Title: Stream and air temperature data from stream gages and stream confluences in the Andrews Experimental Forest, 1950 to present

Abstract:

Stream and air temperature are measured in tandem at stream gauging stations and other selected locations and stream confluences within the Andrews Forest. Air temperature is generally measured over the stream or alongside. Currently, mean, max and min water and air temperature data are collected every 5 minutes at the gauging stations and instantaneous temperatures every 15 minutes at all other sites. Most measurements were collected hourly commencing in the later 1990s, but a few sites have daily data beginning in the late 1970s. Historic data collected 1949 to 1981 at Lookout Creek stream gauge are included with the daily summary data. Other Andrews Forest related databases: Long term air temperature data from the reference and benchmark climate stations are also available in MS001. Previous high resolution stream temperature data at some of the small watershed stream gages are available in HT001 and stream temperature data throughout the Andrews Forest stream networks during several years are available in HT002.

Keywords: Air temperature; Climate data; Ecosystem monitoring; Microclimate; Stream gradient; Water temperature; Disturbance; Climatology; Microclimate; Stream order; Air temperature; Water temperature; Disturbance; Monitoring; Ecosystems;

Date data commenced: 1976-08-11

Date data terminated: 2019-10-01

Principal Investigator: Sherri L. Johnson

List of Entities:

1. Air temperature (daily)
11. Air temperature (fine temporal resolution)
41. Stream temperature (daily)
51. Stream temperature (fine temporal resolution)

<table>
<thead>
<tr>
<th>Attribute List:</th>
</tr>
</thead>
<tbody>
<tr>
<td>DBCODE N N char(5) enum</td>
</tr>
<tr>
<td>ENTITY N N numeric(2,0) range 1.0000 1.0000 number</td>
</tr>
<tr>
<td>SITECODE N N char(6) place</td>
</tr>
<tr>
<td>AIRTEMP_METHOD N char(6) enum</td>
</tr>
<tr>
<td>HEIGHT N N numeric(4,0) range 100.0000 450.0000 cm</td>
</tr>
<tr>
<td>QC_LEVEL N N char(2) enum</td>
</tr>
<tr>
<td>PROBE_CODE Y N char(8) enum</td>
</tr>
<tr>
<td>DATE Y N datetime range 8/11/19769/30/2019 AM 12:00:00 AM YYYY-MM-DD</td>
</tr>
<tr>
<td>AIRTEMP_MEAN_DAY Y numeric(5,1) range -16.8000 26.3000 deg c</td>
</tr>
<tr>
<td>AIRTEMP_MEAN_FLAG N char(1) enum</td>
</tr>
<tr>
<td>AIRTEMP_MAX_DAY N numeric(5,1) range -14.2000 41.2000 deg c</td>
</tr>
<tr>
<td>AIRTEMP_MAX_FLAG N char(1) enum</td>
</tr>
<tr>
<td>AIRTEMP_MAXTIME N char(4) freetext</td>
</tr>
<tr>
<td>AIRTEMP_MIN_DAY N numeric(5,1) range -20.2000 21.7000 deg c</td>
</tr>
<tr>
<td>AIRTEMP_MIN_FLAG N char(1) enum</td>
</tr>
</tbody>
</table>
### 11. Air temperature (fine temporal resolution)

Data is provided through an interactive application (GLITCH)

**Attribute List:**
- **DBCODE**: char(5) enum
- **ENTITY**: numeric(2,0) range 11.0000 11.0000 number
- **SITECODE**: char(6) place
- **AIRTEMP_METHOD**: char(6) enum
- **HEIGHT**: numeric(4,0) range 200.0000 450.0000 cm
- **QC_LEVEL**: char(2) enum
- **PROBE_CODE**: char(8) enum
- **DATE_TIME**: datetime range 12/6/1994 10/1/2019 4:00:00 12:00:00 PM AM
- **AIRTEMP_MEAN**: numeric(5,1) range -19.7000 38.6000 deg c
- **AIRTEMP_MEAN_FLAG**: char(1) enum
- **AIRTEMP_MAXDAY**: numeric(5,1) range -1.8000 25.0000 deg c
- **AIRTEMP_MAXFLAG**: char(1) enum
- **AIRTEMP_MINTIME**: char(4) freetext
- **AIRTEMP_MINDAY**: numeric(5,1) range -1.8000 19.0000 deg c
- **AIRTEMP_MINFLAG**: char(1) enum
- **AIRTEMP_MINTIME**: char(4) freetext

### 41. Stream temperature (daily)

Includes legacy Lookout Creek USGS data 1950-1981 (1955-1963 missing)

**Attribute List:**
- **DBCODE**: char(5) enum
- **ENTITY**: numeric(2,0) range 41.0000 41.0000 number
- **SITECODE**: char(6) place
- **WATERTEMP_METHOD**: char(6) enum
- **QC_LEVEL**: char(2) enum
- **PROBE_CODE**: char(8) enum
- **DATE**: datetime range 10/1/1949 9/30/2019 12:00:00 12:00:00 AM AM
- **WATERTEMP_MEAN_DAY**: numeric(5,1) range -1.8000 19.4000 deg c
- **WATERTEMP_MEAN_FLAG**: char(1) enum
- **WATERTEMP_MAXDAY**: numeric(5,1) range -1.8000 25.0000 deg c
- **WATERTEMP_MAXFLAG**: char(1) enum
- **WATERTEMP_MINTIME**: char(4) freetext
- **WATERTEMP_MIN_DAY**: numeric(5,1) range -1.8000 19.0000 deg c
- **WATERTEMP_MIN_FLAG**: char(1) enum
- **WATERTEMP_MINTIME**: char(4) freetext
### 51. Stream temperature (fine temporal resolution)

Data is provided through an interactive application (GLITCH)

**Attribute List:**

<table>
<thead>
<tr>
<th>Attribute</th>
<th>Type</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>EVENT_CODE</td>
<td>N N char(6) enum</td>
<td></td>
</tr>
<tr>
<td>DATE_TIME</td>
<td>Y N datetime</td>
<td>range 12/6/1994 10/1/2019 4:00:00 12:00:00 AM YYYY-MM-DD hh:mm:ss</td>
</tr>
<tr>
<td>QC_LEVEL</td>
<td>N N char(2) enum</td>
<td></td>
</tr>
<tr>
<td>SITECODE</td>
<td>N N char(6) place</td>
<td></td>
</tr>
<tr>
<td>WATERTEMP_METHOD</td>
<td>N char(6) enum</td>
<td></td>
</tr>
<tr>
<td>ENTITY</td>
<td>N N numeric(2,0) range 51.0000 51.0000 number</td>
<td></td>
</tr>
<tr>
<td>DBCODE</td>
<td>N N char(5) enum</td>
<td></td>
</tr>
<tr>
<td>PROBE_CODE</td>
<td>Y N char(8) enum</td>
<td></td>
</tr>
<tr>
<td>WATERTEMP_MEAN</td>
<td>Y numeric(5,1) range</td>
<td>-2.2000 24.9000 deg c</td>
</tr>
<tr>
<td>WATERTEMP_MEAN_FLAG</td>
<td>N char(1) enum</td>
<td></td>
</tr>
<tr>
<td>EVENT_CODE</td>
<td>N N char(6) enum</td>
<td></td>
</tr>
</tbody>
</table>

**Attributes Definitions:**

- **AIRTEMP_MAX_DAY**
  - Maximum air temperature for the day

- **AIRTEMP_MAX_FLAG**
  - Maximum air temperature flag

- **AIRTEMP_MAXTIME**
  - Time of day (HHMM) in Pacific Standard Time (PST) of maximum air temperature

- **AIRTEMP_MEAN**
  - Mean air temperature over the last interval (e.g., 5 minutes)

- **AIRTEMP_MEAN_DAY**
  - Mean air temperature for the day

- **AIRTEMP_MEAN_FLAG**
  - Mean air temperature flag

- **AIRTEMP_METHOD**
  - An indication of the general methodology and instrumentation used to collect this air temperature data

- **AIRTEMP_MIN_DAY**
  - Minimum air temperature for the day

- **AIRTEMP_MIN_FLAG**
  - Minimum air temperature flag

- **AIRTEMP_MINTIME**
  - Time of day (HHMM) in Pacific Standard Time (PST) of minimum air temperature

- **DATE**
  - Date in format YYYY-MM-DD
DATE

DATE_TIME
Date and time (PST) of probe reading

DBCODE
FSDB database code

ENTITY
Entity number

EVENT_CODE
Type of comment that exists independently for any event, disruption in protocol, or unusual conditions that occur at the given date or time and may have an effect on the data values

HEIGHT
Height of sensor from ground surface

PROBE_CODE
Probe number code indicates the measurement type, site, and sensor number (e.g., AIRGS101)

QC_LEVEL
Quality control flag indicates level of quality checking performed including an indication of "provisional" data.

