

# hmkw6.2A

student

2023-09-10

## CUSUM Part 1

Part 1: Using July through October daily-high-temperature data for Atlanta for 1996 through 2015, use a CUSUM approach to identify when unofficial summer ends (i.e., when the weather starts cooling off) each year.

### Summary

*First things first, I eyeballed the temperature data and picked months that seemed to be pretty stable, year-over-year — July and August, in this case. I wanted to get a sense of what “normal” looks like, so I calculated the average high temperature for these two summer months for each year over a 20-year span. Think of this as my baseline or “critical value” (I’m calling it `ref_value` in the code).*

*Onto the hard part: setting the threshold! I played around with a bunch of numbers, but ultimately I used a range between -35 to -40, this is the CUSUM formula at play: `cusum <- cusum + (yearly_data$Temperature[i] - ref_value)`. So it’s basically the running sum of how far off each day’s temperature is from my average ‘critical value.’*

*The kicker: when I looked at the results, it turned out that most years signaled the end of Atlanta’s summer in September( maybe a clustering model at this point might be good!). This actually made sense because, when I checked out a time series plot of average high temperatures, there’s a noticeable dip starting around August and going into September.*

*That’s how I used CUSUM to decode Atlanta’s end of summer days. The last pages is a running table of CUSUM calculations, just for because I was curious to see it in action.*

Load Libraries

```
library(tidyrr)
library(tidyverse)
```

```
## -- Attaching core tidyverse packages ----- tidyverse 2.0.0 --
## v dplyr      1.1.2      v purrr      1.0.2
## v forcats    1.0.0      v readr      2.1.4
## v ggplot2    3.4.3      v stringr    1.5.0
## v lubridate  1.9.2      v tibble     3.2.1
## -- Conflicts ----- tidyverse_conflicts() --
## x dplyr::filter() masks stats::filter()
## x dplyr::lag()     masks stats::lag()
## i Use the conflicted package (<http://conflicted.r-lib.org/>) to force all conflicts to become errors
```

```
library(dplyr)
library(ggplot2)
library(zoo)
```

```
##
## Attaching package: 'zoo'
##
## The following objects are masked from 'package:base':
##
##      as.Date, as.Date.numeric
```

## CUSUM

Get Data

```
# construct the file path
file_path <- paste0("C:\\Users\\Public\\Documents\\gatech\\hw3-FA23\\data 6.2\\temps.txt")

# read in the data
weather_data <- read.table(file_path, header = TRUE)

#view data
tail(weather_data)
```

```
##      DAY X1996 X1997 X1998 X1999 X2000 X2001 X2002 X2003 X2004 X2005 X2006
## 118 26-Oct   75    71    79    69    75    64    68    68    79    61    62
## 119 27-Oct   75    57    79    75    78    51    69    64    81    63    66
## 120 28-Oct   81    55    79    73    80    55    75    57    78    62    63
## 121 29-Oct   82    64    78    72    75    63    75    70    75    64    72
## 122 30-Oct   82    66    82    75    77    72    68    77    78    69    73
## 123 31-Oct   81    60    79    75    78    71    60    75    82    70    68
##      X2007 X2008 X2009 X2010 X2011 X2012 X2013 X2014 X2015
## 118     68     70     65     85     77     80     61     84     67
## 119     67     59     60     76     79     70     69     84     56
## 120     70     50     71     74     74     56     64     77     78
## 121     62     59     75     68     59     56     75     73     70
## 122     67     65     66     71     61     56     78     68     70
## 123     71     67     69     75     65     65     74     63     62
```

Aggregate Plot

```
# convert DAY column to date format
weather_data$DAY <- as.Date(weather_data$DAY, format="%d-%b")

# convert to long format
long_data <- tidyr::pivot_longer(weather_data, cols=-DAY, names_to="Year", values_to="Temperature")

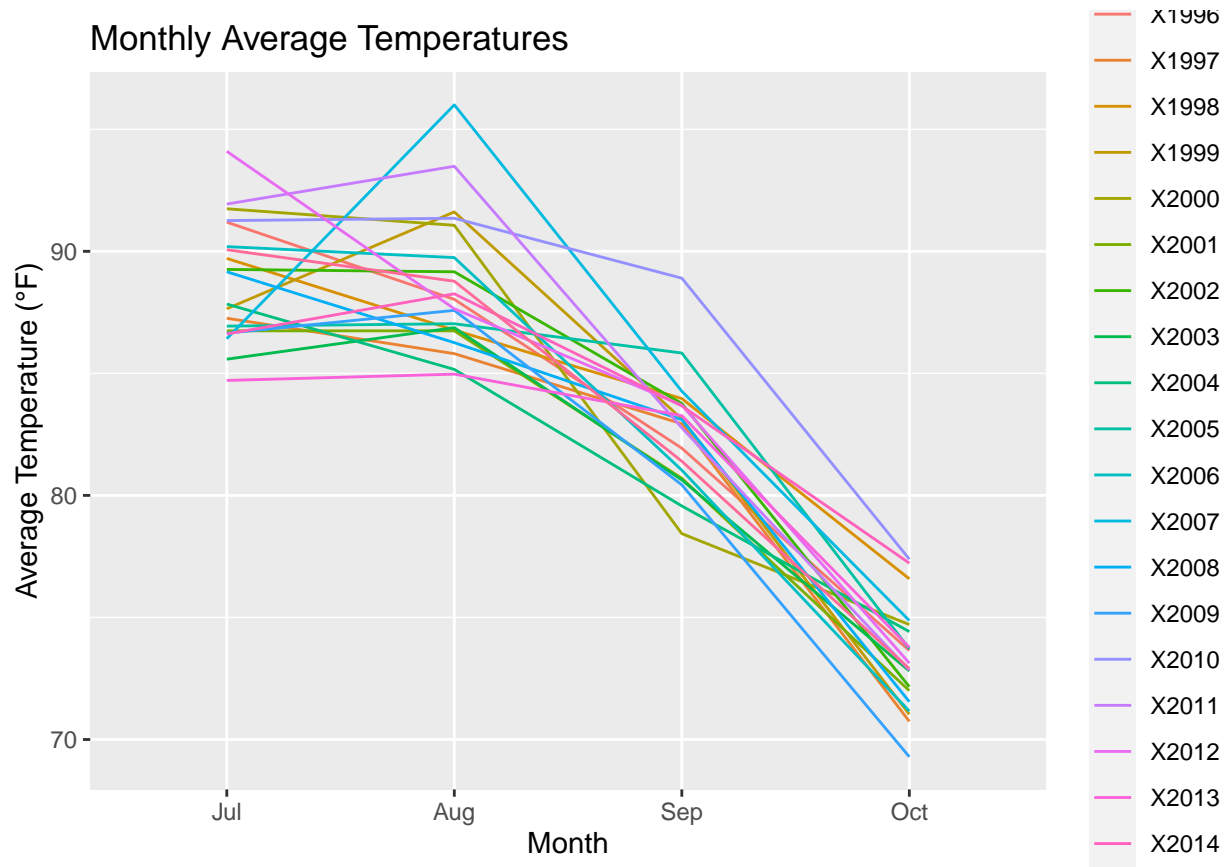
# extract month and add as new column
long_data$Month <- format(long_data$DAY, "%b")

# calculate monthly averages
monthly_avg <- dplyr::group_by(long_data, Year, Month)
monthly_avg <- dplyr::summarise(monthly_avg, Avg_Temperature = mean(Temperature, na.rm=TRUE))

## 'summarise()' has grouped output by 'Year'. You can override using the
## '.groups' argument.
```

```
# month as an ordered factor in monthly_avg
monthly_avg$Month <- factor(monthly_avg$Month, levels=c("Jul", "Aug", "Sep", "Oct"))

# plot monthly averages for each year
ggplot2::ggplot(monthly_avg, ggplot2::aes(x=Month, y=Avg_Temperature, group=Year, color=Year)) +
  ggplot2::geom_line() +
  ggplot2::labs(title="Monthly Average Temperatures", x="Month", y="Average Temperature (°F)")
```



```
# group by year and month, then calculate average temperature for each month
monthly_avg <- dplyr::group_by(long_data, Year, Month)
monthly_avg <- dplyr::summarise(monthly_avg, Avg_Temperature = mean(Temperature, na.rm=TRUE))
```

## 'summarise()' has grouped output by 'Year'. You can override using the  
## '.groups' argument.

```
# calc average daily high and lowest average high temperature with month
min_max_avg_per_year <- dplyr::group_by(monthly_avg, Year)
min_max_avg_per_year <- dplyr::summarise(
  min_max_avg_per_year,
  Average_Daily_High = mean(Avg_Temperature, na.rm=TRUE),
  Min_AVG_Temperature = min(Avg_Temperature, na.rm=TRUE),
  Min_Month = Month[which.min(Avg_Temperature)],
  Max_AVG_Temperature = max(Avg_Temperature, na.rm=TRUE),
  Max_Month = Month[which.max(Avg_Temperature)]
```

```
)

# Print summary
print(paste("Metrics for each year:"))
```

```
## [1] "Metrics for each year:"
```

```
print(min_max_avg_per_year)
```

```
## # A tibble: 20 x 6
##   Year Average_Daily_High Min_AVG_Temperature Min_Month Max_AVG_Temperature
##   <chr>          <dbl>          <dbl> <chr>          <dbl>
## 1 X1996          83.7          73.6 Oct          91.2
## 2 X1997          81.7          70.7 Oct          87.3
## 3 X1998          84.3          76.6 Oct          89.7
## 4 X1999          83.4          71.0 Oct          91.6
## 5 X2000          84.0          74.7 Oct          91.7
## 6 X2001          81.5          72   Oct          86.7
## 7 X2002          83.6          72.2 Oct          89.3
## 8 X2003          81.5          72.8 Oct          86.9
## 9 X2004          81.7          74.4 Oct          87.8
## 10 X2005          83.4          73.7 Oct          87.0
## 11 X2006          83.0          71.2 Oct          90.2
## 12 X2007          85.4          74.9 Oct           96
## 13 X2008          82.5          71.5 Oct          89.2
## 14 X2009          81.0          69.3 Oct          87.6
## 15 X2010          87.2          77.4 Oct          91.4
## 16 X2011          85.3          72.8 Oct          93.5
## 17 X2012          84.6          73.1 Oct          94.1
## 18 X2013          81.7          73.8 Oct          85.0
## 19 X2014          83.9          77.2 Oct          88.3
## 20 X2015          83.3          72.9 Oct          90.1
## # i 1 more variable: Max_Month <chr>
```

Apply CUSUM

```
# Initialize empty data frame to store end-of-summer days and CUSUM calculations
end_of_summer <- data.frame(Year=integer(), Day=as.Date(character()))
cusum_data <- data.frame(Year=integer(), Day=as.Date(character()), Temperature=numeric(), Ref_Value=num

# loop through each unique year in the dataset
for (year in unique(long_data$Year)) {

  # data for the current year
  yearly_data <- dplyr::filter(long_data, Year == year)

  # data for July and August for specific year
  jul_aug_data_year <- dplyr::filter(yearly_data, Month %in% c("July", "Aug"))

  # average high temperature for July and August for specific year
  ref_value <- mean(jul_aug_data_year$Temperature, na.rm=TRUE)
```

```

# initialize CUSUM variable
cusum <- 0

# loop through each day in this year
for (i in 1:nrow(yearly_data)) {
  cusum <- cusum + (yearly_data$Temperature[i] - ref_value)

  # add CUSUM data to cusum_data
  cusum_data <- rbind(cusum_data, data.frame(
    Year=year,
    Day=yearly_data$DAY[i],
    Temperature=yearly_data$Temperature[i],
    Ref_Value=ref_value,
    CUSUM=cusum
  ))

  # try different thresholds
  if (cusum < -40) {
    end_of_summer <- rbind(end_of_summer, data.frame(Year=year, Day=yearly_data$DAY[i]))
    break
  }
}

# display the days that indicate the end of unofficial summer for each year
print("End of unofficial summer for each year:")

```

```
## [1] "End of unofficial summer for each year:"
```

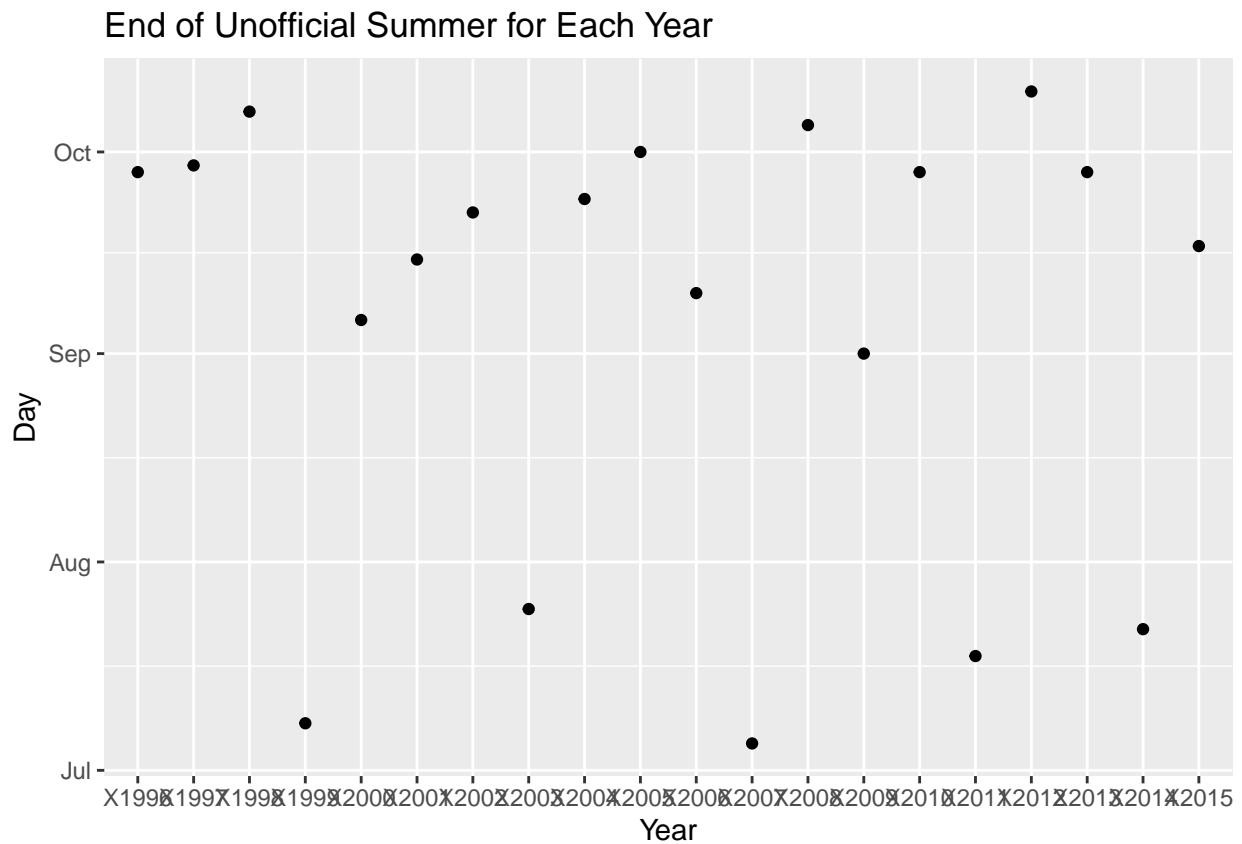
```
print(end_of_summer)
```

```
##      Year      Day
## 1 X1996 2023-09-28
## 2 X1997 2023-09-29
## 3 X1998 2023-10-07
## 4 X1999 2023-07-08
## 5 X2000 2023-09-06
## 6 X2001 2023-09-15
## 7 X2002 2023-09-22
## 8 X2003 2023-07-25
## 9 X2004 2023-09-24
## 10 X2005 2023-10-01
## 11 X2006 2023-09-10
## 12 X2007 2023-07-05
## 13 X2008 2023-10-05
## 14 X2009 2023-09-01
## 15 X2010 2023-09-28
## 16 X2011 2023-07-18
## 17 X2012 2023-10-10
## 18 X2013 2023-09-28
## 19 X2014 2023-07-22
## 20 X2015 2023-09-17
```

