Daily average air temperature

MIN: -62.22 **MAX:** 46.11 **UNITS:** degrees **DATA TYPE:** average **TIME ZONE:** UTC **VARIABLEID:** 686

Given that:
at1m : 1m average air temperature ; at1.5m : 1m average air temperature; at2m : 2m average air temperature; at3m : 3m average air temperature; max_at: 2m maximum air temperature; min_at: 2m minimum air temperature

If at1.5m, then
at2m=at1.5m

If at1m, then
- If there is both at1m and at3m, then
  - at2m = (at3m – at1m)/2 + at1m
- If there is at1m and no at3m, then
  - at2m = at1m

If there is a max_at and min_at:
- at2m = (max_at – min_at) / 2 + min_at

Daily maximum air temperature

MIN: -66.22 **MAX:** 46.11 **UNITS:** degrees **DATA TYPE:** maximum **TIME ZONE:** UTC **VARIABLEID:** 687

Given that:
max_at1m : 1m maximum air temperature; max_at1.5m : 1m maximum air temperature; max_at2m : 2m maximum air temperature; max_at3m : 3m maximum air temperature

If max_at1.5m, then max_at2m is max_at1.5m.

If max_at1m, then
- If there is both max_at1m and max_at3m, then
  - max_at2m = (max_at3m – max_at1m)/2 + max_at1m

- If there is a max_at1m and no max_at3m, then
  - max_at2m = max_at1m

Daily minimum air temperature

MIN: -66.22 **MAX:** 46.11 **UNITS:** degrees **DATA TYPE:** minimum **TIME ZONE:** UTC **VARIABLEID:** 688

Given that:

min_at1m : 1m minimum air temperature; min_at1.5m : 1m minimum air temperature; min_at2m : 2m minimum air temperature; min_at3m : 3m minimum air temperature

If min_at1.5m, then min_at2m is min_at1.5

If min_at1m, then

- If there is both min_at1m and min_at3m, then
  - min_at2m = (min_at3m – min_at1m)/2 + min_at1m
- If there is a min_at1m and no min_at3m, then
  - min_at2m = min_at1m

Daily average discharge

MIN: 0 **MAX:** **UNITS:** cms **DATA TYPE:** average **TIME ZONE:** UTC **VARIABLEID:** 689

Calculated average discharge for all available data values.

Daily precipitation

MIN: 0 **MAX:** 254 **UNITS:** mm **DATA TYPE:** total **TIME ZONE:** UTC **VARIABLEID:** 690

Calculated total daily precipitation for all available data values.

Daily average relative humidity

MIN: 0 **MAX:** 100 **UNITS:** percent **DATA TYPE:** average **TIME ZONE:** UTC **VARIABLEID:** 691

Given that:

at1m : 1m average air temperature; at2m : 2m average air temperature; at3m : 3m average air temperature; rh1m: 1m average relative humidity; rh2m : 2m average relative humidity; rh3m : 3m average relative humidity; dew1m : 1m average dew point temperature; dew2m : 2m average dew point temperature; dew3m: 3m average dew point temperature

If there is only at1m and rh1m, the rh2m is rh1m.

If at1m, at3m, rh1m, rh3m are all available, then

1. Calculate dew1m and dew3m:
   LOG((0.611*(EXP((17.3*at1m)/(at1m+237.3))))*rh1m/100)+0.4926)/(0.0708-0.00421*LOG((0.611*(EXP((17.3*at1m)/(at1m+237.3))))*rh1m/100)) as dew1m
   LOG((0.611*(EXP((17.3*at3m)/(at3m+237.3))))*rh3m/100)+0.4926)/(0.0708-0.00421*LOG((0.611*(EXP((17.3*at3m)/(at3m+237.3))))*rh3m/100)) as dew3m
2. Calculate dew2m:
   (dew3m-dew1m)/2+dew1m = dew2m
3. Calculate at2m: (at3m-at1m)/2+at1m = at2m

If the 2m dew point temperature is not higher than the 2m air temperature, then calculate the rh2m using all values in given time period:

(0.611 * EXP((17.3 * AVG(dew2m))/(AVG(dew2m) + 237.3))) / (0.611 * EXP((17.3 * AVG(at2m))/(AVG(at2m) + 237.3))) * 100.0 as rh2m

Daily average snow depth

MIN: 0 **MAX:** 12 **UNITS:** meters **DATA TYPE:** average **TIME ZONE:** UTC **VARIABLEID:** 692

Calculated average snow depth for all available data values.

