

# TNAU Weather soft

Weather Database cum weather analysis software



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Weatherwise ...  
Otherwise ...  
Not Wise ...

**TNAU WEATHER SOFT**

v.1.0.1

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Coimbatore



# Need of Weather analysing software ....



- Success of an agricultural technology depends on climate
- Not only meteorologist & agronomist, all do correlation studies
- Multi location ?? & different periods ????
- Tired with time consuming repeated calculation



- Methods and steps



- Struggle with **Excel formulas**

	A	B	C	D	E	F
1	OrderID	ProductID	UnitPrice	Quantity	Discount	Ship Total
2	10245	11	12	12	0	168
3	10248	42	9.8	10	0	98
4	10248	72	34.8	5	0	174
5	10249	14	118.8	8	0	1187.4
6	10249	51	42.4	40	0	1768
7	10250	41	7.7	10	0	77
8	10250	51	42.4	100	0.10000001	3781.9999999
9	10250	65	16.8	15	0.10000001	214.1999999
10	10251	22	16.8	8	0.05	95.79999992
11	10251	57	15.6	15	0.05	222.2999998
12	10251	65	16.8	20	0	336
13	10252	20	64.8	40	0.05	2462.3999998
14	10252	33	2	25	0.05	47.49999996
15	10252	62	21.2	40	0	848



**Simple and user friendly data base cum weather analysis software**

# TNAU WEATHER SOFT

2016



*Weatherwise ...*

*Otherwise ...*

*Notwise ...*

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# TNAU weather soft

- ❖ VB .Net based, MS Access DB windows application
- ❖ Developed for scientist community.
- ❖ Primarily a weather database management tool
- ❖ Store and retrieve multiple locations data
- ❖ Execute weather data analysis.
- ❖ Very simple and user friendly.
- ❖ Basic Windows working knowledge is enough



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## Modules of TNAU weather soft

- View & work with huge data (even for 100 years)
- Create new station and work with your own data.
- Simply import & export as excel format.
- Direct manual entry in DB is also possible.
- Check for error, missing values and list out.
- Fill and merge missing values from nearest grid.
- Work with any specific range of available data
- No fixed format for excel except **date** format
- Any parameter any column can be imported



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Cont...

## Modules of TNAU weather soft

- ❖ Once daily data imported, it automatically calculate std weekly, monthly & yearly values.
- ❖ Daily, standard weekly, monthly & annual mean values for any given period.
- ❖ Mean for any individual or all Parameter
- ❖ List out date-wise extreme events.
- ❖ Degree to decimal  $10.2567 = 10^{\circ} 15' 16''$
- ❖ Possibility of rainfall occurrence in particular day
- ❖ Initial and conditional probability (any value)
- ❖ GDD and Heat units

Weatherwise ...

Otherwise ...

Not Wise ...

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# TNAU Weather soft – Master page

Create New station / open existing – Station ID

**TNAU WEATHER SOFT v 1.0.1 STATION INFORMATION**

File View Analysis Help Database About

- Create New Station Ctrl+C
- Open existing Station Ctrl+O
- Import Data
- Merge Data
- Generate Missing Values
- Exit

**Station Information**

Station ID  Created / Modified Date 03/04/2011

State  Source

District  TNAU Station

Block  Creator

Location  Station ID   
Minimum Four Characters

Degrees Minutes Seconds  Degrees Decimal

Latitude

Longitude

meter

meter

meter

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# Importing data from Excel

TNAU WEATHER SOFT v 1.0.1. DAILY DATA ENTRY FORM

[Go To Master Page](#)

Station ID  State  District  Block   
Location  Latitude   North Longitude   East