Plot the end of summer days

```
# plot the end_of_summer data
ggplot(end_of_summer, aes(x=Year, y=Day)) +
  geom_point() +
  geom_line() +
  ggtitle("End of Unofficial Summer for Each Year") +
  xlab("Year") +
  ylab("Day")
```

```
## 'geom_line()': Each group consists of only one observation.
## i Do you need to adjust the group aesthetic?
```



[View Full CUSUM Calculations](#)

```
# display the CUSUM calculations
print("CUSUM calculations:")
```

```
## [1] "CUSUM calculations:"
```

```
print(cusum_data)
```

```
##      Year      Day Temperature Ref_Value      CUSUM
## 1  X1996 2023-07-01          98  88.03226  9.967742e+00
```

## 2	X1996	2023-07-02	97	88.03226	1.893548e+01
## 3	X1996	2023-07-03	97	88.03226	2.790323e+01
## 4	X1996	2023-07-04	90	88.03226	2.987097e+01
## 5	X1996	2023-07-05	89	88.03226	3.083871e+01
## 6	X1996	2023-07-06	93	88.03226	3.580645e+01
## 7	X1996	2023-07-07	93	88.03226	4.077419e+01
## 8	X1996	2023-07-08	91	88.03226	4.374194e+01
## 9	X1996	2023-07-09	93	88.03226	4.870968e+01
## 10	X1996	2023-07-10	93	88.03226	5.367742e+01
## 11	X1996	2023-07-11	90	88.03226	5.564516e+01
## 12	X1996	2023-07-12	91	88.03226	5.861290e+01
## 13	X1996	2023-07-13	93	88.03226	6.358065e+01
## 14	X1996	2023-07-14	93	88.03226	6.854839e+01
## 15	X1996	2023-07-15	82	88.03226	6.251613e+01
## 16	X1996	2023-07-16	91	88.03226	6.548387e+01
## 17	X1996	2023-07-17	96	88.03226	7.345161e+01
## 18	X1996	2023-07-18	95	88.03226	8.041935e+01
## 19	X1996	2023-07-19	96	88.03226	8.838710e+01
## 20	X1996	2023-07-20	99	88.03226	9.935484e+01
## 21	X1996	2023-07-21	91	88.03226	1.023226e+02
## 22	X1996	2023-07-22	95	88.03226	1.092903e+02
## 23	X1996	2023-07-23	91	88.03226	1.122581e+02
## 24	X1996	2023-07-24	93	88.03226	1.172258e+02
## 25	X1996	2023-07-25	84	88.03226	1.131935e+02
## 26	X1996	2023-07-26	84	88.03226	1.091613e+02
## 27	X1996	2023-07-27	82	88.03226	1.031290e+02
## 28	X1996	2023-07-28	79	88.03226	9.409677e+01
## 29	X1996	2023-07-29	90	88.03226	9.606452e+01
## 30	X1996	2023-07-30	91	88.03226	9.903226e+01
## 31	X1996	2023-07-31	87	88.03226	9.800000e+01
## 32	X1996	2023-08-01	86	88.03226	9.596774e+01
## 33	X1996	2023-08-02	90	88.03226	9.793548e+01
## 34	X1996	2023-08-03	84	88.03226	9.390323e+01
## 35	X1996	2023-08-04	91	88.03226	9.687097e+01
## 36	X1996	2023-08-05	93	88.03226	1.018387e+02
## 37	X1996	2023-08-06	88	88.03226	1.018065e+02
## 38	X1996	2023-08-07	91	88.03226	1.047742e+02
## 39	X1996	2023-08-08	84	88.03226	1.007419e+02
## 40	X1996	2023-08-09	90	88.03226	1.027097e+02
## 41	X1996	2023-08-10	89	88.03226	1.036774e+02
## 42	X1996	2023-08-11	88	88.03226	1.036452e+02
## 43	X1996	2023-08-12	86	88.03226	1.016129e+02
## 44	X1996	2023-08-13	84	88.03226	9.758065e+01
## 45	X1996	2023-08-14	86	88.03226	9.554839e+01
## 46	X1996	2023-08-15	89	88.03226	9.651613e+01
## 47	X1996	2023-08-16	90	88.03226	9.848387e+01
## 48	X1996	2023-08-17	91	88.03226	1.014516e+02
## 49	X1996	2023-08-18	91	88.03226	1.044194e+02
## 50	X1996	2023-08-19	90	88.03226	1.063871e+02
## 51	X1996	2023-08-20	89	88.03226	1.073548e+02
## 52	X1996	2023-08-21	90	88.03226	1.093226e+02
## 53	X1996	2023-08-22	91	88.03226	1.122903e+02
## 54	X1996	2023-08-23	91	88.03226	1.152581e+02
## 55	X1996	2023-08-24	91	88.03226	1.182258e+02

## 56	X1996	2023-08-25	84	88.03226	1.141935e+02
## 57	X1996	2023-08-26	88	88.03226	1.141613e+02
## 58	X1996	2023-08-27	84	88.03226	1.101290e+02
## 59	X1996	2023-08-28	86	88.03226	1.080968e+02
## 60	X1996	2023-08-29	88	88.03226	1.080645e+02
## 61	X1996	2023-08-30	84	88.03226	1.040323e+02
## 62	X1996	2023-08-31	82	88.03226	9.800000e+01
## 63	X1996	2023-09-01	80	88.03226	8.996774e+01
## 64	X1996	2023-09-02	73	88.03226	7.493548e+01
## 65	X1996	2023-09-03	87	88.03226	7.390323e+01
## 66	X1996	2023-09-04	84	88.03226	6.987097e+01
## 67	X1996	2023-09-05	87	88.03226	6.883871e+01
## 68	X1996	2023-09-06	89	88.03226	6.980645e+01
## 69	X1996	2023-09-07	89	88.03226	7.077419e+01
## 70	X1996	2023-09-08	89	88.03226	7.174194e+01
## 71	X1996	2023-09-09	91	88.03226	7.470968e+01
## 72	X1996	2023-09-10	84	88.03226	7.067742e+01
## 73	X1996	2023-09-11	86	88.03226	6.864516e+01
## 74	X1996	2023-09-12	88	88.03226	6.861290e+01
## 75	X1996	2023-09-13	78	88.03226	5.858065e+01
## 76	X1996	2023-09-14	79	88.03226	4.954839e+01
## 77	X1996	2023-09-15	86	88.03226	4.751613e+01
## 78	X1996	2023-09-16	82	88.03226	4.148387e+01
## 79	X1996	2023-09-17	82	88.03226	3.545161e+01
## 80	X1996	2023-09-18	78	88.03226	2.541935e+01
## 81	X1996	2023-09-19	79	88.03226	1.638710e+01
## 82	X1996	2023-09-20	79	88.03226	7.354839e+00
## 83	X1996	2023-09-21	78	88.03226	-2.677419e+00
## 84	X1996	2023-09-22	81	88.03226	-9.709677e+00
## 85	X1996	2023-09-23	84	88.03226	-1.374194e+01
## 86	X1996	2023-09-24	84	88.03226	-1.777419e+01
## 87	X1996	2023-09-25	87	88.03226	-1.880645e+01
## 88	X1996	2023-09-26	84	88.03226	-2.283871e+01
## 89	X1996	2023-09-27	79	88.03226	-3.187097e+01
## 90	X1996	2023-09-28	75	88.03226	-4.490323e+01
## 91	X1997	2023-07-01	86	85.80645	1.935484e-01
## 92	X1997	2023-07-02	90	85.80645	4.387097e+00
## 93	X1997	2023-07-03	93	85.80645	1.158065e+01
## 94	X1997	2023-07-04	91	85.80645	1.677419e+01
## 95	X1997	2023-07-05	84	85.80645	1.496774e+01
## 96	X1997	2023-07-06	84	85.80645	1.316129e+01
## 97	X1997	2023-07-07	75	85.80645	2.354839e+00
## 98	X1997	2023-07-08	87	85.80645	3.548387e+00
## 99	X1997	2023-07-09	84	85.80645	1.741935e+00
## 100	X1997	2023-07-10	87	85.80645	2.935484e+00
## 101	X1997	2023-07-11	84	85.80645	1.129032e+00
## 102	X1997	2023-07-12	88	85.80645	3.322581e+00
## 103	X1997	2023-07-13	86	85.80645	3.516129e+00
## 104	X1997	2023-07-14	90	85.80645	7.709677e+00
## 105	X1997	2023-07-15	91	85.80645	1.290323e+01
## 106	X1997	2023-07-16	91	85.80645	1.809677e+01
## 107	X1997	2023-07-17	89	85.80645	2.129032e+01
## 108	X1997	2023-07-18	89	85.80645	2.448387e+01
## 109	X1997	2023-07-19	89	85.80645	2.767742e+01



## 110	X1997	2023-07-20	90	85.80645	3.187097e+01
## 111	X1997	2023-07-21	89	85.80645	3.506452e+01
## 112	X1997	2023-07-22	84	85.80645	3.325806e+01
## 113	X1997	2023-07-23	87	85.80645	3.445161e+01
## 114	X1997	2023-07-24	88	85.80645	3.664516e+01
## 115	X1997	2023-07-25	89	85.80645	3.983871e+01
## 116	X1997	2023-07-26	89	85.80645	4.303226e+01
## 117	X1997	2023-07-27	91	85.80645	4.822581e+01
## 118	X1997	2023-07-28	91	85.80645	5.341935e+01
## 119	X1997	2023-07-29	89	85.80645	5.661290e+01
## 120	X1997	2023-07-30	88	85.80645	5.880645e+01
## 121	X1997	2023-07-31	72	85.80645	4.500000e+01
## 122	X1997	2023-08-01	80	85.80645	3.919355e+01
## 123	X1997	2023-08-02	84	85.80645	3.738710e+01
## 124	X1997	2023-08-03	88	85.80645	3.958065e+01
## 125	X1997	2023-08-04	89	85.80645	4.277419e+01
## 126	X1997	2023-08-05	88	85.80645	4.496774e+01
## 127	X1997	2023-08-06	84	85.80645	4.316129e+01
## 128	X1997	2023-08-07	84	85.80645	4.135484e+01
## 129	X1997	2023-08-08	80	85.80645	3.554839e+01
## 130	X1997	2023-08-09	73	85.80645	2.274194e+01
## 131	X1997	2023-08-10	80	85.80645	1.693548e+01
## 132	X1997	2023-08-11	86	85.80645	1.712903e+01
## 133	X1997	2023-08-12	88	85.80645	1.932258e+01
## 134	X1997	2023-08-13	88	85.80645	2.151613e+01
## 135	X1997	2023-08-14	87	85.80645	2.270968e+01
## 136	X1997	2023-08-15	88	85.80645	2.490323e+01
## 137	X1997	2023-08-16	91	85.80645	3.009677e+01
## 138	X1997	2023-08-17	91	85.80645	3.529032e+01
## 139	X1997	2023-08-18	89	85.80645	3.848387e+01
## 140	X1997	2023-08-19	89	85.80645	4.167742e+01
## 141	X1997	2023-08-20	88	85.80645	4.387097e+01
## 142	X1997	2023-08-21	82	85.80645	4.006452e+01
## 143	X1997	2023-08-22	79	85.80645	3.325806e+01
## 144	X1997	2023-08-23	81	85.80645	2.845161e+01
## 145	X1997	2023-08-24	82	85.80645	2.464516e+01
## 146	X1997	2023-08-25	84	85.80645	2.283871e+01
## 147	X1997	2023-08-26	87	85.80645	2.403226e+01
## 148	X1997	2023-08-27	90	85.80645	2.822581e+01
## 149	X1997	2023-08-28	90	85.80645	3.241935e+01
## 150	X1997	2023-08-29	91	85.80645	3.761290e+01
## 151	X1997	2023-08-30	91	85.80645	4.280645e+01
## 152	X1997	2023-08-31	88	85.80645	4.500000e+01
## 153	X1997	2023-09-01	88	85.80645	4.719355e+01
## 154	X1997	2023-09-02	91	85.80645	5.238710e+01
## 155	X1997	2023-09-03	93	85.80645	5.958065e+01
## 156	X1997	2023-09-04	81	85.80645	5.477419e+01
## 157	X1997	2023-09-05	81	85.80645	4.996774e+01
## 158	X1997	2023-09-06	82	85.80645	4.616129e+01
## 159	X1997	2023-09-07	86	85.80645	4.635484e+01
## 160	X1997	2023-09-08	88	85.80645	4.854839e+01
## 161	X1997	2023-09-09	84	85.80645	4.674194e+01
## 162	X1997	2023-09-10	80	85.80645	4.093548e+01
## 163	X1997	2023-09-11	82	85.80645	3.712903e+01