Daily average snow water equivalent

MIN: 0 **MAX:** 1200 **UNITS:** mm **DATA TYPE:** average **TIME ZONE:** UTC **VARIABLEID:** 693

Calculated average snow water equivalent for all available data values.

Daily average water temperature

MIN: **MAX:** **UNITS:** degrees **DATA TYPE:** average **TIME ZONE:** UTC **VARIABLEID:** 694

Calculated average water temperature for all available data values at the lowest available depth.

Daily average wind direction

MIN: 0 **MAX:** 360 **UNITS:** degrees **DATA TYPE:** average **TIME ZONE:** UTC **VARIABLEID:** 695

Calculated average wind direction for all available data values that are measured at the maximum sensor height for each timestamp.

1. Create vector components:
   x = AVG(Wind Speed * COS(Wind Direction * PI/180))
   y = AVG(Wind Speed * SIN(Wind Direction * PI/1 80))
2. Find offsets, used to go from vector back to radial:
   if (x > 0 and y > 0) Offset=0
   if (x < 0) Offset=180
   if (x > 0) and y < 0) Offset=360
3. Calculate average wind direction:
   if x <> 0, and x and y are not null
      Wind Direction = ARCTAN(y/x)*180/PI + Offset
   else if x = 0
      Wind Direction = 0
   else
      Wind Direction = null

Daily average wind speed

MIN: 0 **MAX:** 50 **UNITS:** m/s **DATA TYPE:** average **TIME ZONE:** UTC **VARIABLEID:** 696

Calculated average wind speed for all available data values that are measured at the maximum sensor height for each timestamp.

Hourly average air temperature

MIN: -62.22 **MAX:** 46.11 **UNITS:** degrees **DATA TYPE:** **TIME ZONE:** UTC **VARIABLEID:** 677

Given that:

at1m : 1m average air temperature; at1.5m : 1.5m average air temperature; at2m : 2m average air temperature; at3m : 3m average air temperature ; max_at: 2m maximum air temperature; min_at: 2m minimum air temperature

If at1.5m, then at2m is at1.5m.

If at1m, then
- If there is both at1m and at3m, then
  - at2m = (at3m – at1m)/2 + at1m
- If there is at1m and no at3m, then
  - at2m = at1m

If there is a max_at and min_at:
- at2m = (max_at – min_at) / 2 + min_at

Hourly precipitation

MIN: 0 **MAX:** 120 **UNITS:** mm **DATA TYPE:** total **TIME ZONE:** UTC **VARIABLEID:** 678

Calculated total precipitation for all available data values.

Hourly average relative humidity

MIN: 0 **MAX:** 100 **UNITS:** percent **DATA TYPE:** average **TIME ZONE:** UTC **VARIABLEID:** 679

Given that:

at1m : 1m average air temperature; at2m : 2m average air temperature; at3m : 3m average air temperature; rh1m: 1m average relative humidity; rh2m : 2m average relative humidity; rh3m : 3m average relative humidity; dew1m : 1m average dew point temperature; dew2m : 2m average dew point temperature; dew3m: 3m average dew point temperature

If there is only at1m and rh1m, the rh2m is rh1m.

If at1m, at3m, rh1m, rh3m are all available, then

1. Calculate dew1m and dew3m:
   LOG((0.611*(EXP((17.3*at1m)/(at1m+237.3))))*rh1m/100)+0.4926)/(0.0708-0.00421*LOG((0.611*(EXP((17.3*at1m)/(at1m+237.3))))*rh1m/100)) as dew1m
   LOG((0.611*(EXP((17.3*at3m)/(at3m+237.3))))*rh3m/100)+0.4926)/(0.0708-0.00421*LOG((0.611*(EXP((17.3*at3m)/(at3m+237.3))))*rh3m/100)) as dew3m
2. Calculate dew2m:
   (dew3m-dew1m)/2+dew1m = dew2m
3. Calculate at2m: (at3m-at1m)/2+at1m = at2m

If the 2m dew point temperature is not higher than the 2m air temperature, then calculate the rh2m using all values in given time period:

(0.611 * EXP((17.3 * AVG(dew2m))/(AVG(dew2m) + 237.3))) / (0.611 * EXP((17.3 * AVG(at2m))/(AVG(at2m) + 237.3))) * 100.0 as rh2m

Hourly average snow depth

MIN: 0 **MAX:** 12 **UNITS:** meters **DATA TYPE:** average **TIME ZONE:** UTC **VARIABLEID:** 680

Calculated average snow depth for all available data values.

