Processing METAR weather reports

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Following along with the vignette athttps://cran.r-project.org/web/packages/pmetar/vignettes/pmetar.html.

```r
# Let's download a current METAR weather report for Warsaw Okecie Airport.
metar_get("EPWA")
```

```
## [1] "EPWA 180430Z 07004KT CAVOK M06/M08 Q1020 R88/69//95 NOSIG"
```

```r
# Now let's take a look at Newark Liberty International Airport, EWR IATA code. This type of code you f
metar_get("EWR")
```

```
## [1] "KEWR 180351Z 02005KT 10SM BKN120 BKN200 BKN250 M01/M12 A3046 RMK AO2 SLP314 T10111117"
```

The function `metar_get_historical` allows to download METAR weather reports for a defined period of time. The default online source of METAR reports, from = "iastate" is the Iowa Environmental Mesonet web page of Iowa State University ASOS-AWOS-METAR http://mesonet.agron.iastate.edu/AWOS/.

```r
dm <- metar_get_historical("JFK", start_date = "2020-06-25", end_date = "2020-06-29", from = "iastate")
```

```
## Getting airport informaiton from the file downloaded from

## http://ourairports.com/data/airports.csv

## Iowa Environmental Mesonet web page of Iowa State University

## ASOS-AWOS-METAR http://mesonet.agron.iastate.edu/AWOS/

## Don't use for flight planning or navigation!
```

```r
head(dm)
```

```
## [1] "202006250000 METAR KJFK 250000Z AUTO 27015KT 10SM CLR 28/12 A2978 RMK T02800120 MADISHF"
## [2] "202006250005 METAR KJFK 250005Z AUTO 26014KT 10SM CLR 28/11 A2978 RMK T02800110 MADISHF"
## [3] "202006250010 METAR KJFK 250010Z AUTO 27016KT 10SM CLR 28/12 A2979 RMK T02800120 MADISHF"
## [4] "202006250015 METAR KJFK 250015Z AUTO 26014KT 10SM CLR 27/12 A2979 RMK T02700120 MADISHF"
## [5] "202006250020 METAR KJFK 250020Z AUTO 27013KT 10SM CLR 27/12 A2979 RMK T02700120 MADISHF"
## [6] "202006250025 METAR KJFK 250025Z AUTO 27014KT 10SM CLR 27/12 A2979 RMK T02700120 MADISHF"
```

The second backup source, from = "ogimet" is Weather Information Service provided by Ogimet http://www.ogimet.com/. Please take into consideration that Ogimet usually blocks too frequent requests for data due to the server overload, the requested period is limited to 31 days and for the most of airports METAR reports are available from the beginning of the year 2005.

The message here is to save your data in .csv files once you download it, and not have to download it again, so that you don't get blocked for too frequent requests. ogimet is also limited to 31 day chunks at a time.

```r
metar_get_historical("JFK", start_date = "2020-06-25", end_date = "2020-06-29", from = "ogimet")
```

```
## Getting airport informaiton from the file downloaded from
```

```
## http://ourairports.com/data/airports.csv

## Getting information from Weather Information Service http://www.ogimet.com/

## developed by Guillermo Ballester Valor