SITECODE
Site code for the meteorological measurement station

WATERTEMP_MAX_DAY
Maximum water temperature for the day

WATERTEMP_MAX_FLAG
Maximum water temperature flag

WATERTEMP_MAXTIME
Time of day (HHMM) in Pacific Standard Time (PST) of maximum water temperature

WATERTEMP_MEAN
Mean water temperature over the last interval (e.g., 5 minutes)

WATERTEMP_MEAN_DAY
Mean water temperature for the day

WATERTEMP_MEAN_FLAG
Mean water temperature flag

WATERTEMP_METHOD
An indication of the general methodology and instrumentation used to collect this water temperature data

WATERTEMP_MIN_DAY
Minimum water temperature for the day

WATERTEMP_MIN_FLAG
Minimum water temperature flag

WATERTEMP_MINTIME
Time of day (HHMM) in Pacific Standard Time (PST) of minimum water temperature
Enumerated Domains:

Enumerated Domain for Attribute: AIRTEMP_MEAN_FLAG
A  Accepted value has passed all QC tests applied as represented by the quality level
B  Sensor buried in snow; value is the snow temperature
E  Estimated value
M  Missing value
Q  Questionable value
S  Daily value based on 24 hour period defined from sunrise to sunrise

Enumerated Domain for Attribute: AIRTEMP_MAX_FLAG
A  Accepted value has passed all QC tests applied as represented by the quality level
B  Sensor buried in snow; value is the snow temperature
E  Estimated value
M  Missing value
Q  Questionable value
S  Daily value based on 24 hour period defined from sunrise to sunrise

Enumerated Domain for Attribute: AIRTEMP_MIN_FLAG
A  Accepted value has passed all QC tests applied as represented by the quality level
B  Sensor buried in snow; value is the snow temperature
E  Estimated value
M  Missing value
Q  Questionable value
S  Daily value based on 24 hour period defined from sunrise to sunrise

Enumerated Domain for Attribute: PROBE_CODE
WATGSL01  Stream temperature at GSLOOK, probe no. 01
WATGSL02  Stream temperature at GSLOOK, probe no. 02, maintained by USGS, legacy data 1950-1981 (missing 1955-1963)
WATGSM01  Stream temperature at GSMACK, probe no. 01, downstream of flume in sampling pool
WATGS001  Stream temperature at GSWS10, probe no. 01, upstream of flume
WATGS101  Stream temperature at GSWS01, probe no. 01, downstream of flume
WATGS201  Stream temperature at GSWS02, probe no. 01, downstream of flume in sampling pool
WATGS301  Stream temperature at GSWS03, probe no. 01, downstream of flume
WATGS601  Stream temperature at GSWS06, probe no. 01, upstream of flume
WATGS701  Stream temperature at GSWS07, probe no. 01, downstream of flume
WATGS801  Stream temperature at GSWS08, probe no. 01, open canopy, discontinued 2001
WATGS802  Stream temperature at GSWS08, probe no. 02, upstream of flume
WATLMA01  Stream temperature at TSLOMA, probe no. 01 located in Lookout Cr. above the confluence with Mack Cr.
WATLMA02  Stream temperature at TSLOMA, probe no. 02 located in Mack Cr. above the confluence with Lookout Cr.
WATLMC01  Stream temperature at TSLOMC, probe no. 01 located in Lookout Cr. above the confluence with McRae Cr., discontinued 1996
WATLMC02  Stream temperature at TSLOMC, probe no. 02 located in McRae Cr. above the confluence with Lookout Cr., discontinued 1996
WATTGR01  Stream temperature at TSGRAS, probe no. 01, discontinued 1987
WATTL001  Stream temperature at TSLOOK, probe no. 01
WATTMA01  Stream temperature at TSMACK, probe no. 01, discontinued 1994
WATMC01   Stream temperature at TSMCRA, probe no. 01, discontinued 2015
WATTQZ01  Stream temperature at TSQRTZ, probe no. 01, discontinued 1994
AIRGS001  Air temperature at GSWS10, probe no. 01 at height 400 cm
AIRGS101  Air temperature at GSWS01, probe no. 01 at height 305 cm
AIRGS201  Air temperature at GSWS02, probe no. 01 at height 450 cm
AIRGS301  Air temperature at GSWS03, probe no. 01 at height 295 cm
AIRGS601  Air temperature at GSWS06, probe no. 01 at height 240 cm
AIRGS701  Air temperature at GSWS07, probe no. 01 at height 255 cm
AIRGS801  Air temperature at GSWS08, probe no. 01 at height 370 cm
AIRGSL01  Air temperature at GSLOOK, probe no. 01 at height 395 cm
AIRGSM01  Air temperature at GSMACK, probe no. 01 at height 350 cm
AIRLMA01  Air temperature at TSLOMA, probe no. 01 at height 350 cm, discontinued 2017
AIRLMC01  Air temperature at TSLOMC, probe no. 01 at height 365 cm, discontinued 1996
AIRTGR01  Air temperature at TSGRAS, probe no. 01 at height 100 cm, discontinued 1987
AIRTL001  Air temperature at TSLOOK, probe no. 01 at height 240 cm, discontinued 2017
AIRTMA01  Air temperature at TSMACK, probe no. 01 at height 200 cm, discontinued 1995
AIRTMC01  Air temperature at TSMCRA, probe no. 01 at height 200 cm, discontinued 2015
AIRTQZ01  Air temperature at TSQRTZ, probe no. 01 at height 100 cm, discontinued 1994
WATGSL03  Stream temperature at GSLOOK, probe no. 03, established 2016 at the Lookout Creek gauging station
WATTMA02  Stream temperature at TSMACK, probe no. 02, established 2016 upstream of the gauging station
WATMCB01  Stream temperature at TSMCBR, probe no. 01, established 2017 near McRae Bridge
WATCLD01  Stream temperature at TSCOLD, probe no. 01, established 2016 on Cold Creek
WATLMC03  Stream temperature at TSLOMC, probe no. 03, established 2017 on Lookout Creek above the Lookout-McRae confluence
AIRTLO02  Air temperature at TSLOOK, probe no. 02 at height 200 cm, established 2017 at upper Lookout site
AIRLMA02  Air temperature at TSLOMA, probe no. 02 at height 200 cm, established 2017 over Mack Creek at the Lookout-Mack confluence site

Enumerated Domain for Attribute: DBCODE
HT004    Study code HT004
Enumerated Domain for Attribute: AIRTEMP_METHOD

**AIR818** Mean daily air temperature is calculated by the Campbell Scientific datalogger based on 10 second samples. Max-min values are based on instantaneous 10 second readings. CS Model 107; PVC radiation shield; 395 cm height (See method AIR718)

**AIR807** Mean daily, max and min air temperature is calculated by the Campbell Scientific datalogger based on 10 second samples. Instrument is type T thermocouple wire housed in a locally designed PVC radiation shield at 395 cm height (Daily output only)

**AIR814** Mean daily air temperature is calculated by the Campbell Scientific datalogger based on 10 second samples. Max-min values are based on instantaneous 10 second readings. CS Model 107; PVC radiation shield; 305 cm height (See method AIR714)

**AIR815** Mean daily air temperature is calculated by the Campbell Scientific datalogger based on 10 second samples. Max-min values are based on instantaneous 10 second readings. CS Model 107; PVC radiation shield; 350 cm height (See method AIR715)

**AIR838** Mean daily air temperature is post-calculated from all 5 minute values, and max-min values are determined based on all instantaneous 10 second readings. CS Model 107; PVC radiation shield; 450 cm height (See method AIR738)

**AIR810** Mean daily air temperature is calculated by the Campbell Scientific datalogger based on 10 second samples. Max-min values are based on instantaneous 10 second readings. CS Model 107; PVC radiation shield; 240 cm height (See method AIR710)

**AIR812** Mean daily air temperature is calculated by the Campbell Scientific datalogger based on 10 second samples. Max-min values are based on instantaneous 10 second readings. CS Model 107; PVC radiation shield; 255 cm height (See method AIR712)

**AIR817** Mean daily air temperature is calculated by the Campbell Scientific datalogger based on 10 second samples. Max-min values are based on instantaneous 10 second readings. CS Model 107; PVC radiation shield; 370 cm height (See method AIR717)

**AIR811** Mean daily air temperature is calculated by the Campbell Scientific datalogger based on 10 second samples. Max-min values are based on instantaneous 10 second readings. CS Model 107; PVC radiation shield; 250 cm height (See method AIR711)

**AIR801** Mean, max and min daily (sunrise to sunrise) air temperature is determined from digitizing circular Partlow charts. Temperature is recorded by a Dual Recording Thermometer Model RFHTT with mercury bulb at 100 cm height in small shelter and corrected.

**AIR816** Mean daily air temperature is calculated by the Campbell Scientific datalogger based on 10 second samples. Max-min values are based on instantaneous 10 second readings. CS Model 107; PVC radiation shield; 365 cm height (See method AIR716)

**AIR806** Mean, max and min daily air temperature is determined from digitizing circular Partlow charts. Temperature is recorded by a Dual Recording Thermometer Model RFHTT with mercury bulb at 300 cm height in small shelter on tree and corrected to standard rdg.

