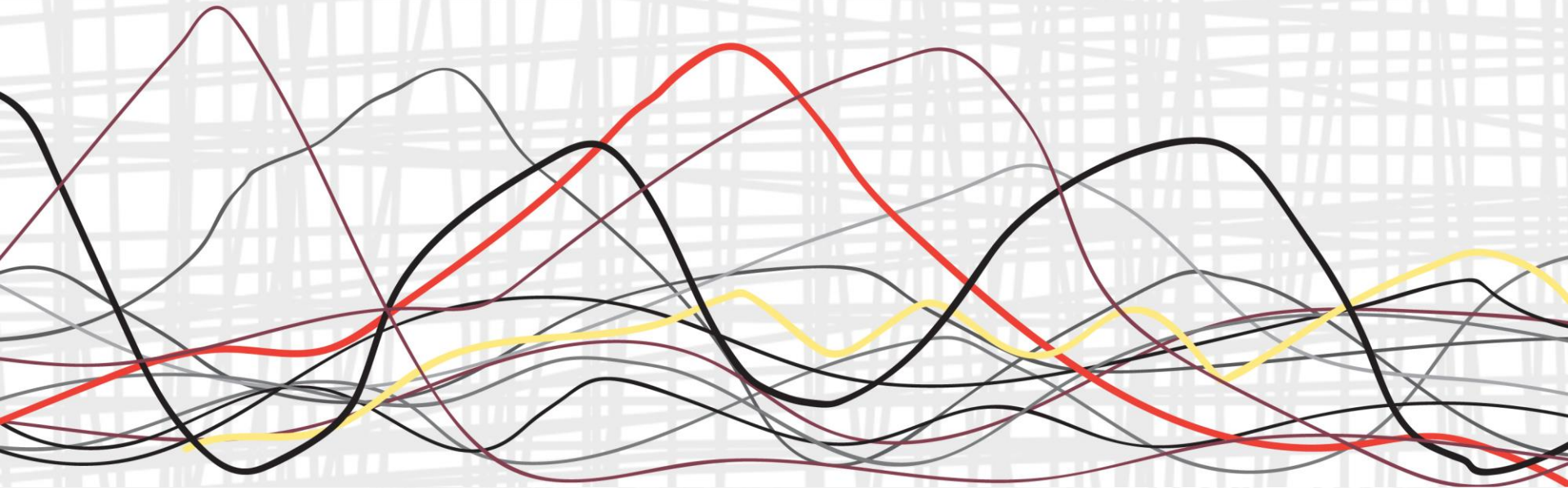


The logo for Statgraphics 19. It features a stylized icon on the left consisting of three dark red squares arranged in a 2x2 grid with the top-right square missing, and a yellow diamond shape positioned above the top-left square. To the right of this icon, the text "statgraphics 19" is written in a red, lowercase, sans-serif font. A small registered trademark symbol (®) is located at the top right of the number "9".

statgraphics 19[®]

A Collection of New Procedures
for Data Visualization



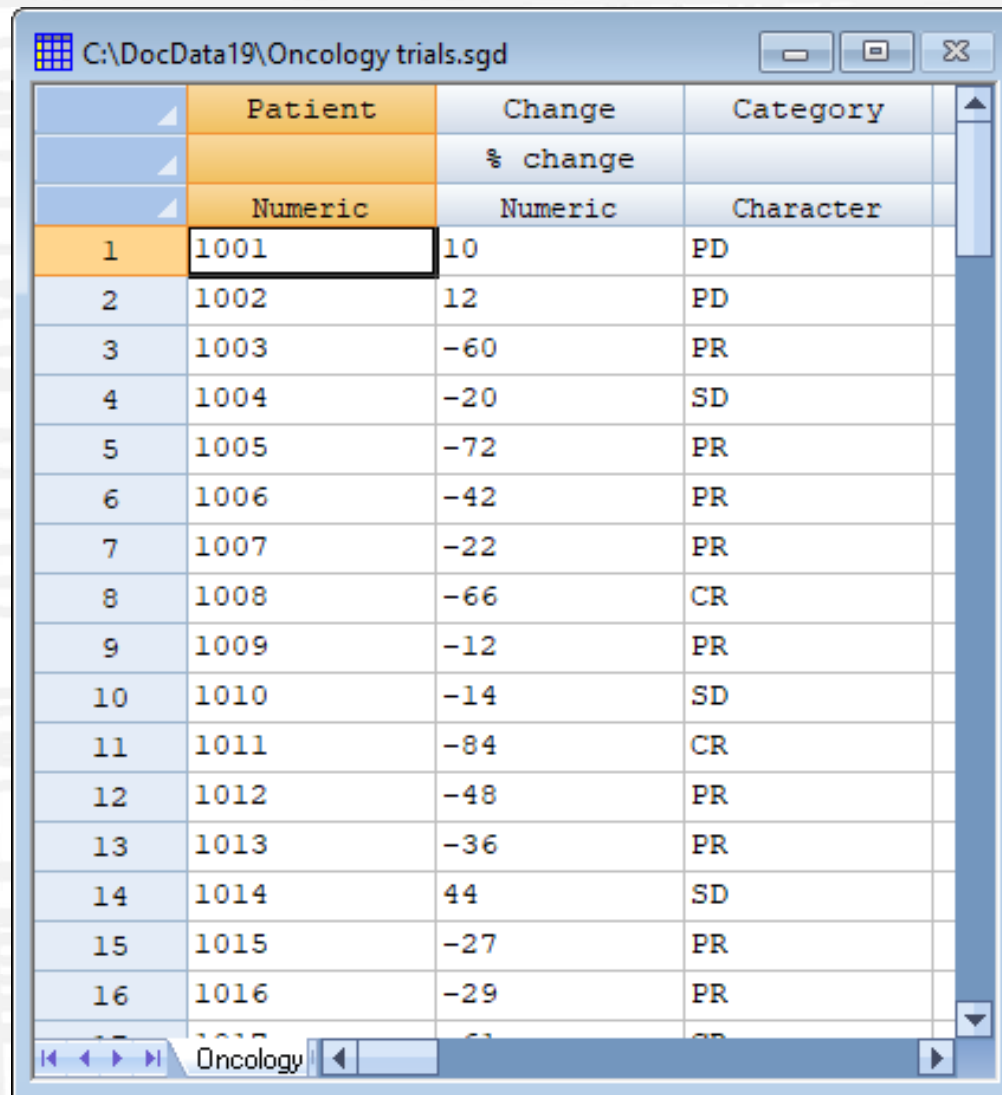
New Visualization Procedures

- **Version 19.1**
 - Waterfall Plots
 - Missing Data Plots
 - Barcharts with Lines
- **Version 19.2**
 - Dynamic Pareto Charts
 - Spiral Time Series Plots
 - Dynamic Radar/Spider Plots

Version 19.2

- Released March 10, 2021
- New procedures
 - Dynamic Pareto Charts
 - Spiral Time Series Plots
 - Dynamic Radar/Spider Plots
 - Fitting Non-Normal Mixture Distributions (lognormal, Weibull, gamma)
 - Support Vector Machines