Import excel

Location

Please select the parameters in sequence as in your excel sheet

dd-mon-yyyy RFmr ▼ Tmax ▼ Tmin ▼ Rh1 ▼ SSH ▼ SR ▼ WS ▼ PET ▼ anEv ▼ selec ▼ selec ▼ selec ▼ selec ▼ selec ▼ selec ▼ selec ▼

	rainfall	Temp Max	Temp Min	Rh	Sun shine hrs	Solar Radiation	Wind Speed	PET	Pan Evap
▶		30	22.5	75	3.4	256.7	3.5	4.16	2
		30.5	22	77	0.5	256.7	1.3	4.16	2
		28.5	22	68.5	9.3	407.1	1.9	4.16	3
		30.5	19.5	65	7.2	424.8	0	4.16	5.8

List of Errors

# Importing data from Excel and Error checking (Repeated dates, Spl Characters, alphabets etc)

TNAU WEATHER SOFT v 1.0.1. DAILY DATA ENTRY FORM

[Go To Master Page](#)

Station ID  State  District  Block

Location  Latitude   North Longitude   East

Import excel

Location

Please select the parameters in sequence as in your excel sheet

dd-mon-yyyy

	Solar Radiation	Wind Speed	PET	Pan Evap		
▶	256.7	3.5	4.16	2		
	256.7	1.3	4.16	2		
	407.1	1.9	4.16	3		
	424.8	0	4.16	5.8		

Weather Soft

No Error - Are you sure to create Daily Database

List of Errors

# Database creation

TNAU WEATHER SOFT v 1.0.1. DAILY DATA ENTRY FORM

[Go To Master Page](#)

Station ID  State  District  Block

Location  Latitude   North Longitude   East

Import excel

Location

Please select the parameters in sequence as in your excel sheet

dd-mon-yyyy  RFmr  Tmax  Tmin  Rh1  SSH  SR  WS  PET  PanE

	Solar Radiation	Wind Speed	PET	Pan		
	256.7	3.5	4.16	2		F15
	256.7	1.3	4.16	2		-99.99
	407.1	1.9	4.16	3		-99.99
	424.8	0	4.16	5.8		-99.99

Daily Data are saved successfully - Click ok to continue Std Week Calculation

List of Errors

# Database - Automatically calculate weekly, monthly & yearly data

TNAU WEATHER SOFT v 1.0.1. DAILY DATA ENTRY FORM

[Go To Master Page](#)

Station ID  State  District  Block   
Location  Latitude   North Longitude   East

Import excel

Location

Please select the parameters in sequence as in your excel sheet

dd-mon-yyyy RFmr Tmax Tmin Rh1 SSH SR WS PET PanE selec selec selec selec selec selec

	Solar Radiation	Wind Speed	PET	Pan E	Weather Soft	F15
▶	256.7	3.5	4.16	2	<input type="button" value="OK"/>	-99.99
	256.7	1.3	4.16	2		-99.99
	407.1	1.9	4.16	3		-99.99
	424.8	0	4.16	5.8		-99.99

List of Errors

That's all, DB created.  
We can start analysis

# Merging data of one station to others

- Opportunity to fill blank values from nearby grid

TNAU WEATHER SOFT v 1.0.1. DAILY DATA ENTRY FORM - Mergedata

**Select Standard Station**

Station ID: TN05047ABCDPW State: Tamil Nadu District: DINDIGUL Block: PALANI

Location: ABCD Latitude: 11 9255 North Longitude: 77 8752 East

**Select Station to be upgraded**

Station ID: TN25277ABCDAG State: Tamil Nadu District: THOOTHUKUDI Block: KAYATTAR

Location: ABCD Latitude: 8 1897 North Longitude: 77 2583 East

Please select the parameter to Merge:

# Analysis – Yearly /Std weekly /monthly Mean

TNAU WEATHER SOFT v 1.0.1. DAILY DATA ENTRY FORM - Mean Calculation

Station ID: TN25277ABCDAG State: Tamil Nadu District: THOOTHUKUDI Block: KAYATTAR