**AIR826** Mean daily air temperature is calculated by the Campbell Scientific datalogger based on 10 second samples. Max-min values are based on instantaneous 10 second readings. CS Model 107; PVC radiation shield; 395 cm height (See method AIR726)

**AIR824** Mean daily air temperature is calculated by the Campbell Scientific datalogger based on 10 second samples. Max-min values are based on instantaneous 10 second readings. CS Model 107; PVC radiation shield; 305 cm height (See method AIR724)

**AIR834** Mean daily air temperature is post-calculated from all 5 minute values, and max-min values are determined based on all instantaneous 10 second readings. CS Model 107; PVC radiation shield; 305 cm height (See method AIR734)

**AIR820** Mean daily air temperature is calculated by the Campbell Scientific datalogger based on 10 second samples. Max-min values are based on instantaneous 10 second readings. CS Model 107; PVC radiation shield; 450 cm height (See method AIR720)
AIR823 Mean daily air temperature is calculated by the Campbell Scientific datalogger based on 10 second samples. Max-min values are based on instantaneous 10 second readings. CS Model 107; PVC radiation shield; 295 cm height (See method AIR723)

AIR821 Mean daily air temperature is calculated by the Campbell Scientific datalogger based on 10 second samples. Max-min values are based on instantaneous 10 second readings. CS Model 107; PVC radiation shield; 240 cm height (See method AIR721)

AIR822 Mean daily air temperature is calculated by the Campbell Scientific datalogger based on 10 second samples. Max-min values are based on instantaneous 10 second readings. CS Model 107; PVC radiation shield; 255 cm height (See method AIR722)

AIR825 Mean daily air temperature is calculated by the Campbell Scientific datalogger based on 10 second samples. Max-min values are based on instantaneous 10 second readings. CS Model 107; PVC radiation shield; 370 cm height (See method AIR725)

AIR819 Mean daily air temperature is calculated by the Campbell Scientific datalogger based on 10 second samples. Max-min values are based on instantaneous 10 second readings. CS Model 107; PVC radiation shield; 400 cm height (See method AIR719)

AIR827 Mean daily air temperature is calculated by the Campbell Scientific datalogger based on 10 second samples. Max-min values are based on instantaneous 10 second readings. CS Model 107; PVC radiation shield; 400 cm height (See method AIR727)

AIR802 Mean, max and min daily air temperature is determined from digitizing circular Partlow charts. Temperature is recorded by a Dual Recording Thermometer Model RFHTT with mercury bulb at 100 cm height in small shelter on tree and corrected to standard rdg.

AIR809 Mean daily air temperature is calculated by the Campbell Scientific datalogger based on 10 second samples. Max-min values are based on instantaneous 10 second readings. CS Model 107; PVC radiation shield; 200 cm height (See method AIR709)

AIR808 Mean daily air temperature is calculated by the Campbell Scientific datalogger based on 10 second samples. Max-min values are based on instantaneous 10 second readings. Thermocouple wire; PVC radiation shield; 395 cm height (See method AIR708)

AIR836 Mean daily air temperature is post-calculated from all 5 minute values, and max-min values are determined based on all instantaneous 10 second readings. CS Model 107; PVC radiation shield; 395 cm height (See method AIR736)

AIR828 Mean daily air temperature is calculated by the Campbell Scientific datalogger based on 10 second samples. Max-min values are based on instantaneous 10 second readings. CS Model 107; PVC radiation shield; 450 cm height (See method AIR728)

AIR833 Mean daily air temperature is post-calculated from all 5 minute values, and max-min values are determined based on all instantaneous 10 second readings. CS Model 107; PVC radiation shield; 295 cm height (See method AIR733)

AIR831 Mean daily air temperature is post-calculated from all 5 minute values, and max-min values are determined based on all instantaneous 10 second readings. CS Model 107; PVC radiation shield; 240 cm height (See method AIR731)

AIR832 Mean daily air temperature is post-calculated from all 5 minute values, and max-min values are determined based on all instantaneous 10 second readings. CS Model 107; PVC radiation shield; 255 cm height (See method AIR732)

AIR835 Mean daily air temperature is post-calculated from all 5 minute values, and max-min values are determined based on all instantaneous 10 second readings. CS Model 107; PVC radiation shield; 370 cm height (See method AIR735)

AIR837 Mean daily air temperature is post-calculated from all 5 minute values, and max-min values are determined based on all instantaneous 10 second readings. CS Model 107; PVC radiation shield; 400 cm height (See method AIR737)

AIR805 Mean, max and min daily air temperature is determined from digitizing circular Partlow charts. Temperature is recorded by a Dual Recording Thermometer Model RFHTT with mercury bulb at 240 cm height in small shelter on tree and corrected to standard rdg.

AIR804 Mean, max and min daily air temperature is determined from digitizing circular Partlow charts. Temperature is recorded by a Dual Recording Thermometer Model RFHTT with mercury bulb at 200 cm height in small shelter on tree and corrected to standard rdg.

AIR803 Mean, max and min daily air temperature is determined from digitizing circular
Partlow charts. Temperature is recorded by a Dual Recording Thermometer Model RFHTT with mercury bulb at 160 cm height in small shelter on tree and corrected to standard rdg.

AIR708  Air temperature is sampled by type T thermocouple soldered from thermocouple wire housed in a locally designed PVC radiation shield at 395 cm height with a Campbell Scientific data logger; mean temperature is output every 60 minutes

AIR709  Air temperature is sampled by a Campbell Scientific model 107 thermistor housed in a locally designed PVC radiation shield at 200 cm height; mean temperature is output every 60 minutes

AIR710  Air temperature is sampled by a Campbell Scientific model 107 thermistor housed in a locally designed PVC radiation shield at 240 cm height; mean temperature is output every 60 minutes

AIR711  Air temperature is sampled by a Campbell Scientific model 107 thermistor housed in a locally designed PVC radiation shield at 250 cm height; mean temperature is output every 60 minutes

AIR712  Air temperature is sampled by a Campbell Scientific model 107 thermistor housed in a locally designed PVC radiation shield at 255 cm height; mean temperature is output every 60 minutes

AIR713  Air temperature is sampled by a Campbell Scientific model 107 thermistor housed in a locally designed PVC radiation shield at 295 cm height; mean temperature is output every 60 minutes

AIR714  Air temperature is sampled by a Campbell Scientific model 107 thermistor housed in a locally designed PVC radiation shield at 305 cm height; mean temperature is output every 60 minutes

AIR715  Air temperature is sampled by a Campbell Scientific model 107 thermistor housed in a locally designed PVC radiation shield at 350 cm height; mean temperature is output every 60 minutes

AIR716  Air temperature is sampled by a Campbell Scientific model 107 thermistor housed in a locally designed PVC radiation shield at 365 cm height; mean temperature is output every 60 minutes

AIR717  Air temperature is sampled by a Campbell Scientific model 107 thermistor housed in a locally designed PVC radiation shield at 370 cm height; mean temperature is output every 60 minutes

AIR718  Air temperature is sampled by a Campbell Scientific model 107 thermistor housed in a locally designed PVC radiation shield at 375 cm height; mean temperature is output every 60 minutes

AIR719  Air temperature is sampled by a Campbell Scientific model 107 thermistor housed in a locally designed PVC radiation shield at 400 cm height; mean temperature is output every 60 minutes

AIR720  Air temperature is sampled by a Campbell Scientific model 107 thermistor housed in a locally designed PVC radiation shield at 450 cm height; mean temperature is output every 60 minutes

AIR721  Air temperature is sampled by a Campbell Scientific model 107 thermistor housed in a locally designed PVC radiation shield at 240 cm height; mean temperature is output every 15 minutes

AIR722  Air temperature is sampled by a Campbell Scientific model 107 thermistor housed in a locally designed PVC radiation shield at 255 cm height; mean temperature is output every 15 minutes

AIR723  Air temperature is sampled by a Campbell Scientific model 107 thermistor housed in a locally designed PVC radiation shield at 295 cm height; mean temperature is output every 15 minutes

AIR724  Air temperature is sampled by a Campbell Scientific model 107 thermistor housed in a locally designed PVC radiation shield at 305 cm height; mean temperature is output every 15 minutes

AIR725  Air temperature is sampled by a Campbell Scientific model 107 thermistor housed in a locally designed PVC radiation shield at 370 cm height; mean temperature is output every 15 minutes

AIR726  Air temperature is sampled by a Campbell Scientific model 107 thermistor housed in a locally designed PVC radiation shield at 395 cm height; mean temperature is output every 15 minutes

AIR727  Air temperature is sampled by a Campbell Scientific model 107 thermistor housed in a locally designed PVC radiation shield at 400 cm height; mean temperature is output every 15 minutes

AIR728  Air temperature is sampled by a Campbell Scientific model 107 thermistor housed in a locally designed PVC radiation shield at 450 cm height; mean temperature is output every 15 minutes

AIR731  Air temperature is sampled by a Campbell Scientific model 107 thermistor
housed in a locally designed PVC radiation shield at 240 cm height; mean, min, max temperature is output every 5 minutes

AIR732 Air temperature is sampled by a Campbell Scientific model 107 thermistor housed in a locally designed PVC radiation shield at 255 cm height; mean, min, max temperature is output every 5 minutes

AIR733 Air temperature is sampled by a Campbell Scientific model 107 thermistor housed in a locally designed PVC radiation shield at 295 cm height; mean, min, max temperature is output every 5 minutes

AIR734 Air temperature is sampled by a Campbell Scientific model 107 thermistor housed in a locally designed PVC radiation shield at 305 cm height; mean, min, max temperature is output every 5 minutes

AIR735 Air temperature is sampled by a Campbell Scientific model 107 thermistor housed in a locally designed PVC radiation shield at 370 cm height; mean, min, max temperature is output every 5 minutes

