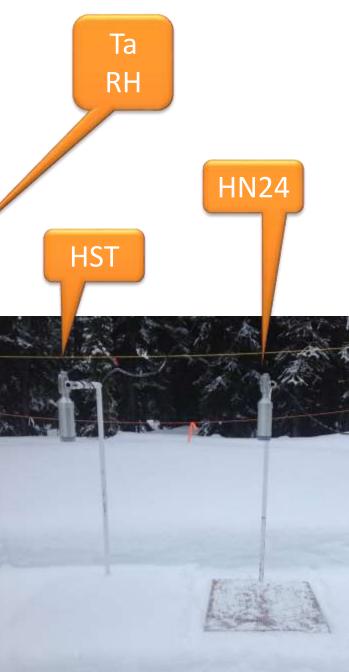
Solar

HS



Dew Point Calculated based on Ta and RH

- HS Total Height of Snow
- Additional snow depth sensors provide HN24 or HST measurements or a virtual measurement is calculated based on changes in the HS.
- W/m<sup>2</sup> Incoming solar radiation in watts per square meter
- Precip Int The water equivalent of precipitation that has fallen into the precipitation gauge since the last observation.



### Water Equivalent

The Holy Grail of measurements

- Snow pillow measures weight of snow over it, susceptible to bridging and missing measurement until slab warms. Doesn't capture rain load if there is no snow on the ground.
- Heated tipping bucket a precipitation gauge with a heater that melts snow accumulating in opening. Low density, low snow fall rate may evaporate. Sometimes a lag between accumulation and measurement.
- Stand pipe filled with anti-freeze to melt snow, change in weight is reported as mm of water. Prone to being capped by snow mushroom or freezing up if solution is too diluted.
- Radar measures the change in signal based on water content. Not widely deployed but very promising.



# **Snow Pillow**



Heated Tipping Bucket





### **Other key considerations**

- Power
  - Enough solar input to charge battery (low angle sun, typical cloud cover).
  - Enough battery size to operate all systems for a few days without charging.
- Communication
  - Low power consumption.
  - Designed for required distance, radio path, obstacles, and polling interval.
  - Cost effective.
- Environment
  - Riming
  - Snow accumulation
  - Regular maintenance

# Seasonally Available Solar

Riming

Seasonal Accumulation Communication

Method

Power

Source

Battery

Size

## Understanding the source

- Knowing how the station works and how the conditions affect the measurements helps your interpretation and recognition of the data.
- Remote sites collect data that is transmitted via radio, telecom, and internet.
- Outages and delays may occur at any stage during their collection and display.
- Sensors at times may provide incorrect readings.



### Weather effects on instrumentation

- Is a zero wind speed reading calm or is the anemometer rimed up?
- Low density snow is typically under reported by water equivalent sensors.
- Low density snow is problematic for snow depth sensors.



Wind	Wind	Wind	Vel	Dir
Speed	Dir	Dir	3 sec	3 sec
kph		deg	Gust	Gust
0	NNE	17	2	NNE
0	NNE	26	0	NNE
0	NNE	26	0	NNE
0	NNE	26	0	NNE
0	NNE	26	0	NNE
0	NNE	26	0	NNE
0	NNE	26	0	NNE
0	NNE	26	1	NNE
0	NNE	25	2	NNE
0	NNE	25	1	NNE
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0	NNE	25	0	NNE
0	NNE	25	1	NNE
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# Maintenance (or lack of) effects

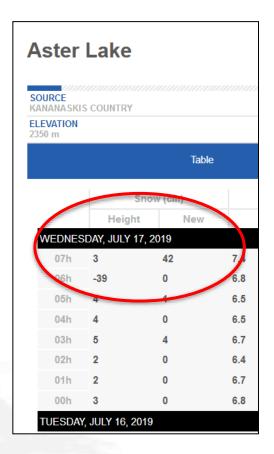
• Mushroom capped rain gauge



### Instrumentation effects

- No value or unchanged value in one field may indicate faulty sensor.
- Sensors do wear out and require regular maintenance to perform as designed.
- The data logger at the station often makes calculations based on sensor measurements.
- Snow depths are notoriously problematic:
  - Jumps to large values typically means sensor is not getting a good signal reflection from snow surface and reporting the height of the sensor off the ground (see next page for why)
  - Hourly calculations of new snow based on change in total depth can be very off.

	TIMESTAMP	Ta	RH	HS
"2019-07-14	00:00:00"	6.9	100	10.4
"2019-07-14	01:00:00"	6.7	97	8.9
"2019-07-14	02:00:00"	6.8	91	6.9
"2019-07-14	03:00:00"	6.5	85	15.4
"2019-07-14	04:00:00"	6.3	89	7.9
"2019-07-14	05:00:00"	6.1	92	8.7
"2019-07-14	06:00:00"	6.2	96	0.0
"2019-07-14	07:00:00"	6.3	99	568.0
"2019-07-14	08:00:00"	7.3	94	14.7
"2019-07-14	09:00:00"	6.9	94	10.1
"2019-07-14	10:00:00"	7.8	9# 82 79	20.1
"2019-07-14	11:00:00"	9.6	79	568.0
"2019-07-14	12:00:00"	10.1	65	230.9
"2019-07-14	13:00:00"	10.8	61 77	568.0
"2019-07-14	14:00:00"	9.0		568.0
"2019-07-14	15:00:00"	8.3	92	0.0
"2019-07-14	16:00:00"	8.8	92	13.2
"2019-07-14	17:00:00"	7.9	91	12.1
"2019-07-14	18:00:00"	7.8	98	13.6
"2019-07-14	19:00:00"	7.9	95	13.8
"2019-07-14	20:00:00"	8.2	91	0.0
"2019-07-14	21:00:00"	8.1	87	14.9
"2019-07-14	22:00:00"	7.4	94	13.2
"2019-07-14	23:00:00"	7.3	92	14.2
"2019-07-15	01:00:00"	7.2	94	13.3
"2019-07-15	02:00:00"	6.7	95	11.7
"2019-07-15	03:00:00"	6.8	94	8.2
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# Why does the snow depth read wrong?

 In the case that the sensor returns a 0 measurement measurement, it reports the height of the sensor from the target rather than the height of the snow.

Sensor knows distance from the board Measures distance to top of snow

Subtracts distance to snow from height of sensor and determines height of snow on board

## Apply Common Sense Quality Assurance

- With what you know about the sensors and limitations of remote observations, do the measurements make sense?
- In addition to sensors, a camera may provide good precipitation and sky information.
- Has this unattended automated remote weather station provided proof of alien visitation?



# **Reading Telemetry**

Making an observation using remote weather data

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### **Available presentation formats**

- A plethora of styles and formats,
- Leading to a cacophony of information.
- No standardization,
- Raising multiple questions about data quality and source measurement.
- Each delivery website requires nuanced understanding and interpretation.
- Is the top time the most recent or the oldest?
- Is the column an actual measurement or a calculation?
- Is the measurement to WMO, EC, or NOAA standards? Spot measurement or Average?
- There are others not shown here such as the direct report from a Davis station.