## 164	X1997	2023-09-12	86	85.80645	3.732258e+01
## 165	X1997	2023-09-13	87	85.80645	3.851613e+01
## 166	X1997	2023-09-14	87	85.80645	3.970968e+01
## 167	X1997	2023-09-15	88	85.80645	4.190323e+01
## 168	X1997	2023-09-16	88	85.80645	4.409677e+01
## 169	X1997	2023-09-17	90	85.80645	4.829032e+01
## 170	X1997	2023-09-18	88	85.80645	5.048387e+01
## 171	X1997	2023-09-19	91	85.80645	5.567742e+01
## 172	X1997	2023-09-20	95	85.80645	6.487097e+01
## 173	X1997	2023-09-21	89	85.80645	6.806452e+01
## 174	X1997	2023-09-22	70	85.80645	5.225806e+01
## 175	X1997	2023-09-23	80	85.80645	4.645161e+01
## 176	X1997	2023-09-24	82	85.80645	4.264516e+01
## 177	X1997	2023-09-25	66	85.80645	2.283871e+01
## 178	X1997	2023-09-26	70	85.80645	7.032258e+00
## 179	X1997	2023-09-27	64	85.80645	-1.477419e+01
## 180	X1997	2023-09-28	68	85.80645	-3.258065e+01
## 181	X1997	2023-09-29	77	85.80645	-4.138710e+01
## 182	X1998	2023-07-01	91	86.77419	4.225806e+00
## 183	X1998	2023-07-02	88	86.77419	5.451613e+00
## 184	X1998	2023-07-03	91	86.77419	9.677419e+00
## 185	X1998	2023-07-04	91	86.77419	1.390323e+01
## 186	X1998	2023-07-05	91	86.77419	1.812903e+01
## 187	X1998	2023-07-06	89	86.77419	2.035484e+01
## 188	X1998	2023-07-07	93	86.77419	2.658065e+01
## 189	X1998	2023-07-08	95	86.77419	3.480645e+01
## 190	X1998	2023-07-09	95	86.77419	4.303226e+01
## 191	X1998	2023-07-10	91	86.77419	4.725806e+01
## 192	X1998	2023-07-11	91	86.77419	5.148387e+01
## 193	X1998	2023-07-12	86	86.77419	5.070968e+01
## 194	X1998	2023-07-13	88	86.77419	5.193548e+01
## 195	X1998	2023-07-14	87	86.77419	5.216129e+01
## 196	X1998	2023-07-15	91	86.77419	5.638710e+01
## 197	X1998	2023-07-16	87	86.77419	5.661290e+01
## 198	X1998	2023-07-17	90	86.77419	5.983871e+01
## 199	X1998	2023-07-18	91	86.77419	6.406452e+01
## 200	X1998	2023-07-19	95	86.77419	7.229032e+01
## 201	X1998	2023-07-20	91	86.77419	7.651613e+01
## 202	X1998	2023-07-21	91	86.77419	8.074194e+01
## 203	X1998	2023-07-22	89	86.77419	8.296774e+01
## 204	X1998	2023-07-23	91	86.77419	8.719355e+01
## 205	X1998	2023-07-24	91	86.77419	9.141935e+01
## 206	X1998	2023-07-25	86	86.77419	9.064516e+01
## 207	X1998	2023-07-26	88	86.77419	9.187097e+01
## 208	X1998	2023-07-27	80	86.77419	8.509677e+01
## 209	X1998	2023-07-28	88	86.77419	8.632258e+01
## 210	X1998	2023-07-29	89	86.77419	8.854839e+01
## 211	X1998	2023-07-30	90	86.77419	9.177419e+01
## 212	X1998	2023-07-31	86	86.77419	9.100000e+01
## 213	X1998	2023-08-01	86	86.77419	9.022581e+01
## 214	X1998	2023-08-02	82	86.77419	8.545161e+01
## 215	X1998	2023-08-03	84	86.77419	8.267742e+01
## 216	X1998	2023-08-04	86	86.77419	8.190323e+01
## 217	X1998	2023-08-05	90	86.77419	8.512903e+01

## 218	X1998	2023-08-06	89	86.77419	8.735484e+01
## 219	X1998	2023-08-07	89	86.77419	8.958065e+01
## 220	X1998	2023-08-08	86	86.77419	8.880645e+01
## 221	X1998	2023-08-09	82	86.77419	8.403226e+01
## 222	X1998	2023-08-10	87	86.77419	8.425806e+01
## 223	X1998	2023-08-11	88	86.77419	8.548387e+01
## 224	X1998	2023-08-12	84	86.77419	8.270968e+01
## 225	X1998	2023-08-13	86	86.77419	8.193548e+01
## 226	X1998	2023-08-14	80	86.77419	7.516129e+01
## 227	X1998	2023-08-15	82	86.77419	7.038710e+01
## 228	X1998	2023-08-16	86	86.77419	6.961290e+01
## 229	X1998	2023-08-17	84	86.77419	6.683871e+01
## 230	X1998	2023-08-18	87	86.77419	6.706452e+01
## 231	X1998	2023-08-19	90	86.77419	7.029032e+01
## 232	X1998	2023-08-20	79	86.77419	6.251613e+01
## 233	X1998	2023-08-21	84	86.77419	5.974194e+01
## 234	X1998	2023-08-22	87	86.77419	5.996774e+01
## 235	X1998	2023-08-23	87	86.77419	6.019355e+01
## 236	X1998	2023-08-24	88	86.77419	6.141935e+01
## 237	X1998	2023-08-25	90	86.77419	6.464516e+01
## 238	X1998	2023-08-26	91	86.77419	6.887097e+01
## 239	X1998	2023-08-27	89	86.77419	7.109677e+01
## 240	X1998	2023-08-28	90	86.77419	7.432258e+01
## 241	X1998	2023-08-29	93	86.77419	8.054839e+01
## 242	X1998	2023-08-30	93	86.77419	8.677419e+01
## 243	X1998	2023-08-31	91	86.77419	9.100000e+01
## 244	X1998	2023-09-01	87	86.77419	9.122581e+01
## 245	X1998	2023-09-02	84	86.77419	8.845161e+01
## 246	X1998	2023-09-03	77	86.77419	7.867742e+01
## 247	X1998	2023-09-04	90	86.77419	8.190323e+01
## 248	X1998	2023-09-05	91	86.77419	8.612903e+01
## 249	X1998	2023-09-06	89	86.77419	8.835484e+01
## 250	X1998	2023-09-07	90	86.77419	9.158065e+01
## 251	X1998	2023-09-08	89	86.77419	9.380645e+01
## 252	X1998	2023-09-09	79	86.77419	8.603226e+01
## 253	X1998	2023-09-10	78	86.77419	7.725806e+01
## 254	X1998	2023-09-11	81	86.77419	7.148387e+01
## 255	X1998	2023-09-12	84	86.77419	6.870968e+01
## 256	X1998	2023-09-13	89	86.77419	7.093548e+01
## 257	X1998	2023-09-14	87	86.77419	7.116129e+01
## 258	X1998	2023-09-15	87	86.77419	7.138710e+01
## 259	X1998	2023-09-16	88	86.77419	7.261290e+01
## 260	X1998	2023-09-17	87	86.77419	7.283871e+01
## 261	X1998	2023-09-18	82	86.77419	6.806452e+01
## 262	X1998	2023-09-19	80	86.77419	6.129032e+01
## 263	X1998	2023-09-20	82	86.77419	5.651613e+01
## 264	X1998	2023-09-21	82	86.77419	5.174194e+01
## 265	X1998	2023-09-22	88	86.77419	5.296774e+01
## 266	X1998	2023-09-23	84	86.77419	5.019355e+01
## 267	X1998	2023-09-24	81	86.77419	4.441935e+01
## 268	X1998	2023-09-25	82	86.77419	3.964516e+01
## 269	X1998	2023-09-26	84	86.77419	3.687097e+01
## 270	X1998	2023-09-27	87	86.77419	3.709677e+01
## 271	X1998	2023-09-28	80	86.77419	3.032258e+01

## 272	X1998	2023-09-29	75	86.77419	1.854839e+01
## 273	X1998	2023-09-30	75	86.77419	6.774194e+00
## 274	X1998	2023-10-01	86	86.77419	6.000000e+00
## 275	X1998	2023-10-02	78	86.77419	-2.774194e+00
## 276	X1998	2023-10-03	77	86.77419	-1.254839e+01
## 277	X1998	2023-10-04	82	86.77419	-1.732258e+01
## 278	X1998	2023-10-05	82	86.77419	-2.209677e+01
## 279	X1998	2023-10-06	73	86.77419	-3.587097e+01
## 280	X1998	2023-10-07	82	86.77419	-4.064516e+01
## 281	X1999	2023-07-01	84	91.61290	-7.612903e+00
## 282	X1999	2023-07-02	82	91.61290	-1.722581e+01
## 283	X1999	2023-07-03	87	91.61290	-2.183871e+01
## 284	X1999	2023-07-04	88	91.61290	-2.545161e+01
## 285	X1999	2023-07-05	90	91.61290	-2.706452e+01
## 286	X1999	2023-07-06	91	91.61290	-2.767742e+01
## 287	X1999	2023-07-07	82	91.61290	-3.729032e+01
## 288	X1999	2023-07-08	86	91.61290	-4.290323e+01
## 289	X2000	2023-07-01	89	91.06452	-2.064516e+00
## 290	X2000	2023-07-02	91	91.06452	-2.129032e+00
## 291	X2000	2023-07-03	93	91.06452	-1.935484e-01
## 292	X2000	2023-07-04	95	91.06452	3.741935e+00
## 293	X2000	2023-07-05	96	91.06452	8.677419e+00
## 294	X2000	2023-07-06	96	91.06452	1.361290e+01
## 295	X2000	2023-07-07	96	91.06452	1.854839e+01
## 296	X2000	2023-07-08	91	91.06452	1.848387e+01
## 297	X2000	2023-07-09	96	91.06452	2.341935e+01
## 298	X2000	2023-07-10	99	91.06452	3.135484e+01
## 299	X2000	2023-07-11	96	91.06452	3.629032e+01
## 300	X2000	2023-07-12	93	91.06452	3.822581e+01
## 301	X2000	2023-07-13	91	91.06452	3.816129e+01
## 302	X2000	2023-07-14	93	91.06452	4.009677e+01
## 303	X2000	2023-07-15	93	91.06452	4.203226e+01
## 304	X2000	2023-07-16	93	91.06452	4.396774e+01
## 305	X2000	2023-07-17	91	91.06452	4.390323e+01
## 306	X2000	2023-07-18	97	91.06452	4.983871e+01
## 307	X2000	2023-07-19	100	91.06452	5.877419e+01
## 308	X2000	2023-07-20	99	91.06452	6.670968e+01
## 309	X2000	2023-07-21	93	91.06452	6.864516e+01
## 310	X2000	2023-07-22	96	91.06452	7.358065e+01
## 311	X2000	2023-07-23	87	91.06452	6.951613e+01
## 312	X2000	2023-07-24	82	91.06452	6.045161e+01
## 313	X2000	2023-07-25	75	91.06452	4.438710e+01
## 314	X2000	2023-07-26	82	91.06452	3.532258e+01
## 315	X2000	2023-07-27	88	91.06452	3.225806e+01
## 316	X2000	2023-07-28	91	91.06452	3.219355e+01
## 317	X2000	2023-07-29	89	91.06452	3.012903e+01
## 318	X2000	2023-07-30	87	91.06452	2.606452e+01
## 319	X2000	2023-07-31	86	91.06452	2.100000e+01
## 320	X2000	2023-08-01	86	91.06452	1.593548e+01
## 321	X2000	2023-08-02	81	91.06452	5.870968e+00
## 322	X2000	2023-08-03	84	91.06452	-1.193548e+00
## 323	X2000	2023-08-04	88	91.06452	-4.258065e+00
## 324	X2000	2023-08-05	91	91.06452	-4.322581e+00
## 325	X2000	2023-08-06	91	91.06452	-4.387097e+00

## 326	X2000	2023-08-07	91	91.06452	-4.451613e+00
## 327	X2000	2023-08-08	91	91.06452	-4.516129e+00
## 328	X2000	2023-08-09	96	91.06452	4.193548e-01
## 329	X2000	2023-08-10	95	91.06452	4.354839e+00
## 330	X2000	2023-08-11	89	91.06452	2.290323e+00
## 331	X2000	2023-08-12	89	91.06452	2.258065e-01
## 332	X2000	2023-08-13	89	91.06452	-1.838710e+00
## 333	X2000	2023-08-14	89	91.06452	-3.903226e+00
## 334	X2000	2023-08-15	94	91.06452	-9.677419e-01
## 335	X2000	2023-08-16	97	91.06452	4.967742e+00
## 336	X2000	2023-08-17	99	91.06452	1.290323e+01
## 337	X2000	2023-08-18	101	91.06452	2.283871e+01
## 338	X2000	2023-08-19	101	91.06452	3.277419e+01
## 339	X2000	2023-08-20	97	91.06452	3.870968e+01
## 340	X2000	2023-08-21	87	91.06452	3.464516e+01
## 341	X2000	2023-08-22	86	91.06452	2.958065e+01
## 342	X2000	2023-08-23	88	91.06452	2.651613e+01
## 343	X2000	2023-08-24	92	91.06452	2.745161e+01
## 344	X2000	2023-08-25	92	91.06452	2.838710e+01
## 345	X2000	2023-08-26	90	91.06452	2.732258e+01
## 346	X2000	2023-08-27	90	91.06452	2.625806e+01
## 347	X2000	2023-08-28	92	91.06452	2.719355e+01
## 348	X2000	2023-08-29	92	91.06452	2.812903e+01
## 349	X2000	2023-08-30	88	91.06452	2.506452e+01
## 350	X2000	2023-08-31	87	91.06452	2.100000e+01
## 351	X2000	2023-09-01	79	91.06452	8.935484e+00
## 352	X2000	2023-09-02	81	91.06452	-1.129032e+00
## 353	X2000	2023-09-03	82	91.06452	-1.019355e+01
## 354	X2000	2023-09-04	87	91.06452	-1.425806e+01
## 355	X2000	2023-09-05	81	91.06452	-2.432258e+01
## 356	X2000	2023-09-06	66	91.06452	-4.938710e+01
## 357	X2001	2023-07-01	84	86.74194	-2.741935e+00
## 358	X2001	2023-07-02	87	86.74194	-2.483871e+00
## 359	X2001	2023-07-03	87	86.74194	-2.225806e+00
## 360	X2001	2023-07-04	84	86.74194	-4.967742e+00
## 361	X2001	2023-07-05	86	86.74194	-5.709677e+00
## 362	X2001	2023-07-06	87	86.74194	-5.451613e+00
## 363	X2001	2023-07-07	87	86.74194	-5.193548e+00
## 364	X2001	2023-07-08	89	86.74194	-2.935484e+00
## 365	X2001	2023-07-09	91	86.74194	1.322581e+00
## 366	X2001	2023-07-10	87	86.74194	1.580645e+00
## 367	X2001	2023-07-11	90	86.74194	4.838710e+00
## 368	X2001	2023-07-12	90	86.74194	8.096774e+00
## 369	X2001	2023-07-13	86	86.74194	7.354839e+00
## 370	X2001	2023-07-14	82	86.74194	2.612903e+00
## 371	X2001	2023-07-15	82	86.74194	-2.129032e+00
## 372	X2001	2023-07-16	84	86.74194	-4.870968e+00
## 373	X2001	2023-07-17	87	86.74194	-4.612903e+00
## 374	X2001	2023-07-18	88	86.74194	-3.354839e+00
## 375	X2001	2023-07-19	90	86.74194	-9.677419e-02
## 376	X2001	2023-07-20	87	86.74194	1.612903e-01
## 377	X2001	2023-07-21	84	86.74194	-2.580645e+00
## 378	X2001	2023-07-22	87	86.74194	-2.322581e+00
## 379	X2001	2023-07-23	90	86.74194	9.354839e-01