Hourly average snow water equivalent

MIN: 0 **MAX:** 1200 **UNITS:** mm **DATA TYPE:** average **TIME ZONE:** UTC **VARIABLEID:** 681

Hourly average wind direction

MIN: 0 **MAX:** 360 **UNITS:** degrees **DATA TYPE:** average **TIME ZONE:** UTC **VARIABLEID:** 682

Calculated average wind direction for all available data values that are measured at the maximum sensor height for each timestamp.

1. Create vector components:
   x = AVG(Wind Speed * COS(Wind Direction * PI/180))
   y = AVG(Wind Speed * SIN(Wind Direction * PI/1 80))
2. Find offsets, used to go from vector back to radial:
   if (x > 0 and y > 0) Offset=0
   if (x < 0) Offset=180
   if (x > 0) and y < 0) Offset=360
3. Calculate average wind direction:
   if x <> 0, and x and y are not null
      Wind Direction = ARCTAN(y/x)*180/PI + Offset
   else if x = 0
      Wind Direction = 0
   else
      Wind Direction = null

Hourly average wind speed

MIN: 0 **MAX:** 50 **UNITS:** m/s **DATA TYPE:** average **TIME ZONE:** UTC **VARIABLEID:** 685

Calculated average wind speed for all available data values that are measured at the maximum sensor height for each timestamp.

Monthly average air temperature, requires at least 10 days to compute average

MIN: **MAX:** **UNITS:** degrees **DATA TYPE:** average **TIME ZONE:** UTC **VARIABLEID:** 697

Calculated average 2m air temperature

Monthly average discharge, requires at least 10 days to compute average

MIN: **MAX:** **UNITS:** cms **DATA TYPE:** average **TIME ZONE:** UTC **VARIABLEID:** 700

Calculated average discharge

Monthly total precipitation, requires at least 10 days to compute monthly total

MIN: **MAX:** **UNITS:** mm **DATA TYPE:** total **TIME ZONE:** UTC **VARIABLEID:** 701

Calculated total precipitation

Monthly average relative humidity, requires at least 10 days to compute monthly average

MIN: **MAX:** **UNITS:** percent **DATA TYPE:** average **TIME ZONE:** UTC **VARIABLEID:** 707

Given that:

at1m : 1m average air temperature; at2m : 2m average air temperature; at3m : 3m average air temperature; rh1m: 1m average relative humidity; rh2m : 2m average relative humidity; rh3m : 3m average relative humidity; dew1m : 1m average dew point temperature; dew2m : 2m average dew point temperature; dew3m: 3m average dew point temperature

If there is only at1m and rh1m, the rh2m is rh1m.

If at1m, at3m, rh1m, rh3m are all available, then

1. Calculate dew1m and dew3m:
   LOG((0.611*(EXP((17.3*at1m)/(at1m+237.3))))*rh1m/100)+0.4926)/(0.0708-0.00421*LOG((0.611*(EXP((17.3*at1m)/(at1m+237.3))))*rh1m/100)) as dew1m
   LOG((0.611*(EXP((17.3*at3m)/(at3m+237.3))))*rh3m/100)+0.4926)/(0.0708-0.00421*LOG((0.611*(EXP((17.3*at3m)/(at3m+237.3))))*rh3m/100)) as dew3m
2. Calculate dew2m:
   (dew3m-dew1m)/2+dew1m = dew2m
3. Calculate at2m: (at3m-at1m)/2+at1m = at2m

If the 2m dew point temperature is not higher than the 2m air temperature, then calculate the rh2m using all values in given time period:

(0.611 * EXP((17.3 * AVG(dew2m))/(AVG(dew2m) + 237.3))) / (0.611 * EXP((17.3 * AVG(at2m))/(AVG(at2m) + 237.3))) * 100.0 as rh2m

Monthly average snow depth, requires at least 1 day to compute monthly average

MIN: **MAX:** **UNITS:** meters **DATA TYPE:** average **TIME ZONE:** UTC **VARIABLEID:** 702

Calculated average snow depth

Monthly average snow water equivalent, requires at least 1 day to compute monthly average

MIN: **MAX:** **UNITS:** mm **DATA TYPE:** average **TIME ZONE:** UTC **VARIABLEID:** 721

Calculated average snow water equivalent

Annual average air temperature, requires all 12 months values for average

MIN: **MAX:** **UNITS:** degrees **DATA TYPE:** average **TIME ZONE:** UTC **VARIABLEID:** 699

Calculated average 2m air temperature

Annual average discharge, requires all 12 months values for average

MIN: **MAX:** **UNITS:** cms **DATA TYPE:** average **TIME ZONE:** UTC **VARIABLEID:** 710

Calculated average discharge

Annual total precipitation, requires all 12 months values for annual total

MIN: **MAX:** **UNITS:** mm **DATA TYPE:** total **TIME ZONE:** UTC **VARIABLEID:** 703

Calculated total precipitation

Annual average RH, requires all 12 months values for average

MIN: **MAX:** **UNITS:** percent **DATA TYPE:** average **TIME ZONE:** UTC **VARIABLEID:** 708

Calculated average relative humidity

Annual peak discharge, peak May/June data value

MIN: **MAX:** **UNITS:** cms **DATA TYPE:** maximum **TIME ZONE:** UTC **VARIABLEID:** 712

Annual peak discharge (May/June)

Annual peak snow depth, peak March/April/May/June data value

MIN: **MAX:** **UNITS:** meters **DATA TYPE:** maximum **TIME ZONE:** UTC **VARIABLEID:** 705

Annual peak snow depth (March/April/May/June)

Annual peak snow water equivalent, peak March/April/May/June data value

MIN: **MAX:** **UNITS:** mm **DATA TYPE:** maximum **TIME ZONE:** UTC **VARIABLEID:** 717

Annual peak snow water equivalent (March/April/May/June)

Average winter air temperature, requires all three months from December thru February

MIN: **MAX:** **UNITS:** degrees **DATA TYPE:** average **TIME ZONE:** UTC **VARIABLEID:** 719

Calculated average 2m winter air temperature (December, January, February)

Average fall air temperature, requires all three months from September to November

MIN: **MAX:** **UNITS:** degrees **DATA TYPE:** average **TIME ZONE:** UTC **VARIABLEID:** 722

Calculated average 2m fall air temperature (September, October,November)

Average spring air temperature, requires all three months from March to May

MIN: **MAX:** **UNITS:** degrees **DATA TYPE:** average **TIME ZONE:** UTC **VARIABLEID:** 724

Calculated average 2m spring air temperature (March, April, May)

Average summer air temperature, requires all three months from June to August

MIN: **MAX:** **UNITS:** degrees **DATA TYPE:** average **TIME ZONE:** UTC **VARIABLEID:** 726

Calculated average 2m summer air temperature (June,July,August)

Average fall precipitation, requires all three months from September to November

MIN: **MAX:** **UNITS:** mm **DATA TYPE:** average **TIME ZONE:** UTC **VARIABLEID:** 729

Average fall precipitation (September, Octover, November)

Average winter precipitation, requires all three months from December to February

MIN: **MAX:** **UNITS:** mm **DATA TYPE:** average **TIME ZONE:** UTC **VARIABLEID:** 731

Average winter precipitation (December, January, February)

Average spring precipitation, requires all three months from March to May

MIN: **MAX:** **UNITS:** mm **DATA TYPE:** average **TIME ZONE:** UTC **VARIABLEID:** 733

Average spring precipitation (March, April, May)

Average summer precipitation, requires all three months from June to August

MIN: **MAX:** **UNITS:** mm **DATA TYPE:** average **TIME ZONE:** UTC **VARIABLEID:** 735

Average summer precipitation (June,July,August)