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<ul> <li>Meta data such as elevation, column explanations?</li> <li>Meta data such as elevation, column explanations?</li> <li>20-12-26 22:00 -4.6 -1.6 -4.5 96 189.0 249 ~ ~ 20-12-26 22:00 -4.6 -1.6 -4.7 96 189.0 249 ~ ~ 20-12-26 22:00 -4.6 -1.6 -5.6 94 188.7 270 ~ ~ ~ 20-12-26 22:00 -5.6 -1.6 -5.6 94 188.7 270 ~ ~ ~ 20-12-27 00:00 -6.0 -1.6 -6.1 93 187.3 270 ~ ~ ~ 20-12-27 00:00 -6.0 -1.6 -6.1 93 187.3 270 ~ ~ ~ 20-12-27 00:00 -5.7 -1.6 -6.1 92 187.9 238 ~ ~ ~ 20-12-27 00:00 -5.7 -1.6 -6.1 92 187.9 238 ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ 20-12-27 00:00 -5.7 -1.6 -6.1 92 187.9 238 ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~</li></ul>									~	~
20-12-26 21:00       -4.5       -1.6       -4.5       96       189.0       249       ~       ~         explanations?       20-12-26 22:00       -4.6       -1.6       -4.7       96       180.2       351       ~       ~         20-12-26 22:00       -5.6       -1.6       -4.7       96       180.2       351       ~       ~         20-12-26 23:00       -5.6       -1.6       -6.1       93       188.6       276       ~       ~         20-12-27       01:00       -6.0       -1.6       -6.1       93       188.6       276       ~       ~         20-12-27       02:00       -5.7       -1.6       -6.1       92       187.9       238       ~       ~         20-12-27       02:00       -5.7       -1.6       -6.1       92       189.8       336       ~       ~         20-12-27       05:00       -5.4       -1.6       -6.1       92       188.8       233       ~       ~         20-12-27       05:00       -5.4       -1.6       -6.1       92       188.1       233       ~       ~         20-12-27       05:00       -5.0       -5.0       -5.6       <										~
	•	Meta data such as elevation, column								~
$ \begin{array}{c} \begin{array}{c} 20-12-26\ 23:00 & -5.6 & -1.6 & -5.6 & 94 & 188.7 & 270 & \sim & \sim \\ 20-12-27\ 00:00 & -6.0 & -1.6 & -6.1 & 93 & 188.6 & 276 & \sim & \sim \\ 20-12-27\ 00:00 & -6.0 & -1.6 & -6.1 & 93 & 187.3 & 270 & \sim & \sim \\ 20-12-27\ 00:00 & -5.7 & -1.6 & -6.1 & 93 & 187.3 & 270 & \sim & \sim \\ 20-12-27\ 00:00 & -5.7 & -1.6 & -6.1 & 92 & 187.9 & 238 & \sim & \sim \\ 20-12-27\ 00:00 & -5.7 & -1.6 & -6.1 & 92 & 189.6 & 218 & \sim & \sim \\ 20-12-27\ 00:00 & -5.4 & -1.6 & -6.1 & 92 & 189.6 & 218 & \sim & \sim \\ 20-12-27\ 00:00 & -5.4 & -1.6 & -6.1 & 92 & 189.6 & 218 & \sim & \sim \\ 20-12-27\ 00:00 & -5.5 & -1.6 & -6.1 & 92 & 189.8 & 233 & \sim & \sim \\ 20-12-27\ 00:00 & -5.5 & -1.6 & -6.1 & 92 & 189.8 & 233 & \sim & \sim \\ 20-12-27\ 00:00 & -5.5 & -1.6 & -6.1 & 92 & 189.1 & 233 & \sim & \sim \\ 20-12-27\ 00:00 & -5.5 & -1.6 & -6.1 & 92 & 189.1 & 233 & \sim & \sim \\ 20-12-27\ 00:00 & -5.5 & -1.6 & -6.1 & 92 & 189.1 & 233 & \sim & \sim \\ 20-12-27\ 00:00 & -4.8 & -4.8 & -5.6 & 85 & 188.6 & 211 & \sim & \sim \\ 20-12-27\ 00:00 & -4.8 & -4.8 & -5.6 & 85 & 188.6 & 211 & \sim & \sim \\ 20-12-27\ 10:00 & -4.1 & -4.1 & -5.6 & 75 & 187.0 & 230 & \sim & \sim \\ 20-12-27\ 11:00 & -4.3 & -4.1 & -5.6 & 75 & 187.0 & 230 & \sim & \sim \\ 20-12-27\ 11:00 & -4.3 & -4.1 & -5.6 & 75 & 186.4 & 213 & \sim & \sim \\ 20-12-27\ 11:00 & -4.3 & -3.7 & -5.6 & 75 & 186.4 & 213 & \sim & \sim \\ 20-12-27\ 11:00 & -4.3 & -3.7 & -5.6 & 75 & 186.4 & 213 & \sim & \sim \\ 20-12-27\ 11:00 & -4.3 & -3.7 & -5.6 & 75 & 186.4 & 213 & \sim & \sim \\ 20-12-27\ 11:00 & -4.3 & -3.7 & -5.6 & 69 & 186.7 & 216 & \sim & \sim \\ 20-12-27\ 11:00 & -4.3 & -3.7 & -5.6 & 69 & 186.6 & 222 & \sim & \sim \\ 20-12-27\ 11:00 & -4.3 & -3.7 & -5.6 & 69 & 186.6 & 222 & \sim & \sim \\ 20-12-27\ 11:00 & -4.3 & -3.7 & -5.6 & 69 & 186.6 & 222 & \sim & \sim \\ 20-12-27\ 11:00 & -4.3 & -3.7 & -5.6 & 69 & 186.6 & 222 & \sim & \sim \\ 20-12-27\ 11:00 & -4.3 & -3.7 & -5.6 & 75 & 186.4 & 213 & \sim & \sim \\ 20-12-27\ 11:00 & -4.3 & -3.7 & -5.6 & 75 & 186.4 & 213 & \sim & \sim \\ 20-12-27\ 11:00 & -4.3 & -3.7 & -5.6 & 75 & 186.4 & 213 & \sim & \sim \\ 20-12-27\ 11:00 & -4.3 & -3.7 & -5.6 & 75 & 186.4 & 213 & \sim & \sim \\ 20-12-27\ 11:00 & -4.3 & -3.7 & -5.6 & 75 & 186.6 & 2$		ovalanations?								~
$ \underbrace{ Observe \& Record: } \\ \underbrace{ 0bserve & Record: } \\  0bserve & Recor$		explanations:								~
$ \underbrace{ Observe \& Record: } \\ Observe \& Record: \\ \hline Observe \& Record: \\ 20-12-27 01:00 & -6.0 & -1.6 & -6.1 & 93 187.3 & 270 & \sim & \sim \\ 20-12-27 02:00 & -5.7 & -1.6 & -6.1 & 92 187.9 & 238 & \sim & \sim \\ 20-12-27 02:00 & -5.7 & -1.6 & -6.1 & 92 187.9 & 238 & \sim & \sim \\ 20-12-27 03:00 & -5.7 & -1.6 & -6.1 & 92 189.8 & 336 & \sim & \sim \\ 20-12-27 04:00 & -5.4 & -1.6 & -6.1 & 92 188.8 & 233 & \sim & \sim \\ 20-12-27 05:00 & -5.4 & -1.6 & -6.1 & 92 188.8 & 233 & \sim & \sim \\ 20-12-27 07:00 & -5.5 & -1.6 & -6.1 & 92 188.8 & 233 & \sim & \sim \\ 20-12-27 07:00 & -5.5 & -1.6 & -6.1 & 90 188.1 & 233 & \sim & \sim \\ 20-12-27 07:00 & -5.5 & -1.6 & -6.1 & 90 188.1 & 233 & \sim & \sim \\ 20-12-27 07:00 & -5.5 & -1.6 & -6.1 & 90 188.1 & 233 & \sim & \sim \\ 20-12-27 07:00 & -5.5 & -1.6 & -6.1 & 90 188.1 & 233 & \sim & \sim \\ 20-12-27 07:00 & -4.1 & -4.1 & -5.6 & 75 187.0 & 230 & \sim & \sim \\ 20-12-27 11:00 & -4.1 & -4.1 & -5.6 & 75 187.0 & 230 & \sim & \sim \\ 20-12-27 12:00 & -4.0 & -3.9 & -3.7 & -5.6 & 75 187.0 & 230 & \sim & \sim \\ 20-12-27 12:00 & -4.0 & -3.9 & -3.7 & -5.6 & 75 186.7 & 231 & \sim & \sim \\ 20-12-27 12:00 & -4.1 & -3.7 & -5.6 & 75 186.7 & 231 & \sim & \sim \\ 20-12-27 11:00 & -4.1 & -3.7 & -5.6 & 75 186.4 & 213 & \sim & \sim \\ 20-12-27 11:00 & -4.1 & -3.7 & -5.6 & 75 186.6 & 227 & \sim & \sim \\ 20-12-27 18:00 & -3.8 & -3.7 & -5.6 & 69 186.6 & 227 & \sim & \sim \\ 20-12-27 18:00 & -4.1 & -3.7 & -5.6 & 69 186.6 & 227 & \sim & \sim \\ 20-12-27 18:00 & -4.1 & -3.7 & -5.6 & 69 186.6 & 222 & \sim & \sim \\ 20-12-27 18:00 & -4.1 & -3.7 & -5.6 & 69 186.6 & 222 & \sim & \sim \\ 20-12-27 18:00 & -4.1 & -3.7 & -5.6 & 69 186.6 & 222 & \sim & \sim \\ 20-12-27 18:00 & -4.1 & -3.7 & -5.6 & 69 186.6 & 222 & \sim & \sim \\ 20-12-27 18:00 & -4.1 & -3.7 & -5.6 & 69 186.6 & 222 & \sim & \sim \\ 20-12-27 18:00 & -4.1 & -3.7 & -5.6 & 69 186.6 & 222 & \sim & \sim \\ 20-12-27 18:00 & -4.1 & -3.7 & -5.6 & 69 186.6 & 222 & \sim & \sim \\ 20-12-27 18:00 & -4.1 & -3.7 & -5.6 & 69 186.6 & 222 & \sim & \sim \\ 20-12-27 18:00 & -4.1 & -3.7 & -5.6 & 69 186.6 & 222 & \sim & \sim \\ 20-12-27 18:00 & -4.1 & -3.7 & -5.6 & 69 186.7 & 216 & \sim & \sim \\ 20-12-27 18:00 & -4.1 & -3.7 & -5.6 & 69 186.7 & 216 & \sim & \sim \\ 20-12-27 $										~
$\begin{array}{c} \begin{array}{c} \begin{array}{c} 20-12-27 & 02:00 & -5.7 & -1.6 & -6.1 & 92 & 187.9 & 238 & -2 & -2 \\ 20-12-27 & 03:00 & -5.7 & -1.6 & -6.1 & 92 & 189.8 & 336 & -2 & -2 \\ 20-12-27 & 03:00 & -5.7 & -1.6 & -6.1 & 92 & 189.8 & 336 & -2 & -2 \\ 20-12-27 & 04:00 & -5.4 & -1.6 & -6.1 & 92 & 189.8 & 233 & -2 & -2 \\ 20-12-27 & 05:00 & -5.4 & -1.6 & -6.1 & 92 & 189.2 & 232 & -2 & -2 \\ 20-12-27 & 06:00 & -5.5 & -1.6 & -6.1 & 92 & 189.2 & 232 & -2 & -2 \\ 20-12-27 & 06:00 & -5.5 & -1.6 & -6.1 & 92 & 189.2 & 232 & -2 & -2 \\ 20-12-27 & 06:00 & -5.5 & -1.6 & -6.1 & 90 & 188.1 & 233 & -2 & -2 \\ 20-12-27 & 09:00 & -4.8 & -4.8 & -5.6 & 85 & 188.6 & 211 & -2 & -2 \\ 20-12-27 & 09:00 & -4.8 & -4.8 & -5.6 & 85 & 188.1 & 246 & -2 & -2 \\ 20-12-27 & 10:00 & -4.1 & -4.1 & -5.6 & 74 & 187.8 & 229 & -2 & -2 \\ \end{array}$ • Make calculated observations   20-12-27 & 11:00 & -4.4 & -3.7 & -5.6 & 71 & 186.6 & 212 & -2 & -2 \\ 20-12-27 & 13:00 & -4.4 & -3.7 & -5.6 & 71 & 186.6 & 212 & -2 & -2 \\ 20-12-27 & 13:00 & -4.4 & -3.7 & -5.6 & 71 & 186.6 & 212 & -2 & -2 \\ 20-12-27 & 13:00 & -4.4 & -3.7 & -5.6 & 71 & 186.6 & 212 & -2 & -2 \\ 20-12-27 & 13:00 & -4.4 & -3.7 & -5.6 & 71 & 186.6 & 212 & -2 & -2 \\ 20-12-27 & 13:00 & -4.4 & -3.7 & -5.6 & 71 & 186.6 & 212 & -2 & -2 \\ 20-12-27 & 13:00 & -4.4 & -3.7 & -5.6 & 71 & 186.6 & 212 & -2 & -2 \\ 20-12-27 & 13:00 & -4.4 & -3.7 & -5.6 & 71 & 186.6 & 212 & -2 & -2 \\ 20-12-27 & 13:00 & -4.4 & -3.7 & -5.6 & 71 & 186.6 & 212 & -2 & -2 \\ 20-12-27 & 13:00 & -4.4 & -3.7 & -5.6 & 71 & 186.6 & 212 & -2 & -2 \\ 20-12-27 & 13:00 & -4.1 & -3.7 & -5.6 & 69 & 186.7 & 216 & -2 & -2 \\ 20-12-27 & 15:00 & -4.3 & -3.7 & -5.6 & 69 & 186.6 & 222 & -2 & -2 \\ 20-12-27 & 18:00 & -3.8 & -3.7 & -5.6 & 69 & 186.6 & 222 & -2 & -2 \\ 20-12-27 & 18:00 & -3.8 & -3.7 & -5.6 & 78 & 185.9 & 224 & -2 & -2 \\ 20-12-27 & 18:00 & -4.1 & -3.7 & -5.6 & 78 & 185.9 & 224 & -2 & -2 \\ 20-12-27 & 18:00 & -4.1 & -3.7 & -5.6 & 78 & 185.9 & 224 & -2 & -2 \\ 20-12-27 & 18:00 & -4.1 & -3.7 & -5.6 & 78 & 185.9 & 224 & -2 & -2 \\ 20-12-27 & 18:00 & -4.1 & -3.7 & -5.6 & 78 &	_									~
$\begin{array}{c} \text{Scan Ta column for maximum and minimum} \\ \text{during interval.} \\ \text{Scen Ta column for maximum and minimum} \\ \text{during interval.} \\ \text{Select current measurements} \\ \text{Select current measurements} \\ \text{Make calculated observations} \\ \text{Interpret trends and rates} \\ \text{Select trends and rates} \\ \text{Select current measurements} \\ \text{Select current measurements}$	<u> </u>	bserve & Record:								~
<ul> <li>Scan Ta column for maximum and minimum during interval.</li> <li>Select current measurements</li> <li>Select current measurements</li> <li>Make calculated observations</li> <li>Make calculated observations</li> <li>Make calculated observations</li> <li>Make calculated observations</li> <li>20-12-27 16:00</li> <li>4.1</li> <li>4.1</li> <li>5.6</li> <li>1.86.4</li> <li>2.31</li> <li>2.32</li> <li>2.31</li> <li>3.31</li> <li>3.31</li></ul>										~
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$\begin{array}{c} 20-12-27 & 00.100 & -5.5 & -1.6 & -6.1 & 92 & 180.10 & 233 & & & & \\ 20-12-27 & 000 & -5.5 & -1.6 & -6.1 & 90 & 188.1 & 233 & & & \\ 20-12-27 & 000 & -5.5 & -1.6 & -6.1 & 90 & 188.1 & 233 & & & \\ 20-12-27 & 000 & -5.0 & -5.0 & -5.6 & 85 & 188.6 & 211 & & & \\ 20-12-27 & 000 & -4.8 & -4.8 & -5.6 & 85 & 188.1 & 246 & & & \\ 20-12-27 & 100 & -4.1 & -5.6 & 75 & 187.0 & 230 & & & & \\ 20-12-27 & 1100 & -4.3 & -4.1 & -5.6 & 75 & 187.0 & 230 & & & & \\ 20-12-27 & 1100 & -4.3 & -4.1 & -5.6 & 75 & 187.0 & 230 & & & & \\ 20-12-27 & 1100 & -4.3 & -4.1 & -5.6 & 77 & 186.7 & 231 & & & & \\ 20-12-27 & 12:00 & -4.0 & -3.7 & -5.6 & 77 & 186.7 & 231 & & & & \\ 20-12-27 & 13:00 & -4.4 & -3.7 & -5.6 & 71 & 186.6 & 212 & & & & \\ 20-12-27 & 15:00 & -4.1 & -3.7 & -5.6 & 70 & 186.6 & 227 & & & & \\ 20-12-27 & 15:00 & -4.1 & -3.7 & -5.6 & 69 & 186.7 & 216 & & & & \\ 20-12-27 & 15:00 & -4.3 & -3.7 & -5.6 & 69 & 186.7 & 216 & & & & \\ 20-12-27 & 16:00 & -4.3 & -3.7 & -5.6 & 69 & 186.6 & 222 & & & & \\ 20-12-27 & 18:00 & -4.1 & -3.7 & -5.6 & 69 & 186.6 & 222 & & & & \\ 20-12-27 & 18:00 & -4.1 & -3.7 & -5.6 & 69 & 186.6 & 222 & & & & \\ 20-12-27 & 18:00 & -4.1 & -3.7 & -5.6 & 69 & 186.6 & 222 & & & & \\ 20-12-27 & 18:00 & -4.1 & -3.7 & -5.6 & 69 & 186.6 & 222 & & & & \\ 20-12-27 & 18:00 & -4.1 & -3.7 & -5.6 & 69 & 186.6 & 222 & & & & \\ 20-12-27 & 18:00 & -4.1 & -3.7 & -5.6 & 69 & 186.6 & 222 & & & & \\ 20-12-27 & 18:00 & -4.1 & -3.7 & -5.6 & 69 & 186.6 & 222 & & & & \\ 20-12-27 & 18:00 & -4.1 & -3.7 & -5.6 & 69 & 186.6 & 222 & & & & \\ 20-12-27 & 18:00 & -4.1 & -3.7 & -5.6 & 69 & 186.6 & 222 & & & & \\ 20-12-27 & 18:00 & -4.1 & -3.7 & -5.6 & 69 & 186.6 & 222 & & & & \\ 20-12-27 & 18:00 & -4.1 & -3.7 & -5.6 & 69 & 186.6 & 222 & & & & \\ 20-12-27 & 18:00 & -4.1 & -3.7 & -5.6 & 69 & 186.6 & 222 & & & & \\ 20-12-27 & 18:00 & -4.1 & -3.7 & -5.6 & 69 & 186.8 & 210 & & & & \\ 20-12-27 & 18:00 & -4.1 & -3.7 & -5.6 & 63 & 185.9 & 224 & & & & \\ 20-12-27 & 18:00 & -4.1 & -3.7 & -5.6 & 63 & 185.9 & 224 & & & & \\ 20-12-27 & 18:00 & -4.1 & -3.7 & -5.6 & 63 & 185.9 & 22$	•	Scan Ta column for maximum and minimum							~	~
$\begin{array}{c} 20-12-27 \ 07:00 \ -5.5 \ -1.6 \ -6.1 \ 90 \ 188.1 \ 233 \ \sim \ \sim \ 20-12-27 \ 08:00 \ -5.0 \ -5.0 \ -5.6 \ 85 \ 188.6 \ 211 \ \sim \ \sim \ 20-12-27 \ 09:00 \ -4.8 \ -4.8 \ -5.6 \ 85 \ 188.1 \ 246 \ \sim \ \sim \ 20-12-27 \ 10:00 \ -4.1 \ -4.1 \ -5.6 \ 74 \ 187.8 \ 229 \ \sim \ \sim \ \sim \ 20-12-27 \ 11:00 \ -4.3 \ -4.1 \ -5.6 \ 75 \ 187.0 \ 230 \ \sim \ \sim \ \sim \ 20-12-27 \ 12:00 \ -4.0 \ -3.7 \ -5.6 \ 75 \ 186.7 \ 231 \ \sim \ \sim \ \sim \ 20-12-27 \ 13:00 \ -4.4 \ -3.7 \ -5.6 \ 75 \ 186.4 \ 213 \ \sim \ \sim \ \sim \ 20-12-27 \ 14:00 \ -3.9 \ -3.7 \ -5.6 \ 75 \ 186.4 \ 213 \ \sim \ \sim \ \sim \ 20-12-27 \ 15:00 \ -4.1 \ -3.7 \ -5.6 \ 70 \ 186.6 \ 227 \ \sim \ \sim \ \sim \ 20-12-27 \ 15:00 \ -4.1 \ -3.7 \ -5.6 \ 69 \ 186.7 \ 216 \ \sim \ \sim \ \sim \ \sim \ \sim \ 20-12-27 \ 15:00 \ -4.1 \ -3.7 \ -5.6 \ 69 \ 186.6 \ 222 \ \sim \ \sim \ \sim \ \sim \ \sim \ 20-12-27 \ 18:00 \ -4.3 \ -3.7 \ -5.6 \ 69 \ 186.6 \ 222 \ \sim \$									ĩ	~
$ \begin{array}{c} \text{Select current measurements} \\ \text{Select current measurements} \\ \begin{array}{c} 20-12-27 & 08:00 \\ 20-12-27 & 09:00 \\ -4.8 \\ -4.8 \\ -4.8 \\ -4.8 \\ -5.6 \\ 85 \\ 188.1 \\ 246 \\ -7 \\ -7 \\ 20-12-27 \\ 187.0 \\ 230 \\ -7 \\ -7 \\ 20-12-27 \\ 11:00 \\ -4.3 \\ -4.1 \\ -5.6 \\ 74 \\ 187.8 \\ 229 \\ -7 \\ -7 \\ -7 \\ 20-12-27 \\ 186.7 \\ 231 \\ -7 \\ -7 \\ -7 \\ -7 \\ -7 \\ -7 \\ -7 \\ -$		during interval.								ĩ
<ul> <li>Select current measurements</li> <li>20-12-27 09:00 -4.8 -4.8 -5.6 85 188.1 246 ~ ~ ~</li> <li>20-12-27 10:00 -4.1 -4.1 -5.6 74 187.8 229 ~ ~</li> <li>Make calculated observations</li> <li>20-12-27 11:00 -4.3 -4.1 -5.6 75 187.0 230 ~ ~</li> <li>20-12-27 12:00 -4.0 -3.7 -5.6 71 186.7 231 ~ ~</li> <li>20-12-27 13:00 -4.4 -3.7 -5.6 71 186.6 212 ~ ~</li> <li>20-12-27 14:00 -3.9 -3.7 -5.6 75 186.4 213 ~ ~</li> <li>20-12-27 15:00 -4.1 -3.7 -5.6 70 186.6 212 ~ ~ ~</li> <li>20-12-27 15:00 -4.1 -3.7 -5.6 69 186.7 216 ~ ~ ~</li> <li>20-12-27 17:00 -4.3 -3.7 -5.6 69 186.7 216 ~ ~ ~</li> <li>20-12-27 18:00 -3.8 -3.7 -5.6 69 186.6 222 ~ ~ ~</li> <li>20-12-27 18:00 -3.8 -3.7 -5.6 78 185.9 224 ~ ~ ~</li> </ul>										ĩ
$\begin{array}{c} \text{Select current measurements} \\ 20-12-27 \ 10:00 & -4.1 & -4.1 & -5.6 & 74 & 187.8 & 229 & \sim & \sim \\ 20-12-27 \ 11:00 & -4.3 & -4.1 & -5.6 & 75 & 187.0 & 230 & \sim & \sim \\ 20-12-27 \ 12:00 & -4.0 & -3.7 & -5.6 & 77 & 186.7 & 231 & \sim & \sim \\ 20-12-27 \ 13:00 & -4.4 & -3.7 & -5.6 & 71 & 186.6 & 212 & \sim & \sim \\ 20-12-27 \ 14:00 & -3.9 & -3.7 & -5.6 & 75 & 186.4 & 213 & \sim & \sim \\ 20-12-27 \ 15:00 & -4.1 & -3.7 & -5.6 & 70 & 186.6 & 227 & \sim & \sim \\ 20-12-27 \ 15:00 & -4.3 & -3.7 & -5.6 & 69 & 186.7 & 216 & \sim & \sim \\ 20-12-27 \ 17:00 & -4.3 & -3.7 & -5.6 & 69 & 186.6 & 222 & \sim & \sim \\ 20-12-27 \ 18:00 & -3.8 & -3.7 & -5.6 & 69 & 186.6 & 222 & \sim & \sim \\ 20-12-27 \ 18:00 & -3.8 & -3.7 & -5.6 & 63 & 185.9 & 224 & \sim & \sim \\ 20-12-27 \ 19:00 & -4.1 & -3.7 & -5.6 & 78 & 185.8 & 210 & \sim & \sim \\ \end{array}$										~
<ul> <li>Make calculated observations</li> <li>Make calculated observations</li> <li>11 1:00 -4.3 -4.1 -5.6 75 187.0 230 ~ ~ ~ 20-12-27 12:00 -4.0 -3.7 -5.6 77 186.7 231 ~ ~ ~ 20-12-27 13:00 -4.4 -3.7 -5.6 71 186.6 212 ~ ~ ~ 20-12-27 14:00 -3.9 -3.7 -5.6 75 186.4 213 ~ ~ ~ 20-12-27 15:00 -4.1 -3.7 -5.6 75 186.4 213 ~ ~ ~ 20-12-27 15:00 -4.1 -3.7 -5.6 69 186.6 227 ~ ~ ~ ~ 20-12-27 16:00 -4.3 -3.7 -5.6 69 186.7 216 ~ ~ ~ ~ 20-12-27 17:00 -4.3 -3.7 -5.6 69 186.6 222 ~ ~ ~ ~ 20-12-27 18:00 -3.8 -3.7 -5.6 69 186.6 222 ~ ~ ~ ~ 20-12-27 18:00 -3.8 -3.7 -5.6 63 185.9 224 ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~</li></ul>	•	Select current measurements								~
<ul> <li>Make calculated observations</li> <li>Make calculated observations</li> <li>20-12-27 12:00 -4.0 -3.7 -5.6 71 186.7 231 ~ ~ ~</li> <li>20-12-27 13:00 -4.4 -3.7 -5.6 71 186.6 212 ~ ~ ~</li> <li>20-12-27 14:00 -3.9 -3.7 -5.6 75 186.4 213 ~ ~ ~</li> <li>20-12-27 15:00 -4.1 -3.7 -5.6 70 186.6 227 ~ ~ ~</li> <li>20-12-27 16:00 -4.3 -3.7 -5.6 69 186.7 216 ~ ~ ~</li> <li>20-12-27 17:00 -4.3 -3.7 -5.6 69 186.6 222 ~ ~ ~</li> <li>20-12-27 18:00 -3.8 -3.7 -5.6 63 185.9 224 ~ ~ ~</li> <li>20-12-27 18:00 -3.8 -3.7 -5.6 78 185.8 210 ~ ~ ~</li> </ul>										ĩ
<ul> <li>Make calculated observations</li> <li>20-12-27 13:00 -4.4 -3.7 -5.6 71 186.6 212 ~ ~</li> <li>20-12-27 14:00 -3.9 -3.7 -5.6 75 186.4 213 ~ ~</li> <li>20-12-27 15:00 -4.1 -3.7 -5.6 70 186.6 227 ~ ~</li> <li>20-12-27 16:00 -4.3 -3.7 -5.6 69 186.7 216 ~ ~</li> <li>20-12-27 17:00 -4.3 -3.7 -5.6 69 186.6 222 ~ ~</li> <li>20-12-27 18:00 -3.8 -3.7 -5.6 63 185.9 224 ~ ~</li> <li>20-12-27 19:00 -4.1 -3.7 -5.6 78 185.8 210 ~ ~</li> </ul>										ĩ
• Interpret trends and rates 20-12-27 14:00 -3.9 -3.7 -5.6 75 186.4 213 ~ ~ ~ 20-12-27 15:00 -4.1 -3.7 -5.6 70 186.6 227 ~ ~ ~ 20-12-27 16:00 -4.3 -3.7 -5.6 69 186.7 216 ~ ~ ~ 20-12-27 17:00 -4.3 -3.7 -5.6 69 186.6 222 ~ ~ ~ 20-12-27 18:00 -3.8 -3.7 -5.6 63 185.9 224 ~ ~ ~ 20-12-27 19:00 -4.1 -3.7 -5.6 78 185.8 210 ~ ~ ~	•	Make calculated observations								ĩ
<ul> <li>Interpret trends and rates</li> <li>20-12-27 15:00 -4.1 -3.7 -5.6 70 186.6 227 ~ ~ ~</li> <li>20-12-27 16:00 -4.3 -3.7 -5.6 69 186.7 216 ~ ~ ~</li> <li>20-12-27 17:00 -4.3 -3.7 -5.6 69 186.6 222 ~ ~ ~</li> <li>20-12-27 18:00 -3.8 -3.7 -5.6 63 185.9 224 ~ ~ ~</li> <li>20-12-27 19:00 -4.1 -3.7 -5.6 78 185.8 210 ~ ~ ~</li> </ul>										ĩ
<ul> <li>Interpret trends and rates</li> <li>20-12-27 16:00</li> <li>-4.3</li> <li>-3.7</li> <li>-5.6</li> <li>69 186.7</li> <li>216</li> <li>20-12-27 17:00</li> <li>-4.3</li> <li>-3.7</li> <li>-5.6</li> <li>69 186.6</li> <li>222</li> <li>220-12-27 18:00</li> <li>-3.8</li> <li>-3.7</li> <li>-5.6</li> <li>63 185.9</li> <li>224</li> <li>20-12-27 19:00</li> <li>-4.1</li> <li>-3.7</li> <li>-5.6</li> <li>78 185.8</li> <li>210</li> <li>-4.1</li> </ul>										~
20-12-27       17:00       -4.3       -3.7       -5.6       69       186.6       222       ~       ~         20-12-27       18:00       -3.8       -3.7       -5.6       63       185.9       224       ~       ~         0/20/20 spow knowledge inc       20-12-27       19:00       -4.1       -3.7       -5.6       78       185.8       210       ~       ~	-	Interpret trands and rates								~
020-12-27 18:00 -3.8 -3.7 -5.6 63 185.9 224 ~ ~ 020-12-27 19:00 -4.1 -3.7 -5.6 78 185.8 210 ~ ~	•	interpret trenus and rates								~
©2020 snow knowledge inc 20−12−27 19:00 −4.1 −3.7 −5.6 78 185.8 210 ~ ~										~
									~	~
		©2020 snow knowledge inc		-1.1	-3.7	2.2	 100.0			

