**Correction from non-leap year to leap year qc summary file  
Adam Kennedy, 2014-09-08  
Data File location:** [\\larix\metdat\PROGRAMS\QC\mvwin\_air\_temp\_std4\_leap\_year\_corrected.mat](file:///\\larix\metdat\PROGRAMS\QC\mvwin_air_temp_std4_leap_year_corrected.mat)

1. Added calculated column
   1. Column Name: YEAR
   2. Units: YYYY
   3. Variable Type: Date or time (datetime)
   4. Add Constant: 2013
2. Created date from date components
   1. YYYY/MM/DD
3. Duplicated Feb 28
   1. Changed second instance of Feb 28 to Feb 29
4. Deleted YEAR Column
5. Repeated step 1, but used 2012 instead of 2013
6. Created date from date components to verify yyyy/mm/dd
7. Saved as GCE data structure.
8. Implemented the following QC on qc summary file:

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Name | Units | Variable type | Number type | Precision | QC Criteria |
| 1. Month | MM | datetime | discrete | 0 | x<1="I", x>12="I" |
| 2. Day | DD | datetime | discrete | 0 | x<1="I", x>31="I" |
| 3. Hour | hr | datetime | discrete | 0 | x<0="I", x>23="I" |
| 4. MEAN | deg C | data | continuous | 3 | x<col\_MIN="I",  x>col\_MAX="I" |
| 5. STD | deg C | data | continuous | 3 | none |
| 6. MIN | deg C | data | continuous | 3 | x>col\_MAX="I" |
| 7. MAX | deg C | data | continuous | 3 | x<col\_MIN="I" |
| 8. MEDIAN | deg C | data | continuous | 3 | x<col\_MIN="I",  x>col\_MAX="I" |
| 9. S4LO | deg C | data | continuous | 3 | x>col\_S4HI="I",  x>col\_MEAN="I",  x>col\_MEDIAN="I" |
| 10. S4HI | deg C | data | continuous | 3 | x<col\_S4LO="I",  x<col\_MEAN="I",  x<col\_MEDIAN="I" |

Saved qc summary .mat file to ‘userdata’ in matlab production workspace.

Workflow modifications to add qc summary criteria

1. Add import call to real-time configuration file
   1. Change name of data structure to qc\_source so it isn’t overwritten in workspace.
   2. Updated data harvester function to accept a qc\_source file when present.
2. Add the following functions to the data harvester to incorporate qc summary file in real-time environment:
   1. Add date parts to real-time data file (Year, Month, Day, Hour, Minute)
   2. Define key indices used in lookup join (Month, Day, Hour). These must be present in both qc\_summary.mat and real-time data structure.mat.
   3. Join the qc summary file to the real-time data structure
   4. Sort the real-time data structure on the Date field – ascending
   5. Trigger metadata template to implement cross-column qc criteria on real-time data structure
   6. Remove unneeded columns from real-time data structure
3. Continue data harvester processing steps
   1. Interpolate temperature values if five or less data values are missing
   2. Create FSDB compatible date string
   3. Append real-time data structure to existing data structure
   4. Check for duplicate time stamps and remove second occurrence
   5. Null values for all values flagged with ‘I’ flags
   6. Save data structure as:
      1. GCE data structure (.mat)
      2. Ascii format (.csv)
      3. Web table (.html)
   7. Create monthly web plots
   8. Update Portal index
   9. Call harvest dashboard (Note, GCE data structure must exist for this to run)

Notes:

The leap year corrected qc summary file with ‘month’, ‘day’, and ‘hour’ fields is located on a cloud-based directory accessible by ‘ltermatlab’ (a virtual machine located at OSU) and on a file server located at the Andrews Forest at: [\\larix\metdat\PROGRAMS\QC\mvwin\_air\_temp\_std4\_leap\_year\_corrected.mat](file:///\\larix\metdat\PROGRAMS\QC\mvwin_air_temp_std4_leap_year_corrected.mat)). This directory on larix is replicated at the Andrews and a third copy is stored on a server at OSU. Physical backups occur nightly at OSU on magnetic tapes.