Ordered Waterfall Plots



C:\DocData19\Oncology trials.sgd

	Patient	Change	Category
		% change	
	Numeric	Numeric	Character
1	1001	10	PD
2	1002	12	PD
3	1003	-60	PR
4	1004	-20	SD
5	1005	-72	PR
6	1006	-42	PR
7	1007	-22	PR
8	1008	-66	CR
9	1009	-12	PR
10	1010	-14	SD
11	1011	-84	CR
12	1012	-48	PR
13	1013	-36	PR
14	1014	44	SD
15	1015	-27	PR
16	1016	-29	PR

Oncology

Data Input Dialog Box

Ordered Waterfall Plot

Patient
Change
Category

Data:
▶ Change

(Labels:)
▶ Patient

(Codes:)
▶ Category

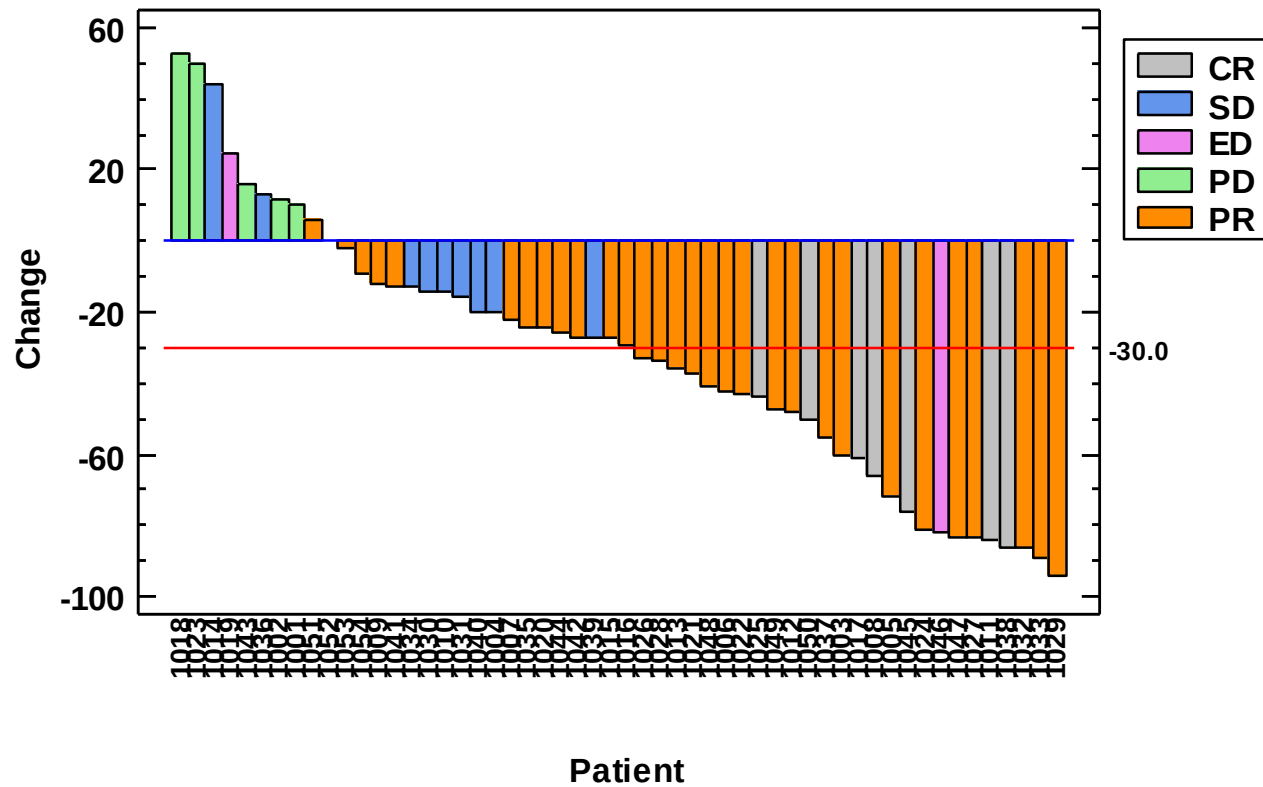
(Select:)
▶

☐ Sort column names

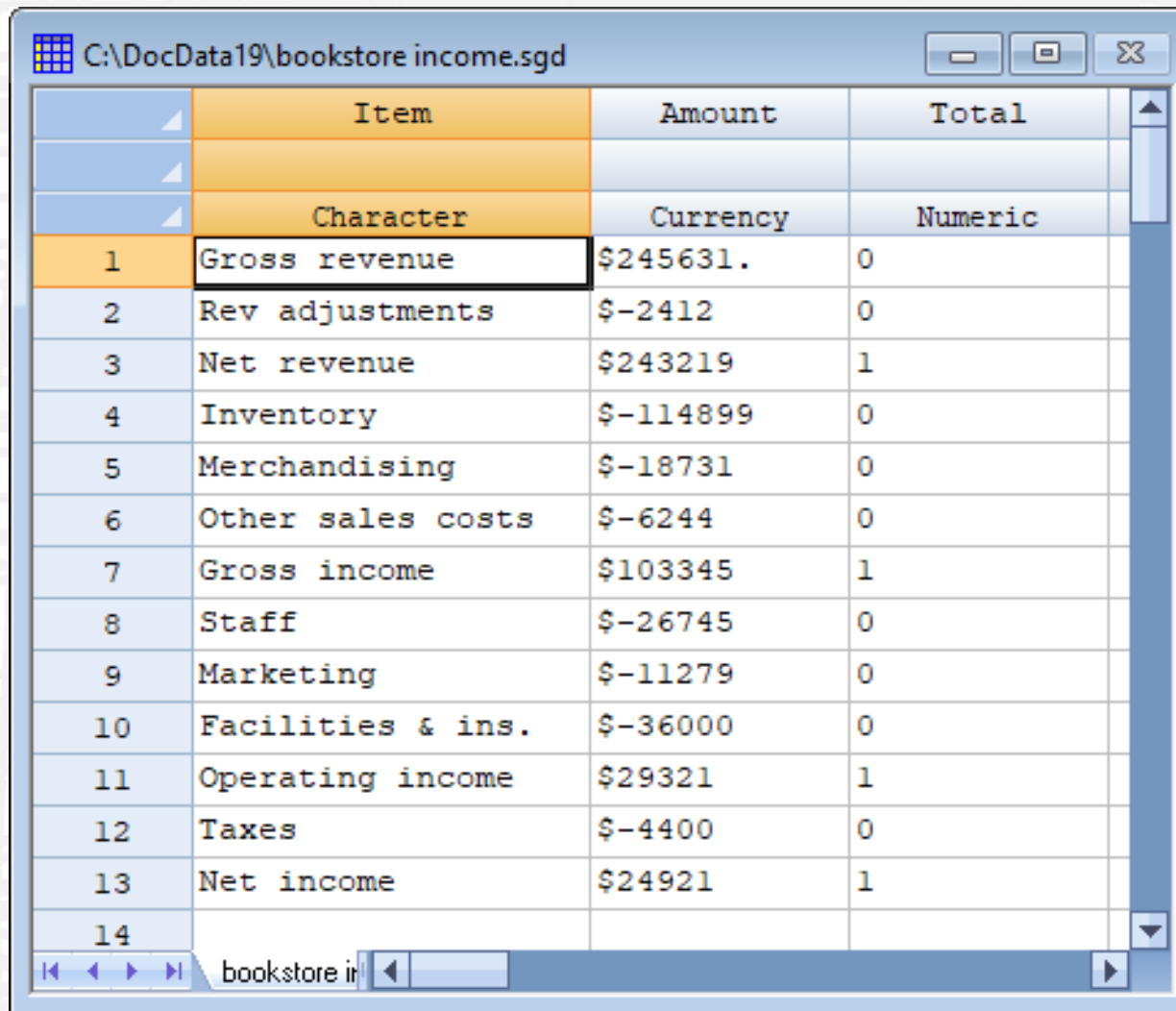
OK Cancel Delete Transform... Help

Waterfall Plot

Waterfall Plot



Sequential Waterfall Plot



	Item	Amount	Total
	Character	Currency	Numeric
1	Gross revenue	\$245631.	0
2	Rev adjustments	\$-2412	0
3	Net revenue	\$243219	1
4	Inventory	\$-114899	0
5	Merchandising	\$-18731	0
6	Other sales costs	\$-6244	0
7	Gross income	\$103345	1
8	Staff	\$-26745	0
9	Marketing	\$-11279	0
10	Facilities & ins.	\$-36000	0
11	Operating income	\$29321	1
12	Taxes	\$-4400	0
13	Net income	\$24921	1
14			

Data Input Dialog Box

Sequential Waterfall Plot ✕

Item
Amount
Total

Data:
 Amount

Labels:
 Item

Total:
 Total