	Date		24hr	24hr			HS Sig	Precip Gauge	Hour Precip
	Time	Ta	Ta Max	Ta Min	RH	HS	Qual	Total	mm
	20-12-26 00:00	-1.0	0.4	-3.5	90	178.3	204	~	~
example:	20-12-26 01:00	-1.3	0.4	-3.5	93	177.7	253	~	~
champic.	20-12-26 02:00	-1.9	0.4	-3.5	96	177.9	259	~	~
once daily 24 standard at 0600	20-12-26 03:00	-1.8	0.4	-3.5	89	179.6	241	~	~
Once daily 24 Standard at 0000	20-12-26 04:00	-1.9	0.4	-3.5	89	175.3	229	~	~
	20-12-26 05:00	-2.2	0.4	-3.5	88	175.1	218	~	~
Quality Chacks	20-12-26 06:00	-2.2 -2.2	0.4	-3.5 -3.5	89 86	175.8 177.1	254 352	~	~
Quality Check:	20-12-26 07:00	-2.2	-2.0	-3.5	84	568.0	352	ĩ	ĩ
	20-12-26 08:00	-1.9	-1.6	-2.4	79	177.1	296	~	~
	20-12-26 10:00	-1.8	-1.6	-2.4	78	179.1	268	~	~
Correct Date?	20-12-26 11:00	-2.4	-1.6	-2.5	83	175.4	224	~	~
	20-12-26 12:00	-2.5	-1.6	-2.6	89	175.6	281	~	~
	20-12-26 13:00	-2.9	-1.6	-3.1	96	179.7	229	~	~
Covers Interval? (12, 24 hrs)	20-12-26 14:00	-3.1	-1.6	-3.4	96	177.0	261	~	~
	20-12-26 15:00	-3.5	-1.6	-3.7	97	176.4	260	~	~
	20-12-26 16:00	-4.2	-1.6	-4.3	97	184.2	243	~	~
<ul> <li>Bad, Questionable, or Missing Data?</li> </ul>	20-12-26 17:00	-4.3	-1.6	-4.4	96	180.7	211	~	~
	20-12-26 18:00	-4.4	-1.6	-4.5	97	184.6	217	~	~
	20-12-26 19:00	-4.3	-1.6	-4.5	96	187.8	238	~	~
Meta data such as elevation, column	20-12-26 20:00	-4.3	-1.6	-4.5	96	192.2	336	~	~
	20-12-26 21:00	-4.5	-1.6	-4.5	96	189.0	249	~	~
explanations?	20-12-26 22:00	-4.6	-1.6	-4.7	96	180.2	351	~	~
	20-12-26 23:00	-5.6	-1.6	-5.6	94	188.7	270	~	~
	20-12-27 00:00	-6.0	-1.6	-6.1	93	188.6	276	~	~
Observe & Record:	20-12-27 01:00	-6.0	-1.6	-6.1	93	187.3	270	~	~
	20-12-27 02:00	-5.7 -5.7	-1.6	-6.1	92	187.9 189.8	238 336	~	~
	20-12-27 03:00 20-12-27 04:00	-5.4	-1.6 -1.6	-6.1 -6.1	92 91	189.8	218	~	ĩ
<ul> <li>Scan Ta column for maximum and minimum</li> </ul>	20-12-27 04:00	-5.4	-1.6	-6.1	92	188.8	233	ĩ	~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~
during interval.	20-12-27 06:00	-5.5	-1.6	-6.1	92	189.2	232	~	~
uuring interval.	20-12-27 07:00	-5.5	-1.6	-6.1	90	188.1	233	~	~
	20-12-27 08:00	-5.0	-5.0	-5.6	85	188.6	211	~	~
a Coloct proceed model was and	20-12-27 09:00	-4.8	-4.8	-5.6	85	188.1	246	~	~
<ul> <li>Select present measurements</li> </ul>	20-12-27 10:00	-4.1	-4.1	-5.6	74	187.8	229	~	~
	20-12-27 11:00	-4.3	-4.1	-5.6	75	187.0	230	~	~
	20-12-27 12:00	-4.0	-3.7	-5.6	77	186.7	231	~	~
<ul> <li>Make calculated observations</li> </ul>	20-12-27 13:00	-4.4	-3.7	-5.6	71	186.6	212	~	~
	20-12-27 14:00	-3.9	-3.7	-5.6	75	186.4	213	~	~
	20-12-27 15:00	-4.1	-3.7	-5.6	70	186.6	227	~	~
<ul> <li>Interpret trends and rates</li> </ul>	20-12-27 16:00	-4.3	-3.7	-5.6	69	186.7	216	~	~
	20-12-27 17:00	-4.3	-3.7	-5.6	69	186.6	222	~	~
	20-12-27 18:00	-3.8	-3.7	-5.6	63	185.9	224	~	~
©2020 snow knowledge inc	20-12-27 19:00	-4.1	-3.7	-5.6	78	185.8	210	~	~
5									