## Don't use for flight planning or navigation!

##    [1] "202006250051 METAR KJFK 250051Z 27012KT 10SM FEW075 SCT250 27/12 A2980 RMK AO2 SLP092 T02720012
##    [2] "202006250151 METAR KJFK 250151Z 26007KT 10SM SCT250 26/13 A2983 RMK AO2 SLP100 T02610128="
##    [3] "202006250251 METAR KJFK 250251Z 22007KT 10SM SCT250 23/17 A2984 RMK AO2 SLP105 T02330167 5102
##    [4] "202006250351 METAR KJFK 250351Z 22009KT 10SM SCT250 23/15 A2986 RMK AO2 SLP110 T02330150="
##    [5] "202006250451 METAR KJFK 250451Z 23007KT 10SM FEW060 SCT250 22/16 A2987 RMK AO2 SLP115 T0222016
##    [6] "202006250551 METAR KJFK 250551Z 24006KT 10SM SCT070 SCT250 22/17 A2988 RMK AO2 SLP117 T0222016
##    [7] "202006250651 METAR KJFK 250651Z 25007KT 10SM FEW070 BKN250 22/16 A2988 RMK AO2 SLP119 T0222016
##    [8] "202006250751 METAR KJFK 250751Z 25005KT 10SM FEW070 FEW110 BKN250 22/17 A2989 RMK AO2 SLP122 T
##    [9] "202006250851 METAR KJFK 250851Z 25006KT 10SM FEW080 BKN250 22/16 A2991 RMK AO2 SLP129 T0222015
##   [10] "202006250951 METAR KJFK 250951Z 28004KT 10SM FEW080 FEW110 BKN250 22/16 A2994 RMK AO2 SLP137 T
##   [11] "202006251051 METAR KJFK 251051Z 32008KT 10SM FEW045 FEW110 BKN250 24/13 A2996 RMK AO2 SLP143 T
##   [12] "202006251151 METAR KJFK 251151Z 34006KT 10SM FEW045 FEW110 BKN250 24/12 A2997 RMK AO2 SLP149 T
##   [13] "202006251251 METAR KJFK 251251Z 34004KT 10SM FEW110 BKN250 26/11 A2998 RMK AO2 SLP152 T0256011
##   [14] "202006251351 METAR KJFK 251351Z 35005KT 10SM FEW100 BKN250 27/10 A2999 RMK AO2 SLP154 T0267010
##   [15] "202006251451 METAR KJFK 251451Z 32008KT 10SM FEW110 BKN250 27/09 A2999 RMK AO2 SLP156 T0272008
##   [16] "202006251551 METAR KJFK 251551Z 20008KT 10SM FEW120 BKN220 27/11 A3000 RMK AO2 SLP158 T0272011
##   [17] "202006251651 METAR KJFK 251651Z 20009KT 10SM FEW070 FEW120 SCT250 28/11 A3000 RMK AO2 SLP159 T
##   [18] "202006251751 METAR KJFK 251751Z 19010KT 10SM FEW070 SCT140 BKN250 29/11 A2999 RMK AO2 SLP155 T
##   [19] "202006251851 METAR KJFK 251851Z 17010KT 10SM FEW070 BKN130 BKN250 28/12 A2999 RMK AO2 SLP154 T
##   [20] "202006251951 METAR KJFK 251951Z 18010KT 10SM FEW070 BKN120 BKN250 26/13 A2999 RMK AO2 SLP154 T
##   [21] "202006252051 METAR KJFK 252051Z 18010KT 10SM FEW070 BKN110 BKN250 26/13 A2997 RMK AO2 SLP148 T
##   [22] "202006252151 METAR KJFK 252151Z 18011KT 10SM FEW070 BKN110 BKN140 BKN250 26/17 A2996 RMK AO2 S
##   [23] "202006252251 METAR KJFK 252251Z 19016KT 10SM FEW070 SCT100 SCT130 BKN250 24/16 A2997 RMK AO2 S
##   [24] "202006252351 METAR KJFK 252351Z 18013KT 10SM FEW070 FEW100 SCT150 SCT210 BKN250 