## 380	X2001	2023-07-24	84	86.74194	-1.806452e+00
## 381	X2001	2023-07-25	82	86.74194	-6.548387e+00
## 382	X2001	2023-07-26	88	86.74194	-5.290323e+00
## 383	X2001	2023-07-27	90	86.74194	-2.032258e+00
## 384	X2001	2023-07-28	84	86.74194	-4.774194e+00
## 385	X2001	2023-07-29	89	86.74194	-2.516129e+00
## 386	X2001	2023-07-30	89	86.74194	-2.580645e-01
## 387	X2001	2023-07-31	87	86.74194	2.131628e-13
## 388	X2001	2023-08-01	84	86.74194	-2.741935e+00
## 389	X2001	2023-08-02	84	86.74194	-5.483871e+00
## 390	X2001	2023-08-03	84	86.74194	-8.225806e+00
## 391	X2001	2023-08-04	86	86.74194	-8.967742e+00
## 392	X2001	2023-08-05	88	86.74194	-7.709677e+00
## 393	X2001	2023-08-06	84	86.74194	-1.045161e+01
## 394	X2001	2023-08-07	86	86.74194	-1.119355e+01
## 395	X2001	2023-08-08	88	86.74194	-9.935484e+00
## 396	X2001	2023-08-09	87	86.74194	-9.677419e+00
## 397	X2001	2023-08-10	88	86.74194	-8.419355e+00
## 398	X2001	2023-08-11	86	86.74194	-9.161290e+00
## 399	X2001	2023-08-12	86	86.74194	-9.903226e+00
## 400	X2001	2023-08-13	81	86.74194	-1.564516e+01
## 401	X2001	2023-08-14	87	86.74194	-1.538710e+01
## 402	X2001	2023-08-15	84	86.74194	-1.812903e+01
## 403	X2001	2023-08-16	90	86.74194	-1.487097e+01
## 404	X2001	2023-08-17	91	86.74194	-1.061290e+01
## 405	X2001	2023-08-18	91	86.74194	-6.354839e+00
## 406	X2001	2023-08-19	87	86.74194	-6.096774e+00
## 407	X2001	2023-08-20	86	86.74194	-6.838710e+00
## 408	X2001	2023-08-21	88	86.74194	-5.580645e+00
## 409	X2001	2023-08-22	90	86.74194	-2.322581e+00
## 410	X2001	2023-08-23	88	86.74194	-1.064516e+00
## 411	X2001	2023-08-24	93	86.74194	5.193548e+00
## 412	X2001	2023-08-25	90	86.74194	8.451613e+00
## 413	X2001	2023-08-26	91	86.74194	1.270968e+01
## 414	X2001	2023-08-27	91	86.74194	1.696774e+01
## 415	X2001	2023-08-28	81	86.74194	1.122581e+01
## 416	X2001	2023-08-29	86	86.74194	1.048387e+01
## 417	X2001	2023-08-30	81	86.74194	4.741935e+00
## 418	X2001	2023-08-31	82	86.74194	4.263256e-13
## 419	X2001	2023-09-01	80	86.74194	-6.741935e+00
## 420	X2001	2023-09-02	75	86.74194	-1.848387e+01
## 421	X2001	2023-09-03	73	86.74194	-3.222581e+01
## 422	X2001	2023-09-04	81	86.74194	-3.796774e+01
## 423	X2001	2023-09-05	90	86.74194	-3.470968e+01
## 424	X2001	2023-09-06	88	86.74194	-3.345161e+01
## 425	X2001	2023-09-07	87	86.74194	-3.319355e+01
## 426	X2001	2023-09-08	86	86.74194	-3.393548e+01
## 427	X2001	2023-09-09	86	86.74194	-3.467742e+01
## 428	X2001	2023-09-10	89	86.74194	-3.241935e+01
## 429	X2001	2023-09-11	87	86.74194	-3.216129e+01
## 430	X2001	2023-09-12	84	86.74194	-3.490323e+01
## 431	X2001	2023-09-13	84	86.74194	-3.764516e+01
## 432	X2001	2023-09-14	86	86.74194	-3.838710e+01
## 433	X2001	2023-09-15	77	86.74194	-4.812903e+01

## 434	X2002	2023-07-01	90	89.16129	8.387097e-01
## 435	X2002	2023-07-02	90	89.16129	1.677419e+00
## 436	X2002	2023-07-03	87	89.16129	-4.838710e-01
## 437	X2002	2023-07-04	89	89.16129	-6.451613e-01
## 438	X2002	2023-07-05	93	89.16129	3.193548e+00
## 439	X2002	2023-07-06	93	89.16129	7.032258e+00
## 440	X2002	2023-07-07	89	89.16129	6.870968e+00
## 441	X2002	2023-07-08	89	89.16129	6.709677e+00
## 442	X2002	2023-07-09	90	89.16129	7.548387e+00
## 443	X2002	2023-07-10	91	89.16129	9.387097e+00
## 444	X2002	2023-07-11	84	89.16129	4.225806e+00
## 445	X2002	2023-07-12	77	89.16129	-7.935484e+00
## 446	X2002	2023-07-13	82	89.16129	-1.509677e+01
## 447	X2002	2023-07-14	88	89.16129	-1.625806e+01
## 448	X2002	2023-07-15	91	89.16129	-1.441935e+01
## 449	X2002	2023-07-16	93	89.16129	-1.058065e+01
## 450	X2002	2023-07-17	93	89.16129	-6.741935e+00
## 451	X2002	2023-07-18	93	89.16129	-2.903226e+00
## 452	X2002	2023-07-19	93	89.16129	9.354839e-01
## 453	X2002	2023-07-20	91	89.16129	2.774194e+00
## 454	X2002	2023-07-21	95	89.16129	8.612903e+00
## 455	X2002	2023-07-22	91	89.16129	1.045161e+01
## 456	X2002	2023-07-23	89	89.16129	1.029032e+01
## 457	X2002	2023-07-24	87	89.16129	8.129032e+00
## 458	X2002	2023-07-25	84	89.16129	2.967742e+00
## 459	X2002	2023-07-26	86	89.16129	-1.935484e-01
## 460	X2002	2023-07-27	89	89.16129	-3.548387e-01
## 461	X2002	2023-07-28	91	89.16129	1.483871e+00
## 462	X2002	2023-07-29	91	89.16129	3.322581e+00
## 463	X2002	2023-07-30	88	89.16129	2.161290e+00
## 464	X2002	2023-07-31	90	89.16129	3.000000e+00
## 465	X2002	2023-08-01	93	89.16129	6.838710e+00
## 466	X2002	2023-08-02	91	89.16129	8.677419e+00
## 467	X2002	2023-08-03	91	89.16129	1.051613e+01
## 468	X2002	2023-08-04	91	89.16129	1.235484e+01
## 469	X2002	2023-08-05	93	89.16129	1.619355e+01
## 470	X2002	2023-08-06	97	89.16129	2.403226e+01
## 471	X2002	2023-08-07	87	89.16129	2.187097e+01
## 472	X2002	2023-08-08	87	89.16129	1.970968e+01
## 473	X2002	2023-08-09	86	89.16129	1.654839e+01
## 474	X2002	2023-08-10	88	89.16129	1.538710e+01
## 475	X2002	2023-08-11	89	89.16129	1.522581e+01
## 476	X2002	2023-08-12	91	89.16129	1.706452e+01
## 477	X2002	2023-08-13	91	89.16129	1.890323e+01
## 478	X2002	2023-08-14	89	89.16129	1.874194e+01
## 479	X2002	2023-08-15	88	89.16129	1.758065e+01
## 480	X2002	2023-08-16	90	89.16129	1.841935e+01
## 481	X2002	2023-08-17	91	89.16129	2.025806e+01
## 482	X2002	2023-08-18	93	89.16129	2.409677e+01
## 483	X2002	2023-08-19	91	89.16129	2.593548e+01
## 484	X2002	2023-08-20	93	89.16129	2.977419e+01
## 485	X2002	2023-08-21	93	89.16129	3.361290e+01
## 486	X2002	2023-08-22	91	89.16129	3.545161e+01
## 487	X2002	2023-08-23	95	89.16129	4.129032e+01

## 488	X2002	2023-08-24	93	89.16129	4.512903e+01
## 489	X2002	2023-08-25	91	89.16129	4.696774e+01
## 490	X2002	2023-08-26	88	89.16129	4.580645e+01
## 491	X2002	2023-08-27	84	89.16129	4.064516e+01
## 492	X2002	2023-08-28	82	89.16129	3.348387e+01
## 493	X2002	2023-08-29	82	89.16129	2.632258e+01
## 494	X2002	2023-08-30	78	89.16129	1.516129e+01
## 495	X2002	2023-08-31	77	89.16129	3.000000e+00
## 496	X2002	2023-09-01	84	89.16129	-2.161290e+00
## 497	X2002	2023-09-02	84	89.16129	-7.322581e+00
## 498	X2002	2023-09-03	89	89.16129	-7.483871e+00
## 499	X2002	2023-09-04	95	89.16129	-1.645161e+00
## 500	X2002	2023-09-05	93	89.16129	2.193548e+00
## 501	X2002	2023-09-06	91	89.16129	4.032258e+00
## 502	X2002	2023-09-07	88	89.16129	2.870968e+00
## 503	X2002	2023-09-08	87	89.16129	7.096774e-01
## 504	X2002	2023-09-09	91	89.16129	2.548387e+00
## 505	X2002	2023-09-10	95	89.16129	8.387097e+00
## 506	X2002	2023-09-11	95	89.16129	1.422581e+01
## 507	X2002	2023-09-12	90	89.16129	1.506452e+01
## 508	X2002	2023-09-13	75	89.16129	9.032258e-01
## 509	X2002	2023-09-14	78	89.16129	-1.025806e+01
## 510	X2002	2023-09-15	91	89.16129	-8.419355e+00
## 511	X2002	2023-09-16	88	89.16129	-9.580645e+00
## 512	X2002	2023-09-17	86	89.16129	-1.274194e+01
## 513	X2002	2023-09-18	81	89.16129	-2.090323e+01
## 514	X2002	2023-09-19	80	89.16129	-3.006452e+01
## 515	X2002	2023-09-20	86	89.16129	-3.322581e+01
## 516	X2002	2023-09-21	84	89.16129	-3.838710e+01
## 517	X2002	2023-09-22	77	89.16129	-5.054839e+01
## 518	X2003	2023-07-01	73	86.87097	-1.387097e+01
## 519	X2003	2023-07-02	81	86.87097	-1.974194e+01
## 520	X2003	2023-07-03	87	86.87097	-1.961290e+01
## 521	X2003	2023-07-04	86	86.87097	-2.048387e+01
## 522	X2003	2023-07-05	80	86.87097	-2.735484e+01
## 523	X2003	2023-07-06	84	86.87097	-3.022581e+01
## 524	X2003	2023-07-07	87	86.87097	-3.009677e+01
## 525	X2003	2023-07-08	90	86.87097	-2.696774e+01
## 526	X2003	2023-07-09	89	86.87097	-2.483871e+01
## 527	X2003	2023-07-10	84	86.87097	-2.770968e+01
## 528	X2003	2023-07-11	84	86.87097	-3.058065e+01
## 529	X2003	2023-07-12	86	86.87097	-3.145161e+01
## 530	X2003	2023-07-13	87	86.87097	-3.132258e+01
## 531	X2003	2023-07-14	84	86.87097	-3.419355e+01
## 532	X2003	2023-07-15	86	86.87097	-3.506452e+01
## 533	X2003	2023-07-16	88	86.87097	-3.393548e+01
## 534	X2003	2023-07-17	88	86.87097	-3.280645e+01
## 535	X2003	2023-07-18	88	86.87097	-3.167742e+01
## 536	X2003	2023-07-19	88	86.87097	-3.054839e+01
## 537	X2003	2023-07-20	88	86.87097	-2.941935e+01
## 538	X2003	2023-07-21	89	86.87097	-2.729032e+01
## 539	X2003	2023-07-22	86	86.87097	-2.816129e+01
## 540	X2003	2023-07-23	81	86.87097	-3.403226e+01
## 541	X2003	2023-07-24	82	86.87097	-3.890323e+01



## 542	X2003	2023-07-25	84	86.87097	-4.177419e+01
## 543	X2004	2023-07-01	82	85.16129	-3.161290e+00
## 544	X2004	2023-07-02	81	85.16129	-7.322581e+00
## 545	X2004	2023-07-03	86	85.16129	-6.483871e+00
## 546	X2004	2023-07-04	88	85.16129	-3.645161e+00
## 547	X2004	2023-07-05	90	85.16129	1.193548e+00
## 548	X2004	2023-07-06	90	85.16129	6.032258e+00
## 549	X2004	2023-07-07	89	85.16129	9.870968e+00
## 550	X2004	2023-07-08	87	85.16129	1.170968e+01
## 551	X2004	2023-07-09	88	85.16129	1.454839e+01
## 552	X2004	2023-07-10	89	85.16129	1.838710e+01
## 553	X2004	2023-07-11	90	85.16129	2.322581e+01
## 554	X2004	2023-07-12	89	85.16129	2.706452e+01
## 555	X2004	2023-07-13	91	85.16129	3.290323e+01
## 556	X2004	2023-07-14	91	85.16129	3.874194e+01
## 557	X2004	2023-07-15	84	85.16129	3.758065e+01
## 558	X2004	2023-07-16	84	85.16129	3.641935e+01
## 559	X2004	2023-07-17	84	85.16129	3.525806e+01
## 560	X2004	2023-07-18	87	85.16129	3.709677e+01
## 561	X2004	2023-07-19	84	85.16129	3.593548e+01
## 562	X2004	2023-07-20	88	85.16129	3.877419e+01
## 563	X2004	2023-07-21	89	85.16129	4.261290e+01
## 564	X2004	2023-07-22	89	85.16129	4.645161e+01
## 565	X2004	2023-07-23	93	85.16129	5.429032e+01
## 566	X2004	2023-07-24	95	85.16129	6.412903e+01
## 567	X2004	2023-07-25	89	85.16129	6.796774e+01
## 568	X2004	2023-07-26	87	85.16129	6.980645e+01
## 569	X2004	2023-07-27	84	85.16129	6.864516e+01
## 570	X2004	2023-07-28	89	85.16129	7.248387e+01
## 571	X2004	2023-07-29	87	85.16129	7.432258e+01
## 572	X2004	2023-07-30	89	85.16129	7.816129e+01
## 573	X2004	2023-07-31	90	85.16129	8.300000e+01
## 574	X2004	2023-08-01	91	85.16129	8.883871e+01
## 575	X2004	2023-08-02	90	85.16129	9.367742e+01
## 576	X2004	2023-08-03	91	85.16129	9.951613e+01
## 577	X2004	2023-08-04	91	85.16129	1.053548e+02
## 578	X2004	2023-08-05	90	85.16129	1.101935e+02
## 579	X2004	2023-08-06	84	85.16129	1.090323e+02
## 580	X2004	2023-08-07	81	85.16129	1.048710e+02
## 581	X2004	2023-08-08	82	85.16129	1.017097e+02
## 582	X2004	2023-08-09	84	85.16129	1.005484e+02
## 583	X2004	2023-08-10	75	85.16129	9.038710e+01
## 584	X2004	2023-08-11	82	85.16129	8.722581e+01
## 585	X2004	2023-08-12	80	85.16129	8.206452e+01
## 586	X2004	2023-08-13	77	85.16129	7.390323e+01
## 587	X2004	2023-08-14	82	85.16129	7.074194e+01
## 588	X2004	2023-08-15	82	85.16129	6.758065e+01
## 589	X2004	2023-08-16	84	85.16129	6.641935e+01
## 590	X2004	2023-08-17	86	85.16129	6.725806e+01
## 591	X2004	2023-08-18	86	85.16129	6.809677e+01
## 592	X2004	2023-08-19	89	85.16129	7.193548e+01
## 593	X2004	2023-08-20	88	85.16129	7.477419e+01
## 594	X2004	2023-08-21	82	85.16129	7.161290e+01
## 595	X2004	2023-08-22	84	85.16129	7.045161e+01