						HS	Precip	Hour
	Date	24hr	24hr			Sig	Gauge	Precip
		Ta Ta Max	Ta Min	RH	HS	Qual	Total	mm
	-26 00:00 -1		-3.5	90	178.3	204	~	~
PLAININE	-26 01:00 -1		-3.5	93	177.7	253	~	~
-		.9 0.4	-3.5	96	177.9	259	~	~
	-26 03:00 -1		-3.5	89	179.6	241	~	~
	-26 04:00 -1		-3.5	89	175.3	229	~	~
	-26 05:00 -2		-3.5	88	175.1	218	~	~
20-12	-26 06:00 -2		-3.5	89	175.8	254	~	~
	-26 07:00 -2		-3.5	86	177.1	352	~	~
	-26 08:00 -2		-2.4	84	568.0	0	~	~
	-26 09:00 -1		-2.4	79	177.1	296	~	~
	-26 10:00 -1		-2.4	78	172.1	268	~	~
20-12	-26 11:00 -2		-2.5	83	175.4	224	~	~
	-26 12:00 -2		-2.6	89	175.6	281	~	~
<ul> <li>Covers Interval 2 (12) 2/1 hrs)</li> </ul>	-26 13:00 -2		-3.1	96	179.7	229	~	~
	-26 14:00 -3		-3.4	96	177.0	261	~	~
	-26 15:00 -3		-3.7	97	176.4	260	~	~
20-12	-26 16:00 -4		-4.3	97	184.2	243	~	~
	-26 17:00 -4		-4.4	96	180.7	211	~	~
		.4 -1.6	-4.5	97	184.6	217	~	~
	-26 19:00 -4		-4.5	96	187.8	238	~	~
	-26 20:00 -4		-4.5	96	192.2	336	~	~
20-12	-26 21:00 -4		-4.5	96	189.0	249	~	~
		.6 -1.6	-4.7	96	180.2	351	~	~
	-26 23:00 -5		-5.6	94	188.7	270	~	~
	-27 00:00 -6		-6.1	93	188.6	276	~	~
	-27 01:00 -6		-6.1	93	187.3	270	~	~
	-27 02:00 -5		-6.1	92	187.9	238	~	~
	-27 03:00 -5		-6.1	92	189.8	336	~	~
• Scan ta collimp for mayimum and minimum	-27 04:00 -5		-6.1	91	189.6	218	~	~
20-12	-27 05:00 -5		-6.1	92	188.8	233	~	~
		.5 -1.6	-6.1	92	189.2	232	~	~
	-27 07:00 -5		-6.1	90	188.1	233	~	~
	-27 08:00 -5		-5.6	85	188.6	211	~	~
	-27 09:00 -4		-5.6	85	188.1	246	~	~
- 20-12	-27 10:00 -4		-5.6	74	187.8	229	~	~
	-27 11:00 -4		-5.6 -5.6	75	187.0	230 231	~	~
	-27 12:00 -4		-5.6	77	186.7		ĩ	ĩ
	-27 13:00 -4		-5.6	71	186.6	212	~	~
		.9 -3.7	-5.6	75	186.4	213	~	~
	-27 15:00 -4		-5.6	70	186.6	227 216	~	~
	-27 16:00 -4			69	186.7		~	ĩ
	-27 17:00 -4		-5.6 -5.6	69	186.6	222	~	~
		.8 -3.7		63	185.9	224	~	~
©2020 snow knowledge inc	-27 19:00 -4	.1 -3.7	-5.6	78	185.8	210	~	~
-								

## example: once daily 24 standard at 0600

#### Quality Check:

- Correct Date?
- Covers Interval? (12, 24 hrs)
- Bad, Questionable, or Missing Data?
- Meta data such as elevation, column explanations?

#### Observe & Record:

- Scan Ta column for maximum and minimum during interval.
- Select present measurements
- Make calculated observations
- Interpret trends and rates

### Hourly Observations MinMax reset at 0700

I	Date	24	hr 2	24hr
1	Cime C	Га ТаМ	ax Ta	Min
20-12-26 00	):00 -1	.0 0	.4 -	-3.5
20-12-26 01	.:00 -1	.3 0	.4 -	-3.5
20-12-26 02	2:00 -1	.9 0	.4 -	-3.5
20-12-26 03	3:00 -1	.8 0	.4 -	-3.5
20-12-26 04	1:00 -1	.9 0	.4 -	-3.5
20-12-26 05		2 0	4	3 5
20-12-26 06	5:00 -2	.2 0	.4 -	-3.5
20-12-26 07	7:00 -2	.2 0	.4 -	-3.5
20-12-26 08	3:00 -2	.3 -2	.0 -	-2.4
20-12-26 09	9:00 -1	.9 -1	.6 -	-2.4
20-12-26 10	):00 -1	.8 -1	.6 -	-2.4
20-12-26 11	•00 -2	4 _1	6 -	-2 5
20-12-26 11	•00 -2	4 _1	6 -	-2 5

	HS	Precip	
	Sig	Gauge	F
HS	Qual	Total	
178.3	204	~	
177.7	253	~	
177.9	259	~	
179.6	241	~	
175.3	229	~	
175.1	218	~	
175.8	254	~	
177.1	352	~	
568.0	0	~	
177.1	296	~	
179.1	268	~	
175.4	224	~	
	178.3 177.7 177.9 179.6 175.3 175.1 175.8 177.1 568.0 177.1 179.1	HS Qual 178.3 204 177.7 253 177.9 259 179.6 241 175.3 229 175.1 218 175.8 254 177.1 352 568.0 0 177.1 296 179.1 268	Sig         Gauge           HS         Qual         Total           178.3         204         ~           177.7         253         ~           177.9         259         ~           179.6         241         ~           175.3         229         ~           175.1         218         ~           175.8         254         ~           177.1         352         ~           568.0         0         ~           177.1         296         ~           179.1         268         ~

example:	
once daily 24 standard at 0600	

Quality Check:

- Correct Date?
- Covers Interval? (12, 24 hrs)
- Bad, Questionable, or Missing Data?
- Meta data such as elevation, column explanations?