Location: ABCD Latitude: 8 1897 North Longitude: 77 2583 East

Go To Master

Export as Excel sheet

Data Available

From Date: 01-01-1951 To Date: 31-12-2012

All Parameter Mean Individual Mean Rainfall

Mean to be calculated

Yearly Monthly Stdwklly Daily

Year: 1975 Month: 1 Std Week: 1 Date: 1 ju day

Yearly Indv Mean

Yearly Mean

Daily Mean

Daily Indv Mean

Maximum

Stdweek Mean

Stdweek Indv

Minimum

Monthly Mean

Monthly Indv Mean

Find Extreme

Stationid	Year1	Para
TN25277ABCDAG	2004	599.6
TN25277ABCDAG	2005	718.8
TN25277ABCDAG	2006	659.8
TN25277ABCDAG	2007	464.2
TN25277ABCDAG	2008	-99.99
TN25277ABCDAG	2009	-99.99
TN25277ABCDAG	2010	-99.99

- Select station
- Select any range of period
- Select Individual or all parameter
- Click calculation (With 3-5 seconds “Results”)
- Export result to excel



# Extreme Events calculations

On which day this event occur in past

- Calculate above or below values
- Value and number of occurrence per year
- Calculate between any range of period

TNAU WEATHER SOFT v 1.0.1. DAILY DATA ENTRY FORM - Mean Calculation

Station ID: TN25277ABCDAG State: Tamil Nadu District: THOOTHUKUDI Block: KAYATTAR

Location: ABCD Latitude: 8 1897 North Longitude: 77 2583 East

Go To Master

Export as Excel sheet

Data Available: From Date: 01-01-1951 To Date: 31-12-2012

All Parameter Mean Individual Mean Rainfall

Mean to be calculated: Yearly Monthly Stdwky Daily

Year: 1951 Month: 1 Std Week: 1 Date: 1 ju day

2012 12 52 31

Daily Mean Daily Indv Mean Maximum

Stdweek Mean Stdweek Indv Minimum

Monthly Mean Monthly Indv Mean 50 Upper Extreme

Yearly Mean Yearly Indv Mean Find Extreme

Stationid	Year1	Month1	Date1	Qty	Noofevents
TN25277ABCDAG	1953	11	27	67.5	1
TN25277ABCDAG	1954	3	14	65.7	1
TN25277ABCDAG	1955	11	25	63.3	1
TN25277ABCDAG	1955	12	3	77.4	2
TN25277ABCDAG	1960	11	5	59.6	1
TN25277ABCDAG	1961	11	16	66.2	1
TN25277ABCDAG	1963	1	9	66	1



# Rainfall Occurrence

- Calculate how many times rainfall occurred on a day / multiple days
- Give number of rainfall events and percentage

TNAU WEATHER SOFT v 1.0.1. Rainfall Occurrence

Station ID: TN02018GOODAG | State: Tamil Nadu | District: COIMBATORE | Block: THONDAMUTHUR

Location: GOOD | Latitude: 11 0 North | Longitude: 77 0 East

Data Available: From Date: 01-01-1951 | To Date: 31-12-2009

Rainfall Occurrence Period: Year: From 1951 To 2009 | Month: From 1 To 1 | Date: From 1 To 1

**Generate Rainfall Occurrence Report**

	Year1	Month1	Date1	Rainfa
▶	1951	1	1	0
	1951	1	2	0
	1951	1	3	0
	1951	1	4	0
	1951	1	5	0
	1951	1	6	0
	1951	1	7	0
	1951	1	8	0
	1951	1	9	0

Forecast rain past experience

# Rainfall Occurrence

- We can have little more confidence with forecast
- Calculate number of rainy days during the period
- Useful to asses shift in rainy days
- Useful in calculating pre monsoon sowing week