## 596	X2004	2023-08-23	84	85.16129	6.929032e+01
## 597	X2004	2023-08-24	87	85.16129	7.112903e+01
## 598	X2004	2023-08-25	82	85.16129	6.796774e+01
## 599	X2004	2023-08-26	86	85.16129	6.880645e+01
## 600	X2004	2023-08-27	88	85.16129	7.164516e+01
## 601	X2004	2023-08-28	90	85.16129	7.648387e+01
## 602	X2004	2023-08-29	87	85.16129	7.832258e+01
## 603	X2004	2023-08-30	88	85.16129	8.116129e+01
## 604	X2004	2023-08-31	87	85.16129	8.300000e+01
## 605	X2004	2023-09-01	82	85.16129	7.983871e+01
## 606	X2004	2023-09-02	80	85.16129	7.467742e+01
## 607	X2004	2023-09-03	81	85.16129	7.051613e+01
## 608	X2004	2023-09-04	82	85.16129	6.735484e+01
## 609	X2004	2023-09-05	84	85.16129	6.619355e+01
## 610	X2004	2023-09-06	81	85.16129	6.203226e+01
## 611	X2004	2023-09-07	86	85.16129	6.287097e+01
## 612	X2004	2023-09-08	73	85.16129	5.070968e+01
## 613	X2004	2023-09-09	84	85.16129	4.954839e+01
## 614	X2004	2023-09-10	84	85.16129	4.838710e+01
## 615	X2004	2023-09-11	84	85.16129	4.722581e+01
## 616	X2004	2023-09-12	81	85.16129	4.306452e+01
## 617	X2004	2023-09-13	79	85.16129	3.690323e+01
## 618	X2004	2023-09-14	79	85.16129	3.074194e+01
## 619	X2004	2023-09-15	73	85.16129	1.858065e+01
## 620	X2004	2023-09-16	75	85.16129	8.419355e+00
## 621	X2004	2023-09-17	80	85.16129	3.258065e+00
## 622	X2004	2023-09-18	79	85.16129	-2.903226e+00
## 623	X2004	2023-09-19	78	85.16129	-1.006452e+01
## 624	X2004	2023-09-20	73	85.16129	-2.222581e+01
## 625	X2004	2023-09-21	75	85.16129	-3.238710e+01
## 626	X2004	2023-09-22	80	85.16129	-3.754839e+01
## 627	X2004	2023-09-23	84	85.16129	-3.870968e+01
## 628	X2004	2023-09-24	82	85.16129	-4.187097e+01
## 629	X2005	2023-07-01	91	87.03226	3.967742e+00
## 630	X2005	2023-07-02	89	87.03226	5.935484e+00
## 631	X2005	2023-07-03	86	87.03226	4.903226e+00
## 632	X2005	2023-07-04	86	87.03226	3.870968e+00
## 633	X2005	2023-07-05	89	87.03226	5.838710e+00
## 634	X2005	2023-07-06	82	87.03226	8.064516e-01
## 635	X2005	2023-07-07	76	87.03226	-1.022581e+01
## 636	X2005	2023-07-08	88	87.03226	-9.258065e+00
## 637	X2005	2023-07-09	89	87.03226	-7.290323e+00
## 638	X2005	2023-07-10	78	87.03226	-1.632258e+01
## 639	X2005	2023-07-11	83	87.03226	-2.035484e+01
## 640	X2005	2023-07-12	86	87.03226	-2.138710e+01
## 641	X2005	2023-07-13	84	87.03226	-2.441935e+01
## 642	X2005	2023-07-14	87	87.03226	-2.445161e+01
## 643	X2005	2023-07-15	84	87.03226	-2.748387e+01
## 644	X2005	2023-07-16	85	87.03226	-2.951613e+01
## 645	X2005	2023-07-17	89	87.03226	-2.754839e+01
## 646	X2005	2023-07-18	90	87.03226	-2.458065e+01
## 647	X2005	2023-07-19	89	87.03226	-2.261290e+01
## 648	X2005	2023-07-20	89	87.03226	-2.064516e+01
## 649	X2005	2023-07-21	90	87.03226	-1.767742e+01

## 650	X2005	2023-07-22	91	87.03226	-1.370968e+01
## 651	X2005	2023-07-23	91	87.03226	-9.741935e+00
## 652	X2005	2023-07-24	90	87.03226	-6.774194e+00
## 653	X2005	2023-07-25	92	87.03226	-1.806452e+00
## 654	X2005	2023-07-26	94	87.03226	5.161290e+00
## 655	X2005	2023-07-27	92	87.03226	1.012903e+01
## 656	X2005	2023-07-28	90	87.03226	1.309677e+01
## 657	X2005	2023-07-29	83	87.03226	9.064516e+00
## 658	X2005	2023-07-30	78	87.03226	3.225806e-02
## 659	X2005	2023-07-31	84	87.03226	-3.000000e+00
## 660	X2005	2023-08-01	82	87.03226	-8.032258e+00
## 661	X2005	2023-08-02	86	87.03226	-9.064516e+00
## 662	X2005	2023-08-03	88	87.03226	-8.096774e+00
## 663	X2005	2023-08-04	91	87.03226	-4.129032e+00
## 664	X2005	2023-08-05	88	87.03226	-3.161290e+00
## 665	X2005	2023-08-06	86	87.03226	-4.193548e+00
## 666	X2005	2023-08-07	80	87.03226	-1.122581e+01
## 667	X2005	2023-08-08	82	87.03226	-1.625806e+01
## 668	X2005	2023-08-09	85	87.03226	-1.829032e+01
## 669	X2005	2023-08-10	83	87.03226	-2.232258e+01
## 670	X2005	2023-08-11	87	87.03226	-2.235484e+01
## 671	X2005	2023-08-12	88	87.03226	-2.138710e+01
## 672	X2005	2023-08-13	86	87.03226	-2.241935e+01
## 673	X2005	2023-08-14	90	87.03226	-1.945161e+01
## 674	X2005	2023-08-15	92	87.03226	-1.448387e+01
## 675	X2005	2023-08-16	89	87.03226	-1.251613e+01
## 676	X2005	2023-08-17	90	87.03226	-9.548387e+00
## 677	X2005	2023-08-18	90	87.03226	-6.580645e+00
## 678	X2005	2023-08-19	89	87.03226	-4.612903e+00
## 679	X2005	2023-08-20	92	87.03226	3.548387e-01
## 680	X2005	2023-08-21	94	87.03226	7.322581e+00
## 681	X2005	2023-08-22	93	87.03226	1.329032e+01
## 682	X2005	2023-08-23	87	87.03226	1.325806e+01
## 683	X2005	2023-08-24	85	87.03226	1.122581e+01
## 684	X2005	2023-08-25	84	87.03226	8.193548e+00
## 685	X2005	2023-08-26	84	87.03226	5.161290e+00
## 686	X2005	2023-08-27	86	87.03226	4.129032e+00
## 687	X2005	2023-08-28	86	87.03226	3.096774e+00
## 688	X2005	2023-08-29	85	87.03226	1.064516e+00
## 689	X2005	2023-08-30	85	87.03226	-9.677419e-01
## 690	X2005	2023-08-31	85	87.03226	-3.000000e+00
## 691	X2005	2023-09-01	85	87.03226	-5.032258e+00
## 692	X2005	2023-09-02	88	87.03226	-4.064516e+00
## 693	X2005	2023-09-03	87	87.03226	-4.096774e+00
## 694	X2005	2023-09-04	85	87.03226	-6.129032e+00
## 695	X2005	2023-09-05	81	87.03226	-1.216129e+01
## 696	X2005	2023-09-06	81	87.03226	-1.819355e+01
## 697	X2005	2023-09-07	83	87.03226	-2.222581e+01
## 698	X2005	2023-09-08	85	87.03226	-2.425806e+01
## 699	X2005	2023-09-09	86	87.03226	-2.529032e+01
## 700	X2005	2023-09-10	84	87.03226	-2.832258e+01
## 701	X2005	2023-09-11	84	87.03226	-3.135484e+01
## 702	X2005	2023-09-12	86	87.03226	-3.238710e+01
## 703	X2005	2023-09-13	88	87.03226	-3.141935e+01

## 704	X2005	2023-09-14	88	87.03226	-3.045161e+01
## 705	X2005	2023-09-15	91	87.03226	-2.648387e+01
## 706	X2005	2023-09-16	88	87.03226	-2.551613e+01
## 707	X2005	2023-09-17	86	87.03226	-2.654839e+01
## 708	X2005	2023-09-18	88	87.03226	-2.558065e+01
## 709	X2005	2023-09-19	90	87.03226	-2.261290e+01
## 710	X2005	2023-09-20	90	87.03226	-1.964516e+01
## 711	X2005	2023-09-21	90	87.03226	-1.667742e+01
## 712	X2005	2023-09-22	86	87.03226	-1.770968e+01
## 713	X2005	2023-09-23	87	87.03226	-1.774194e+01
## 714	X2005	2023-09-24	88	87.03226	-1.677419e+01
## 715	X2005	2023-09-25	85	87.03226	-1.880645e+01
## 716	X2005	2023-09-26	77	87.03226	-2.883871e+01
## 717	X2005	2023-09-27	86	87.03226	-2.987097e+01
## 718	X2005	2023-09-28	85	87.03226	-3.190323e+01
## 719	X2005	2023-09-29	85	87.03226	-3.393548e+01
## 720	X2005	2023-09-30	82	87.03226	-3.896774e+01
## 721	X2005	2023-10-01	83	87.03226	-4.300000e+01
## 722	X2006	2023-07-01	93	89.74194	3.258065e+00
## 723	X2006	2023-07-02	93	89.74194	6.516129e+00
## 724	X2006	2023-07-03	93	89.74194	9.774194e+00
## 725	X2006	2023-07-04	91	89.74194	1.103226e+01
## 726	X2006	2023-07-05	90	89.74194	1.129032e+01
## 727	X2006	2023-07-06	81	89.74194	2.548387e+00
## 728	X2006	2023-07-07	80	89.74194	-7.193548e+00
## 729	X2006	2023-07-08	82	89.74194	-1.493548e+01
## 730	X2006	2023-07-09	84	89.74194	-2.067742e+01
## 731	X2006	2023-07-10	84	89.74194	-2.641935e+01
## 732	X2006	2023-07-11	90	89.74194	-2.616129e+01
## 733	X2006	2023-07-12	91	89.74194	-2.490323e+01
## 734	X2006	2023-07-13	91	89.74194	-2.364516e+01
## 735	X2006	2023-07-14	91	89.74194	-2.238710e+01
## 736	X2006	2023-07-15	91	89.74194	-2.112903e+01
## 737	X2006	2023-07-16	91	89.74194	-1.987097e+01
## 738	X2006	2023-07-17	93	89.74194	-1.661290e+01
## 739	X2006	2023-07-18	93	89.74194	-1.335484e+01
## 740	X2006	2023-07-19	96	89.74194	-7.096774e+00
## 741	X2006	2023-07-20	93	89.74194	-3.838710e+00
## 742	X2006	2023-07-21	93	89.74194	-5.806452e-01
## 743	X2006	2023-07-22	91	89.74194	6.774194e-01
## 744	X2006	2023-07-23	86	89.74194	-3.064516e+00
## 745	X2006	2023-07-24	87	89.74194	-5.806452e+00
## 746	X2006	2023-07-25	88	89.74194	-7.548387e+00
## 747	X2006	2023-07-26	93	89.74194	-4.290323e+00
## 748	X2006	2023-07-27	95	89.74194	9.677419e-01
## 749	X2006	2023-07-28	96	89.74194	7.225806e+00
## 750	X2006	2023-07-29	91	89.74194	8.483871e+00
## 751	X2006	2023-07-30	91	89.74194	9.741935e+00
## 752	X2006	2023-07-31	94	89.74194	1.400000e+01
## 753	X2006	2023-08-01	95	89.74194	1.925806e+01
## 754	X2006	2023-08-02	95	89.74194	2.451613e+01
## 755	X2006	2023-08-03	97	89.74194	3.177419e+01
## 756	X2006	2023-08-04	98	89.74194	4.003226e+01
## 757	X2006	2023-08-05	96	89.74194	4.629032e+01