(Select:)


☐ Sort column names

OK

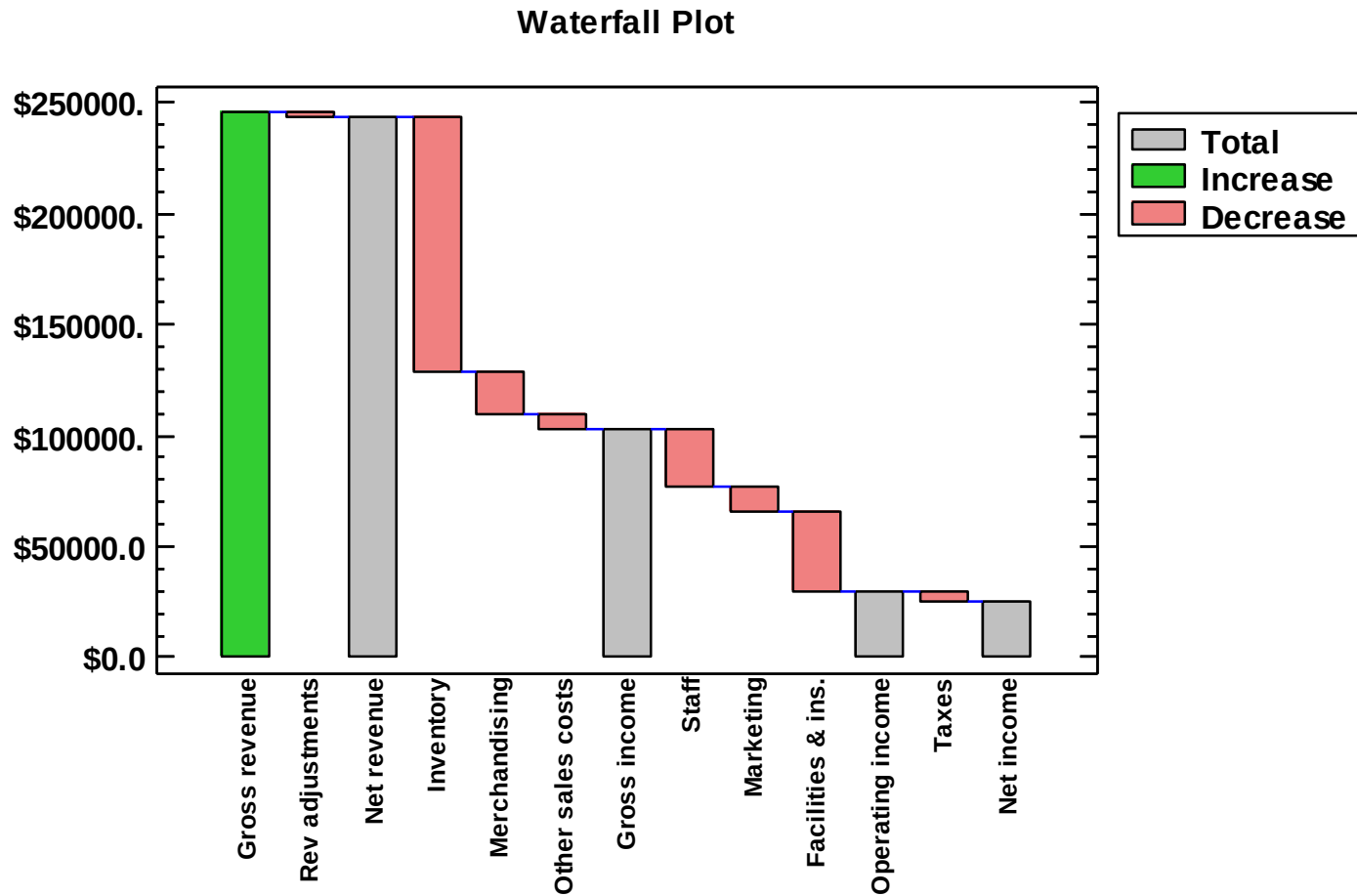
Cancel

Delete

Transform...

Help

Waterfall Plot



3-Dimensional Waterfall Plot

C:\DocData19\median incomes.sgd

	Year	15 to 24	25 to 34	35 to 44	45 to 54	55 to 64	65 and older
		2017 dollars	2017 dollars	2017 dollars	2017 dollars	2017 dollars	2017 dollars
	Numeric	Numeric	Numeric	Numeric	Numeric	Numeric	Numeric
1	1967	36132	51557	57889	58545	44768	17760
2	1968	37326	53203	60844	60509	47240	19691
3	1969	37700	55282	63617	64832	49005	19733
4	1970	37676	54743	62884	64477	50314	19762
5	1971	35618	54540	62869	65034	50572	20637
6	1972	37104	57156	66672	68968	52726	21907
7	1973	37069	58522	69050	69633	53789	22664
8	1974	36469	55845	66922	69111	51565	23791
9	1975	33807	54532	64565	67805	51865	23201
10	1976	34812	54975	65683	69387	52685	23420
11	1977	35365	55702	66791	71598	52879	23452
12	1978	38085	57062	68908	73241	55422	24485
13	1979	37625	57492	69787	72794	56648	24885
14	1980	36103	54923	67107	71351	55519	24941
15	1981	34366	53236	65878	70186	54607	25701
16	1982	33814	52084	64539	68492	54028	27022
17	1983	31457	51042	64968	71242	53465	27505
18	1984	31611	53485	67116	71019	54294	28842
19	1985	32786	54651	67682	72281	55678	28876