### Observe & Record:

- Scan Ta column for maximum and minimum during interval.
- Select present measurements
- Make calculated observations
- Interpret trends and rates

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						HS	Precip	Hour	
Date		24hr	24hr			Sig	Gauge	Precip	
Time	Ta	Ta Max	Ta Min	RH	HS	Qual	Total	mm	
20-12-26 00:00	-1.0	0.4	-3.5	90	178.3	204	~	~	
20-12-26 01:00	-1.3	0.4	-3.5	93	177.7	253	~	~	
20-12-26 02:00	-1.9	0.4	-3.5	96	177.9	259	~	~	
20-12-26 03:00	-1.8	0.4	-3.5	89	179.6	241	~	~	
20-12-26 04:00	-1.9	0.4	-3.5	89	175.3	229	~	~	
20-12-26 05:00	-2.2	0.4	-3.5	88	175.1	218	~	~	
20-12-26 06.00	-2 2	0.4	-3.5	89	175.8	254	~	~	
20-12-26 07:00	-2.2	0.4	-3.5	86	177.1	352	~	~	
20-12-26 08:00	-2.3	-2.0	-2.4	84	568.0	0	~	~	
20-12-26 09:00	-1.9	-1.6	-2.4	79	177.1	296	~	~	
20-12-26 10:00	-1.8	-1.6	-2.4	78	179.1	268	~	~	
20-12-26 11:00	-2.4	-1.6	-2.5	83	175.4	224	~	~	
20-12-26 12:00	-2.5	-1.6	-2.6	89	175.6	281	~	~	
20-12-26 13:00	-2.9	-1.6	-3.1	96	179.7	229	~	~	
20-12-26 14:00	-3.1	-1.6	-3.4	96	177.0	261	~	~	
20-12-26 15:00	-3.5	-1.6	-3.7	97	176.4	260	~	~	
20-12-26 16:00	-4.2	-1.6	-4.3	97	184.2	243	~	~	
20-12-26 17:00	-4.3	-1.6	-4.4	96	180.7	211	~	~	
20-12-26 18:00	-4.4	-1.6	-4.5	97	184.6	217	~	~	
20-12-26 19:00	-4.3	-1.6	-4.5	96	187.8	238	~	~	
20-12-26 20:00	-4.3	-1.6	-4.5	96	192.2	336	~	~	
20-12-26 21:00	-4.5	-1.6	-4.5	96	189.0	249	~	~	
20-12-26 22:00	-4.6	-1.6	-4.7	96	180.2	351	~	~	
20-12-26 23:00		-1.6	-5.6	94	188.7	270	~	~	
20-12-27 00:00	-6.0	-1.6	-6.1	93	188.6	276	~	~	
20-12-27 01:00	-6.0	-1.6	-6.1	93	187.3	270	~	~	
20-12-27 02:00	-5.7	-1.6	-6.1	92	187.9	238	~	~	
20-12-27 03:00	-5.7	-1.6	-6.1	92	189.8	336	~	~	
20-12-27 04:00	-5.4	-1.6	-6.1	91	189.6	218	~	~	
20-12-27 05:00	-5.4	-1.6	-6.1	92	188.8	233	~	~	
20-12-27 06:00	-5.5	-1.6	-6.1	92	189.2	232	~	~	
20-12-27 07:00	-5.5	-1.6	-6.1	90	188.1	233	~	~	
20-12-27 08:00	-5.0	-5.0	-5.6	85	188.6	211	~	~	
20-12-27 09:00	-4.8	-4.8	-5.6	85	188.1	246	~	~	
20-12-27 10:00	-4.1	-4.1	-5.6	74	187.8	229	~	~	
20-12-27 11:00	-4.3	-4.1	-5.6	75	187.0	230	~	~	
20-12-27 12:00	-4.0	-3.7	-5.6	77	186.7	231	~	~	
20-12-27 13:00	-4.4	-3.7	-5.6	71	186.6	212	~	~	
20-12-27 14:00	-3.9	-3.7	-5.6	75	186.4	213	~	~	
20-12-27 15:00	-4.1	-3.7	-5.6	70	186.6	227	~	~	
20-12-27 16:00	-4.3	-3.7	-5.6	69	186.7	216	~	~	
20-12-27 17:00	-4.3	-3.7	-5.6	69	186.6	222	~	~	
20-12-27 18:00	-3.8	-3.7	-5.6	63	185.9	224	~	~	
20-12-27 19:00	-4.1	-3.7	-5.6	78	185.8	210	~	~	
	• •	0.0				000			

							HS	Precip	Hour
	Date	_	24hr	24hr			Sig	Gauge	Precip
	Time	Ta	Ta Max	Ta Min	RH	HS	Qual	Total	mm
	20-12-26 00:00	-1.0	0.4	-3.5	90	178.3	204 253	ĩ	~
example:	20-12-26 01:00 20-12-26 02:00	-1.3 -1.9	0.4	-3.5 -3.5	93 96	177.7 177.9	255	ĩ	~
	20-12-26 02:00	-1.9	0.4	-3.5	89	179.6	233	~	~
once daily 24 standard at 0600	20-12-26 04:00	-1.9	0.4	-3.5	89	175.3	229	~	~
	20-12-26 05:00	-2.2	0.4	-3.5	88	175.1	218	~	~
	20-12-26 06:00	-2.2	0.4	-3.5	89	175.8	254	~	~
Quality Check:	20-12-26 07:00	-2.2	0.4	-3.5	86	177.1	352	~	~
<u>Quality encert</u>	20-12-26 08:00	-2.3	-2-0	-2.4	84	568.0	0	~	~
	20-12-26 09:00	-1.9	-1.6	-2.4	79	177.1	296	~	~
Correct Date?	20-12-26 10:00	-1.8		-2.4	78	179.1	268	~	~
	20-12-26 11:00	-2.4	-1.6	-2.5	83	175.4	224	~	~
	20-12-26 12:00	-2.5	-1.6	-2.6	89	175.6	281	~	~
	20-12-26 13:00	-2.9	-1.6	-3.1	96	179.7	229	~	~
<ul> <li>Covers Interval? (12, 24 hrs)</li> </ul>	20-12-26 14:00	-3.1	-1.6	-3.4	96	177.0	261	~	~
	20-12-26 15:00	-3.5	-1.6	-3.7	97	176.4	260	~	~
	20-12-26 16:00	-4.2	-1.6	-4.3	97	184.2	243	~	~
<ul> <li>Bad, Questionable, or Missing Data?</li> </ul>	20-12-26 17:00	-4.3	-1.6	-4.4	96	180.7	211	~	~
	20-12-26 18:00	-4.4	-1.6	-4.5	97	184.6	217	~	~
	20-12-26 19:00	-4.3	-1.6	-4.5	96	187.8	238	~	~
<ul> <li>Meta data such as elevation, column explanations?</li> </ul>	20-12-26 20:00	-4.3	-1.6	-4.5	96	192.2	336	~	~
	20-12-26 21:00	-4.5	-1.6	-4.5	96	189.0	249	~	~
	20-12-26 22:00	-4.6	-1.6	-4.7	96	180.2	351	~	~
Observe & Record:	20-12-26 23:00	-5.6	-1.6	-5-6	94	188.7	270	~	~
Observe & Record.	20-12-27 00:00	-6.0	-1.6	-6.1	93	188.6	276	~	~
	20-12-27 01:00	-6.0	-1.6	-0.1	93	187.3	270	~	~
	20-12-27 02:00	-5.7	-1.6	-6.1	92	187.9	238	~	~
<ul> <li>Scan Ta column for maximum and minimum during</li> </ul>	20-12-27 03:00	-5.7	-1.6	-6.1	92	189.8	336	~	~
interval. If appropriate use additional data.	20-12-27 04:00	-5.4	-1.6	-6.1	91	189.6	218	~	~
interval. In appropriate use additional data.	20-12-27 05:00	-5.4			92	188.8	233	~	~
	20-12-27 06:00	-5.5	-1.6	-6.1	92	189.2	232	~	~
<ul> <li>Calact present massurements</li> </ul>	20-12-27 07:00	-5.5	-1.0	-0.1	90	188.1	233	~	~
<ul> <li>Select present measurements</li> </ul>	20-12-27 08:00	-5.0	-5.0	-5.6	85	188.6	211	~	~
	20-12-27 09:00	-4.8	-4.8	-5.6	85	188.1	246	~	~
	20-12-27 10:00	-4.1	-4.1	-5.6	74	187.8	229	~	~
<ul> <li>Make calculated observations</li> </ul>	20-12-27 11:00	-4.3	-4.1	-5.6	75	187.0	230	~	~
	20-12-27 12:00	-4.0	-3.7	-5.6	77	186.7	231	~	~
	20-12-27 13:00	-4.4	-3.7	-5.6	71	186.6	212	~	~
<ul> <li>Interpret trends and rates</li> </ul>	20-12-27 14:00	-3.9	-3.7	-5.6	75	186.4	213	~	~
	20-12-27 15:00	-4.1	-3.7	-5.6	70	186.6	227	~	~
	20-12-27 16:00	-4.3	-3.7	-5.6	69	186.7	216	~	~
	20-12-27 17:00	-4.3	-3.7	-5.6	69	186.6	222	~	~
	20-12-27 18:00	-3.8 -4.1	-3.7 -3.7	-5.6 -5.6	63 78	185.9	224 210	~	~
©2020 snow knowledge inc	20-12-27 19:00	-4.1	-3.7	-5.0	78	185.8	210	ĩ	~

# example: once daily 24 standard at 0600

#### Quality Check:

- Correct Date?
- Covers Interval? (12, 24 hrs)
- Bad, Questionable, or Missing Data?
- Meta data such as elevation, column explanations?

### Observe & Record:

- Scan Ta column for maximum and minimum during interval.
- Select present measurements
- Make calculated observations
- Interpret trends and rates

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						HS	Precip	Hour
Date	2	4hr	24hr			Sig	-	Precip
Time	-		Ta Min	RH	HS	Qual	Total	mm
20-12-26 00:00	-1.0	0.4	-3.5	90	178.3	204	~	~
20-12-26 01:00	-1.3	0.4	-3.5	93	177.7	253	~	~
20-12-26 02:00	-1.9	0.4	-3.5	96	177.9	259	~	~
20-12-26 03:00	-1.8	0.4	-3.5	89	179.6	241	~	~
20-12-26 03:00	-1.9	0.4	-3.5	89	175.3	229	~	~
20-12-26 01:00	-2.2	0.4	-3.5	88	175.1	218	~	~
20-12-26 06:00	-2.2	0.4	-3.5	89	175.8	254	~	~
20-12-26 07:00	-2.2	0.4	-3.5	86	177.1	352	~	~
20-12-26 08:00		2.0	-2.4	84	568.0	0	~	~
20-12-26 09:00		-1.6	-2.4	79	177.1	296	~	~
20-12-26 10:00		-1.6	-2.4	78	179.1	268	~	~
20-12-26 11:00		-1.6	-2.5	83	175.4	224	~	~
20-12-26 12:00		-1.6	-2.6	89	175.6	281	~	~
20-12-26 13:00		-1.6	-3.1	96	179.7	229	~	~
20-12-26 14:00		-1.6	-3.4	96	177.0	261	~	~
20-12-26 15:00		-1.6	-3.7	97	176.4	260	~	~
20-12-26 16:00		-1.6	-4.3	97	184.2	243	~	~
20-12-26 17:00		-1.6	-4.4	96	180.7	211	~	~
20-12-26 18:00		1.6	-4.5	97	184.6	217	~	~
20-12-26 19:00		1.6	-4.5	96	187.8	238	~	~
20-12-26 20:00		1.6	-4.5	96	192.2	336	~	~
20-12-26 21:00		1.6	-4.5	96	189.0	249	~	~
20-12-26 22:00		1.6	-4.7	96	180.2	351	~	~
20-12-26 23:00		1.6	-5.6	94	188.7	270	~	~
20-12-27 00:00		1.6	-6.1	93	188.6	276	~	~
20-12-27 01:00		1.6	-6.1	93	187.3	270	~	~
20-12-27 02:00		1.6	-6.1	92	187.9	238	~	~
20-12-27 03:00		1.6	-6.1	92	189.8	336	~	~
20-12-27 04:00		1.6	-6.1	91	189.6	218	~	~
20-12-27 05:00		1.6	-6.1		100.9	233		~
20-12-27 06:00		1.6	-6.1	92	189.2	232	~	~
20-12-27 07:00	-5.5	1.6	-6.1		100.1	233		~
20-12-27 08:00		-5.0	-5.6	85	188.6	211	~	~
20-12-27 09:00	-4.8 -	4.8	-5.6	85	188.1	246	~	~
20-12-27 10:00	-4.1 -	4.1	-5.6	74	187.8	229	~	~
20-12-27 11:00	-4.3 -	4.1	-5.6	75	187.0	230	~	~
20-12-27 12:00	-4.0 -	3.7	-5.6	77	186.7	231	~	~
20-12-27 13:00	-4.4 -	3.7	-5.6	71	186.6	212	~	~
20-12-27 14:00	-3.9 -	3.7	-5.6	75	186.4	213	~	~
20-12-27 15:00	-4.1 -	3.7	-5.6	70	186.6	227	~	~
20-12-27 16:00	-4.3 -	3.7	-5.6	69	186.7	216	~	~
20-12-27 17:00	-4.3 -	3.7	-5.6	69	186.6	222	~	~
20-12-27 18:00	-3.8 -	3.7	-5.6	63	185.9	224	~	~
20-12-27 19:00	-4.1 -	3.7	-5.6	78	185.8	210	~	~
~~ ~~ ~~ ~~ ~~		0.0			105 5	000		

example:	
once daily 24 standard at 0600	

**Quality Check:** 

- Correct Date?
- Covers Interval? (12, 24 hrs)
- Bad, Questionable, or Missing Data?
- Meta data such as elevation, column explanations?