3														
4	YEAR	FROM	1951	to	2009									
5	DAY	FROM	Nov-01	to	Nov-30									
6														
7	DATE	Total Years	Data Availability	No of Rainfall Occurences	No of Rainy Days	% of occurrence	% of Rainy Days	1951	1952	1953	1954	1955	1956	1957
8		A	B	C	D	E	F							
9	Nov-01	59	57	29	19	50.9	33.3	15.6	12	0.7	4.4	0	81.2	6.5
10	Nov-02	59	57	30	20	52.6	35.1	0	23	0.5	30.8	34.5	13	28.4
11	Nov-03	59	57	28	16	49.1	28.1	0	0	19.3	0.2	33	0	12.4
12	Nov-04	59	57	30	19	52.6	33.3	0	0	0	0	18	16.4	1.8
13	Nov-05	59	57	33	17	57.9	29.8	0	0.5	1.7	0	20.6	50.6	0
14	Nov-06	59	57	30	23	52.6	40.4	7.4	7.5	1.2	0.6	12	21.6	6.8
15	Nov-07	59	57	33	26	57.9	45.6	6.5	1	0	8.6	0	5.6	0
16	Nov-08	59	57	28	18	49.1	31.6	17	0.8	26	43.6	0	0.5	0
17	Nov-09	59	57	27	16	47.4	28.1	0	32.8	1.6	18	0	45.2	0
18	Nov-10	59	57	20	10	35.1	17.5	0	0	0	2	0	0	0
19	Nov-11	59	57	17	7	29.8	12.3	0	0	0	7.8	0	0	0
20	Nov-12	59	57	21	11	36.8	19.3	0	0	0	26.4	20	0	0
21	Nov-13	59	57	28	18	49.1	31.6	0	13	0	6	1.8	0	0
22	Nov-14	59	57	24	13	42.1	22.8	0	0.5	4	2.2	0.5	0	0
23	Nov-15	59	57	25	19	43.9	33.3	16.5	0	14	5	0	7.5	0
24	Nov-16	59	57	21	8	36.8	14.0	22	0	0	0.2	0	0	0

# Initial probability

TNAU WEATHER SOFT v 1.0.1 STATION INFORMATION

InitialProbability

Station ID  State  District  Block

Location  Latitude   North Longitude   East

Data Available

From Date  To Date

Initial Probability to be calculated

Yearly  Monthly  Stdwkly  Daily

Year	Month	Std Week	Date	ju day
<input type="text" value="1951"/>	<input type="text" value="1"/>	<input type="text" value="1"/>	<input type="text" value="1"/>	<input type="text"/>
<input type="text" value="1955"/>	<input type="text" value="1"/>	<input type="text" value="52"/>	<input type="text" value="1"/>	<input type="text"/>

- Select station and period
- Enter probability per cent
- click generate
- Result exported to excel in seconds