median incomes B C

Data Input Dialog Box

Three Dimensional Waterfall Plot

Year
15 to 24
25 to 34
35 to 44
45 to 54
55 to 64
65 and older

Data:
▶ 15 to 24
25 to 34
35 to 44
45 to 54
55 to 64
65 and older

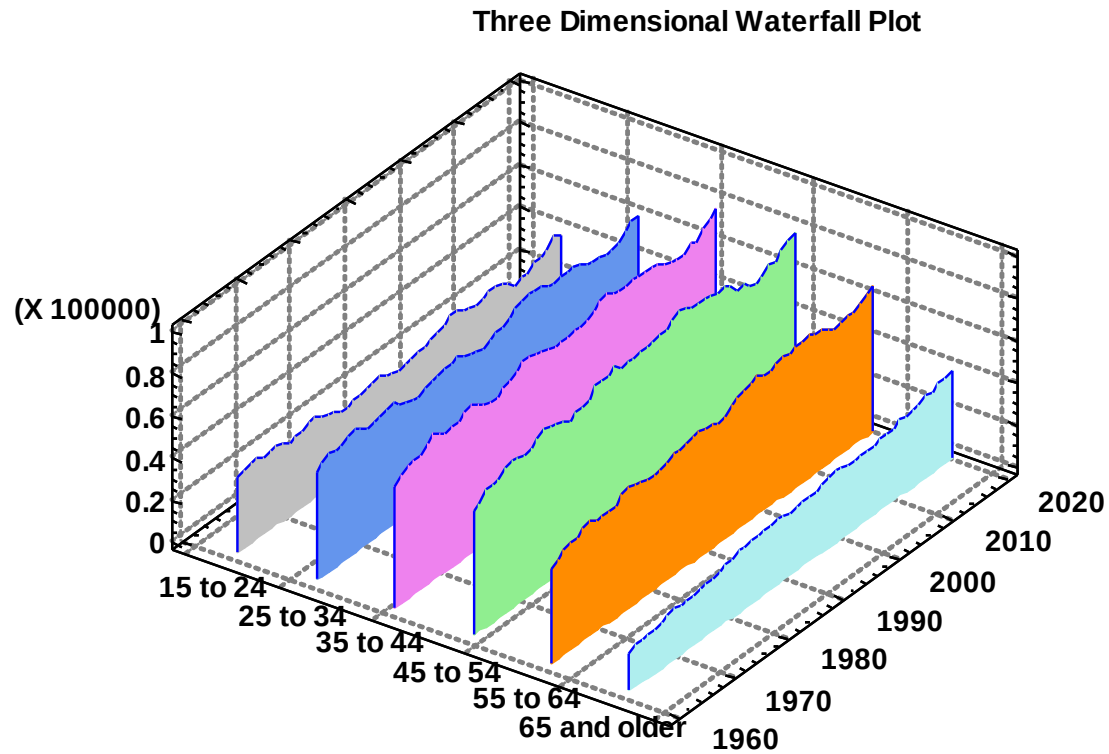
Row category:
▶ Year

(Select:)
▶

☐ Sort column names

OK Cancel Delete Transform... Help

Waterfall Plot



DataViewer

DataViewer [X]

Make
Model
Type
Min Price
Mid Price
Max Price
MPG City
MPG Highway
Air Bags
Drive Train
Cylinders
Engine Size
Horsepower
RPM
Revs per Mile
Manual
Fueltank
Passengers
Length
Wheelbase
Width
U Turn Space
Rear seat
Luggage
Weight
Domestic

Columns:

▶ Make
Model
Type
Min Price
Mid Price
Max Price
MPG City
MPG Highway
Air Bags

(Primary sort:)
▶

(Secondary sort:)
▶

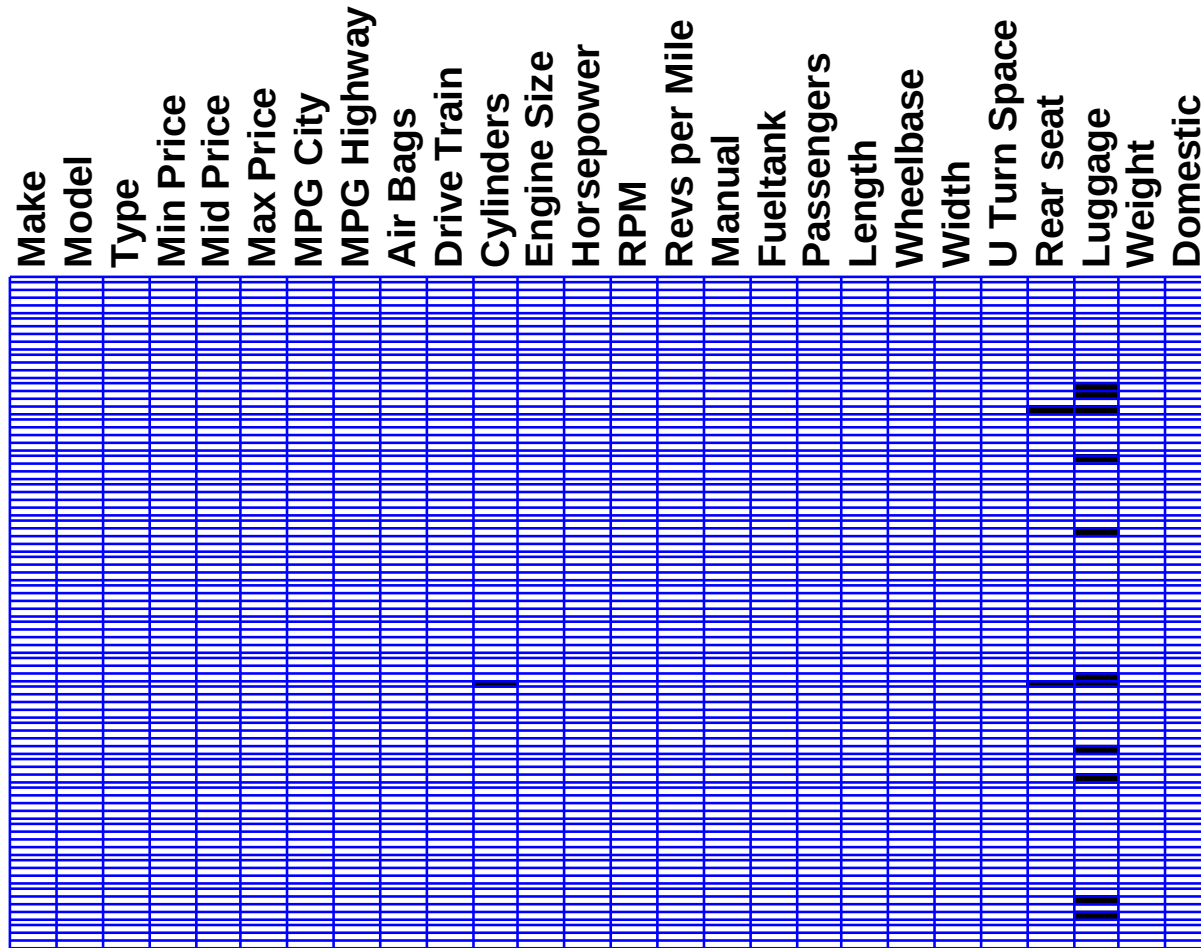
(Tertiary sort:)
▶

(Select:)
▶

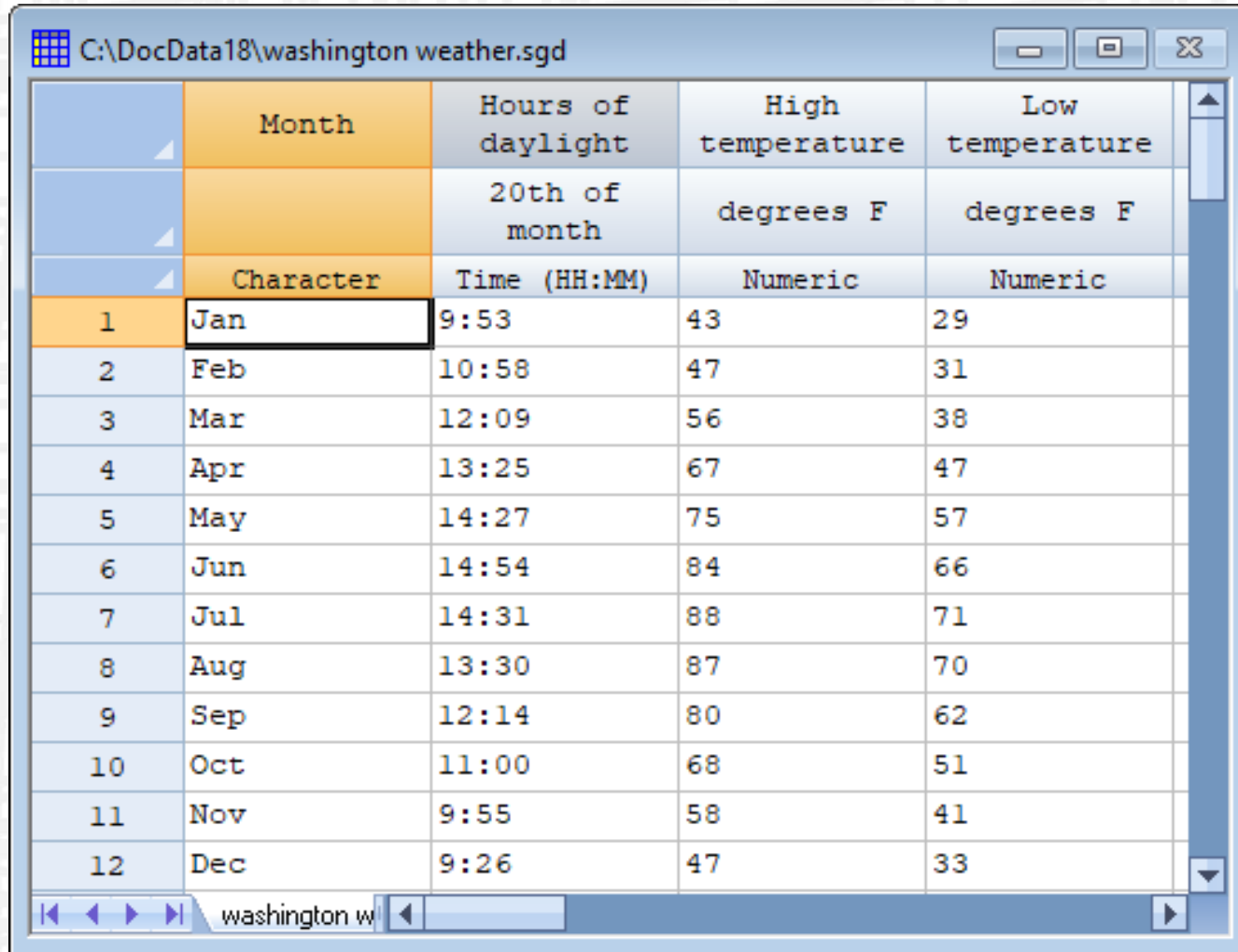
☐ Sort column names

OK Cancel Delete Transform... Help

Missing Data Plot



Barchart with Lines



	Month	Hours of daylight	High temperature	Low temperature
		20th of month	degrees F	degrees F
	Character	Time (HH:MM)	Numeric	Numeric
1	Jan	9:53	43	29
2	Feb	10:58	47	31
3	Mar	12:09	56	38
4	Apr	13:25	67	47
5	May	14:27	75	57
6	Jun	14:54	84	66
7	Jul	14:31	88	71
8	Aug	13:30	87	70
9	Sep	12:14	80	62
10	Oct	11:00	68	51
11	Nov	9:55	58	41
12	Dec	9:26	47	33

Data Input Dialog Box

The image shows a 'Multiple Barchart' dialog box. On the left is a list of available variables: 'Month', 'Hours of daylight', 'High temperature', and 'Low temperature'. On the right, there are four sections for assigning variables to the chart: 'Columns:', '(Standard Errors:)', '(Labels:)', and '(Points:)', each with a selection icon and a list box. The 'Columns:' list contains 'High temperature' and 'Low temperature'. The '(Labels:)' list contains 'Month'. The '(Points:)' list contains 'Hours of daylight'. The '(Select:)' section has an empty list box. At the bottom left is a checkbox labeled 'Sort column names'. At the bottom right are five buttons: 'OK', 'Cancel', 'Delete', 'Transform...', and 'Help'.