#### Observe & Record:

- Scan Ta column for maximum and minimum during interval.
- Select present measurements
- Make calculated observations

HN24 13.4 cm

189.2

<u>-175.8</u>

13.4

• Interpret trends and rates

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							HS	Precip	Hour	
	Date		24hr	24hr			Sig	Gauge	Precip	
	Time		Ta Max		RH	HS	Qual	Total	mm	
	20-12-26 00:00	-1.0	0.4	-3.5	90	178.3	204	~	~	
	20-12-26 01:00	-1.3	0.4	-3.5	93	177.7	253	~	~	
	20-12-26 02:00	-1.9	0.4	-3.5	96	177.9	259	~	~	
	20-12-26 03:00	-1.8	0.4	-3.5	89	179.6	241	~	~	
	20-12-26 04:00	-1.9	0.4	-3.5	89	175.3	229	~	~	
	20-12-26 05:00	-2.2	0.4	-3.5	88	175.1	218	~	~	
	20-12-26 06:00	-2.2	0.4	-3.5	89	175.8	254	~	~	
	20-12-26 07:00	-2.2	0.4	-3.5	86		352	~	~	
	20-12-26 08:00	-2.3	-2.0	-2.4	84	568.0	0	~	~	
	20-12-26 09:00	-1.9	-1.6	-2.4	79	177.1	296	~	~	
	20-12-26 10:00	-1.8	-1.6	-2.4	78	179.1	268	~	~	
	20-12-26 11:00	-2.4	-1.6	-2.5	83	175.4	224	~	~	
	20-12-26 12:00	-2.5	-1.6	-2.6	89	175.6	281	~	~	
	20-12-26 13:00	-2.9	-1.6	-3.1	96	179.7	229	~	~	
	20-12-26 14:00	-3.1	-1.6	-3.4	96	177.0	261	~	~	
	20-12-26 15:00	-3.5	-1.6	-3.7	97	176.4	260	~	~	
	20-12-26 16:00	-4.2	-1.6	-4.3	97	184.2	243	~	~	
	20-12-26 17:00	-4.3	-1.6	-4.4	96	180.7	211	~	~	
1.0	20-12-26 18:00	-4.4	-1.6		97	184.6	217	~	~	
	20-12-26 19:00	-4.3	-1.6	-4.5	96	187.8	238	~	~	
	20-12-26 20:00	-4.3	-1.6	-4.5	96	192.2	336	~	~	
	20-12-26 21:00	-4.5	-1.6	-4.5	96	189.0	249	~	~	
-	20-12-26 22:00	-4.6	-1.6		96	180.2	351	~	~	
	20-12-26 23:00	-5.6	-1.6	-5.6	94	188.7	270	~	~	
	20-12-27 00:00	-6.0	-1.6		93	188.6	276	~	~	
	20-12-27 01:00	-6.0	-1.6	-6.1	93	187.3	270	~	~	
	20-12-27 02:00	-5.7	-1.6	-6.1	92	187.9	238	~	~	
	20-12-27 03:00	-5.7	-1.6		92	189.8	336	~	~	
	20-12-27 04:00	-5.4	-1.6		91	189.6	218	~	~	
	20-12-27 05:00	-5.4	-1.6	-6.1	92	100.0	233	~	~	
	20-12-27 06:00	-5.5	-1.6	-6.1	92	189.2	232	~	~	
	20-12-27 07:00	-5.5	-1.6	-6.1	90	100.1	233	~	~	
	20-12-27 08:00	-5.0	-5.0	-5.6	85	188.6	211	~	~	
	20-12-27 09:00	-4.8	-4.8	-5.6	85	188.1	246	~	~	
	20-12-27 10:00	-4.1	-4.1	-5.6	74	187.8	229	~	~	
	20-12-27 11:00	-4.3	-4.1	-5.6	75	187.0	230	~	~	
$\mathbf{n}$	20-12-27 12:00	-4.0	-3.7	-5.6	77	186.7	231	~	~	
n	20-12-27 13:00	-4.4	-3.7	-5.6	71	186.6	212	~	~	
	20-12-27 14:00	-3.9	-3.7	-5.6	75	186.4	213	~	~	
	20-12-27 15:00	-4.1	-3.7	-5.6	70	186.6	227	~	~	
	20-12-27 16:00	-4.3	-3.7	-5.6	69	186.7	216	~	~	
	20-12-27 17:00	-4.3	-3.7	-5.6	69	186.6	222	~	~	
	20-12-27 18:00	-3.8	-3.7	-5.6	63	185.9	224	~	~	
	20-12-27 19:00	-4.1	-3.7	-5.6	78	185.8	210	~	~	
			0.0				000			

									HS	Precip	Hour
			Date		24hr	24hr			Sig	Gauge	Precip
			Time		Ta Max	Ta Min	RH	HS	Qual	Total	mm
			20-12-26 00:00	-1.0	0.4	-3.5	90	178.3	204	~	~
e	kample:		20-12-26 01:00	-1.3	0.4	-3.5	93	177.7	253	~	~
<i>U</i> ,	(ampier		20-12-26 02:00	-1.9	0.4	-3.5	96	177.9	259	~	~
	nce daily 24 standard at 0	600	20-12-26 03:00	-1.8	0.4	-3.5	89	179.6	241	~	~
U	lice daily 24 Standard at 0	000	20-12-26 04:00	-1.9	0.4	-3.5	89	175.3	229	~	~
			20-12-26 05:00	-2.2	0.4	-3.5	88	175.1	218	~	~
0.			20-12-26 06:00	-2.2	0.4	-3.5	89	175.8	254	~	~
<u>Q</u> L	uality Check:		20-12-26 07:00	-2.2	0.4	-3.5	86	177.1	352	~	~
			20-12-26 08:00	-2.3	-2.0	-2.4	84	568.0	0	~	~
			20-12-26 09:00	-1.9	-1.6	-2.4	79	177.1	296	~	~
•	Correct Date?		20-12-26 10:00	-1.8	-1.6	-2.4	78	179.1	268	~	~
			20-12-26 11:00	-2.4	-1.6	-2.5	83	175.4	224	~	~
			20-12-26 12:00	-2.5	-1.6	-2.6	89	175.6	281	~	~
•	Covers Interval? (12, 24 hrs)		20-12-26 13:00	-2.9	-1.6	-3.1	96	179.7	229	~	~
			20-12-26 14:00	-3.1	-1.6	-3.4	96	177.0	261	~	~
			20-12-26 15:00	-3.5	-1.6	-3.7	97	176.4	260	~	~
	Bad, Questionable, or Missing Data	2	20-12-26 16:00	-4.2	-1.6	-4.3	97	184.2	243	~	~
•	bau, Questionable, or Missing Data	F	20-12-26 17:00	-4.3	-1.6	-4.4 -4.5	96	180.7	211	~	~
			20-12-26 18:00	-4.4	-1.6		97	184.6	217	~	~
			20-12-26 19:00	-4.3	-1.6	-4.5	96	187.8	238	~	~
•	Meta data such as elevation, colum	n	20-12-26 20:00	-4.3	-1.6	-4.5	96	192.2	336	~	~
	explanations?	Ta Trend	20-12-26 21:00	-4.5	-1.6	-4.5	96	189.0	249	~	~
	explanations:		20-12-26 22:00	-4.6	-1.6	-4.7	96	180.2	351	~	~
			20-12-26 23:00	-5.6	-1.6	-5.6	94	188.7	270	~	~
~			20-12-27 00:00	-6.0	-1.6	-6.1	93	188.6	276	~	~
<u> </u>	oserve & Record:	Steady	20-12-27 01:00	-6.0	-1.6	-6.1	93	187.3	270	~	~
		o todad /	20-12-27 02:00	-5.7	-1.6	-6.1 -6.1	92	187.9	238	~	~
			20-12-27 03:00	-5.4	-1.6 -1.6	-6.1	92 91	189.6	336 218	ĩ	~
•	Scan Ta column for maximum and n	ninimum	20-12-27 04:00	-5.4	-1.6	-6.1	91	188.8	218	ĩ	~
			20-12-27 05:00	-5.5	-1.6	-6.1	92	189.2	233	ĩ	~
	during interval.		20-12-27 06:00	-5.5	-1.6	-6.1	90	109.2	232	ĩ	ĩ
			20-12-27 07:00	-5.0	-5.0	-5.6	85	188.6	233	ĩ	ĩ
			20-12-27 00:00	-4.8	-4.8	-5.6	85	188.1	246	~	~
•	Select present measurements		20-12-27 10:00	-4.1	-4.1	-5.6	74	187.8	240	~	~
	· · · · · ·		20-12-27 11:00	-4.3	-4.1	-5.6	75	187.0	229	~	~
		Precip type & rate	20-12-27 12:00	-4.0	-3.7	-5.6	77	186.7	230	~	~
•	Make calculated observations		20-12-27 12:00	-4.4	-3.7	-5.6	71	186.6	212	~	~
			20-12-27 14:00	-3.9	-3.7	-5.6	75	186.4	212	~	~
			20-12-27 15:00	-4.1	-3.7	-5.6	70	186.6	227	~	~
	Interpret trends and rates	nil	20-12-27 15:00	-4.3	-3.7	-5.6	69	186.7	227	~	~
•	interpret trenus and rates		20-12-27 17:00	-4.3	-3.7	-5.6	69	186.6	222	~	~
	,		20-12-27 18:00	-3.8	-3.7	-5.6	63	185.9	222	~	~
			20-12-27 19:00	-4.1	-3.7	-5.6	78	185.8	210	~	~
	©2020 snow knowledge inc			1.1		5.0		100.0	210		

example:	
once daily 24 standard at 0600	

### Quality Check:

- Correct Date?
- Covers Interval? (12, 24 hrs)
- Bad, Questionable, or Missing Data?
- Meta data such as elevation, column explanations?

### Observe & Record:

- Scan Ta column for maximum and minimum during interval.
- Select present measurements
- Make calculated observations
- Interpret trends and rates

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				HS	Precip	Hour
Date	24hr	24hr		Sig	Gauge	Precip
Time	Ta Ta Max	Ta Min	RH	HS Qual	Total	mm
20-12-26 00:00	-1.0 0.4	-3.5	90 178	3.3 204	~	~
20-12-26 01:00	-1.3 0.4	-3.5	93 177	7.7 253	~	~
20-12-26 02:00	-1.9 0.4	-3.5	96 177	7.9 259	~	~
20-12-26 03:00	-1.8 0.4	-3.5	89 179	9.6 241	~	~
20-12-26 04:00	-1.9 0.4	-3.5	89 175	5.3 229	~	~
20-12-26 05:00	-2.2 0.4	-3.5	88 175	5.1 218	~	~
20-12-26 06:00	-2.2 0.4	-3.5	89 175	5.8 254	~	~
20-12-26 07:00	-2.2 0.4	-3.5	86 173		~	~
20-12-26 08:00	-2.3 -2.0	-2.4	84 568	3.0 0	~	~
20-12-26 09:00	-1.9 -1.6	-2.4	79 173		~	~
20-12-26 10:00	-1.8 -1.6	-2.4		9.1 268	~	~
20-12-26 11:00	-2.4 -1.6	-2.5	83 175		~	~
20-12-26 12:00	-2.5 -1.6	-2.6	89 175		~	~
20-12-26 13:00	-2.9 -1.6	-3.1	96 179		~	~
20-12-26 14:00	-3.1 -1.6	-3.4		7.0 261	~	~
20-12-26 15:00	-3.5 -1.6	-3.7	97 170		~	~
20-12-26 16:00	-4.2 -1.6	-4.3		4.2 243	~	~
20-12-26 17:00	-4.3 -1.6	-4.4	96 180		~	~
20-12-26 18:00	-4.4 -1.6	-4.5	97 184		~	~
20-12-26 19:00	-4.3 -1.6	-4.5	96 187		~	~
20-12-26 20:00	-4.3 -1.6	-4.5	96 192		~	~
20-12-26 21:00	-4.5 -1.6	-4.5	96 189		~	~
20-12-26 22:00	-4.6 -1.6	-4.7	96 180		~	~
20-12-26 23:00	-1.6	-5.6	94 188		~	~
20-12-27 00:00	-6.0 -1.6	-6.1	93 188		~	~
20-12-27 01:00	-6.0 -1.6	-6.1	93 187		~	~
20-12-27 02:00	-5.7 -1.6	-6.1	92 187		~	~
20-12-27 03:00	-5.7 -1.6	-6.1		9.8 336	~	~
20-12-27 04:00	-5.4 -1.6	-6.1	91 189	9.6 218	~	~
20-12-27 05:00			92 189	233 9.2 232		ĩ
20-12-27 08:00	-5.5 -1.6	-6.1	92 189	232	~	Ĩ
20-12-27 07:00	-5.0 -5.0	-0.1	85 188			ĩ
20-12-27 08:00	-3.0 -3.0	-3.6		B.1 246	ĩ	~
20-12-27 09:0	Precip type	≏&rate ∦		7.8 229	~	ĩ
20-12-27 10:0			F	7.0 230	~	~
20-12-27 12:00	-1.5 -1.1	-5.0		5.7 231	~	~
20-12-27 12:00					~	~
20-12-27 13:00	Ta Tren	d Steady		5.4 213	~	~
20-12-27 14:00	-4.1 -3.7	-5.6		5.6 227	~	~
20-12-27 16:00	-4.3 -3.7	-5.6		5.7 216	~	~
20-12-27 17:00	-4		10	5.6 222	~	~
20-12-27 18:00	_{ HN24	13.4 cm		5.9 224	~	~
20-12-27 19:00	-4	-2.0	78 185		~	~

example:	
twice daily standard at 1800	

**Quality Check:** 

- **Correct Date?** ٠
- Covers Interval? (12, 24 hrs) .
- Bad, Questionable, or Missing Data? •
- Meta data such as elevation, column ٠ explanations?