## 758	X2006	2023-08-06	89	89.74194	4.554839e+01
## 759	X2006	2023-08-07	97	89.74194	5.280645e+01
## 760	X2006	2023-08-08	96	89.74194	5.906452e+01
## 761	X2006	2023-08-09	95	89.74194	6.432258e+01
## 762	X2006	2023-08-10	96	89.74194	7.058065e+01
## 763	X2006	2023-08-11	88	89.74194	6.883871e+01
## 764	X2006	2023-08-12	84	89.74194	6.309677e+01
## 765	X2006	2023-08-13	81	89.74194	5.435484e+01
## 766	X2006	2023-08-14	87	89.74194	5.161290e+01
## 767	X2006	2023-08-15	86	89.74194	4.787097e+01
## 768	X2006	2023-08-16	89	89.74194	4.712903e+01
## 769	X2006	2023-08-17	86	89.74194	4.338710e+01
## 770	X2006	2023-08-18	88	89.74194	4.164516e+01
## 771	X2006	2023-08-19	88	89.74194	3.990323e+01
## 772	X2006	2023-08-20	93	89.74194	4.316129e+01
## 773	X2006	2023-08-21	91	89.74194	4.441935e+01
## 774	X2006	2023-08-22	88	89.74194	4.267742e+01
## 775	X2006	2023-08-23	87	89.74194	3.993548e+01
## 776	X2006	2023-08-24	83	89.74194	3.319355e+01
## 777	X2006	2023-08-25	85	89.74194	2.845161e+01
## 778	X2006	2023-08-26	88	89.74194	2.670968e+01
## 779	X2006	2023-08-27	88	89.74194	2.496774e+01
## 780	X2006	2023-08-28	90	89.74194	2.522581e+01
## 781	X2006	2023-08-29	90	89.74194	2.548387e+01
## 782	X2006	2023-08-30	88	89.74194	2.374194e+01
## 783	X2006	2023-08-31	80	89.74194	1.400000e+01
## 784	X2006	2023-09-01	85	89.74194	9.258065e+00
## 785	X2006	2023-09-02	86	89.74194	5.516129e+00
## 786	X2006	2023-09-03	85	89.74194	7.741935e-01
## 787	X2006	2023-09-04	88	89.74194	-9.677419e-01
## 788	X2006	2023-09-05	83	89.74194	-7.709677e+00
## 789	X2006	2023-09-06	85	89.74194	-1.245161e+01
## 790	X2006	2023-09-07	80	89.74194	-2.219355e+01
## 791	X2006	2023-09-08	83	89.74194	-2.893548e+01
## 792	X2006	2023-09-09	83	89.74194	-3.567742e+01
## 793	X2006	2023-09-10	85	89.74194	-4.041935e+01
## 794	X2007	2023-07-01	95	96.00000	-1.000000e+00
## 795	X2007	2023-07-02	85	96.00000	-1.200000e+01
## 796	X2007	2023-07-03	82	96.00000	-2.600000e+01
## 797	X2007	2023-07-04	86	96.00000	-3.600000e+01
## 798	X2007	2023-07-05	88	96.00000	-4.400000e+01
## 799	X2008	2023-07-01	85	86.25806	-1.258065e+00
## 800	X2008	2023-07-02	87	86.25806	-5.161290e-01
## 801	X2008	2023-07-03	91	86.25806	4.225806e+00
## 802	X2008	2023-07-04	90	86.25806	7.967742e+00
## 803	X2008	2023-07-05	88	86.25806	9.709677e+00
## 804	X2008	2023-07-06	82	86.25806	5.451613e+00
## 805	X2008	2023-07-07	88	86.25806	7.193548e+00
## 806	X2008	2023-07-08	90	86.25806	1.093548e+01
## 807	X2008	2023-07-09	89	86.25806	1.367742e+01
## 808	X2008	2023-07-10	87	86.25806	1.441935e+01
## 809	X2008	2023-07-11	89	86.25806	1.716129e+01
## 810	X2008	2023-07-12	93	86.25806	2.390323e+01
## 811	X2008	2023-07-13	85	86.25806	2.264516e+01

## 812	X2008	2023-07-14	88	86.25806	2.438710e+01
## 813	X2008	2023-07-15	89	86.25806	2.712903e+01
## 814	X2008	2023-07-16	89	86.25806	2.987097e+01
## 815	X2008	2023-07-17	88	86.25806	3.161290e+01
## 816	X2008	2023-07-18	90	86.25806	3.535484e+01
## 817	X2008	2023-07-19	91	86.25806	4.009677e+01
## 818	X2008	2023-07-20	94	86.25806	4.783871e+01
## 819	X2008	2023-07-21	95	86.25806	5.658065e+01
## 820	X2008	2023-07-22	92	86.25806	6.232258e+01
## 821	X2008	2023-07-23	87	86.25806	6.306452e+01
## 822	X2008	2023-07-24	88	86.25806	6.480645e+01
## 823	X2008	2023-07-25	89	86.25806	6.754839e+01
## 824	X2008	2023-07-26	87	86.25806	6.829032e+01
## 825	X2008	2023-07-27	90	86.25806	7.203226e+01
## 826	X2008	2023-07-28	93	86.25806	7.877419e+01
## 827	X2008	2023-07-29	92	86.25806	8.451613e+01
## 828	X2008	2023-07-30	90	86.25806	8.825806e+01
## 829	X2008	2023-07-31	88	86.25806	9.000000e+01
## 830	X2008	2023-08-01	89	86.25806	9.274194e+01
## 831	X2008	2023-08-02	92	86.25806	9.848387e+01
## 832	X2008	2023-08-03	91	86.25806	1.032258e+02
## 833	X2008	2023-08-04	91	86.25806	1.079677e+02
## 834	X2008	2023-08-05	92	86.25806	1.137097e+02
## 835	X2008	2023-08-06	94	86.25806	1.214516e+02
## 836	X2008	2023-08-07	90	86.25806	1.251935e+02
## 837	X2008	2023-08-08	86	86.25806	1.249355e+02
## 838	X2008	2023-08-09	85	86.25806	1.236774e+02
## 839	X2008	2023-08-10	85	86.25806	1.224194e+02
## 840	X2008	2023-08-11	88	86.25806	1.241613e+02
## 841	X2008	2023-08-12	81	86.25806	1.189032e+02
## 842	X2008	2023-08-13	81	86.25806	1.136452e+02
## 843	X2008	2023-08-14	84	86.25806	1.113871e+02
## 844	X2008	2023-08-15	87	86.25806	1.121290e+02
## 845	X2008	2023-08-16	86	86.25806	1.118710e+02
## 846	X2008	2023-08-17	85	86.25806	1.106129e+02
## 847	X2008	2023-08-18	86	86.25806	1.103548e+02
## 848	X2008	2023-08-19	90	86.25806	1.140968e+02
## 849	X2008	2023-08-20	90	86.25806	1.178387e+02
## 850	X2008	2023-08-21	85	86.25806	1.165806e+02
## 851	X2008	2023-08-22	82	86.25806	1.123226e+02
## 852	X2008	2023-08-23	78	86.25806	1.040645e+02
## 853	X2008	2023-08-24	83	86.25806	1.008065e+02
## 854	X2008	2023-08-25	78	86.25806	9.254839e+01
## 855	X2008	2023-08-26	83	86.25806	8.929032e+01
## 856	X2008	2023-08-27	80	86.25806	8.303226e+01
## 857	X2008	2023-08-28	86	86.25806	8.277419e+01
## 858	X2008	2023-08-29	89	86.25806	8.551613e+01
## 859	X2008	2023-08-30	89	86.25806	8.825806e+01
## 860	X2008	2023-08-31	88	86.25806	9.000000e+01
## 861	X2008	2023-09-01	81	86.25806	8.474194e+01
## 862	X2008	2023-09-02	85	86.25806	8.348387e+01
## 863	X2008	2023-09-03	83	86.25806	8.022581e+01
## 864	X2008	2023-09-04	85	86.25806	7.896774e+01
## 865	X2008	2023-09-05	88	86.25806	8.070968e+01

## 866	X2008	2023-09-06	87	86.25806	8.145161e+01
## 867	X2008	2023-09-07	89	86.25806	8.419355e+01
## 868	X2008	2023-09-08	90	86.25806	8.793548e+01
## 869	X2008	2023-09-09	88	86.25806	8.967742e+01
## 870	X2008	2023-09-10	87	86.25806	9.041935e+01
## 871	X2008	2023-09-11	83	86.25806	8.716129e+01
## 872	X2008	2023-09-12	87	86.25806	8.790323e+01
## 873	X2008	2023-09-13	86	86.25806	8.764516e+01
## 874	X2008	2023-09-14	88	86.25806	8.938710e+01
## 875	X2008	2023-09-15	79	86.25806	8.212903e+01
## 876	X2008	2023-09-16	80	86.25806	7.587097e+01
## 877	X2008	2023-09-17	69	86.25806	5.861290e+01
## 878	X2008	2023-09-18	82	86.25806	5.435484e+01
## 879	X2008	2023-09-19	81	86.25806	4.909677e+01
## 880	X2008	2023-09-20	79	86.25806	4.183871e+01
## 881	X2008	2023-09-21	75	86.25806	3.058065e+01
## 882	X2008	2023-09-22	84	86.25806	2.832258e+01
## 883	X2008	2023-09-23	82	86.25806	2.406452e+01
## 884	X2008	2023-09-24	78	86.25806	1.580645e+01
## 885	X2008	2023-09-25	82	86.25806	1.154839e+01
## 886	X2008	2023-09-26	80	86.25806	5.290323e+00
## 887	X2008	2023-09-27	77	86.25806	-3.967742e+00
## 888	X2008	2023-09-28	86	86.25806	-4.225806e+00
## 889	X2008	2023-09-29	86	86.25806	-4.483871e+00
## 890	X2008	2023-09-30	86	86.25806	-4.741935e+00
## 891	X2008	2023-10-01	74	86.25806	-1.700000e+01
## 892	X2008	2023-10-02	74	86.25806	-2.925806e+01
## 893	X2008	2023-10-03	80	86.25806	-3.551613e+01
## 894	X2008	2023-10-04	83	86.25806	-3.877419e+01
## 895	X2008	2023-10-05	83	86.25806	-4.203226e+01
## 896	X2009	2023-07-01	95	87.58065	7.419355e+00
## 897	X2009	2023-07-02	90	87.58065	9.838710e+00
## 898	X2009	2023-07-03	89	87.58065	1.125806e+01
## 899	X2009	2023-07-04	91	87.58065	1.467742e+01
## 900	X2009	2023-07-05	80	87.58065	7.096774e+00
## 901	X2009	2023-07-06	87	87.58065	6.516129e+00
## 902	X2009	2023-07-07	86	87.58065	4.935484e+00
## 903	X2009	2023-07-08	82	87.58065	-6.451613e-01
## 904	X2009	2023-07-09	84	87.58065	-4.225806e+00
## 905	X2009	2023-07-10	84	87.58065	-7.806452e+00
## 906	X2009	2023-07-11	86	87.58065	-9.387097e+00
## 907	X2009	2023-07-12	90	87.58065	-6.967742e+00
## 908	X2009	2023-07-13	84	87.58065	-1.054839e+01
## 909	X2009	2023-07-14	89	87.58065	-9.129032e+00
## 910	X2009	2023-07-15	89	87.58065	-7.709677e+00
## 911	X2009	2023-07-16	90	87.58065	-5.290323e+00
## 912	X2009	2023-07-17	88	87.58065	-4.870968e+00
## 913	X2009	2023-07-18	82	87.58065	-1.045161e+01
## 914	X2009	2023-07-19	80	87.58065	-1.803226e+01
## 915	X2009	2023-07-20	82	87.58065	-2.361290e+01
## 916	X2009	2023-07-21	86	87.58065	-2.519355e+01
## 917	X2009	2023-07-22	84	87.58065	-2.877419e+01
## 918	X2009	2023-07-23	87	87.58065	-2.935484e+01
## 919	X2009	2023-07-24	88	87.58065	-2.893548e+01

## 920	X2009	2023-07-25	90	87.58065	-2.651613e+01
## 921	X2009	2023-07-26	92	87.58065	-2.209677e+01
## 922	X2009	2023-07-27	90	87.58065	-1.967742e+01
## 923	X2009	2023-07-28	89	87.58065	-1.825806e+01
## 924	X2009	2023-07-29	85	87.58065	-2.083871e+01
## 925	X2009	2023-07-30	82	87.58065	-2.641935e+01
## 926	X2009	2023-07-31	85	87.58065	-2.900000e+01
## 927	X2009	2023-08-01	89	87.58065	-2.758065e+01
## 928	X2009	2023-08-02	83	87.58065	-3.216129e+01
## 929	X2009	2023-08-03	90	87.58065	-2.974194e+01
## 930	X2009	2023-08-04	92	87.58065	-2.532258e+01
## 931	X2009	2023-08-05	92	87.58065	-2.090323e+01
## 932	X2009	2023-08-06	89	87.58065	-1.948387e+01
## 933	X2009	2023-08-07	91	87.58065	-1.606452e+01
## 934	X2009	2023-08-08	92	87.58065	-1.164516e+01
## 935	X2009	2023-08-09	93	87.58065	-6.225806e+00
## 936	X2009	2023-08-10	93	87.58065	-8.064516e-01
## 937	X2009	2023-08-11	95	87.58065	6.612903e+00
## 938	X2009	2023-08-12	86	87.58065	5.032258e+00
## 939	X2009	2023-08-13	90	87.58065	7.451613e+00
## 940	X2009	2023-08-14	90	87.58065	9.870968e+00
## 941	X2009	2023-08-15	90	87.58065	1.229032e+01
## 942	X2009	2023-08-16	88	87.58065	1.270968e+01
## 943	X2009	2023-08-17	87	87.58065	1.212903e+01
## 944	X2009	2023-08-18	88	87.58065	1.254839e+01
## 945	X2009	2023-08-19	90	87.58065	1.496774e+01
## 946	X2009	2023-08-20	88	87.58065	1.538710e+01
## 947	X2009	2023-08-21	88	87.58065	1.580645e+01
## 948	X2009	2023-08-22	85	87.58065	1.322581e+01
## 949	X2009	2023-08-23	81	87.58065	6.645161e+00
## 950	X2009	2023-08-24	86	87.58065	5.064516e+00
## 951	X2009	2023-08-25	87	87.58065	4.483871e+00
## 952	X2009	2023-08-26	90	87.58065	6.903226e+00
## 953	X2009	2023-08-27	83	87.58065	2.322581e+00
## 954	X2009	2023-08-28	75	87.58065	-1.025806e+01
## 955	X2009	2023-08-29	86	87.58065	-1.183871e+01
## 956	X2009	2023-08-30	79	87.58065	-2.041935e+01
## 957	X2009	2023-08-31	79	87.58065	-2.900000e+01
## 958	X2009	2023-09-01	71	87.58065	-4.558065e+01
## 959	X2010	2023-07-01	87	91.35484	-4.354839e+00
## 960	X2010	2023-07-02	84	91.35484	-1.170968e+01
## 961	X2010	2023-07-03	83	91.35484	-2.006452e+01
## 962	X2010	2023-07-04	85	91.35484	-2.641935e+01
## 963	X2010	2023-07-05	88	91.35484	-2.977419e+01
## 964	X2010	2023-07-06	89	91.35484	-3.212903e+01
## 965	X2010	2023-07-07	94	91.35484	-2.948387e+01
## 966	X2010	2023-07-08	97	91.35484	-2.383871e+01
## 967	X2010	2023-07-09	96	91.35484	-1.919355e+01
## 968	X2010	2023-07-10	90	91.35484	-2.054839e+01
## 969	X2010	2023-07-11	93	91.35484	-1.890323e+01
## 970	X2010	2023-07-12	90	91.35484	-2.025806e+01
## 971	X2010	2023-07-13	91	91.35484	-2.061290e+01
## 972	X2010	2023-07-14	91	91.35484	-2.096774e+01
## 973	X2010	2023-07-15	94	91.35484	-1.832258e+01