Average summer discharge, requires all three months from June to August

MIN: **MAX:** **UNITS:** cms **DATA TYPE:** average **TIME ZONE:** UTC **VARIABLEID:** 737

Calculated average summer discharge (June,July,August)

Average summer relative humidity, requires all three months from June to August

MIN: **MAX:** **UNITS:** percent **DATA TYPE:** average **TIME ZONE:** UTC **VARIABLEID:** 739

Given that:

at1m : 1m average air temperature; at2m : 2m average air temperature; at3m : 3m average air temperature; rh1m: 1m average relative humidity; rh2m : 2m average relative humidity; rh3m : 3m average relative humidity; dew1m : 1m average dew point temperature; dew2m : 2m average dew point temperature; dew3m: 3m average dew point temperature

If there is only at1m and rh1m, the rh2m is rh1m.

If at1m, at3m, rh1m, rh3m are all available, then

1. Calculate dew1m and dew3m:
   LOG((0.611*(EXP((17.3*at1m)/(at1m+237.3))))*rh1m/100)+0.4926)/(0.0708-0.00421*LOG((0.611*(EXP((17.3*at1m)/(at1m+237.3))))*rh1m/100)) as dew1m
   LOG((0.611*(EXP((17.3*at3m)/(at3m+237.3))))*rh3m/100)+0.4926)/(0.0708-0.00421*LOG((0.611*(EXP((17.3*at3m)/(at3m+237.3))))*rh3m/100)) as dew3m
2. Calculate dew2m:
   (dew3m-dew1m)/2+dew1m = dew2m
3. Calculate at2m: (at3m-at1m)/2+at1m = at2m

If the 2m dew point temperature is not higher than the 2m air temperature, then calculate the rh2m using all values in given time period:
(0.611 * EXP((17.3 * AVG(dew2m))/(AVG(dew2m) + 237.3))) / (0.611 * EXP((17.3 * AVG(at2m))/(AVG(at2m) + 237.3))) * 100.0 as rh2m

Average winter relative humidity, requires all three months from December to February

MIN: **MAX:** **UNITS:** percent **DATA TYPE:** average **TIME ZONE:** UTC **VARIABLEID:** 741

Given that:

at1m : 1m average air temperature; at2m : 2m average air temperature; at3m : 3m average air temperature; rh1m: 1m average relative humidity; rh2m : 2m average relative humidity; rh3m : 3m average relative humidity; dew1m : 1m average dew point temperature; dew2m : 2m average dew point temperature; dew3m: 3m average dew point temperature

If there is only at1m and rh1m, the rh2m is rh1m.

If at1m, at3m, rh1m, rh3m are all available, then

1. Calculate dew1m and dew3m:
   LOG((0.611*(EXP((17.3*at1m)/(at1m+237.3))))*rh1m/100)+0.4926)/(0.0708-0.00421*LOG((0.611*(EXP((17.3*at1m)/(at1m+237.3))))*rh1m/100)) as dew1m
   LOG((0.611*(EXP((17.3*at3m)/(at3m+237.3))))*rh3m/100)+0.4926)/(0.0708-0.00421*LOG((0.611*(EXP((17.3*at3m)/(at3m+237.3))))*rh3m/100)) as dew3m
2. Calculate dew2m:
   (dew3m-dew1m)/2+dew1m = dew2m
3. Calculate at2m: (at3m-at1m)/2+at1m = at2m

If the 2m dew point temperature is not higher than the 2m air temperature, then calculate the rh2m using all values in given time period:
(0.611 * EXP((17.3 * AVG(dew2m))/(AVG(dew2m) + 237.3))) / (0.611 * EXP((17.3 * AVG(at2m))/(AVG(at2m) + 237.3))) * 100.0 as rh2m

Average annual average air temperature, requires at least five years to compute

MIN: **MAX:** **UNITS:** degrees **DATA TYPE:** average **TIME ZONE:** UTC **VARIABLEID:** 698

Average of all average annual air temperature

Average annual average discharge, requires at least one year to compute

MIN: **MAX:** **UNITS:** cms **DATA TYPE:** average **TIME ZONE:** UTC **VARIABLEID:** 711