23/16 A2996 RM
##   [25] "202006260051 METAR KJFK 260051Z 22005KT 10SM FEW070 FEW110 FEW150 BKN210 BKN250 22/17 A2997 RM
##   [26] "202006260151 METAR KJFK 260151Z 21007KT 10SM FEW070 FEW110 SCT210 BKN250 21/17 A2997 RMK AO2 S
##   [27] "202006260251 METAR KJFK 260251Z 18005KT 10SM FEW070 SCT160 BKN250 21/17 A2998 RMK AO2 SLP151 T
##   [28] "202006260351 METAR KJFK 260351Z 19007KT 10SM FEW070 SCT150 BKN250 21/17 A2997 RMK AO2 SLP149 T
##   [29] "202006260451 METAR KJFK 260451Z 20007KT 10SM FEW070 BKN140 OVC250 21/18 A2997 RMK AO2 SLP149 T
##   [30] "202006260551 METAR KJFK 260551Z 21004KT 10SM SCT140 BKN250 21/18 A2997 RMK AO2 SLP147 T0206017
##   [31] "202006260651 METAR KJFK 260651Z 20006KT 10SM FEW140 BKN250 20/18 A2997 RMK AO2 SLP147 T0200017
##   [32] "202006260751 METAR KJFK 260751Z 25008KT 10SM FEW140 BKN250 21/18 A2997 RMK AO2 SLP147 T0206017
##   [33] "202006260851 METAR KJFK 260851Z 25006KT 10SM FEW150 SCT250 21/18 A2997 RMK AO2 SLP148 T0211017
##   [34] "202006260951 METAR KJFK 260951Z 29006KT 10SM FEW070 FEW150 SCT250 21/17 A2997 RMK AO2 SLP149 T
##   [35] "202006261051 METAR KJFK 261051Z 25005KT 10SM FEW150 FEW250 22/18 A2998 RMK AO2 SLP151 T0222017
##   [36] "202006261151 METAR KJFK 261151Z 29008KT 10SM FEW095 FEW150 SCT250 25/17 A2998 RMK AO2 SLP152 T
##   [37] "202006261251 METAR KJFK 261251Z 30010KT 10SM FEW095 FEW150 BKN250 26/13 A2998 RMK AO2 SLP153 T
##   [38] "202006261351 METAR KJFK 261351Z 29010KT 10SM FEW080 SCT150 BKN250 27/13 A2998 RMK AO2 SLP153 T
##   [39] "202006261451 METAR KJFK 261451Z 31007KT 10SM FEW070 FEW140 BKN230 28/12 A2997 RMK AO2 SLP149 T
##   [40] "202006261551 METAR KJFK 261551Z 31009G14KT 10SM FEW065 FEW180 BKN230 29/11 A2996 RMK AO2 SLP14
##   [41] "202006261651 METAR KJFK 261651Z 20012KT 10SM FEW065 FEW100 SCT180 BKN250 28/14 A2996 RMK AO2 S
##   [42] "202006261751 METAR KJFK 261751Z 20012KT 10SM SCT070 SCT250 28/13 A2993 RMK AO2 SLP136 T0283012
##   [43] "202006261851 METAR KJFK 261851Z 19014KT 10SM SCT075 SCT250 29/13 A2991 RMK AO2 SLP130 T0289013
##   [44] "202006261951 METAR KJFK 261951Z 18014KT 10SM SCT075 SCT120 SCT250 29/15 A2991 RMK AO2 SLP127 T
##   [45] "202006262051 METAR KJFK 262051Z 19016KT 10SM SCT075 SCT120 SCT250 27/17 A2990 RMK AO2 SLP124 T
##   [46] "202006262151 METAR KJFK 262151Z 19017KT 10SM FEW075 BKN120 26/17 A2990 RMK AO2 SLP126 T0261017
##   [47] "202006262251 METAR KJFK 262251Z 19013KT 10SM FEW075 SCT110 25/18 A2991 RMK AO2 SLP127 T0250017
##   [48] "202006262351 METAR KJFK 262351Z 19010KT 10SM FEW075 BKN130 24/18 A2990 RMK AO2 SLP126 T0239018
```