AIR736 Air temperature is sampled by a Campbell Scientific model 107 thermistor housed in a locally designed PVC radiation shield at 395 cm height; mean, min, max temperature is output every 5 minutes

AIR737 Air temperature is sampled by a Campbell Scientific model 107 thermistor housed in a locally designed PVC radiation shield at 400 cm height; mean, min, max temperature is output every 5 minutes

AIR738 Air temperature is sampled by a Campbell Scientific model 107 thermistor housed in a locally designed PVC radiation shield at 450 cm height; mean, min, max temperature is output every 5 minutes

AIR839 Mean daily air temperature is calculated by the Campbell Scientific datalogger based on 10 second samples. Max-min values are based on instantaneous 10 second readings. CS Model 107; Gill radiation shield; 200 cm height (See method AIR739)

AIR840 Mean daily air temperature is calculated by the Campbell Scientific datalogger based on 10 second samples. Max-min values are based on instantaneous 10 second readings. CS Model 107; Gill radiation shield; 240 cm height (See method AIR740)

AIR841 Mean daily air temperature is calculated by the Campbell Scientific datalogger based on 10 second samples. Max-min values are based on instantaneous 10 second readings. CS Model 107; Gill radiation shield; 395 cm height (See method AIR741)

AIR842 Mean daily air temperature is calculated by the Campbell Scientific datalogger based on 10 second samples. Max-min values are based on instantaneous 10 second readings. CS Model 107; Gill radiation shield; 395 cm height (See method AIR742)

AIR843 Mean daily air temperature is post-calculated from all 5 minute values, and max-min values are determined based on all instantaneous 10 second readings. CS Model 107; Gill radiation shield; 395 cm height (See method AIR743)

AIR844 Mean daily air temperature is post-calculated from all 5 minute values, and max-min values are determined based on all instantaneous 10 second readings. CS Model 107; Gill radiation shield; 350 cm height (See method AIR744)

AIR845 Mean daily air temperature is post-calculated from all instantaneous 15 minute values, and max-min values are determined based on all instantaneous 15 minute readings. Onset HOBO V2; RS1 7-Gill radiation shield; 200 cm height (See method AIR745)

AIR739 Air temperature is sampled by a Campbell Scientific model 107 thermistor housed in a R.M. Young Gill radiation shield at 200 cm height; mean temperature is output every 60 minutes

AIR740 Air temperature is sampled by a Campbell Scientific model 107 thermistor housed in a R.M. Young Gill radiation shield at 240 cm height; mean temperature is output every 60 minutes

AIR741 Air temperature is sampled by a Campbell Scientific model 107 thermistor housed in a R.M. Young Gill radiation shield at 350 cm height; mean temperature is output every 60 minutes

AIR742 Air temperature is sampled by a Campbell Scientific model 107 thermistor housed in a R.M. Young Gill radiation shield at 395 cm height; mean temperature is output every 60 minutes

AIR743 Air temperature is sampled by a Campbell Scientific model 107 thermistor housed in a R.M. Young Gill radiation shield at 395 cm height; mean, min, max temperature is output every 5 minutes

AIR744 Air temperature is sampled by a Campbell Scientific model 107 thermistor housed in a R.M. Young Gill radiation shield at 350 cm height; mean, min, max temperature is output every 5 minutes
Air temperature is sampled by an Onset HOBO Water Temp V2 housed in an RS1 7-gill radiation shield at 200 cm height attached to a boom extending out from a tree directly over the stream sensor; instantaneous temperature is output every 15 minutes.

Enumerated Domain for Attribute: QC_LEVEL
1A Data is published and unlikely to change - automated range checking and manual review has been conducted. Quality is indicated in data value qualifier flags.
1D Data is published and unlikely to change - data is derived or aggregated from published data of level 1A
1P Data is provisional and subject to revision - preliminary quality checks have been performed
2A Data is published and unlikely to change - Level 1A data has been modified such that data gaps may be filled or problem data may be removed
2D Data is published and unlikely to change - data is derived or aggregated from published data of level 2A

Enumerated Domain for Attribute: EVENT_CODE
CALIBR Associated with the inspection or replacement of sensors for calibration
INSREM Sensor is installed or removed
LOGGER Change in data logger, data logger program, or wiring
MAINTEN A maintenance event has occurred
METHOD Change in data collection method
NA No event is reported (not applicable)
QUALTY Event may directly affect data quality
WEATHER A weather event has occurred that may affect reading

Enumerated Domain for Attribute: AIRTEMP_MEAN_FLAG
A Accepted value has passed all QC tests applied as represented by the quality level
B Sensor buried in snow; value is the snow temperature
E Estimated value
M Missing value
Q Questionable value
S Daily value based on 24 hour period defined from sunrise to sunrise

Enumerated Domain for Attribute: PROBE_CODE
WATGSL01 Stream temperature at GSLOOK, probe no. 01
WATGSL02 Stream temperature at GSLOOK, probe no. 02, maintained by USGS, legacy data 1950-1981 (missing 1955-1963)
WATGSM01 Stream temperature at GSMACK, probe no. 01, downstream of flume in sampling pool
WATGS001 Stream temperature at GSWS10, probe no. 01, upstream of flume
WATGS101 Stream temperature at GSWS01, probe no. 01, downstream of flume
WATGS201 Stream temperature at GSWS02, probe no. 01, downstream of flume in sampling pool
WATGS301 Stream temperature at GSWS03, probe no. 01, downstream of flume
WATGS601 Stream temperature at GSWS06, probe no. 01, upstream of flume
WATGS701 Stream temperature at GSWS07, probe no. 01, downstream of flume
<table>
<thead>
<tr>
<th>Code</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>WATGS801</td>
<td>Stream temperature at GSWS08, probe no. 01, open canopy, discontinued 2001</td>
</tr>
<tr>
<td>WATGS802</td>
<td>Stream temperature at GSWS08, probe no. 02, upstream of flume</td>
</tr>
<tr>
<td>WATLMA01</td>
<td>Stream temperature at TSLOMA, probe no. 01 located in Lookout Cr. above the confluence with Mack Cr.</td>
</tr>
<tr>
<td>WATLMA02</td>
<td>Stream temperature at TSLOMA, probe no. 02 located in Mack Cr. above the confluence with Lookout Cr.</td>
</tr>
<tr>
<td>WATLMC01</td>
<td>Stream temperature at TSLOMC, probe no. 01 located in Lookout Cr. above the confluence with McRae cr., discontinued 1996</td>
</tr>
<tr>
<td>WATLMC02</td>
<td>Stream temperature at TSLOMC, probe no. 02 located in McRae Cr. above the confluence with Lookout Cr., discontinued 1996</td>
</tr>
<tr>
<td>WATTGR01</td>
<td>Stream temperature at TSGRAS, probe no. 01, discontinued 1987</td>
</tr>
<tr>
<td>WATTLO01</td>
<td>Stream temperature at TSLOOK, probe no. 01</td>
</tr>
<tr>
<td>WATTMA01</td>
<td>Stream temperature at TSMACK, probe no. 01, discontinued 1994</td>
</tr>
<tr>
<td>WATTMC01</td>
<td>Stream temperature at TSMCRA, probe no. 01, discontinued 2015</td>
</tr>
<tr>
<td>WATTQZ01</td>
<td>Stream temperature at TSQRTZ, probe no. 01, discontinued 1994</td>
</tr>
<tr>
<td>AIRGS001</td>
<td>Air temperature at GSWS10, probe no. 01 at height 400 cm</td>
</tr>
<tr>
<td>AIRGS101</td>
<td>Air temperature at GSWS01, probe no. 01 at height 305 cm</td>
</tr>
<tr>
<td>AIRGS201</td>
<td>Air temperature at GSWS02, probe no. 01 at height 450 cm</td>
</tr>
<tr>
<td>AIRGS301</td>
<td>Air temperature at GSWS03, probe no. 01 at height 295 cm</td>
</tr>
<tr>
<td>AIRGS601</td>
<td>Air temperature at GSWS06, probe no. 01 at height 240 cm</td>
</tr>
<tr>
<td>AIRGS701</td>
<td>Air temperature at GSWS07, probe no. 01 at height 255 cm</td>
</tr>
<tr>
<td>AIRGS801</td>
<td>Air temperature at GSWS08, probe no. 01 at height 370 cm</td>
</tr>
<tr>
<td>AIRGSL01</td>
<td>Air temperature at GSLOOK, probe no. 01 at height 395 cm</td>
</tr>
<tr>
<td>AIRGSM01</td>
<td>Air temperature at GSMACK, probe no. 01 at height 350 cm</td>
</tr>
<tr>
<td>AIRLMA01</td>
<td>Air temperature at TSLOMA, probe no. 01 at height 350 cm, discontinued 2017</td>
</tr>
<tr>
<td>AIRLMC01</td>
<td>Air temperature at TSLOMC, probe no. 01 at height 365 cm, discontinued 1996</td>
</tr>
<tr>
<td>AIRTGR01</td>
<td>Air temperature at TSGRAS, probe no. 01 at height 100 cm, discontinued 1987</td>
</tr>
<tr>
<td>AIRTLO01</td>
<td>Air temperature at TSLOOK, probe no. 01 at height 240 cm, discontinued 2017</td>
</tr>
<tr>
<td>AIRTMA01</td>
<td>Air temperature at TSMACK, probe no. 01 at height 200 cm, discontinued 1995</td>
</tr>
<tr>
<td>AIRTMC01</td>
<td>Air temperature at TSMCRA, probe no. 01 at height 200 cm, discontinued 2015</td>
</tr>
<tr>
<td>AIRTQZ01</td>
<td>Air temperature at TSQRTZ, probe no. 01 at height 100 cm, discontinued 1994</td>
</tr>
<tr>
<td>WATGSL03</td>
<td>Stream temperature at GSLOOK, probe no. 03, established 2016 at the Lookout Creek gauging station</td>
</tr>
<tr>
<td>WATTMA02</td>
<td>Stream temperature at TSMACK, probe no. 02, established 2016 upstream of the gauging station</td>
</tr>
<tr>
<td>WATMCM01</td>
<td>Stream temperature at TSMCBR, probe no. 01, established 2017 near McRae Bridge</td>
</tr>
<tr>
<td>WATCLD01</td>
<td>Stream temperature at TSCOLD, probe no. 01, established 2016 on Cold Creek</td>
</tr>
<tr>
<td>WATLMC03</td>
<td>Stream temperature at TSLOMC, probe no. 03, established 2017 on Lookout Creek above the Lookout-McRae confluence</td>
</tr>
<tr>
<td>AIRTLO02</td>
<td>Air temperature at TSLOOK, probe no. 02 at height 200 cm, established 2017 at upper Lookout site</td>
</tr>
<tr>
<td>AIRLMA02</td>
<td>Air temperature at TSLOMA, probe no. 02 at height 200 cm, established 2017</td>
</tr>
</tbody>
</table>
over Mack Creek at the Lookout-Mack confluence site