#### Observe & Record:

- Scan Ta column for maximum and minimum ٠ during interval.
- Select present measurements ٠
- Make calculated observations ٠
- Interpret trends and rates ٠

	MinM	ax re	set at 0	700					
						HS	Precip	Hour	
Date		24hr	24hr			Sig	Gauge	Precip	
Time		a Max	Ta Min	RH	HS	Qual	Total	mm	
20-12-26 00:00	-1.0	0.4	-3.5	90	178.3	204	~	~	
20-12-26 01:00	-1.3	0.4	-3.5	93	177.7	253	~	~	
20-12-26 02:00	-1.9	0.4	-3.5	96	177.9	259	~	~	
20-12-26 03:00	-1.8	0.4	-3.5	89	179.6	241	~	~	
20-12-26 04:00	-1.9	0.4	-3.5	89	175.3	229	~	~	
20-12-26 05:00	-2.2	0.4	-3.5	88	175.1	218	~	~	
20-12-26 06:00	-2.2	0.4	-3.5	89	175.8	254	~	~	
20-12-26 07:00	-2.2	0.4	-3.5	86	177.1	352	~	~	
20-12-26 08:00	-2.3	-2.0	-2.4	84	568.0	0	~	~	
20-12-26 09:00	-1.9	-1.6	-2.4	79	177.1	296	~	~	
20-12-26 10:00	-1.8	-1.6	-2.4	78	1/2.1	268	~	~	
20-12-26 11:00	-2.4	-1.6	-2.5	83	175.4	224	~	~	
20-12-26 12:00	-2.5	-1.6	-2.6	89	175.6	281	~	~	
20-12-26 13:00	-2.9	-1.6	-3.1	96	179.7	229	~	~	
20-12-26 14:00	-3.1	-1.6	-3.4	96	177.0	261	~	~	
20-12-26 15:00	-3.5	-1.6	-3.7	97	176.4	260	~	~	
20-12-26 16:00	-4.2	-1.6	-4.3	97	184.2	243	~	~	
20-12-26 17:00	-4.3	-1.6	-4.4	96	180.7	211	~	~	
20-12-26 18:00	-4.4	-1.6	-4.5	97	184.6	217	~	ĩ	
20-12-26 19:00	-4.3	-1.6	-4.5	96	187.8	238	~	~	
20-12-26 20:00 20-12-26 21:00	-4.3 -4.5	-1.6 -1.6	-4.5	96 96	192.2	336	~	ĩ	
20-12-26 21:00	-4.5	-1.6	-4.5 -4.7	96	189.0 180.2	249 351	ĩ	ĩ	
20-12-26 22:00	-5.6	-1.6	-5.6	96	188.7	270	ĩ	ĩ	
20-12-27 00:00	-6.0	-1.6	-6.1	93	188.6	276	~	~	
20-12-27 01:00	-6.0	-1.6	-6.1	93	187.3	270	~	~	
20-12-27 02:00	-5.7	-1.6	-6.1	92	187.9	238	~	~	
20-12-27 02:00	-5.7	-1.6	-6.1	92	189.8	336	~	~	
20-12-27 04:00	-5.4	-1.6	-6.1	91	189.6	218	~	~	
20-12-27 05:00	-5.4	-1.6	-6.1	92	188.8	233	~	~	
20-12-27 06:00	-5.5	-1.6	-6.1	92	189.2	232	~	~	
20-12-27 07:00	-5.5	-1.6	-6.1	90	188.1	233	~	~	
20-12-27 08:00	-5.0	-5.0	-5.6	85	188.6	211	~	~	
20-12-27 09:00	-4.8	-4.8	-5.6	85	188.1	246	~	~	
20-12-27 10:00	-4.1	-4.1	-5.6	74	187.8	229	~	~	
20-12-27 11:00	-4.3	-4.1	-5.6	75	187.0	230	~	~	
20-12-27 12:00	-4.0	-3.7	-5.6	77	186.7	231	~	~	
20-12-27 13:00	-4.4	-3.7	-5.6	71	186.6	212	~	~	
20-12-27 14:00	-3.9	-3.7	-5.6	75	186.4	213	~	~	
20-12-27 15:00	-4.1	-3.7	-5.6	70	186.6	227	~	~	
20-12-27 16:00	-4.3	-3.7	-5.6	69	186.7	216	~	~	
20-12-27 17:00	-4.3	-3.7	-5.6	69	186.6	222	~	~	
20-12-27 18:00	-3.8	-3.7	-5.6	63	185.9	224	~	~	
20-12-27 19:00	-4.1	-3.7	-5.6	78	185.8	210	~	~	
		0.0				000			

example:	
twice daily standard at 1800	

Quality Check:

- Correct Date?
- Covers Interval? (12, 24 hrs)
- Bad, Questionable, or Missing Data?
- Meta data such as elevation, column explanations?

### Observe & Record:

- Scan Ta column for maximum and minimum during interval.
- Select present measurements
- Make calculated observations
- Interpret trends and rates

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						HS	Precip	Hour
Date		24hr	24hr			Sig	Gauge	Precip
Time	Ta	Ta Max	Ta Min	RH	HS	Qual	Total	nm
20-12-26 00:00	-1.0	0.4	-3.5	90	178.3	204	~	~
20-12-26 01:00	-1.3	0.4	-3.5	93	177.7	253	~	~
20-12-26 02:00	-1.9	0.4	-3.5	96	177.9	259	~	~
20-12-26 02:00	-1.8	0.4	-3.5	89	179.6	241	~	~
20-12-26 03:00	-1.9	0.4	-3.5	89	175.3	211	~	~
20-12-26 04:00	-2.2	0.4	-3.5	88	175.1	223	~	~
20-12-26 05:00	-2.2	0.4	-3.5	89	175.8	210	~	~
20-12-26 07:00	-2.2	0.4	-3.5	86	177.1	352	~	~
20-12-26 08:00	-2.3	-2.0	-2.4	84	568.0	0	~	~
20-12-26 08:00	-2.3	-1.6	-2.4	79	177.1	296	~	~
20-12-26 09:00	-1.8	-1.6	-2.4	78	179.1	250	~	~
	-1.0				175.4		ĩ	~ ~
20-12-26 11:00 20-12-26 12:00		-1.6	-2.5 -2.6	83 89		224	ĩ	ĩ
	-2.5				175.6 179.7	281	ĩ	ĩ
20-12-26 13:00	-2.9	-1.6	-3.1	96 96		229	ĩ	
20-12-26 14:00	-3.1	-1.6	-3.4		177.0	261		~
20-12-26 15:00	-3.5	-1.6	-3.7	97	176.4	260	~	~
20-12-26 16:00	-4.2	-1.6	-4.3	97	184.2	243	~	~
20-12-26 17:00		-1.6	-4.4	96	180.7	211	~	~
20-12-26 18:00	-4.4	-1.6	-4.5	97	184.6	217	~	~
20-12-26 19:00		-1.6	-4.5	96	187.8	238	~	~
20-12-26 20:00	-4.3	-1.6	-4.5	96	192.2	336	~	~
20-12-26 21:00	-4.5	-1.6	-4.5	96	189.0	249	~	~
20-12-26 22:00	-4.6	-1.6	-4.7	96	180.2	351	~	~
20-12-26 23:00	-5.6	-1.6	-5.6	94	188.7	270	~	~
20-12-27 00:00	-6.0	-1.6	-6.1	93	188.6	276	~	~
20-12-27 01:00	-6.0	-1.6	-6.1	93	187.3	270	~	~
20-12-27 02:00	-5.7	-1.6	-6.1	92	187.9	238	~	~
20-12-27 03:00	-5.7	-1.6	-6.1	92	189.8	336	~	~
20-12-27 04:00	-5.4	-1.6	-6.1	91	189.6	218	~	~
20-12-27 05:00	-5.4	-1.6	-6.1	92	188.8	233	~	~
20-12-27 06:00	-5.5	-1.6	-6.1	92	189.2	232	~	~
20-12-27 07:00	-5.5	-1.6	-6.1	90	188.1	233	~	~
20-12-27 08:00	-5.0	-5.0	-5.6	85	188.6	211	~	~
20-12-27 09:00	-4.8	-4.8	-5.6	85	188.1	246	~	~
20-12-27 10:00	-4.1	-4.1	-5.6	74	187.8	229	~	~
20-12-27 11:00	-4.3	-4.1	-5.6	75	187.0	230	~	~
20-12-27 12:00	-4.0	-3.7	-5.6	77	186.7	231	~	~
20-12-27 13:00	-4.4	-3.7	-5.6	71	186.6	212	~	~
20-12-27 14:00	-3.9	-3.7	-5.6	75	186.4	213	~	~
20-12-27 15:00	-4.1	-3.7	-5.6	70	186.6	227	~	~
20-12-27 16:00	-4.3	-3.7	-5.6	69	186.7	216	~	~
20-12-27 17:00	-4.3	-3.7	-5.6	69	186.6	222	~	~
20-12-27 18:00	-3.8	-3.7	-5.6	63	185.9	224	~	~
20-12-27 19:00	-4.1	-3.7	-5.6	78	185.8	210	~	~
	• •	<u> </u>			105 0			