```
## [49] "202006270051 METAR KJFK 270051Z 26011KT 10SM FEW075 BKN110 BKN250 27/12 A2991 RMK AO2 SLP128 '
## [50] "202006270151 METAR KJFK 270151Z 27009KT 10SM FEW110 BKN250 26/13 A2991 RMK AO2 SLP130 T0261011
## [51] "202006270251 METAR KJFK 270251Z 24009KT 10SM FEW250 24/17 A2991 RMK AO2 SLP129 T02390167 5000:
## [52] "202006270351 METAR KJFK 270351Z 23005KT 10SM SCT250 22/17 A2991 RMK AO2 SLP127 T02220167="
## [53] "202006270451 METAR KJFK 270451Z 24008KT 10SM SCT250 23/16 A2990 RMK AO2 SLP124 T02280161 4030(
## [54] "202006270551 METAR KJFK 270551Z 21003KT 10SM SCT250 22/16 A2989 RMK AO2 SLP121 T02170161 1027:
## [55] "202006270651 METAR KJFK 270651Z 20007KT 10SM BKN250 21/16 A2989 RMK AO2 SLP120 T02110161="
## [56] "202006270751 METAR KJFK 270751Z 22006KT 10SM BKN250 21/17 A2989 RMK AO2 SLP120 T02060172="
## [57] "202006270851 METAR KJFK 270851Z 23005KT 10SM BKN250 21/18 A2988 RMK AO2 SLP116 T02060178 5800!
## [58] "202006270951 METAR KJFK 270951Z 22007KT 10SM FEW120 FEW200 BKN250 21/17 A2987 RMK AO2 SLP115 '
## [59] "202006271051 METAR KJFK 271051Z 00000KT 10SM SCT120 SCT200 BKN250 22/18 A2986 RMK AO2 SLP112 '
## [60] "202006271151 METAR KJFK 271151Z 21006KT 10SM FEW120 BKN200 BKN250 23/18 A2986 RMK AO2 SLP110 '
## [61] "202006271251 METAR KJFK 271251Z 21007KT 10SM BKN110 BKN200 BKN250 23/18 A2986 RMK AO2 SLP110 '
## [62] "202006271351 METAR KJFK 271351Z 22007KT 10SM SCT095 BKN150 24/18 A2983 RMK AO2 SLP102 T0239011
## [63] "202006271451 METAR KJFK 271451Z 17006KT 10SM OVC110 24/18 A2981 RMK AO2 SLP095 T02390183 5801!
## [64] "202006271551 METAR KJFK 271551Z 19009KT 10SM OVC100 24/19 A2980 RMK AO2 SLP091 T02390189="
## [65] "202006271651 METAR KJFK 271651Z 22007KT 10SM -RA FEW100 OVC130 26/19 A2977 RMK AO2 RAB49 SLP08
## [66] "202006271751 METAR KJFK 271751Z 19011KT 10SM -RA FEW025 SCT100 OVC120 25/21 A2975 RMK AO2 RAE:
## [67] "202006271851 METAR KJFK 271851Z 18012KT 10SM -RA SCT039 BKN060 OVC085 26/21 A2972 RMK AO2 RAE:
## [68] "202006271951 METAR KJFK 271951Z 26009KT 7SM -RA FEW024 SCT038 BKN065 OVC130 24/22 A2972 RMK A(
## [69] "202006272051 METAR KJFK 272051Z 25012G19KT 7SM R04R/3500VP6000FT -TSRA FEW014 BKN031CB BKN095
## [70] "202006272151 METAR KJFK 272151Z 25015KT 10SM FEW045 SCT120 BKN210 BKN250 26/23 A2969 RMK AO2 1
## [71] "202006272251 METAR KJFK 272251Z 28010KT 10SM FEW045 BKN075 BKN120 BKN250 27/21 A2971 RMK AO2 ;
## [72] "202006272351 METAR KJFK 272351Z 25008KT 10SM FEW032 FEW045 SCT075 BKN250 25/22 A2972 RMK AO2 ;
## [73] "202006280051 METAR KJFK 280051Z 22008KT 10SM FEW045 SCT070 SCT170 BKN250 23/21 A2973 RMK AO2 ;
## [74] "202006280151 METAR KJFK 280151Z 24008KT 10SM FEW045 FEW095 SCT170 BKN250 23/21 A2975 RMK AO2 ;
## [75] "202006280251 METAR KJFK 280251Z 18003KT 10SM FEW045 FEW100 BKN200 BKN250 23/22 A2976 RMK AO2 ;