Enumerated Domain for Attribute: DBCODE
HT004 Study code HT004

Enumerated Domain for Attribute: AIRTEMP_METHOD

AIR818 Mean daily air temperature is calculated by the Campbell Scientific datalogger based on 10 second samples. Max-min values are based on instantaneous 10 second readings. CS Model 107; PVC radiation shield; 395 cm height (See method AIR718)

AIR807 Mean daily, max and min air temperature is calculated by the Campbell Scientific datalogger based on 10 second samples. Instrument is type T thermocouple wire housed in a locally designed PVC radiation shield at 395 cm height (Daily output only)

AIR814 Mean daily air temperature is calculated by the Campbell Scientific datalogger based on 10 second samples. Max-min values are based on instantaneous 10 second readings. CS Model 107; PVC radiation shield; 305 cm height (See method AIR714)

AIR815 Mean daily air temperature is calculated by the Campbell Scientific datalogger based on 10 second samples. Max-min values are based on instantaneous 10 second readings. CS Model 107; PVC radiation shield; 350 cm height (See method AIR715)

AIR838 Mean daily air temperature is post-calculated from all 5 minute values, and max-min values are determined based on all instantaneous 10 second readings. CS Model 107; PVC radiation shield; 450 cm height (See method AIR738)

AIR813 Mean daily air temperature is calculated by the Campbell Scientific datalogger based on 10 second samples. Max-min values are based on instantaneous 10 second readings. CS Model 107; PVC radiation shield; 295 cm height (See method AIR713)

AIR810 Mean daily air temperature is calculated by the Campbell Scientific datalogger based on 10 second samples. Max-min values are based on instantaneous 10 second readings. CS Model 107; PVC radiation shield; 240 cm height (See method AIR710)

AIR812 Mean daily air temperature is calculated by the Campbell Scientific datalogger based on 10 second samples. Max-min values are based on instantaneous 10 second readings. CS Model 107; PVC radiation shield; 255 cm height (See method AIR712)

AIR817 Mean daily air temperature is calculated by the Campbell Scientific datalogger based on 10 second samples. Max-min values are based on instantaneous 10 second readings. CS Model 107; PVC radiation shield; 370 cm height (See method AIR717)

AIR811 Mean daily air temperature is calculated by the Campbell Scientific datalogger based on 10 second samples. Max-min values are based on instantaneous 10 second readings. CS Model 107; PVC radiation shield; 250 cm height (See method AIR711)

AIR801 Mean, max and min daily (sunrise to sunrise) air temperature is determined from digitizing circular Partlow charts. Temperature is recorded by a Dual Recording Thermometer Model RFHTT with mercury bulb at 100 cm height in small shelter and corrected.

AIR816 Mean daily air temperature is calculated by the Campbell Scientific datalogger based on 10 second samples. Max-min values are based on instantaneous 10 second readings. CS Model 107; PVC radiation shield; 365 cm height (See method AIR716)

AIR806 Mean, max and min daily air temperature is determined from digitizing circular Partlow charts. Temperature is recorded by a Dual Recording Thermometer Model RFHTT with mercury bulb at 300 cm height in small shelter on tree and corrected to standard rdg.

AIR826 Mean daily air temperature is calculated by the Campbell Scientific datalogger based on 10 second samples. Max-min values are based on instantaneous 10 second readings. CS Model 107; PVC radiation shield; 395 cm height (See method AIR726)

AIR824 Mean daily air temperature is calculated by the Campbell Scientific datalogger based on 10 second samples. Max-min values are based on instantaneous 10 second readings. CS Model 107; PVC radiation shield; 305 cm height (See method AIR724)

AIR834 Mean daily air temperature is post-calculated from all 5 minute values, and
AIR820 Mean daily air temperature is calculated by the Campbell Scientific datalogger based on 10 second samples. Max-min values are based on instantaneous 10 second readings. CS Model 107; PVC radiation shield; 305 cm height (See method AIR734)

AIR823 Mean daily air temperature is calculated by the Campbell Scientific datalogger based on 10 second samples. Max-min values are based on instantaneous 10 second readings. CS Model 107; PVC radiation shield; 259 cm height (See method AIR723)

AIR821 Mean daily air temperature is calculated by the Campbell Scientific datalogger based on 10 second samples. Max-min values are based on instantaneous 10 second readings. CS Model 107; PVC radiation shield; 240 cm height (See method AIR721)

AIR822 Mean daily air temperature is calculated by the Campbell Scientific datalogger based on 10 second samples. Max-min values are based on instantaneous 10 second readings. CS Model 107; PVC radiation shield; 255 cm height (See method AIR722)

AIR825 Mean daily air temperature is calculated by the Campbell Scientific datalogger based on 10 second samples. Max-min values are based on instantaneous 10 second readings. CS Model 107; PVC radiation shield; 370 cm height (See method AIR725)

AIR819 Mean daily air temperature is calculated by the Campbell Scientific datalogger based on 10 second samples. Max-min values are based on instantaneous 10 second readings. CS Model 107; PVC radiation shield; 400 cm height (See method AIR719)

AIR827 Mean daily air temperature is calculated by the Campbell Scientific datalogger based on 10 second samples. Max-min values are based on instantaneous 10 second readings. CS Model 107; PVC radiation shield; 400 cm height (See method AIR727)

AIR802 Mean, max and min daily air temperature is determined from digitizing circular Partlow charts. Temperature is recorded by a Dual Recording Thermometer Model RFHTT with mercury bulb at 100 cm height in small shelter on tree and corrected to standard rdg.

AIR809 Mean daily air temperature is calculated by the Campbell Scientific datalogger based on 10 second samples. Max-min values are based on instantaneous 10 second readings. CS Model 107; PVC radiation shield; 200 cm height (See method AIR709)

AIR808 Mean daily air temperature is calculated by the Campbell Scientific datalogger based on 10 second samples. Max-min values are based on instantaneous 10 second readings. Thermocouple wire; PVC radiation shield; 395 cm height (See method AIR708)

AIR836 Mean daily air temperature is post-calculated from all 5 minute values, and max-min values are determined based on all instantaneous 10 second readings. CS Model 107; PVC radiation shield; 395 cm height (See method AIR736)

AIR828 Mean daily air temperature is calculated by the Campbell Scientific datalogger based on 10 second samples. Max-min values are based on instantaneous 10 second readings. CS Model 107; PVC radiation shield; 450 cm height (See method AIR728)

AIR833 Mean daily air temperature is post-calculated from all 5 minute values, and max-min values are determined based on all instantaneous 10 second readings. CS Model 107; PVC radiation shield; 295 cm height (See method AIR733)

AIR831 Mean daily air temperature is post-calculated from all 5 minute values, and max-min values are determined based on all instantaneous 10 second readings. CS Model 107; PVC radiation shield; 240 cm height (See method AIR731)

AIR832 Mean daily air temperature is post-calculated from all 5 minute values, and max-min values are determined based on all instantaneous 10 second readings. CS Model 107; PVC radiation shield; 255 cm height (See method AIR732)

AIR835 Mean daily air temperature is post-calculated from all 5 minute values, and max-min values are determined based on all instantaneous 10 second readings. CS Model 107; PVC radiation shield; 370 cm height (See method AIR735)

AIR837 Mean daily air temperature is post-calculated from all 5 minute values, and max-min values are determined based on all instantaneous 10 second readings. CS Model 107; PVC radiation shield; 400 cm height (See method AIR737)

AIR805 Mean, max and min daily air temperature is determined from digitizing circular Partlow charts. Temperature is recorded by a Dual Recording Thermometer Model RFHTT with mercury bulb at 240 cm height in small shelter on tree and
Mean, max and min daily air temperature is determined from digitizing circular Partlow charts. Temperature is recorded by a Dual Recording Thermometer Model RFHTT with mercury bulb at 200 cm height in small shelter on tree and corrected to standard rdg.