Probability value %

Information

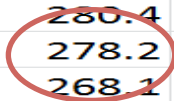


Data's are exported to Excel Successfully

OK

	A	B	C	D	E	F	G	H	I
1	Year	October	Novemb	Decemb	Sum	Decending	Order		
2	1951	286.7	136.6	17.1	440.4	691.2			
3	1952	232.3	95.1	1.7	329.1	589			
4	1953	210.1	105	0	315.1	575.5			
5	1954	288.8	155.8	0.4	445	533.3			
6	1955	333.1	195.8	60.1	589	500.6			
7	1956	205	294	0.6	499.6	499.6			
8	1957	278.8	84.8	114.9	478.5	478.5			
9	1958	105.4	91.2	3.1	199.7	473.7			
10	1959	173.2	165.3	29	367.5	445			
11	1960	137.7	134.9	5.6	278.2	441.3			
12	1961	164.4	52.5	10.7	227.6	440.4			
13	1962	184.6	17.8	48.5	250.9	437.4			
14	1963	205.6	60.3	60.3	326.2	423.1			
15	1964	224.3	216.2	33.2	473.7	407.4			
16	1965	103.1	43.3	66.9	213.3	404.3			
17	1966	287.2	198.7	47.4	533.3	386.9			
18	1967	99.6	127.2	121.3	348.1	379.5			
19	1968	127.4	43.6	39.2	210.2	374.2			
20	1969	259.1	150.3	91.2	500.6	367.5			
21	1970	220.5	64.8	1.8	287.1	367.4			
22	1971	141.5	51.5	109.2	302.2	348.1			
23	1972	190.2	23.5	227.6	441.3	329.1			
24	1973	87.2	26.5	41.4	155.1	326.2			
25	1974	165.3	4.6	0.6	170.5	315.1			
26	1975	183.8	19.4	4.1	207.3	302.2			
27	1976	97.1	121.5	11.5	230.1	289.5			
28	1977	233.7	141.3	11.9	386.9	287.1			
29	1978	125.5	240.7	56.9	423.1	281.6			
30	1979	49.1	320.4	4.7	374.2	280.4			
31	1980	111.2	100	2	213.2	278.2			
32	1981	0	0	3.8	3.8	268.1			
33	1982	121.9	126.6	0	248.5	267.1			
34	1983	33.2	0	117.4	150.6	260			
35	1984	99.6	49.2	28	176.8	259.3	<b>Initial Probability</b>	<b>278.2</b>	
36	1985	0	113	12.4	125.4	250.9			
37	1986	192	55	0	247	248.5			
38	1987	244	37.6	0	281.6	247			
39	1988	71.0	0	0	00.0	000.0			

- IP for Yearly, monthly or weekly
- Auto arrange descending
- Highlight and give result



# Conditional probability

## ConditionalProbability

Station ID  State  District  Block   
Location  Latitude   North Longitude   East

### Data Available

From Date  To Date

### Conditional Probability to be calculated

Yearly  Monthly  Stdwkly  Daily

Year	Month	Std Week	Date	ju day
<input type="text" value="1951"/>	<input type="text" value="1"/>	<input type="text" value="1"/>	<input type="text" value="1"/>	<input type="text"/>
<input type="text" value="1955"/>	<input type="text" value="1"/>	<input type="text" value="52"/>	<input type="text" value="1"/>	<input type="text"/>

- Select station and period
- Enter expected value in mm
- click generate
- Result exported to excel in seconds
- Any range of period / season
- Auto selection of Z value

Quantum of rainfall

**Generate Conditional Probability Report**

# Conditional probability

(Z value inserted in data base itself)

	A	B	C	D	E	F	G	H	I	
1	Year	June	July	August	September	Sum		x-x bar	square	
2	1951	304	50.3	0.5	200	554.8		-152.741	23329.86	
3	1952	80.8	7.9	5.3	27.4	121.4		280.6588	78769.37	
4	1953	98.6	449.4	42.3	27.6	617.9		-215.841	46587.39	
5	1954	53	97.1	108	15.2	273.3		128.7588	16578.83	
6	1955	88.8	14.9	6.6	186.7	297		105.0588	11037.36	
7	1956	84.8	45.4	69.8	11.4	211.4		190.6588	36350.79	
8	1957	280.2	63.1	8.1	1.6	353		49.05881	2406.767	
9	1958	155.1	98.5	109.9	7.7	371.2		30.85883	952.2672	
10	1959	148.8	296.8	53.8	87.5	586.9		-184.841	34166.27	
11	1960	33.5	166	38.6	86	324.1		77.95883	6077.58	
12	1961	457.7	207	77	51.1	792.8		-390.741	152678.6	
13	1962	69.9	170.8	75	88.3	404		-1.94116	3.76811	
14	1963	138.4	118.8	158.2	27.1	442.5		-40.4412	1635.488	
15	1964	58.3	127.7	65.9	122.6	374.5		27.55884	759.4896	
16	1965	181.5	70.4	7.8	8.8	268.5		133.5589	17837.97	
17	1966	66.4	36.5	11.3	182.4	296.6		105.4588	11121.57	
18	1967	287.7	77.5	79	100.9	545.1		-143.041	20460.79	
19						Total	6835		460754.2	
20						Average	402.0588	StdDev	169.6972	
21								Xvalue	400	
22	<b>Result:</b> 400 mm of rainfall will occur during SWM with 50% probability.								CP	0.012132
23									Zt value	0.504
24									Result CP	50.4

