Format Description for Hourly Mean Values of Geomagnetic Field Elements — WDC-format

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Columns   Format         Description
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  1-3      A3    Observatory 3-letter code.
  4-5      I2    Year (last 2 digits, 82=1982).
  6-7      I2    Month (01-12).
   8       A1    Element (D, H, X, Y, Z, or F).
  9-10     I2    Day of month (01-31).
 11-12     A2    Blanks.
 13-14     A2    Arbitrary.
 15-16     I2    Two blanks or Century digits of the year:
                   Year 1887 - 18 Century,
                   Year 1978 - 19 Century,
                   Year 2014 - 20 Century .
                          ============= Old Format ==============
                            15 column - International quiet or
                                        disturbed days, Q=1, D=2
                            16 column - Blank for data since 1900,
                                        8 for data before
                          ======================================
 17-20     I4    Tabular base, in degrees for D and
                 in hundreds of nanoTeslas for the intensity elements.
 21-116   24I4   Twenty-four 4-digit hourly mean values for the day.
                 The values are in tenth-minutes for D and in nanoTeslas
                 for the intensity elements.
                 The first hourly mean value represents the mean value
                 between 00:00 UT and 01:00 UT, ..., the 24th value
                 represents the mean between 23:00 UT and 24:00 UT.
                 A missing value is identified by 9999.
117-120    I4    Daily mean.
                 If any of the hourly mean values for the day are missing
                 9999 will appear as the daily mean.
121-122          Record end marker.
                 Two chars 'cr'= 13 and 'nl'= 10.
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The tabular bases, hourly mean values and daily means are right adjusted
and signed if negative.
Negative values are identified with a minus sign either adjacent to the first
significant digit or in the high-order position of the field.
NOTE: A blank digit will not appear between a (-) sign and the first
significant digit. For example, a value may appear as -050 or b-50
but not as -b50 (b=blank).

The 25 values in positions 21-120 will have the range -999 to 9998,
with 9999 reserved for missing values.

The records are sorted according to observatory code, year, month,
element, day (positions 1-10).

For the intensity elements we have that
      hourly value (nanoTeslas_ = tab.base*100 + tab.value.

For the angles D we have that
       hourly value (Degrees) = Tab.base + tab.value/600.

To avoid a 4-digit negative value in positions 21-116,
the tabular base will be adjusted for that day;
for example for D, one degree is subtracted from the base and 600
units are added to each of the hourly values for the day;
for the intensity elements, 500 nT are subtracted from the base and 500 nT
are added to each of the hourly values for the day.