## 974	X2010	2023-07-16	89	91.35484	-2.067742e+01
## 975	X2010	2023-07-17	87	91.35484	-2.503226e+01
## 976	X2010	2023-07-18	83	91.35484	-3.338710e+01
## 977	X2010	2023-07-19	90	91.35484	-3.474194e+01
## 978	X2010	2023-07-20	91	91.35484	-3.509677e+01
## 979	X2010	2023-07-21	94	91.35484	-3.245161e+01
## 980	X2010	2023-07-22	95	91.35484	-2.880645e+01
## 981	X2010	2023-07-23	97	91.35484	-2.316129e+01
## 982	X2010	2023-07-24	94	91.35484	-2.051613e+01
## 983	X2010	2023-07-25	95	91.35484	-1.687097e+01
## 984	X2010	2023-07-26	95	91.35484	-1.322581e+01
## 985	X2010	2023-07-27	93	91.35484	-1.158065e+01
## 986	X2010	2023-07-28	90	91.35484	-1.293548e+01
## 987	X2010	2023-07-29	94	91.35484	-1.029032e+01
## 988	X2010	2023-07-30	95	91.35484	-6.645161e+00
## 989	X2010	2023-07-31	95	91.35484	-3.000000e+00
## 990	X2010	2023-08-01	96	91.35484	1.645161e+00
## 991	X2010	2023-08-02	84	91.35484	-5.709677e+00
## 992	X2010	2023-08-03	92	91.35484	-5.064516e+00
## 993	X2010	2023-08-04	95	91.35484	-1.419355e+00
## 994	X2010	2023-08-05	93	91.35484	2.258065e-01
## 995	X2010	2023-08-06	93	91.35484	1.870968e+00
## 996	X2010	2023-08-07	91	91.35484	1.516129e+00
## 997	X2010	2023-08-08	93	91.35484	3.161290e+00
## 998	X2010	2023-08-09	94	91.35484	5.806452e+00
## 999	X2010	2023-08-10	94	91.35484	8.451613e+00
## 1000	X2010	2023-08-11	95	91.35484	1.209677e+01
## 1001	X2010	2023-08-12	95	91.35484	1.574194e+01
## 1002	X2010	2023-08-13	96	91.35484	2.038710e+01
## 1003	X2010	2023-08-14	89	91.35484	1.803226e+01
## 1004	X2010	2023-08-15	90	91.35484	1.667742e+01
## 1005	X2010	2023-08-16	90	91.35484	1.532258e+01
## 1006	X2010	2023-08-17	91	91.35484	1.496774e+01
## 1007	X2010	2023-08-18	93	91.35484	1.661290e+01
## 1008	X2010	2023-08-19	92	91.35484	1.725806e+01
## 1009	X2010	2023-08-20	93	91.35484	1.890323e+01
## 1010	X2010	2023-08-21	93	91.35484	2.054839e+01
## 1011	X2010	2023-08-22	94	91.35484	2.319355e+01
## 1012	X2010	2023-08-23	93	91.35484	2.483871e+01
## 1013	X2010	2023-08-24	90	91.35484	2.348387e+01
## 1014	X2010	2023-08-25	89	91.35484	2.112903e+01
## 1015	X2010	2023-08-26	90	91.35484	1.977419e+01
## 1016	X2010	2023-08-27	89	91.35484	1.741935e+01
## 1017	X2010	2023-08-28	87	91.35484	1.306452e+01
## 1018	X2010	2023-08-29	84	91.35484	5.709677e+00
## 1019	X2010	2023-08-30	85	91.35484	-6.451613e-01
## 1020	X2010	2023-08-31	89	91.35484	-3.000000e+00
## 1021	X2010	2023-09-01	90	91.35484	-4.354839e+00
## 1022	X2010	2023-09-02	91	91.35484	-4.709677e+00
## 1023	X2010	2023-09-03	92	91.35484	-4.064516e+00
## 1024	X2010	2023-09-04	84	91.35484	-1.141935e+01
## 1025	X2010	2023-09-05	85	91.35484	-1.777419e+01
## 1026	X2010	2023-09-06	90	91.35484	-1.912903e+01
## 1027	X2010	2023-09-07	91	91.35484	-1.948387e+01

## 1028 X2010 2023-09-08	93 91.35484 -1.783871e+01
## 1029 X2010 2023-09-09	92 91.35484 -1.719355e+01
## 1030 X2010 2023-09-10	94 91.35484 -1.454839e+01
## 1031 X2010 2023-09-11	96 91.35484 -9.903226e+00
## 1032 X2010 2023-09-12	89 91.35484 -1.225806e+01
## 1033 X2010 2023-09-13	86 91.35484 -1.761290e+01
## 1034 X2010 2023-09-14	91 91.35484 -1.796774e+01
## 1035 X2010 2023-09-15	91 91.35484 -1.832258e+01
## 1036 X2010 2023-09-16	89 91.35484 -2.067742e+01
## 1037 X2010 2023-09-17	95 91.35484 -1.703226e+01
## 1038 X2010 2023-09-18	93 91.35484 -1.538710e+01
## 1039 X2010 2023-09-19	92 91.35484 -1.474194e+01
## 1040 X2010 2023-09-20	96 91.35484 -1.009677e+01
## 1041 X2010 2023-09-21	95 91.35484 -6.451613e+00
## 1042 X2010 2023-09-22	92 91.35484 -5.806452e+00
## 1043 X2010 2023-09-23	91 91.35484 -6.161290e+00
## 1044 X2010 2023-09-24	88 91.35484 -9.516129e+00
## 1045 X2010 2023-09-25	93 91.35484 -7.870968e+00
## 1046 X2010 2023-09-26	76 91.35484 -2.322581e+01
## 1047 X2010 2023-09-27	81 91.35484 -3.358065e+01
## 1048 X2010 2023-09-28	76 91.35484 -4.893548e+01
## 1049 X2011 2023-07-01	92 93.48387 -1.483871e+00
## 1050 X2011 2023-07-02	94 93.48387 -9.677419e-01
## 1051 X2011 2023-07-03	95 93.48387 5.483871e-01
## 1052 X2011 2023-07-04	92 93.48387 -9.354839e-01
## 1053 X2011 2023-07-05	90 93.48387 -4.419355e+00
## 1054 X2011 2023-07-06	90 93.48387 -7.903226e+00
## 1055 X2011 2023-07-07	94 93.48387 -7.387097e+00
## 1056 X2011 2023-07-08	94 93.48387 -6.870968e+00
## 1057 X2011 2023-07-09	91 93.48387 -9.354839e+00
## 1058 X2011 2023-07-10	92 93.48387 -1.083871e+01
## 1059 X2011 2023-07-11	95 93.48387 -9.322581e+00
## 1060 X2011 2023-07-12	95 93.48387 -7.806452e+00
## 1061 X2011 2023-07-13	97 93.48387 -4.290323e+00
## 1062 X2011 2023-07-14	90 93.48387 -7.774194e+00
## 1063 X2011 2023-07-15	80 93.48387 -2.125806e+01
## 1064 X2011 2023-07-16	85 93.48387 -2.974194e+01
## 1065 X2011 2023-07-17	87 93.48387 -3.622581e+01
## 1066 X2011 2023-07-18	89 93.48387 -4.070968e+01
## 1067 X2012 2023-07-01	105 87.64516 1.735484e+01
## 1068 X2012 2023-07-02	93 87.64516 2.270968e+01
## 1069 X2012 2023-07-03	99 87.64516 3.406452e+01
## 1070 X2012 2023-07-04	98 87.64516 4.441935e+01
## 1071 X2012 2023-07-05	100 87.64516 5.677419e+01
## 1072 X2012 2023-07-06	98 87.64516 6.712903e+01
## 1073 X2012 2023-07-07	93 87.64516 7.248387e+01
## 1074 X2012 2023-07-08	95 87.64516 7.983871e+01
## 1075 X2012 2023-07-09	97 87.64516 8.919355e+01
## 1076 X2012 2023-07-10	95 87.64516 9.654839e+01
## 1077 X2012 2023-07-11	90 87.64516 9.890323e+01
## 1078 X2012 2023-07-12	84 87.64516 9.525806e+01
## 1079 X2012 2023-07-13	90 87.64516 9.761290e+01
## 1080 X2012 2023-07-14	90 87.64516 9.996774e+01
## 1081 X2012 2023-07-15	90 87.64516 1.023226e+02

## 1082	X2012	2023-07-16	92	87.64516	1.066774e+02
## 1083	X2012	2023-07-17	93	87.64516	1.120323e+02
## 1084	X2012	2023-07-18	93	87.64516	1.173871e+02
## 1085	X2012	2023-07-19	91	87.64516	1.207419e+02
## 1086	X2012	2023-07-20	84	87.64516	1.170968e+02
## 1087	X2012	2023-07-21	90	87.64516	1.194516e+02
## 1088	X2012	2023-07-22	95	87.64516	1.268065e+02
## 1089	X2012	2023-07-23	97	87.64516	1.361613e+02
## 1090	X2012	2023-07-24	97	87.64516	1.455161e+02
## 1091	X2012	2023-07-25	98	87.64516	1.558710e+02
## 1092	X2012	2023-07-26	98	87.64516	1.662258e+02
## 1093	X2012	2023-07-27	97	87.64516	1.755806e+02
## 1094	X2012	2023-07-28	97	87.64516	1.849355e+02
## 1095	X2012	2023-07-29	94	87.64516	1.912903e+02
## 1096	X2012	2023-07-30	96	87.64516	1.996452e+02
## 1097	X2012	2023-07-31	88	87.64516	2.000000e+02
## 1098	X2012	2023-08-01	94	87.64516	2.063548e+02
## 1099	X2012	2023-08-02	99	87.64516	2.177097e+02
## 1100	X2012	2023-08-03	94	87.64516	2.240645e+02
## 1101	X2012	2023-08-04	87	87.64516	2.234194e+02
## 1102	X2012	2023-08-05	90	87.64516	2.257742e+02
## 1103	X2012	2023-08-06	86	87.64516	2.241290e+02
## 1104	X2012	2023-08-07	84	87.64516	2.204839e+02
## 1105	X2012	2023-08-08	92	87.64516	2.248387e+02
## 1106	X2012	2023-08-09	88	87.64516	2.251935e+02
## 1107	X2012	2023-08-10	87	87.64516	2.245484e+02
## 1108	X2012	2023-08-11	85	87.64516	2.219032e+02
## 1109	X2012	2023-08-12	88	87.64516	2.222581e+02
## 1110	X2012	2023-08-13	91	87.64516	2.256129e+02
## 1111	X2012	2023-08-14	88	87.64516	2.259677e+02
## 1112	X2012	2023-08-15	85	87.64516	2.233226e+02
## 1113	X2012	2023-08-16	91	87.64516	2.266774e+02
## 1114	X2012	2023-08-17	87	87.64516	2.260323e+02
## 1115	X2012	2023-08-18	87	87.64516	2.253871e+02
## 1116	X2012	2023-08-19	84	87.64516	2.217419e+02
## 1117	X2012	2023-08-20	84	87.64516	2.180968e+02
## 1118	X2012	2023-08-21	88	87.64516	2.184516e+02
## 1119	X2012	2023-08-22	84	87.64516	2.148065e+02
## 1120	X2012	2023-08-23	88	87.64516	2.151613e+02
## 1121	X2012	2023-08-24	86	87.64516	2.135161e+02
## 1122	X2012	2023-08-25	85	87.64516	2.108710e+02
## 1123	X2012	2023-08-26	90	87.64516	2.132258e+02
## 1124	X2012	2023-08-27	90	87.64516	2.155806e+02
## 1125	X2012	2023-08-28	80	87.64516	2.079355e+02
## 1126	X2012	2023-08-29	86	87.64516	2.062903e+02
## 1127	X2012	2023-08-30	80	87.64516	1.986452e+02
## 1128	X2012	2023-08-31	89	87.64516	2.000000e+02
## 1129	X2012	2023-09-01	91	87.64516	2.033548e+02
## 1130	X2012	2023-09-02	89	87.64516	2.047097e+02
## 1131	X2012	2023-09-03	85	87.64516	2.020645e+02
## 1132	X2012	2023-09-04	77	87.64516	1.914194e+02
## 1133	X2012	2023-09-05	85	87.64516	1.887742e+02
## 1134	X2012	2023-09-06	85	87.64516	1.861290e+02
## 1135	X2012	2023-09-07	92	87.64516	1.904839e+02

## 1136	X2012	2023-09-08	88	87.64516	1.908387e+02
## 1137	X2012	2023-09-09	83	87.64516	1.861935e+02
## 1138	X2012	2023-09-10	84	87.64516	1.825484e+02
## 1139	X2012	2023-09-11	83	87.64516	1.779032e+02
## 1140	X2012	2023-09-12	81	87.64516	1.712581e+02
## 1141	X2012	2023-09-13	81	87.64516	1.646129e+02
## 1142	X2012	2023-09-14	83	87.64516	1.599677e+02
## 1143	X2012	2023-09-15	87	87.64516	1.593226e+02
## 1144	X2012	2023-09-16	86	87.64516	1.576774e+02
## 1145	X2012	2023-09-17	83	87.64516	1.530323e+02
## 1146	X2012	2023-09-18	79	87.64516	1.443871e+02
## 1147	X2012	2023-09-19	81	87.64516	1.377419e+02
## 1148	X2012	2023-09-20	79	87.64516	1.290968e+02
## 1149	X2012	2023-09-21	85	87.64516	1.264516e+02
## 1150	X2012	2023-09-22	87	87.64516	1.258065e+02
## 1151	X2012	2023-09-23	81	87.64516	1.191613e+02
## 1152	X2012	2023-09-24	78	87.64516	1.095161e+02
## 1153	X2012	2023-09-25	82	87.64516	1.038710e+02
## 1154	X2012	2023-09-26	86	87.64516	1.022258e+02
## 1155	X2012	2023-09-27	88	87.64516	1.025806e+02
## 1156	X2012	2023-09-28	86	87.64516	1.009355e+02
## 1157	X2012	2023-09-29	84	87.64516	9.729032e+01
## 1158	X2012	2023-09-30	72	87.64516	8.164516e+01
## 1159	X2012	2023-10-01	75	87.64516	6.900000e+01
## 1160	X2012	2023-10-02	72	87.64516	5.335484e+01
## 1161	X2012	2023-10-03	74	87.64516	3.970968e+01
## 1162	X2012	2023-10-04	82	87.64516	3.406452e+01
## 1163	X2012	2023-10-05	82	87.64516	2.841935e+01
## 1164	X2012	2023-10-06	83	87.64516	2.377419e+01
## 1165	X2012	2023-10-07	68	87.64516	4.129032e+00
## 1166	X2012	2023-10-08	63	87.64516	-2.051613e+01
## 1167	X2012	2023-10-09	70	87.64516	-3.816129e+01
## 1168	X2012	2023-10-10	73	87.64516	-5.280645e+01
## 1169	X2013	2023-07-01	82	84.96774	-2.967742e+00
## 1170	X2013	2023-07-02	85	84.96774	-2.935484e+00
## 1171	X2013	2023-07-03	76	84.96774	-1.190323e+01
## 1172	X2013	2023-07-04	77	84.96774	-1.987097e+01
## 1173	X2013	2023-07-05	83	84.96774	-2.183871e+01
## 1174	X2013	2023-07-06	83	84.96774	-2.380645e+01
## 1175	X2013	2023-07-07	79	84.96774	-2.977419e+01
## 1176	X2013	2023-07-08	88	84.96774	-2.674194e+01
## 1177	X2013	2023-07-09	88	84.96774	-2.370968e+01
## 1178	X2013	2023-07-10	87	84.96774	-2.167742e+01
## 1179	X2013	2023-07-11	80	84.96774	-2.664516e+01
## 1180	X2013	2023-07-12	87	84.96774	-2.461290e+01
## 1181	X2013	2023-07-13	78	84.96774	-3.158065e+01
## 1182	X2013	2023-07-14	85	84.96774	-3.154839e+01
## 1183	X2013	2023-07-15	86	84.96774	-3.051613e+01
## 1184	X2013	2023-07-16	87	84.96774	-2.848387e+01
## 1185	X2013	2023-07-17	91	84.96774	-2.245161e+01
## 1186	X2013	2023-07-18	87	84.96774	-2.041935e+01
## 1187	X2013	2023-07-19	90	84.96774	-1.538710e+01
## 1188	X2013	2023-07-20	86	84.96774	-1.435484e+01
## 1189	X2013	2023-07-21	87	84.96774	-1.232258e+01