								HS	Precip	Hour
		Date		24hr	24hr			Sig	Gauge	Precip
		Time	Ta	Ta Max	Ta Min	RH	HS	Qual	Total	mm
		20-12-26 00:00	-1.0	0.4	-3.5	90	178.3	204	~	~
example:		20-12-26 01:00	-1.3	0.4	-3.5	93	177.7	253	~	~
chample:		20-12-26 02:00	-1.9	0.4	-3.5	96	177.9	259	~	~
twice daily sta	ndard at 1800	20-12-26 03:00	-1.8	0.4	-3.5	89	179.6	241	~	~
twice ually sta	iluaru at 1000	20-12-26 04:00	-1.9	0.4	-3.5	89	175.3	229	~	~
		20-12-26 05:00	-2.2	0.4	-3.5	88	175.1	218	~	~
Quality Charles		20-12-26 06:00	-2.2	0.4	-3.5	89	175.8	254	~	~
Quality Check:		20-12-26 07:00	-2.2	0.4	-3.5	86	177.1	352	~	~
		20-12-26 08:00	-2.3	-2.0	-2.4	84	568.0	0	~	~
		20-12-26 09:00 20-12-26 10:00	-1.8	-1.6	-2.4 -2.4	79 78	177.1 179.1	296 268	~	~
Correct Date?		20-12-26 10:00	-1.0	-1.6	-2.5	83	175.4	200	~	ĩ
		20-12-26 11:00	-2.5	-1.6	-2.6	89	175.6	224	~	~
		20-12-26 12:00	-2.9	-1.6	-3.1	96	179.7	229	~	~
<ul> <li>Covers Interval?</li> </ul>	(12, 24 hrs)	20-12-26 14:00	-3.1	-1.6	-3.4	96	177.0	261	~	~
and the second se		20-12-26 15:00	-3.5	-1.6	-3.7	97	176.4	260	~	~
		20-12-26 16:00	-4.2	-1.6	-4.3	97	184.2	243	~	~
<ul> <li>Bad, Questionabl</li> </ul>	e, or Missing Data?	20-12-26 17:00		-1.6	-4.4	-	100.7	211		~
		20-12-26 18:00	-4.4	-1.6	-4.5	97	184.6	217	~	~
		20-12-20 19:00		-1.6	-4.5	00	107.0	238		~
Meta data such a	s elevation, column	20-12-26 20:00	-4.3	-1.6	-4.5	96	192.2	336	~	~
		20-12-26 21:00	-4.5	-1.6	-4.5	96	189.0	249	~	~
explanations?		20-12-26 22:00	-4.6	-1.6	-4.7	96	180.2	351	~	~
·		20-12-26 23:00	-5.6	-1.6	-5.6	94	188.7	270	~	~
		20-12-27 00:00	-6.0	-1.6	-6.1	93	188.6	276	~	~
Observe & Record:		20-12-27 01:00	-6.0	-1.6	-6.1	93	187.3	270	~	~
		20-12-27 02:00	-5.7	-1.6	-6.1	92	187.9	238	~	~
		20-12-27 03:00	-5.7	-1.6	-6.1	92	189.8	336	~	~
Scan Ta column for	or maximum and minimum	20-12-27 04:00	-5.4	-1.6	-6.1	91	189.6	218	~	~
		20-12-27 05:00	-5.4	-1.6	-6.1	92	188.8	233	~	~
during interval.		20-12-27 06:00	-5.5	-1.6	-6.1	92	189.2	232	~	~
		20-12-27 07:00	-5.5	-1.6	-6.1	90	188.1	233	~	~
		20-12-27 08:00	-5.0	-5.0	-5.6	85	188.6	211	~	~
<ul> <li>Select present m</li> </ul>	easurements	20-12-27 09:00	-4.8	-4.8	-5.6	85	188.1	246	~	~
•		20-12-27 10:00	-4.1	-4.1	-5.6 -5.6	74	187.8	229	~	~
		20-12-27 11:00	-4.3 -4.0	-4.1 -3.7	-5.6	75 77	187.0 186.7	230 231	ĩ	ĩ
Make calculated	observations	20-12-27 12:00 20-12-27 13:00	-4.4	-3.7	-5.6	71	186.6	231	ĩ	~
Wake calculated		20-12-27 13:00	-3.9	-3.7	-5.6	75	186.4	212	ĩ	ĩ
		20-12-27 14:00	-3.9	-3.7	-5.6	70	186.6	213	ĩ	ĩ
• Interpret trande a	and rates	20-12-27 15:00	-4.3	-3.7	-5.6	69	186.7	227	~	~
<ul> <li>Interpret trends a</li> </ul>	anu rales	20-12-27 18:00	-4.3	-3.7	-5.6	69	186.6	210	~	~
		20-12-27 17:00	-3.8	-3.7	-5.6	63	185.9	222	~	~
		20-12-27 19:00	-4.1	-3.7	-5.6	78	185.8	224	~	~
©2020 s	now knowledge inc		1.1		5.0		100.0	210		

				Date		24hr	24hr			HS Sig	Precip Gauge	Hour Precip
				Time	Ta	Ta Max	Ta Min	RH	HS	Qual	Total	mm
				20-12-26 00:00 20-12-26 01:00	-1.0 -1.3	0.4	-3.5 -3.5	90 93	178.3 177.7	204 253	~	~
e>	kample:			20-12-26 01:00	-1.9	0.4	-3.5	95	177.9	255	ĩ	ĩ
				20-12-26 02:00	-1.8	0.4	-3.5	89	179.6	233	~	~
tv	vice daily standard at 180	0		20-12-26 04:00	-1.9	0.4	-3.5	89	175.3	229	~	~
				20-12-26 05:00	-2.2	0.4	-3.5	88	175 1	218	~	~
				20-12-26 06:00	-2.2	0.4	-3.5	89	175.8	254	~	~
Qu	ality Check:			20-12-26 07:00	-2.2	0.4	-3.5	86	177.2	352	~	~
				20-12-26 08:00	-2.3	-2.0	-2.4	84	568.0	0	~	~
				20-12-26 09:00	-1.9	-1.6	-2.4	79	177.1	296	~	~
•	Correct Date?			20-12-26 10:00	-1.8	-1.6	-2.4	78	179.1	268	~	~
				20-12-26 11:00	-2.4	-1.6	-2.5	83	175.4	224	~	~
				20-12-26 12:00	-2.5	-1.6	-2.6	89	175.6	281	~	~
•	Covers Interval? (12, 24 hrs)			20-12-26 13:00	-2.9	-1.6	-3.1	96	179.7	229	ĩ	~
				20-12-26 14:00	-3.1 -3.5	-1.6 -1.6	-3.4 -3.7	96 97	177.0 176.4	261 260	~	~
				20-12-26 15:00 20-12-26 16:00	-3.5	-1.6	-3.7	97	184.2	243	~	ĩ
•	Bad, Questionable, or Missing Data	Rad Questionable or Missing Data?	184.6	20-12-26 17:00	-4.3	-1.6	-4.4	96	104.2	213	~	~
Dad, Questionable, or Missing Data:			20-12-26 18:00	-4.4	-1.6	-4.5	97	184.6	217	~	~	
		-175.8	20-12-26 19:00	-4.3	-1.6	-4.5	96	107.0	238	~	~	
•	Meta data such as elevation, column			20-12-26 20:00	-4.3	-1.6	-4.5	96	192.2	336	~	~
•			8.8	20-12-26 21:00	-4.5	-1.6	-4.5	96	189.0	249	~	~
	explanations?			20-12-26 22:00	-4.6	-1.6	-4.7	96	180.2	351	~	~
				20-12-26 23:00	-5.6	-1.6	-5.6	94	188.7	270	~	~
				20-12-27 00:00	-6.0	-1.6	-6.1	93	188.6	276	~	~
Ob	oserve & Record:			20-12-27 01:00	-6.0	-1.6	-6.1	93	187.3	270	~	~
<u> </u>				20-12-27 02:00	-5.7	-1.6	-6.1	92	187.9	238	~	~
				20-12-27 03:00	-5.7	-1.6	-6.1	92	189.8	336	~	~
•	Scan Ta column for maximum and r	ninimum		20-12-27 04:00	-5.4	-1.6	-6.1	91	189.6	218	~	~
		mmann		20-12-27 05:00	-5.4	-1.6	-6.1	92	188.8	233	~	~
	during interval.			20-12-27 06:00	-5.5	-1.6	-6.1	92	189.2	232	~	~
				20-12-27 07:00 20-12-27 08:00	-5.5 -5.0	-1.6 -5.0	-6.1 -5.6	90 85	188.1 188.6	233 211	ĩ	~
				20-12-27 08:00	-5.0	-5.0	-5.6	85	188.1	211	~	ĩ
•	Select present measurements			20-12-27 10:00	-4.1	-4.1	-5.6	74	187.8	229	~	~
	-	_		20-12-27 10:00	-4.3	-4.1	-5.6	75	187.0	230	~	~
	Make calculated observations	H2D	8.8 cm	20-12-27 12:00	-4.0	-3.7	-5.6	77	186.7	231	~	~
•			20-12-27 13:00	-4.4	-3.7	-5.6	71	186.6	212	~	~	
				20-12-27 14:00	-3.9	-3.7	-5.6	75	186.4	213	~	~
					-4.1	-3.7	-5.6	70	186.6	227	~	~
Interpret trends and rates			20-12-27 16:00	-4.3	-3.7	-5.6	69	186.7	216	~	~	
			20-12-27 17:00	-4.3	-3.7	-5.6	69	186.6	222	~	~	
				20-12-27 18:00	-3.8	-3.7	-5.6	63	185.9	224	~	~
	©2020 snow knowledge inc			20-12-27 19:00	-4.1	-3.7	-5.6	78	185.8	210	~	~
	SZOZO SHOW KHOWIEUge IIIC			~ ~ ~ ~ ~ ~ ~	· · ·	0.0			105 0	000		

										HS	Precip	Hour
				Date Time	π.	24hr Ta Max	24hr Ta Min	RH	HS	Sig	Gauge	Precip
				20-12-26 00:00	-1.0	1a Max 0.4	-3.5	90	178.3	Qual 204	Total	mm
				20-12-26 00:00	-1.3	0.4	-3.5	93	177.7	253	~	~
e	ample:			20-12-26 02:00	-1.9	0.4	-3.5	96	177.9	259	~	~
-		-		20-12-26 03:00	-1.8	0.4	-3.5	89	179.6	241	~	~
tv	vice daily standard at 1800	0		20-12-26 04:00	-1.9	0.4	-3.5	89	175.3	229	~	~
				20-12-26 05:00	-2.2	0.4	-3.5	88	175.1	218	~	~
		20-12-26 06:00	-2.2	0.4	-3.5	89	175.8	254	~	~		
Οι	ality Check:			20-12-26 07:00	-2.2	0.4	-3.5	86	177.1	352	~	~
				20-12-26 08:00	-2.3	-2.0	-2.4	84	568.0	0	~	~
				20-12-26 09:00	-1.9	-1.6	-2.4	79	177.1	296	~	~
•	Correct Date?			20-12-26 10:00	-1.8	-1.6	-2.4	78	179.1	268	~	~
				20-12-26 11:00	-2.4	-1.6	-2.5	83	175.4	224	~	~
				20-12-26 12:00	-2.5	-1.6	-2.6	89	175.6	281	~	~
	$C_{a}$ (and $ a + a  >  2  (12) > 2  b   a )$			20-12-26 13:00	-2.9	-1.6	-3.1	96	179.7	229	~	~
•	Covers Interval? (12, 24 hrs)			20-12-26 14:00	-3.1	-1.6	-3.4	96	177.0	261	~	~
				20-12-26 15:00	-2-5	-1.6	-3.7	97	176.4	260	~	~
			184.6	20-12-26 16:00	-4.2	-1.6	-4.3	97	184 2	243	~	~
•	Bad, Questionable, or Missing Data?	?	104.0	20-12-26 17:00	-4.3	-1.6	-4.4	96	180.7	211	~	~
			-180.7	20-12-26 18:00	-4.4	-1.6	-4.5	97	184.6	217	~	~
			-100.7	20-12-26 19:00	-1.0	-1.6	-4.5	96	107.0	238	~	~
٠	Meta data such as elevation, column	n	3.9	20-12-26 20:00	-4.3	-1.6	-4.5	96	192.2	336	~	~
			5.9	20-12-26 21:00	-4.5	-1.6	-4.5	96	189.0	249	~	~
	explanations?			20-12-26 22:00	-4.6	-1.6	-4.7	96	180.2	351	~	~
				20-12-26 23:00	-5.6	-1.6	-5.6	94	188.7	270	~	~
				20-12-27 00:00	-6.0	-1.6	-6.1	93	188.6	276	~	~
Ob	serve & Record:		Ta Trend	20-12-27 01:00	-6.0	-1.6	-6.1	93	187.3	270	~	~
		_		20-12-27 02:00	-5.7	-1.6	-6.1	92	187.9	238	~	~
				20-12-27 03:00	-5.7	-1.6	-6.1	92	189.8	336	~	~
٠	Scan Ta column for maximum and minimum during interval.			20-12-27 04:00	-5.4	-1.6	-6.1	91	189.6	218	~	~
			Steady	20-12-27 05:00	-5.4	-1.6	-6.1	92	188.8	233	~	~
				20-12-27 06:00	-5.5	-1.6	-6.1	92	189.2	232	~	~
				20-12-27 07:00	-5.5	-1.6	-6.1	90	188.1	233	~	~
				20-12-27 08:00	-5.0	-5.0	-5.6	85	188.6	211	~	~
•	Select present measurements			20-12-27 09:00	-4.8	-4.8	-5.6	85	188.1	246	~	~
	•			20-12-27 10:00	-4.1	-4.1	-5.6	74	187.8	229	~	~
	Make calculated observations		type & rate	20-12-27 11:00	-4.3	-4.1	-5.6	75	187.0	230	~	~
•				20-12-27 12:00	-4.0	-3.7	-5.6 -5.6	77	186.7	231	~	~
				20-12-27 13:00	-4.4 -3.9	-3.7	-5.6	71	186.6	212 213	~	~
	Interpret trends and rates		C 1	20-12-27 14:00		-3.7	-5.6	75	186.4	213	~	~ ~
			54	20-12-27 15:00	-4.1	-3.7	-5.6	70	186.6		~	~ ~
Interpret trends and rates				20-12-27 16:00	-4.3 -4.3	-3.7 -3.7		69	186.7	216	~	~
			20-12-27 17:00			-5.6	69	186.6	222	~	~	
				20-12-27 18:00	-3.8 -4.1	-3.7 -3.7	-5.6 -5.6	63 78	185.9 185.8	224	~	~
	©2020 snow knowledge inc			20-12-27 19:00	-4.1	-3.7	-5.0	/0	103.0	210	~	~ .

# THE END

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