Multiple Barchart

Month
Hours of daylight
High temperature
Low temperature

Columns:
▶ High temperature
Low temperature

(Standard Errors:)
▶

(Labels:)
▶ Month

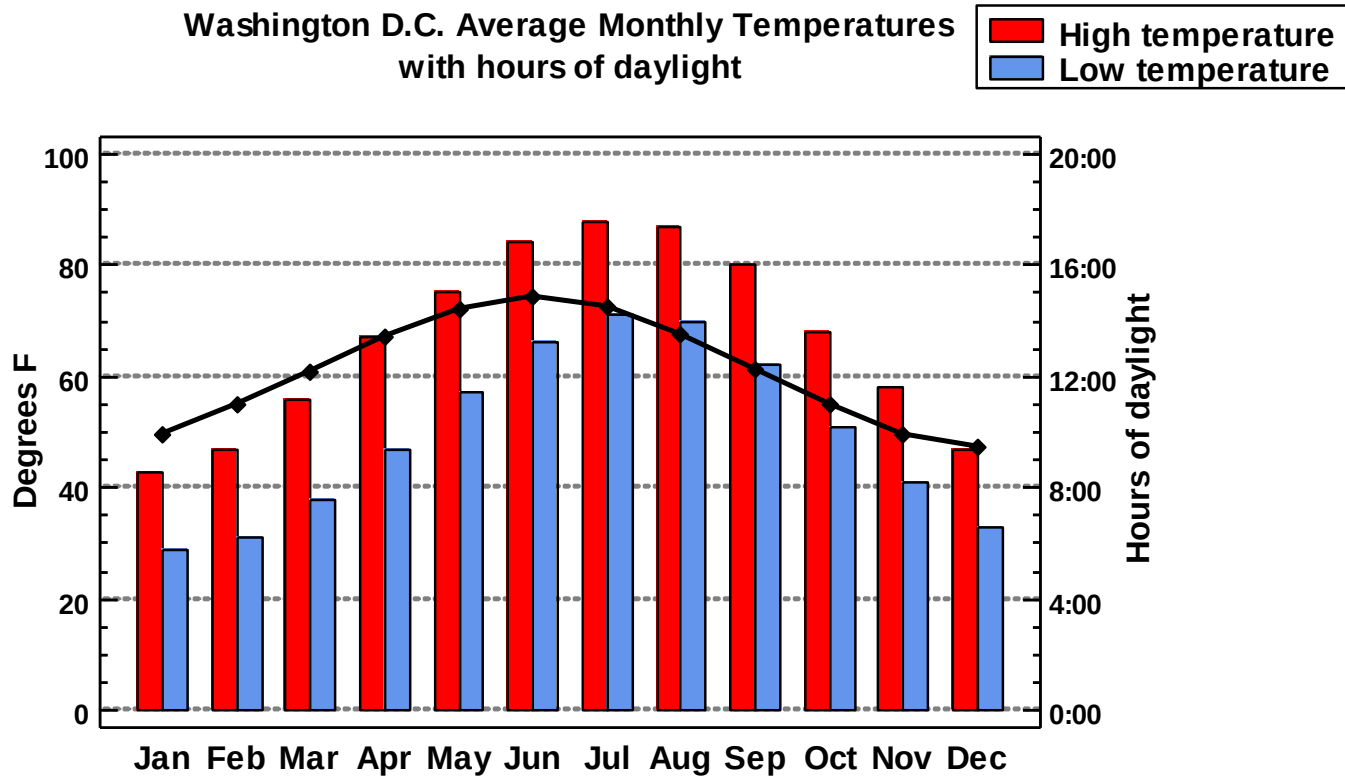
(Points:)
▶ Hours of daylight

(Select:)
▶

☐ Sort column names

OK Cancel Delete Transform... Help

Barchart with Lines



Dynamic Pareto Chart

C:\DocData19\coronavirus data by country.sgd							
	date	cases	deaths	cumulative cases	cumulative deaths	region	code
	Date	Numeric	Numeric	Numeric	Numeric	Character	Character
37772	8/7/20	59755	1848	4883646	160104	United States of America	USA
37773	8/8/20	58150	1252	4941796	161356	United States of America	USA
37774	8/9/20	56221	1069	4998017	162425	United States of America	USA
37775	8/10/20	46847	513	5044864	162938	United States of America	USA
37776	8/11/20	49530	523	5094394	163461	United States of America	USA
37777	8/12/20	46813	1076	5141207	164537	United States of America	USA
37778	8/13/20	55941	1490	5197148	166027	United States of America	USA
37779	8/14/20	51094	1083	5248242	167110	United States of America	USA
37780	8/15/20	64838	1336	5313080	168446	United States of America	USA
37781	8/16/20	48085	1035	5361165	169481	United States of America	USA
37782	8/17/20	42104	571	5403269	170052	United States of America	USA
37783	8/18/20	35056	445	5438325	170497	United States of America	USA
37784	8/19/20	44091	1324	5482416	171821	United States of America	USA
37785	8/20/20	47426	1356	5529842	173177	United States of America	USA
37786	8/21/20	44005	1078	5573847	174255	United States of America	USA
37787	8/22/20	49880	1151	5623727	175406	United States of America	USA
37788	8/23/20	44378	956	5668105	176362	United States of America	USA
37789	8/24/20	34506	444	5702611	176806	United States of America	USA

Data Input Dialog Box

Dynamic Pareto Chart

date
cases
deaths
cumulative cases
cumulative deaths
region
code
population
continent