Average of all average annual discharge

Average annual average peak discharge, requires at least one year to compute

MIN: **MAX:** **UNITS:** cms **DATA TYPE:** average **TIME ZONE:** UTC **VARIABLEID:** 713

Average of all average annual peak discharge

Average annual average peak snow depth, requires at least five years to compute

MIN: **MAX:** **UNITS:** meters **DATA TYPE:** average **TIME ZONE:** UTC **VARIABLEID:** 706

Average of all average annual peak snow depth

Average annual average peak snow water equivalent, requires at least five years to compute

MIN: **MAX:** **UNITS:** mm **DATA TYPE:** average **TIME ZONE:** UTC **VARIABLEID:** 718

Average of all average annual peak snow water equivalent

Average annual total precipitation, requires at least five years to compute

MIN: **MAX:** **UNITS:** mm **DATA TYPE:** average **TIME ZONE:** UTC **VARIABLEID:** 704

Average of all total annual precipitation

Average annual average relative humidity, requires at least five years to compute

MIN: **MAX:** **UNITS:** percent **DATA TYPE:** average **TIME ZONE:** UTC **VARIABLEID:** 709

Given that:

at1m : 1m average air temperature; at2m : 2m average air temperature; at3m : 3m average air temperature; rh1m: 1m average relative humidity; rh2m : 2m average relative humidity; rh3m : 3m average relative humidity; dew1m : 1m average dew point temperature; dew2m : 2m average dew point temperature; dew3m: 3m average dew point temperature

If there is only at1m and rh1m, the rh2m is rh1m.

If at1m, at3m, rh1m, rh3m are all available, then

1. Calculate dew1m and dew3m:
   LOG((0.611*(EXP((17.3*at1m)/(at1m+237.3))))*rh1m/100)+0.4926)/(0.0708-0.00421*LOG((0.611*(EXP((17.3*at1m)/(at1m+237.3))))*rh1m/100)) as dew1m
   LOG((0.611*(EXP((17.3*at3m)/(at3m+237.3))))*rh3m/100)+0.4926)/(0.0708-0.00421*LOG((0.611*(EXP((17.3*at3m)/(at3m+237.3))))*rh3m/100)) as dew3m
2. Calculate dew2m:
   (dew3m-dew1m)/2+dew1m = dew2m
3. Calculate at2m: (at3m-at1m)/2+at1m = at2m

If the 2m dew point temperature is not higher than the 2m air temperature, then calculate the rh2m using all values in given time period:

(0.611 * EXP((17.3 * AVG(dew2m))/(AVG(dew2m) + 237.3))) / (0.611 * EXP((17.3 * AVG(at2m))/(AVG(at2m) + 237.3))) * 100.0 as rh2m

Average annual average winter air temperature, requires at least five years to compute

MIN: **MAX:** **UNITS:** degrees **DATA TYPE:** average **TIME ZONE:** UTC **VARIABLEID:** 720

Average of all average winter air temperature (December, January, February)

Average annual average fall air temperature, requires at least five years to compute

MIN: **MAX:** **UNITS:** degrees **DATA TYPE:** average **TIME ZONE:** UTC **VARIABLEID:** 723

Average of all average fall air temperature (September, Octover, November)

Average annual average spring air temperature, requires at least five years to compute

MIN: **MAX:** **UNITS:** degrees **DATA TYPE:** average **TIME ZONE:** UTC **VARIABLEID:** 725

Average of all average spring air temperature (March, April, May)

Average annual average summer air temperature, requires at least five years to compute

MIN: **MAX:** **UNITS:** degrees **DATA TYPE:** average **TIME ZONE:** UTC **VARIABLEID:** 727

Average of all average summer air temperatures (June,July,August)

Average annual average fall precipitation, requires at least five years to compute

MIN: **MAX:** **UNITS:** mm **DATA TYPE:** average **TIME ZONE:** UTC **VARIABLEID:** 730

Average of all average fall precipitation (September, Octover, November)

Average annual average winter precipitation, requires at least five years to compute

MIN: **MAX:** **UNITS:** mm **DATA TYPE:** average **TIME ZONE:** UTC **VARIABLEID:** 732

Average of all average winter precipitation (December, January, February)

Average annual average spring precipitation, requires at least five years to compute