AIR803 Mean, max and min daily air temperature is determined from digitizing circular Partlow charts. Temperature is recorded by a Dual Recording Thermometer Model RFHTT with mercury bulb at 160 cm height in small shelter on tree and corrected to standard rdg.

AIR708 Air temperature is sampled by type T thermocouple soldered from thermocouple wire housed in a locally designed PVC radiation shield at 395 cm height with a Campbell Scientific data logger; mean temperature is output every 60 minutes

AIR709 Air temperature is sampled by a Campbell Scientific model 107 thermistor housed in a locally designed PVC radiation shield at 200 cm height; mean temperature is output every 60 minutes

AIR710 Air temperature is sampled by a Campbell Scientific model 107 thermistor housed in a locally designed PVC radiation shield at 240 cm height; mean temperature is output every 60 minutes

AIR711 Air temperature is sampled by a Campbell Scientific model 107 thermistor housed in a locally designed PVC radiation shield at 250 cm height; mean temperature is output every 60 minutes

AIR712 Air temperature is sampled by a Campbell Scientific model 107 thermistor housed in a locally designed PVC radiation shield at 255 cm height; mean temperature is output every 60 minutes

AIR713 Air temperature is sampled by a Campbell Scientific model 107 thermistor housed in a locally designed PVC radiation shield at 295 cm height; mean temperature is output every 60 minutes

AIR714 Air temperature is sampled by a Campbell Scientific model 107 thermistor housed in a locally designed PVC radiation shield at 305 cm height; mean temperature is output every 60 minutes

AIR715 Air temperature is sampled by a Campbell Scientific model 107 thermistor housed in a locally designed PVC radiation shield at 350 cm height; mean temperature is output every 60 minutes

AIR716 Air temperature is sampled by a Campbell Scientific model 107 thermistor housed in a locally designed PVC radiation shield at 365 cm height; mean temperature is output every 60 minutes

AIR717 Air temperature is sampled by a Campbell Scientific model 107 thermistor housed in a locally designed PVC radiation shield at 370 cm height; mean temperature is output every 60 minutes

AIR718 Air temperature is sampled by a Campbell Scientific model 107 thermistor housed in a locally designed PVC radiation shield at 395 cm height; mean temperature is output every 60 minutes

AIR719 Air temperature is sampled by a Campbell Scientific model 107 thermistor housed in a locally designed PVC radiation shield at 400 cm height; mean temperature is output every 60 minutes

AIR720 Air temperature is sampled by a Campbell Scientific model 107 thermistor housed in a locally designed PVC radiation shield at 450 cm height; mean temperature is output every 60 minutes

AIR721 Air temperature is sampled by a Campbell Scientific model 107 thermistor housed in a locally designed PVC radiation shield at 240 cm height; mean temperature is output every 15 minutes

AIR722 Air temperature is sampled by a Campbell Scientific model 107 thermistor housed in a locally designed PVC radiation shield at 255 cm height; mean temperature is output every 15 minutes

AIR723 Air temperature is sampled by a Campbell Scientific model 107 thermistor housed in a locally designed PVC radiation shield at 295 cm height; mean temperature is output every 15 minutes

AIR724 Air temperature is sampled by a Campbell Scientific model 107 thermistor housed in a locally designed PVC radiation shield at 305 cm height; mean temperature is output every 15 minutes

AIR725 Air temperature is sampled by a Campbell Scientific model 107 thermistor housed in a locally designed PVC radiation shield at 370 cm height; mean temperature is output every 15 minutes

AIR726 Air temperature is sampled by a Campbell Scientific model 107 thermistor housed in a locally designed PVC radiation shield at 395 cm height; mean temperature is output every 15 minutes
Air temperature is sampled by a Campbell Scientific model 107 thermistor housed in a locally designed PVC radiation shield at 400 cm height; mean temperature is output every 15 minutes.

Air temperature is sampled by a Campbell Scientific model 107 thermistor housed in a locally designed PVC radiation shield at 450 cm height; mean temperature is output every 15 minutes.

Air temperature is sampled by a Campbell Scientific model 107 thermistor housed in a locally designed PVC radiation shield at 240 cm height; mean, min, max temperature is output every 5 minutes.

Air temperature is sampled by a Campbell Scientific model 107 thermistor housed in a locally designed PVC radiation shield at 255 cm height; mean, min, max temperature is output every 5 minutes.

Air temperature is sampled by a Campbell Scientific model 107 thermistor housed in a locally designed PVC radiation shield at 295 cm height; mean, min, max temperature is output every 5 minutes.

Air temperature is sampled by a Campbell Scientific model 107 thermistor housed in a locally designed PVC radiation shield at 305 cm height; mean, min, max temperature is output every 5 minutes.

Air temperature is sampled by a Campbell Scientific model 107 thermistor housed in a locally designed PVC radiation shield at 370 cm height; mean, min, max temperature is output every 5 minutes.

Air temperature is sampled by a Campbell Scientific model 107 thermistor housed in a locally designed PVC radiation shield at 395 cm height; mean, min, max temperature is output every 5 minutes.

Mean daily air temperature is calculated by the Campbell Scientific datalogger based on 10 second samples. Max-min values are based on instantaneous 10 second readings. CS Model 107; Gill radiation shield; 200 cm height (See method AIR739).

Mean daily air temperature is calculated by the Campbell Scientific datalogger based on 10 second samples. Max-min values are based on instantaneous 10 second readings. CS Model 107; Gill radiation shield; 240 cm height (See method AIR740).

Mean daily air temperature is calculated by the Campbell Scientific datalogger based on 10 second samples. Max-min values are based on instantaneous 10 second readings. CS Model 107; Gill radiation shield; 350 cm height (See method AIR741).

Mean daily air temperature is calculated by the Campbell Scientific datalogger based on 10 second samples. Max-min values are based on instantaneous 10 second readings. CS Model 107; Gill radiation shield; 395 cm height (See method AIR742).

Mean daily air temperature is calculated by the Campbell Scientific datalogger based on 10 second samples. Max-min values are based on instantaneous 10 second readings. CS Model 107; Gill radiation shield; 395 cm height (See method AIR743).

Mean daily air temperature is calculated by the Campbell Scientific datalogger based on 10 second samples. Max-min values are based on instantaneous 10 second readings. CS Model 107; Gill radiation shield; 395 cm height (See method AIR744).

Mean daily air temperature is calculated from all instantaneous 15 minute values, and max-min values are determined based on all instantaneous 15 minute readings. Onset HOBO V2; RS1 7-Gill radiation shield; 200 cm height (See method AIR745).

Air temperature is sampled by a Campbell Scientific model 107 thermistor housed in a R.M. Young Gill radiation shield at 200 cm height; mean temperature is output every 60 minutes.

Air temperature is sampled by a Campbell Scientific model 107 thermistor housed in a R.M. Young Gill radiation shield at 240 cm height; mean temperature is output every 60 minutes.

Air temperature is sampled by a Campbell Scientific model 107 thermistor housed in a R.M. Young Gill radiation shield at 350 cm height; mean temperature is output every 60 minutes.

Air temperature is sampled by a Campbell Scientific model 107 thermistor housed in a R.M. Young Gill radiation shield at 395 cm height; mean temperature is output every 60 minutes.
Temperature is output every 60 minutes.

**AIR743**
Air temperature is sampled by a Campbell Scientific model 107 thermistor housed in a R.M. Young Gill radiation shield at 395 cm height; mean, min, max temperature is output every 5 minutes.

**AIR744**
Air temperature is sampled by a Campbell Scientific model 107 thermistor housed in a R.M. Young Gill radiation shield at 350 cm height; mean, min, max temperature is output every 5 minutes.

**AIR745**
Air temperature is sampled by an Onset HOBO Water Temp V2 housed in an RS1 7-gill radiation shield at 200 cm height attached to a boom extending out from a tree directly over the stream sensor; instantaneous temperature is output every 15 minutes.

**Enumerated Domain for Attribute: QC_LEVEL**

1A - Data is published and unlikely to change - automated range checking and manual review has been conducted. Quality is indicated in data value qualifier flags.
1D - Data is published and unlikely to change - data is derived or aggregated from published data of level 1A.
1P - Data is provisional and subject to revision - preliminary quality checks have been performed.
2A - Data is published and unlikely to change - Level 1A data has been modified such that data gaps may be filled or problem data may be removed.
2D - Data is published and unlikely to change - data is derived or aggregated from published data of level 2A.

**Enumerated Domain for Attribute: EVENT_CODE**

CALIBR - Associated with the inspection or replacement of sensors for calibration.
INSREM - Sensor is installed or removed.
LOGGER - Change in data logger, data logger program, or wiring.
MAINTE - A maintenance event has occurred.
METHOD - Change in data collection method.
NA - No event is reported (not applicable).
QUALTY - Event may directly affect data quality.
WEATHR - A weather event has occurred that may affect reading.

**Enumerated Domain for Attribute: WATERTEMP_MEAN_FLAG**

A - Accepted value has passed all QC tests applied as represented by the quality level.
B - Sensor buried in sediment.
E - Estimated value.
M - Missing value.
S - Daily value based on sunrise to sunrise (not midnight to midnight).
Q - Questionable value.