# HEAT UNITS – GDD, HTU, PTU

TNAU WEATHER SOFT v 1.0.1 STATION INFORMATION

DegreeDaysAndHeatUnits

Station ID  State  District  Block   
Location  Latitude   North Longitude   East

## Data Available

From Date  To Date

- Useful for research purpose
- If sowing date available we can predict stage of crop using GDD
- Useful in Automated Agro Advisory

Base Temperature(°C)

From Date

To Date

Latitude

Hemisphere

GDD

HTU

PTU

Information



Data's are exported to Excel Succesfully

OK

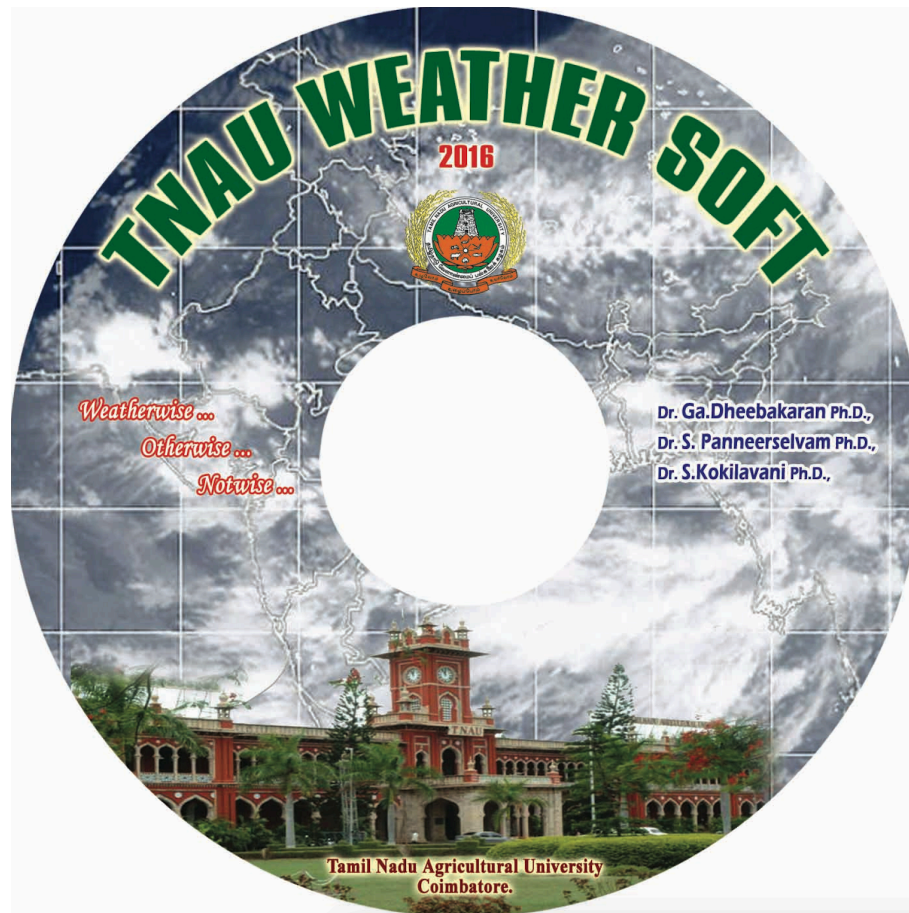
# HEAT UNITS – GDD, HTU, PTU

	A	B	C	D	E	F	G	H	I	J	K	L	M
1	Date	Tmax	Tmin	TAve	Base	GDD	Cumulati	SSH	HTU	Cumulati	MSH	PTU	Cumulativ
2	05-01-1951	30.0	20.8	25.4	10.0	15.4	15.4	8.1	124.7	124.7	11.6	178.6	178.6
3	06-01-1951	30.5	22.0	26.3	10.0	16.3	31.7	6.7	108.9	233.6	11.6	188.5	367.1
4	07-01-1951	30.0	17.5	23.8	10.0	13.8	45.4	8.8	121.0	354.6	11.6	159.5	526.6
5	08-01-1951	30.0	19.5	24.8	10.0	14.8	60.2	4.6	67.9	422.5	11.6	171.1	697.7
6	09-01-1951	29.0	19.6	24.3	10.0	14.3	74.5	3.2	45.8	468.2	11.6	165.9	863.6
7	10-01-1951	28.0	19.0	23.5	10.0	13.5	88.0	9.2	124.2	592.4	11.6	156.6	1020.2
8	11-01-1951	31.0	19.8	25.4	10.0	15.4	103.4	9.2	141.7	734.1	11.6	178.6	1198.9
9	12-01-1951	31.0	19.0	25.0	10.0	15.0	118.4	9.0	135.0	869.1	11.6	174.0	1372.9
10	13-01-1951	30.5	21.5	26.0	10.0	16.0	134.4	7.1	113.6	982.7	11.6	185.6	1558.5