Data:
▶ cumulative cases

Slicer:
▶ date

Identifier:
▶ region

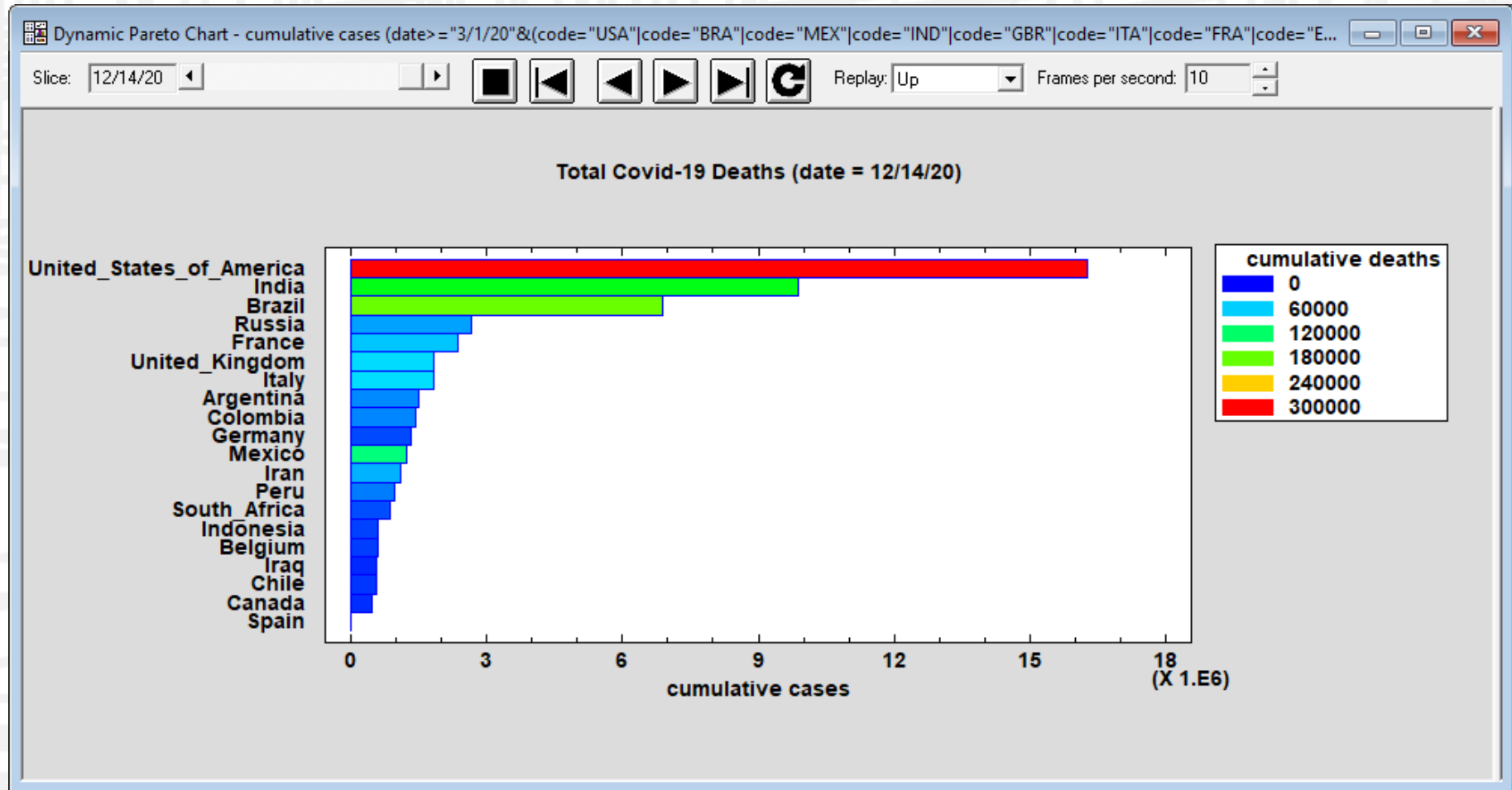
(Color):
▶ cumulative deaths

(Select):
▶ `date>="3/1/20"&{(code="USA"|code="BRA"|code="MEX"|code="I`

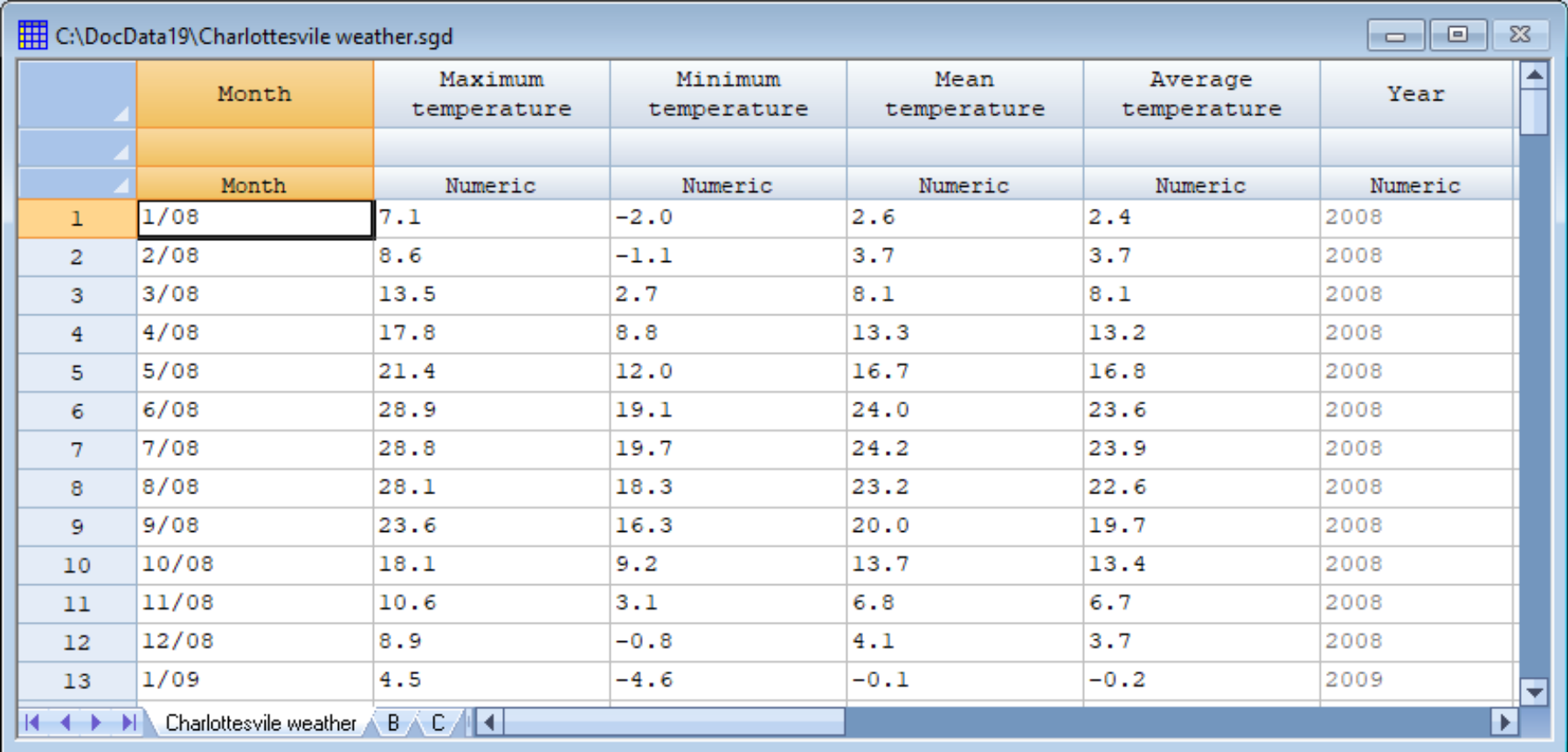
☐ Sort column names

OK Cancel Delete Transform... Help

Dynamic Pareto Chart



Spiral Time Series Plot



	Month	Maximum temperature	Minimum temperature	Mean temperature	Average temperature	Year
	Month	Numeric	Numeric	Numeric	Numeric	Numeric
1	1/08	7.1	-2.0	2.6	2.4	2008
2	2/08	8.6	-1.1	3.7	3.7	2008
3	3/08	13.5	2.7	8.1	8.1	2008
4	4/08	17.8	8.8	13.3	13.2	2008
5	5/08	21.4	12.0	16.7	16.8	2008
6	6/08	28.9	19.1	24.0	23.6	2008
7	7/08	28.8	19.7	24.2	23.9	2008
8	8/08	28.1	18.3	23.2	22.6	2008
9	9/08	23.6	16.3	20.0	19.7	2008
10	10/08	18.1	9.2	13.7	13.4	2008
11	11/08	10.6	3.1	6.8	6.7	2008
12	12/08	8.9	-0.8	4.1	3.7	2008
13	1/09	4.5	-4.6	-0.1	-0.2	2009

Data Input Dialog Box

Spiral Plot [X]

Month
Maximum temperature
Minimum temperature
Mean temperature
Average temperature
Year