**Enumerated Domain for Attribute: WATERTEMP_MAX_FLAG**

A - Accepted value has passed all QC tests applied as represented by the quality level.
B - Sensor buried in sediment.
E - Estimated value.
M - Missing value.
S - Daily value based on sunrise to sunrise (not midnight to midnight).
Q  Questionable value

Enumerated Domain for Attribute: WATERTEMP_MIN_FLAG
A  Accepted value has passed all QC tests applied as represented by the quality level
B  Sensor buried in sediment
E  Estimated value
M  Missing value
S  Daily value based on sunrise to sunrise (not midnight to midnight)
Q  Questionable value

Enumerated Domain for Attribute: PROBE_CODE
WATGSL01  Stream temperature at GSLOOK, probe no. 01
WATGSL02  Stream temperature at GSLOOK, probe no. 02, maintained by USGS, legacy data 1950-1981 (missing 1955-1963)
WATGSM01  Stream temperature at GSMACK, probe no. 01, downstream of flume in sampling pool
WATGS001  Stream temperature at GSWS10, probe no. 01, upstream of flume
WATGS101  Stream temperature at GSWS01, probe no. 01, downstream of flume
WATGS201  Stream temperature at GSWS02, probe no. 01, downstream of flume in sampling pool
WATGS301  Stream temperature at GSWS03, probe no. 01, downstream of flume
WATGS601  Stream temperature at GSWS06, probe no. 01, upstream of flume
WATGS701  Stream temperature at GSWS07, probe no. 01, downstream of flume
WATGS801  Stream temperature at GSWS08, probe no. 01, open canopy, discontinued 2001
WATGS802  Stream temperature at GSWS08, probe no. 02, upstream of flume
WATLMA01  Stream temperature at TSLOMA, probe no. 01 located in Lookout Cr. above the confluence with Mack Cr.
WATLMA02  Stream temperature at TSLOMA, probe no. 02 located in Mack Cr. above the confluence with Lookout Cr.
WATLMC01  Stream temperature at TSLOMC, probe no. 01 located in Lookout Cr. above the confluence with McRae cr., discontinued 1996
WATLMC02  Stream temperature at TSLOMC, probe no. 02 located in McRae Cr. above the confluence with Lookout Cr., discontinued 1996
WATTGR01  Stream temperature at TSGRAS, probe no. 01, discontinued 1987
WATTLO01  Stream temperature at TSLOOK, probe no. 01
WATTMA01  Stream temperature at TSMACK, probe no. 01, discontinued 1994
WATTMC01  Stream temperature at TSMCRA, probe no. 01, discontinued 2015
WATTQZ01  Stream temperature at TSQRTZ, probe no. 01, discontinued 1994
AIRGS001  Air temperature at GSWS10, probe no. 01 at height 400 cm
AIRGS101  Air temperature at GSWS01, probe no. 01 at height 305 cm
AIRGS201  Air temperature at GSWS02, probe no. 01 at height 450 cm
AIRGS301  Air temperature at GSWS03, probe no. 01 at height 295 cm
AIRGS601  Air temperature at GSWS06, probe no. 01 at height 240 cm
AIRGS701  Air temperature at GSWS07, probe no. 01 at height 255 cm
AIRGS801  Air temperature at GSWS08, probe no. 01 at height 370 cm
AIRGSLO1  Air temperature at GSLOOK, probe no. 01 at height 395 cm
AIRGSM01  Air temperature at GSMACK, probe no. 01 at height 350 cm
AIRLMA01  Air temperature at TSLOMA, probe no. 01 at height 350 cm, discontinued 2017
AIRLMC01  Air temperature at TSLOMC, probe no. 01 at height 365 cm, discontinued 1996
AIRTGR01  Air temperature at TSGRAS, probe no. 01 at height 100 cm, discontinued 1987
AIRTLO01  Air temperature at TSLOOK, probe no. 01 at height 240 cm, discontinued 2017
AIRTMA01  Air temperature at TSMACK, probe no. 01 at height 200 cm, discontinued 1995
AIRTMC01  Air temperature at TSMCRA, probe no. 01 at height 200 cm, discontinued 2015
AIRTQZ01  Air temperature at TSQRTZ, probe no. 01 at height 100 cm, discontinued 1994
WATGSL03  Stream temperature at GSLOOK, probe no. 03, established 2016 at the Lookout Creek gauging station
WATTMA02  Stream temperature at TSMACK, probe no. 02, established 2016 upstream of the gauging station
WATMCB01  Stream temperature at TSMCBR, probe no. 01, established 2017 near McRae Bridge
WATCLD01  Stream temperature at TSCOLD, probe no. 01, established 2016 on Cold Creek
WATLMC03  Stream temperature at TSLOMC, probe no. 03, established 2017 on Lookout Creek above the Lookout-McRae confluence
AIRTLO02  Air temperature at TSLOOK, probe no. 02 at height 200 cm, established 2017 at upper Lookout site
AIRLMA02  Air temperature at TSLOMA, probe no. 02 at height 200 cm, established 2017 over Mack Creek at the Lookout-Mack confluence site

Enumerated Domain for Attribute: DBCODE
HT004         Study code HT004

Enumerated Domain for Attribute: QC_LEVEL
1A  Data is published and unlikely to change - automated range checking and manual review has been conducted. Quality is indicated in data value qualifier flags.
1D  Data is published and unlikely to change - data is derived or aggregated from published data of level 1A
1P  Data is provisional and subject to revision - preliminary quality checks have been performed
2A  Data is published and unlikely to change - Level 1A data has been modified such that data gaps may be filled or problem data may be removed
2D  Data is published and unlikely to change - data is derived or aggregated from published data of level 2A

Enumerated Domain for Attribute: EVENT_CODE
CALIBR  Associated with the inspection or replacement of sensors for calibration
INSREM  Sensor is installed or removed
LOGGER  Change in data logger, data logger program, or wiring
MAINTEN  A maintenance event has occurred
METHOD  Change in data collection method
NA      No event is reported (not applicable)
QUALTY  Event may directly affect data quality
A weather event has occurred that may affect reading

Enumerated Domain for Attribute: WATERTEMP_METHOD

WAT007 Stream temperature is sampled by a Campbell Scientific model 107 thermistor secured in the stream inside a colander-like metal pipe shade shelter; mean temperature is output every 60 minutes

WAT006 Stream temperature is sampled by a Campbell Scientific data logger using type T thermocouple soldered from thermocouple wire placed in the stream inside a colander-like metal pipe shade shelter; mean temperature is output every 60 minutes

WAT009 Stream temperature is sampled by a Campbell Scientific CS547A conductivity and temperature probe secured in the stream inside a colander-like metal pipe shade shelter; mean, min, max temperature is output every 5 minutes

WAT008 Stream temperature is sampled by a Campbell Scientific CS547A conductivity and temperature probe secured in the stream inside a colander-like metal pipe shade shelter; mean temperature is output every 15 minutes

WAT101 Max and min daily stream temperature is provided by the USGS National Water Information System

WAT102 Daily stream temperature is not collected during this period

WAT103 Mean, max and min daily (sunset to sunset) air temperature is determined from digitizing circular Partlow charts. Temperature is recorded by a Dual Recording Thermometer Model RFHT with mercury bulb placed in the stream with shade shelter

WAT104 Mean, max and min daily air temperature is determined from digitizing circular Partlow charts. Temperature is recorded by a Dual Recording Thermometer Model RFHTT with mercury bulb placed in the stream with shade shelter

WAT105 Mean, max and min daily stream temperature is calculated by a Campbell Scientific datalogger based on 10 second samples. Instrument is type T thermocouple soldered from thermocouple wire and placed in stream with shade shelter (Daily output only)

WAT106 Mean daily stream temperature is calculated by the Campbell Scientific datalogger based on 10 second samples. Max-min values are based on instantaneous 10 second readings. Thermocouple wire; metal pipe shade shelter (See method WAT006)

WAT107 Mean daily stream temperature is calculated by the Campbell Scientific datalogger based on 10 second samples. Max-min values are based on instantaneous 10 second readings. CS Model 107 thermistor; metal pipe shade shelter (See method WAT007)

WAT108 Mean daily stream temperature is calculated by the Campbell Scientific datalogger based on 10 second samples. Max-min values are based on instantaneous 10 second readings. CS547A; metal pipe shade shelter (See method WAT008)

WAT109 Mean daily stream temperature is post-calculated from all 5 minute values, and max-min values are determined based on all instantaneous 10 second readings. CS547A; metal pipe shade shelter (See method WAT009)

WAT010 Stream temperature is sampled by a Campbell Scientific model 107 thermistor secured in the stream inside a colander-like metal pipe shade shelter; mean, min and max temperature is output every 5 minutes

WAT011 Stream temperature is sampled by an Onset HOBO Water Temp V2 anchored to the streambed and placed in an aluminum or pvc housing to shelter and weight the sensor near stream bottom; instantaneous temperature is output every 15 minutes

WAT110 Mean daily stream temperature is post-calculated from all 5 minute values, and max-min values are determined based on all instantaneous 10 second readings. CS Model 107; metal pipe shade shelter (See method WAT010)