11	14-01-1951	30.5	17.6	24.1	10.0	14.1	148.4	9.7	136.3	1119.0	11.6	163.0	1721.4
12	15-01-1951	31.5	16.4	24.0	10.0	14.0	162.4	9.5	132.5	1251.5	11.6	161.8	1883.3
13	16-01-1951	30.2	19.0	24.6	10.0	14.6	177.0	7.7	112.4	1363.9	11.6	169.4	2052.6
14	17-01-1951	30.0	18.4	24.2	10.0	14.2	191.2	7.3	103.7	1467.6	11.6	164.7	2217.3
15	18-01-1951	28.0	18.5	23.3	10.0	13.3	204.4	9.3	123.2	1590.8	11.6	153.7	2371.0
16	19-01-1951	31.0	17.8	24.4	10.0	14.4	218.8	6.3	90.7	1681.5	11.6	167.0	2538.1
17	20-01-1951	30.7	19.0	24.9	10.0	14.9	233.7	8.7	129.2	1810.7	11.6	172.3	2710.3
18	21-01-1951	30.2	15.5	22.9	10.0	12.9	246.5	6.4	82.2	1893.0	11.6	149.1	2859.4
19	22-01-1951	30.0	16.0	23.0	10.0	13.0	259.5	8.8	114.4	2007.4	11.6	150.8	3010.2
20	23-01-1951	32.0	21.0	26.5	10.0	16.5	276.0	5.8	95.7	2103.1	11.6	191.4	3201.6
21	24-01-1951	32.0	22.5	27.3	10.0	17.3	293.3	2.9	50.0	2153.1	11.6	200.1	3401.7
22	25-01-1951	31.2	23.5	27.4	10.0	17.4	310.6	3.6	62.5	2215.6	11.6	201.3	3603.0
23	26-01-1951	31.0	22.8	26.9	10.0	16.9	327.5	2.9	49.0	2264.6	11.6	196.0	3799.0
24	27-01-1951	31.0	21.0	26.0	10.0	16.0	343.5	4.9	78.4	2343.0	11.6	185.6	3984.6
25	28-01-1951	31.0	19.0	25.0	10.0	15.0	358.5	5.9	88.5	2431.5	11.6	174.0	4158.6
26	29-01-1951	30.5	18.0	24.3	10.0	14.3	372.8	2.9	41.3	2472.8	11.6	165.3	4323.9
27	30-01-1951	29.0	19.8	24.4	10.0	14.4	387.2	4.0	57.6	2530.4	11.6	167.0	4490.9





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