## [76] "202006280351 METAR KJFK 280351Z 16003KT 10SM FEW040 FEW095 BKN200 BKN250 22/21 A2976 RMK AO2 ;
## [77] "202006280451 METAR KJFK 280451Z 20006KT 10SM FEW040 BKN200 BKN250 22/21 A2974 RMK AO2 SLP071 '
## [78] "202006280551 METAR KJFK 280551Z 23005KT 10SM FEW090 FEW200 FEW250 22/21 A2974 RMK AO2 SLP070 '
## [79] "202006280651 METAR KJFK 280651Z 24004KT 10SM FEW120 FEW150 SCT250 22/21 A2973 RMK AO2 SLP068 '
## [80] "202006280751 METAR KJFK 280751Z 21005KT 10SM FEW120 FEW150 SCT250 22/21 A2973 RMK AO2 SLP066 '
## [81] "202006280851 METAR KJFK 280851Z 26004KT 10SM FEW120 BKN150 22/21 A2974 RMK AO2 SLP069 T022202:
## [82] "202006280951 METAR KJFK 280951Z 20004KT 9SM FEW085 BKN110 BKN150 BKN250 22/21 A2975 RMK AO2 S1
## [83] "202006281051 METAR KJFK 281051Z 22005KT 9SM FEW080 SCT110 SCT250 23/22 A2976 RMK AO2 SLP076 T(
## [84] "202006281151 METAR KJFK 281151Z 23005KT 10SM FEW080 SCT110 SCT250 24/21 A2976 RMK AO2 SLP077 '
## [85] "202006281251 METAR KJFK 281251Z 19004KT 10SM FEW080 FEW110 SCT250 26/21 A2976 RMK AO2 SLP079 '
## [86] "202006281351 METAR KJFK 281351Z 16004KT 10SM FEW040 SCT110 BKN250 27/21 A2976 RMK AO2 SLP078 '
## [87] "202006281451 METAR KJFK 281451Z 19008KT 10SM SCT040 SCT110 SCT250 28/21 A2976 RMK AO2 SLP078 '
## [88] "202006281551 METAR KJFK 281551Z 19008KT 10SM SCT040 SCT110 BKN250 29/21 A2976 RMK AO2 SLP077 '
## [89] "202006281651 METAR KJFK 281651Z 18010KT 10SM SCT040 SCT055 SCT150 BKN250 30/19 A2974 RMK AO2 1
## [90] "202006281751 METAR KJFK 281751Z 17012KT 10SM FEW040 SCT055 SCT150 BKN250 29/21 A2972 RMK AO2 ;
## [91] "202006281851 METAR KJFK 281851Z 18013KT 10SM FEW040 SCT055 SCT150 29/21 A2971 RMK AO2 SLP061 (
## [92] "202006281951 METAR KJFK 281951Z 17015KT 10SM SCT055 SCT150 BKN250 29/21 A2970 RMK AO2 LTG DSN'
## [93] "202006282051 METAR KJFK 282051Z 18016KT 10SM SCT055 SCT150 BKN250 28/19 A2970 RMK AO2 LTG DSN'
## [94] "202006282151 METAR KJFK 282151Z 17012KT 10SM SCT060 SCT130 BKN250 26/21 A2970 RMK AO2 SLP057 (
## [95] "202006282251 METAR KJFK 282251Z 08006KT 10SM BKN065 BKN150 BKN250 25/21 A2971 RMK AO2 LTG DSN'
## [96] "202006282351 METAR KJFK 282351Z 12008KT 4SM -TSRA BKN030CB BKN060 BKN100 23/20 A2973 RMK AO2 1
## [97] "202006290051 METAR KJFK 290051Z 18003KT 10SM SCT030 BKN080 BKN100 23/20 A2973 RMK AO2 LTG DSN'
## [98] "202006290151 METAR KJFK 290151Z 00000KT 10SM FEW070 BKN110 23/21 A2974 RMK AO2 SLP071 FRQ LTG:
## [99] "202006290251 METAR KJFK 290251Z 22007KT 10SM BKN120 23/21 A2975 RMK AO2 SLP074 60000 T022802:
## [100] "202006290351 METAR KJFK 290351Z 21006KT 10SM SCT130 22/20 A2975 RMK AO2 SLP075 T02170200="
## [101] "202006290451 METAR KJFK 290451Z 32007KT 10SM FEW130 23/21 A2974 RMK AO2 SLP071 T02280206 4030(
## [102] "202006290551 METAR KJFK 290551Z 31008KT 10SM FEW130 23/20 A2974 RMK AO2 SLP069 60000 T0228020(
```