WAT111 Mean daily stream temperature is post-calculated from all 15 minute instantaneous values, and max-min values are determined based on all instantaneous 15 minute readings. HOBO V2; aluminum or PVC housing (See method WAT011)

Enumerated Domain for Attribute: WATERTEMP_MEAN_FLAG

A Accepted value has passed all QC tests applied as represented by the quality level

B Sensor buried in sediments

E Estimated value
M  Missing value
S  Daily value based on sunrise to sunrise (not midnight to midnight)
Q  Questionable value

Enumerated Domain for Attribute: PROBE_CODE

WATGSL01 Stream temperature at GSLOOK, probe no. 01
WATGSL02 Stream temperature at GSLOOK, probe no. 02, maintained by USGS, legacy data 1950-1981 (missing 1955-1963)
WATGSM01 Stream temperature at GSMACK, probe no. 01, downstream of flume in sampling pool
WATGS001 Stream temperature at GSWS10, probe no. 01, upstream of flume
WATGS101 Stream temperature at GSWS01, probe no. 01, downstream of flume
WATGS201 Stream temperature at GSWS02, probe no. 01, downstream of flume in sampling pool
WATGS301 Stream temperature at GSWS03, probe no. 01, downstream of flume
WATGS601 Stream temperature at GSWS06, probe no. 01, upstream of flume
WATGS701 Stream temperature at GSWS07, probe no. 01, downstream of flume
WATGS801 Stream temperature at GSWS08, probe no. 01, open canopy, discontinued 2001
WATGS802 Stream temperature at GSWS08, probe no. 02, upstream of flume
WATLMA01 Stream temperature at TSLOMA, probe no. 01 located in Lookout Cr. above the confluence with Mack Cr.
WATLMA02 Stream temperature at TSLOMA, probe no. 02 located in Mack Cr. above the confluence with Lookout Cr.
WATLMC01 Stream temperature at TSLOMC, probe no. 01 located in Lookout Cr. above the confluence with McRae cr., discontinued 1996
WATLMC02 Stream temperature at TSLOMC, probe no. 02 located in McRae Cr. above the confluence with Lookout Cr., discontinued 1996
WATTGR01 Stream temperature at TSGRAS, probe no. 01, discontinued 1987
WATTLO01 Stream temperature at TSLOOK, probe no. 01
WATTMA01 Stream temperature at TSMACK, probe no. 01, discontinued 1994
WATTMC01 Stream temperature at TSMCRA, probe no. 01, discontinued 2015
WATTOZ01 Stream temperature at TSQRTZ, probe no. 01, discontinued 1994
AIRGS001 Air temperature at GSWS10, probe no. 01 at height 400 cm
AIRGS101 Air temperature at GSWS01, probe no. 01 at height 305 cm
AIRGS201 Air temperature at GSWS02, probe no. 01 at height 450 cm
AIRGS301 Air temperature at GSWS03, probe no. 01 at height 295 cm
AIRGS601 Air temperature at GSWS06, probe no. 01 at height 240 cm
AIRGS701 Air temperature at GSWS07, probe no. 01 at height 255 cm
AIRGS801 Air temperature at GSWS08, probe no. 01 at height 370 cm
AIRGSL01 Air temperature at GSLOOK, probe no. 01 at height 395 cm
AIRGSM01 Air temperature at GSMACK, probe no. 01 at height 350 cm
AIRLMA01 Air temperature at TSLOMA, probe no. 01 at height 350 cm, discontinued 2017
AIRLMC01  Air temperature at TSLOMC, probe no. 01 at height 365 cm, discontinued 1996
AIRTGR01  Air temperature at TSGRAS, probe no. 01 at height 100 cm, discontinued 1987
AIRTLO01  Air temperature at TSLOOK, probe no. 01 at height 240 cm, discontinued 2017
AIRTMA01  Air temperature at TSMACK, probe no. 01 at height 200 cm, discontinued 1995
AIRTMC01  Air temperature at TSMCRA, probe no. 01 at height 200 cm, discontinued 2015
AIRTQZ01  Air temperature at TSQRTZ, probe no. 01 at height 100 cm, discontinued 1994
WATGSL03  Stream temperature at GSLOOK, probe no. 03, established 2016 at the Lookout Creek gauging station
WATTMA02  Stream temperature at TSMACK, probe no. 02, established 2016 upstream of the gauging station
WATMCB01  Stream temperature at TSMCBR, probe no. 01, established 2017 near McRae Bridge
WATCLD01  Stream temperature at TSCOLD, probe no. 01, established 2016 on Cold Creek
WATLMC03  Stream temperature at TSLOMC, probe no. 03, established 2017 on Lookout Creek above the Lookout-McRae confluence
AIRTL002  Air temperature at TSLOOK, probe no. 02 at height 200 cm, established 2017 at upper Lookout site
AIRLMA02  Air temperature at TSLOMA, probe no. 02 at height 200 cm, established 2017 over Mack Creek at the Lookout-Mack confluence site

Enumerated Domain for Attribute: DBCODE
   HT004  Study code HT004

Enumerated Domain for Attribute: QC_LEVEL
   1A  Data is published and unlikely to change - automated range checking and manual review has been conducted. Quality is indicated in data value qualifier flags.
   1D  Data is published and unlikely to change - data is derived or aggregated from published data of level 1A
   1P  Data is provisional and subject to revision - preliminary quality checks have been performed
   2A  Data is published and unlikely to change - Level 1A data has been modified such that data gaps may be filled or problem data may be removed
   2D  Data is published and unlikely to change - data is derived or aggregated from published data of level 2A

Enumerated Domain for Attribute: EVENT_CODE
   CALIBR  Associated with the inspection or replacement of sensors for calibration
   INSREM  Sensor is installed or removed
   LOGGER  Change in data logger, data logger program, or wiring
   MAINTE  A maintenance event has occurred
   METHOD  Change in data collection method
   NA  No event is reported (not applicable)
   QUALTY  Event may directly affect data quality
   WEATHR  A weather event has occurred that may affect reading

Enumerated Domain for Attribute: WATERTEMP_METHOD
   WAT007  Stream temperature is sampled by a Campbell Scientific model 107 thermistor secured in the stream inside a colander-like metal pipe shade shelter; mean temperature is output every 60 minutes
   WAT006  Stream temperature is sampled by a Campbell Scientific data logger using type T thermocouple soldered from thermocouple wire placed in the stream inside a
colander-like metal pipe shade shelter; mean temperature is output every 60 minutes

WAT09 Stream temperature is sampled by a Campbell Scientific CS547A conductivity and temperature probe secured in the stream inside a colander-like metal pipe shade shelter; mean, min, max temperature is output every 5 minutes

WAT08 Stream temperature is sampled by a Campbell Scientific CS547A conductivity and temperature probe secured in the stream inside a colander-like metal pipe shade shelter; mean temperature is output every 15 minutes

WAT10 Mean and min daily stream temperature is provided by the USGS National Water Information System

WAT102 Daily stream temperature is not collected during this period

WAT103 Mean, max and min daily (sunrise to sunrise) air temperature is determined from digitizing circular Partlow charts. Temperature is recorded by a Dual Recording Thermometer Model RFHTT with mercury bulb placed in the stream with shade shelter

WAT104 Mean, max and min daily air temperature is determined from digitizing circular Partlow charts. Temperature is recorded by a Dual Recording Thermometer Model RFHTT with mercury bulb placed in the stream with shade shelter

WAT105 Mean, max and min daily stream temperature is calculated by a Campbell Scientific datalogger based on 10 second samples. Instrument is type T thermocouple soldered from thermocouple wire and placed in stream with shade shelter (Daily output only)

WAT106 Mean daily stream temperature is calculated by the Campbell Scientific datalogger based on 10 second samples. Max-min values are based on instantaneous 10 second readings. Thermocouple wire; metal pipe shade shelter (See method WAT006)

WAT107 Mean daily stream temperature is calculated by the Campbell Scientific datalogger based on 10 second samples. Max-min values are based on instantaneous 10 second readings. CS Model 107 thermistor; metal pipe shade shelter (See method WAT007)

WAT108 Mean daily stream temperature is calculated by the Campbell Scientific datalogger based on 10 second samples. Max-min values are based on instantaneous 10 second readings. CS547A; metal pipe shade shelter (See method WAT008)

WAT109 Mean daily stream temperature is post-calculated from all 5 minute values, and max-min values are determined based on all instantaneous 10 second readings. CS547A; metal pipe shade shelter (See method WAT009)

WAT10 Mean daily stream temperature is sampled by a Campbell Scientific model 107 thermistor secured in the stream inside a colander-like metal pipe shade shelter; mean, min and max temperature is output every 5 minutes

WAT10 Mean daily stream temperature is sampled by an Onset HOBO Water Temp V2 anchored to the streambed and placed in an aluminum or pvc housing to shelter and weight the sensor near stream bottom; instantaneous temperature is output every 15 minutes

WAT110 Mean daily stream temperature is post-calculated from all 5 minute values, and max-min values are determined based on all instantaneous 10 second readings. CS Model 107; metal pipe shade shelter (See method WAT010)

WAT111 Mean daily stream temperature is post-calculated from all 15 minute instantaneous values, and max-min values are determined based on all instantaneous 15 minute readings. HOBO V2; aluminum or PVC housing (See method WAT011)