## 1190	X2013	2023-07-22	85	84.96774	-1.229032e+01
## 1191	X2013	2023-07-23	84	84.96774	-1.325806e+01
## 1192	X2013	2023-07-24	86	84.96774	-1.222581e+01
## 1193	X2013	2023-07-25	89	84.96774	-8.193548e+00
## 1194	X2013	2023-07-26	86	84.96774	-7.161290e+00
## 1195	X2013	2023-07-27	82	84.96774	-1.012903e+01
## 1196	X2013	2023-07-28	86	84.96774	-9.096774e+00
## 1197	X2013	2023-07-29	86	84.96774	-8.064516e+00
## 1198	X2013	2023-07-30	90	84.96774	-3.032258e+00
## 1199	X2013	2023-07-31	80	84.96774	-8.000000e+00
## 1200	X2013	2023-08-01	87	84.96774	-5.967742e+00
## 1201	X2013	2023-08-02	89	84.96774	-1.935484e+00
## 1202	X2013	2023-08-03	88	84.96774	1.096774e+00
## 1203	X2013	2023-08-04	90	84.96774	6.129032e+00
## 1204	X2013	2023-08-05	88	84.96774	9.161290e+00
## 1205	X2013	2023-08-06	88	84.96774	1.219355e+01
## 1206	X2013	2023-08-07	86	84.96774	1.322581e+01
## 1207	X2013	2023-08-08	83	84.96774	1.125806e+01
## 1208	X2013	2023-08-09	89	84.96774	1.529032e+01
## 1209	X2013	2023-08-10	90	84.96774	2.032258e+01
## 1210	X2013	2023-08-11	90	84.96774	2.535484e+01
## 1211	X2013	2023-08-12	90	84.96774	3.038710e+01
## 1212	X2013	2023-08-13	89	84.96774	3.441935e+01
## 1213	X2013	2023-08-14	83	84.96774	3.245161e+01
## 1214	X2013	2023-08-15	73	84.96774	2.048387e+01
## 1215	X2013	2023-08-16	67	84.96774	2.516129e+00
## 1216	X2013	2023-08-17	66	84.96774	-1.645161e+01
## 1217	X2013	2023-08-18	77	84.96774	-2.441935e+01
## 1218	X2013	2023-08-19	82	84.96774	-2.738710e+01
## 1219	X2013	2023-08-20	84	84.96774	-2.835484e+01
## 1220	X2013	2023-08-21	84	84.96774	-2.932258e+01
## 1221	X2013	2023-08-22	88	84.96774	-2.629032e+01
## 1222	X2013	2023-08-23	90	84.96774	-2.125806e+01
## 1223	X2013	2023-08-24	84	84.96774	-2.222581e+01
## 1224	X2013	2023-08-25	82	84.96774	-2.519355e+01
## 1225	X2013	2023-08-26	82	84.96774	-2.816129e+01
## 1226	X2013	2023-08-27	86	84.96774	-2.712903e+01
## 1227	X2013	2023-08-28	90	84.96774	-2.209677e+01
## 1228	X2013	2023-08-29	92	84.96774	-1.506452e+01
## 1229	X2013	2023-08-30	87	84.96774	-1.303226e+01
## 1230	X2013	2023-08-31	90	84.96774	-8.000000e+00
## 1231	X2013	2023-09-01	90	84.96774	-2.967742e+00
## 1232	X2013	2023-09-02	84	84.96774	-3.935484e+00
## 1233	X2013	2023-09-03	90	84.96774	1.096774e+00
## 1234	X2013	2023-09-04	89	84.96774	5.129032e+00
## 1235	X2013	2023-09-05	89	84.96774	9.161290e+00
## 1236	X2013	2023-09-06	88	84.96774	1.219355e+01
## 1237	X2013	2023-09-07	88	84.96774	1.522581e+01
## 1238	X2013	2023-09-08	91	84.96774	2.125806e+01
## 1239	X2013	2023-09-09	90	84.96774	2.629032e+01
## 1240	X2013	2023-09-10	89	84.96774	3.032258e+01
## 1241	X2013	2023-09-11	89	84.96774	3.435484e+01
## 1242	X2013	2023-09-12	90	84.96774	3.938710e+01
## 1243	X2013	2023-09-13	87	84.96774	4.141935e+01

## 1244	X2013	2023-09-14	82	84.96774	3.845161e+01
## 1245	X2013	2023-09-15	84	84.96774	3.748387e+01
## 1246	X2013	2023-09-16	89	84.96774	4.151613e+01
## 1247	X2013	2023-09-17	79	84.96774	3.554839e+01
## 1248	X2013	2023-09-18	78	84.96774	2.858065e+01
## 1249	X2013	2023-09-19	84	84.96774	2.761290e+01
## 1250	X2013	2023-09-20	86	84.96774	2.864516e+01
## 1251	X2013	2023-09-21	73	84.96774	1.667742e+01
## 1252	X2013	2023-09-22	82	84.96774	1.370968e+01
## 1253	X2013	2023-09-23	82	84.96774	1.074194e+01
## 1254	X2013	2023-09-24	71	84.96774	-3.225806e+00
## 1255	X2013	2023-09-25	67	84.96774	-2.119355e+01
## 1256	X2013	2023-09-26	78	84.96774	-2.816129e+01
## 1257	X2013	2023-09-27	79	84.96774	-3.412903e+01
## 1258	X2013	2023-09-28	77	84.96774	-4.209677e+01
## 1259	X2014	2023-07-01	90	88.25806	1.741935e+00
## 1260	X2014	2023-07-02	93	88.25806	6.483871e+00
## 1261	X2014	2023-07-03	87	88.25806	5.225806e+00
## 1262	X2014	2023-07-04	84	88.25806	9.677419e-01
## 1263	X2014	2023-07-05	86	88.25806	-1.290323e+00
## 1264	X2014	2023-07-06	87	88.25806	-2.548387e+00
## 1265	X2014	2023-07-07	89	88.25806	-1.806452e+00
## 1266	X2014	2023-07-08	90	88.25806	-6.451613e-02
## 1267	X2014	2023-07-09	90	88.25806	1.677419e+00
## 1268	X2014	2023-07-10	87	88.25806	4.193548e-01
## 1269	X2014	2023-07-11	85	88.25806	-2.838710e+00
## 1270	X2014	2023-07-12	90	88.25806	-1.096774e+00
## 1271	X2014	2023-07-13	89	88.25806	-3.548387e-01
## 1272	X2014	2023-07-14	90	88.25806	1.387097e+00
## 1273	X2014	2023-07-15	86	88.25806	-8.709677e-01
## 1274	X2014	2023-07-16	83	88.25806	-6.129032e+00
## 1275	X2014	2023-07-17	86	88.25806	-8.387097e+00
## 1276	X2014	2023-07-18	82	88.25806	-1.464516e+01
## 1277	X2014	2023-07-19	85	88.25806	-1.790323e+01
## 1278	X2014	2023-07-20	76	88.25806	-3.016129e+01
## 1279	X2014	2023-07-21	82	88.25806	-3.641935e+01
## 1280	X2014	2023-07-22	83	88.25806	-4.167742e+01
## 1281	X2015	2023-07-01	85	88.77419	-3.774194e+00
## 1282	X2015	2023-07-02	87	88.77419	-5.548387e+00
## 1283	X2015	2023-07-03	79	88.77419	-1.532258e+01
## 1284	X2015	2023-07-04	85	88.77419	-1.909677e+01
## 1285	X2015	2023-07-05	84	88.77419	-2.387097e+01
## 1286	X2015	2023-07-06	84	88.77419	-2.864516e+01
## 1287	X2015	2023-07-07	90	88.77419	-2.741935e+01
## 1288	X2015	2023-07-08	90	88.77419	-2.619355e+01
## 1289	X2015	2023-07-09	91	88.77419	-2.396774e+01
## 1290	X2015	2023-07-10	93	88.77419	-1.974194e+01
## 1291	X2015	2023-07-11	92	88.77419	-1.651613e+01
## 1292	X2015	2023-07-12	93	88.77419	-1.229032e+01
## 1293	X2015	2023-07-13	92	88.77419	-9.064516e+00
## 1294	X2015	2023-07-14	90	88.77419	-7.838710e+00
## 1295	X2015	2023-07-15	89	88.77419	-7.612903e+00
## 1296	X2015	2023-07-16	88	88.77419	-8.387097e+00
## 1297	X2015	2023-07-17	93	88.77419	-4.161290e+00

## 1298 X2015 2023-07-18	92 88.77419 -9.354839e-01
## 1299 X2015 2023-07-19	91 88.77419 1.290323e+00
## 1300 X2015 2023-07-20	93 88.77419 5.516129e+00
## 1301 X2015 2023-07-21	93 88.77419 9.741935e+00
## 1302 X2015 2023-07-22	92 88.77419 1.296774e+01
## 1303 X2015 2023-07-23	88 88.77419 1.219355e+01
## 1304 X2015 2023-07-24	91 88.77419 1.441935e+01
## 1305 X2015 2023-07-25	90 88.77419 1.564516e+01
## 1306 X2015 2023-07-26	91 88.77419 1.787097e+01
## 1307 X2015 2023-07-27	92 88.77419 2.109677e+01
## 1308 X2015 2023-07-28	94 88.77419 2.632258e+01
## 1309 X2015 2023-07-29	93 88.77419 3.054839e+01
## 1310 X2015 2023-07-30	94 88.77419 3.577419e+01
## 1311 X2015 2023-07-31	93 88.77419 4.000000e+01
## 1312 X2015 2023-08-01	89 88.77419 4.022581e+01
## 1313 X2015 2023-08-02	94 88.77419 4.545161e+01
## 1314 X2015 2023-08-03	94 88.77419 5.067742e+01
## 1315 X2015 2023-08-04	97 88.77419 5.890323e+01
## 1316 X2015 2023-08-05	95 88.77419 6.512903e+01
## 1317 X2015 2023-08-06	88 88.77419 6.435484e+01
## 1318 X2015 2023-08-07	88 88.77419 6.358065e+01
## 1319 X2015 2023-08-08	92 88.77419 6.680645e+01
## 1320 X2015 2023-08-09	93 88.77419 7.103226e+01
## 1321 X2015 2023-08-10	94 88.77419 7.625806e+01
## 1322 X2015 2023-08-11	91 88.77419 7.848387e+01
## 1323 X2015 2023-08-12	90 88.77419 7.970968e+01
## 1324 X2015 2023-08-13	89 88.77419 7.993548e+01
## 1325 X2015 2023-08-14	90 88.77419 8.116129e+01
## 1326 X2015 2023-08-15	90 88.77419 8.238710e+01
## 1327 X2015 2023-08-16	90 88.77419 8.361290e+01
## 1328 X2015 2023-08-17	89 88.77419 8.383871e+01
## 1329 X2015 2023-08-18	88 88.77419 8.306452e+01
## 1330 X2015 2023-08-19	89 88.77419 8.329032e+01
## 1331 X2015 2023-08-20	88 88.77419 8.251613e+01
## 1332 X2015 2023-08-21	89 88.77419 8.274194e+01
## 1333 X2015 2023-08-22	92 88.77419 8.596774e+01
## 1334 X2015 2023-08-23	87 88.77419 8.419355e+01
## 1335 X2015 2023-08-24	89 88.77419 8.441935e+01
## 1336 X2015 2023-08-25	84 88.77419 7.964516e+01
## 1337 X2015 2023-08-26	86 88.77419 7.687097e+01
## 1338 X2015 2023-08-27	85 88.77419 7.309677e+01
## 1339 X2015 2023-08-28	83 88.77419 6.732258e+01
## 1340 X2015 2023-08-29	81 88.77419 5.954839e+01
## 1341 X2015 2023-08-30	74 88.77419 4.477419e+01
## 1342 X2015 2023-08-31	84 88.77419 4.000000e+01
## 1343 X2015 2023-09-01	87 88.77419 3.822581e+01
## 1344 X2015 2023-09-02	90 88.77419 3.945161e+01
## 1345 X2015 2023-09-03	89 88.77419 3.967742e+01
## 1346 X2015 2023-09-04	92 88.77419 4.290323e+01
## 1347 X2015 2023-09-05	87 88.77419 4.112903e+01
## 1348 X2015 2023-09-06	85 88.77419 3.735484e+01
## 1349 X2015 2023-09-07	85 88.77419 3.358065e+01
## 1350 X2015 2023-09-08	84 88.77419 2.880645e+01
## 1351 X2015 2023-09-09	87 88.77419 2.703226e+01

##	1352	X2015	2023-09-10	85	88.77419	2.325806e+01
##	1353	X2015	2023-09-11	86	88.77419	2.048387e+01
##	1354	X2015	2023-09-12	78	88.77419	9.709677e+00
##	1355	X2015	2023-09-13	75	88.77419	-4.064516e+00
##	1356	X2015	2023-09-14	77	88.77419	-1.583871e+01
##	1357	X2015	2023-09-15	80	88.77419	-2.461290e+01
##	1358	X2015	2023-09-16	79	88.77419	-3.438710e+01
##	1359	X2015	2023-09-17	83	88.77419	-4.016129e+01