MIN: **MAX:** **UNITS:** mm **DATA TYPE:** average **TIME ZONE:** UTC **VARIABLEID:** 734

Average of all average spring precipitation (March, April, May)

Average annual average summer precipitation, requires at least five years to compute

MIN: **MAX:** **UNITS:** mm **DATA TYPE:** average **TIME ZONE:** UTC **VARIABLEID:** 736

Average of all average summer precipitation (June,July,August)

Average annual average summer discharge, requires at least five years to compute

MIN: **MAX:** **UNITS:** cms **DATA TYPE:** average **TIME ZONE:** UTC **VARIABLEID:** 738

Average of all average summer discharge (June,July,August)

Average annual average summer relative humidity, requires at least five years to compute

MIN: **MAX:** **UNITS:** percent **DATA TYPE:** average **TIME ZONE:** UTC **VARIABLEID:** 740

Given that:

at1m : 1m average air temperature; at2m : 2m average air temperature; at3m : 3m average air temperature; rh1m: 1m average relative humidity; rh2m : 2m average relative humidity; rh3m : 3m average relative humidity; dew1m : 1m average dew point temperature; dew2m : 2m average dew point temperature; dew3m: 3m average dew point temperature

If there is only at1m and rh1m, the rh2m is rh1m.

If at1m, at3m, rh1m, rh3m are all available, then

1. Calculate dew1m and dew3m:
   LOG((0.611*(EXP((17.3*at1m)/(at1m+237.3))))*rh1m/100)+0.4926)/(0.0708-0.00421*LOG((0.611*(EXP((17.3*at1m)/(at1m+237.3))))*rh1m/100)) as dew1m
   LOG((0.611*(EXP((17.3*at3m)/(at3m+237.3))))*rh3m/100)+0.4926)/(0.0708-0.00421*LOG((0.611*(EXP((17.3*at3m)/(at3m+237.3))))*rh3m/100)) as dew3m
2. Calculate dew2m:
   (dew3m-dew1m)/2+dew1m = dew2m
3. Calculate at2m: (at3m-at1m)/2+at1m = at2m

If the 2m dew point temperature is not higher than the 2m air temperature, then calculate the rh2m using all values in given time period:
(0.611 * EXP((17.3 * AVG(dew2m))/(AVG(dew2m) + 237.3))) / (0.611 * EXP((17.3 * AVG(at2m))/(AVG(at2m) + 237.3))) * 100.0 as rh2m

Average annual average winter relative humidity, requires at least five years to compute

MIN: **MAX:** **UNITS:** percent **DATA TYPE:** average **TIME ZONE:** UTC **VARIABLEID:** 742

Given that:

at1m : 1m average air temperature; at2m : 2m average air temperature; at3m : 3m average air temperature; rh1m: 1m average relative humidity; rh2m : 2m average relative humidity; rh3m : 3m average relative humidity; dew1m : 1m average dew point temperature; dew2m : 2m average dew point temperature; dew3m: 3m average dew point temperature

If there is only at1m and rh1m, the rh2m is rh1m.

If at1m, at3m, rh1m, rh3m are all available, then

1. Calculate dew1m and dew3m:
   LOG((0.611*(EXP((17.3*at1m)/(at1m+237.3))))*rh1m/100)+0.4926)/(0.0708-0.00421*LOG((0.611*(EXP((17.3*at1m)/(at1m+237.3))))*rh1m/100)) as dew1m
   LOG((0.611*(EXP((17.3*at3m)/(at3m+237.3))))*rh3m/100)+0.4926)/(0.0708-0.00421*LOG((0.611*(EXP((17.3*at3m)/(at3m+237.3))))*rh3m/100)) as dew3m
2. Calculate dew2m:
   (dew3m-dew1m)/2+dew1m = dew2m
3. Calculate at2m: (at3m-at1m)/2+at1m = at2m

If the 2m dew point temperature is not higher than the 2m air temperature, then calculate the rh2m using all values in given time period:

(0.611 * EXP((17.3 * AVG(dew2m))/(AVG(dew2m) + 237.3))) / (0.611 * EXP((17.3 * AVG(at2m))/(AVG(at2m) + 237.3))) * 100.0 as rh2m