```
## [103] "202006290651 METAR KJFK 290651Z 28005KT 10SM FEW130 23/19 A2974 RMK AO2 SLP069 T02280194="
## [104] "202006290751 METAR KJFK 290751Z 33009KT 10SM FEW130 22/19 A2975 RMK AO2 SLP072 T02220189="
## [105] "202006290851 METAR KJFK 290851Z 34009KT 10SM FEW100 22/19 A2975 RMK AO2 SLP074 T02220189 5300!
## [106] "202006290951 METAR KJFK 290951Z 02006KT 10SM FEW100 22/19 A2977 RMK AO2 SLP080 T02170189="
## [107] "202006291051 METAR KJFK 291051Z 33008KT 10SM FEW047 SCT100 23/18 A2979 RMK AO2 SLP089 T0228018
## [108] "202006291151 METAR KJFK 291151Z 10SM FEW047 FEW100 24/18 A2980 RMK AO2 SLP092 70052 T02390183
## [109] "202006291251 METAR KJFK 291251Z 36005KT 10SM FEW050 FEW100 FEW250 26/18 A2981 RMK AO2 SLP094 '
## [110] "202006291351 METAR KJFK 291351Z 35013KT 10SM FEW034 SCT100 27/18 A2981 RMK AO2 SLP093 T0272018
## [111] "202006291451 METAR KJFK 291451Z 01013KT 10SM SCT036 27/18 A2982 RMK AO2 SLP097 T02720178 5300!
## [112] "202006291551 METAR KJFK 291551Z 01010G17KT 10SM SCT037 SCT050 28/18 A2982 RMK AO2 SLP097 T028:
## [113] "202006291651 METAR KJFK 291651Z 35007KT 10SM SCT035 BKN049 27/18 A2982 RMK AO2 SLP096 T027201'
## [114] "202006291751 METAR KJFK 291751Z 01014G19KT 10SM SCT043 SCT250 29/18 A2980 RMK AO2 SLP090 CB D!
## [115] "202006291851 METAR KJFK 291851Z 02013G19KT 10SM SCT049 SCT250 29/16 A2979 RMK AO2 SLP088 T029
## [116] "202006291951 METAR KJFK 291951Z 35015KT 10SM SCT055 SCT250 31/16 A2980 RMK AO2 SLP089 T030601!
## [117] "202006292051 METAR KJFK 292051Z 01012KT 10SM SCT055 SCT250 29/15 A2979 RMK AO2 SLP088 CB DSNT
## [118] "202006292151 METAR KJFK 292151Z 01010KT 10SM SCT060 SCT090 BKN250 31/15 A2980 RMK AO2 LTG DSNT
## [119] "202006292251 METAR KJFK 292251Z 03013G23KT 10SM -TSRA FEW030 BKN055CB BKN110 BKN140 BKN250 27,
```

We will parse the last report from the above dm. In historical reports dates and hours are placed at the beginning of texts. Normally it's extracted and parsed, but for now let's remove it

```
(dm[length(dm)])
```

```
## [1] "202006292355 METAR KJFK 292355Z AUTO 07007KT 10SM FEW079 24/18 A2986 RMK T02400180  LTG DSNT S!
```

```
my_report <- substr(dm[length(dm)], 14, nchar(dm[length(dm)]))
my_report
```

```
## [1] "METAR KJFK 292355Z AUTO 07007KT 10SM FEW079 24/18 A2986 RMK T02400180  LTG DSNT S! MADISHF"
```

It has to be noted that the report part after the RMK, remarks, is not analyzed, except the temperature information, which is provide more precisely in remarks. "`