Data: [▶] Maximum temperature

Time: [▶] Month

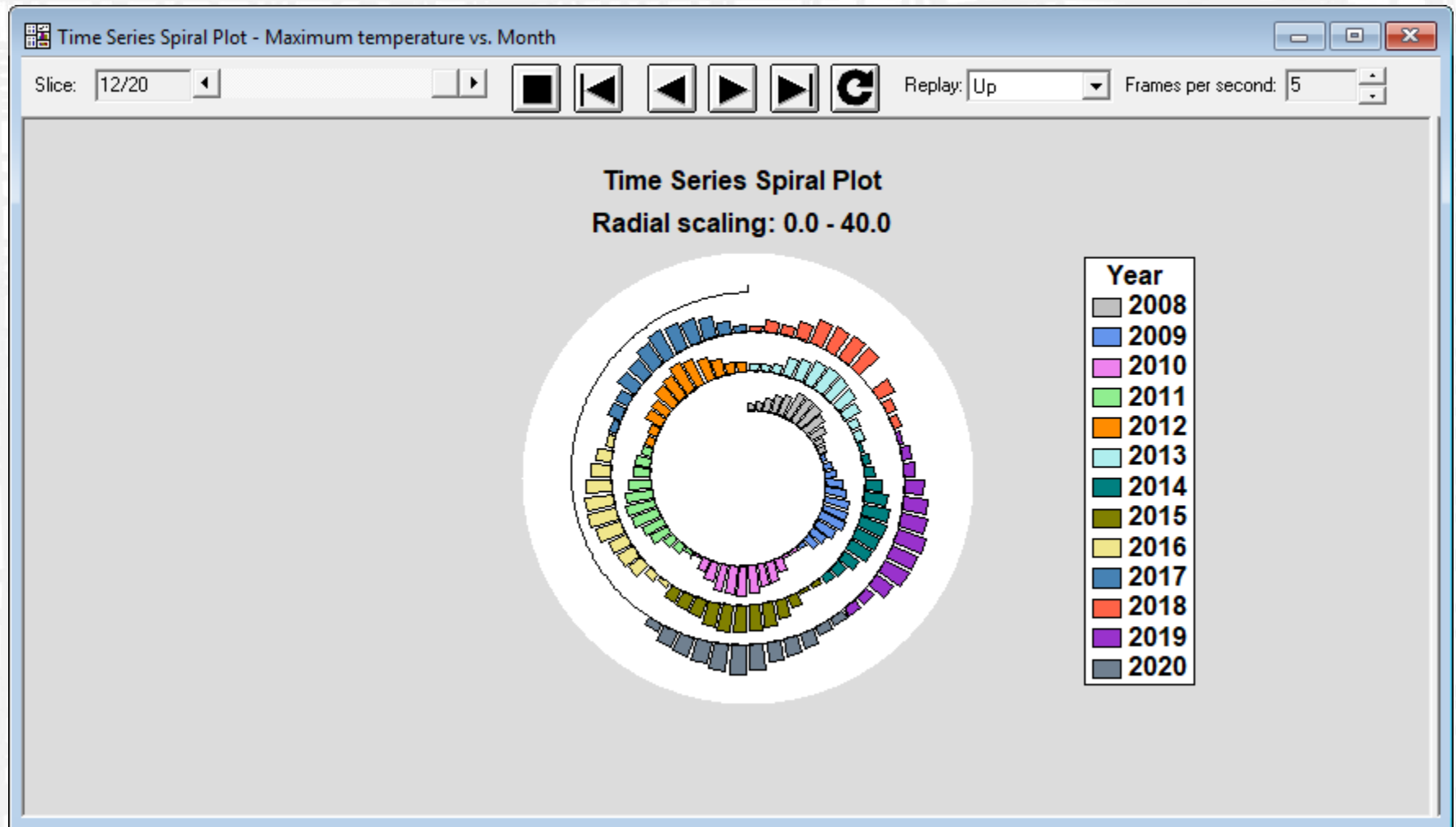
(Codes:) [▶] Year

(Select:) [▶]

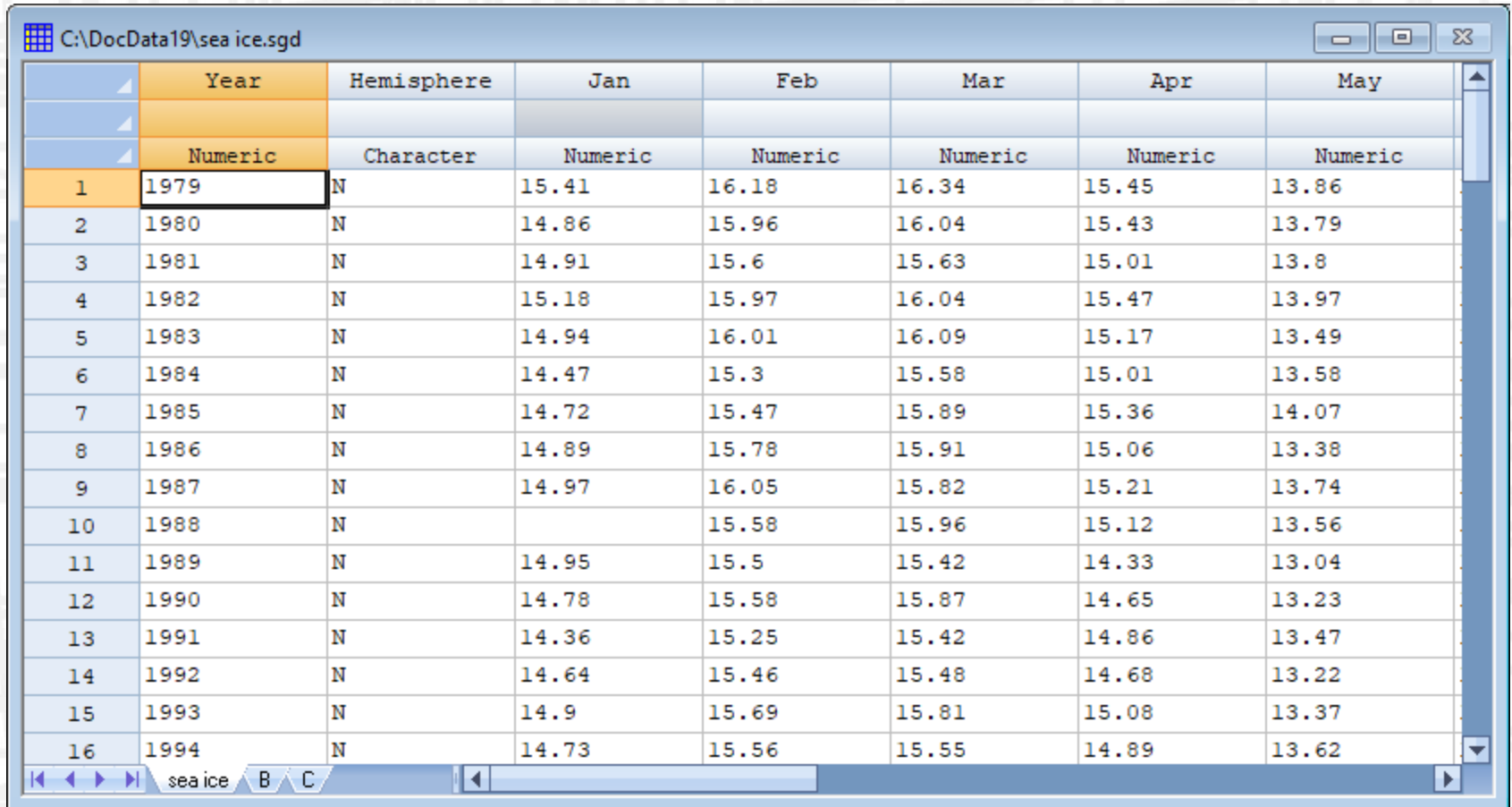
☐ Sort column names

OK Cancel Delete Transform... Help

Dynamic Spiral Plot



Dynamic Radar/Spider Plot



	Year	Hemisphere	Jan	Feb	Mar	Apr	May
	Numeric	Character	Numeric	Numeric	Numeric	Numeric	Numeric
1	1979	N	15.41	16.18	16.34	15.45	13.86
2	1980	N	14.86	15.96	16.04	15.43	13.79
3	1981	N	14.91	15.6	15.63	15.01	13.8
4	1982	N	15.18	15.97	16.04	15.47	13.97
5	1983	N	14.94	16.01	16.09	15.17	13.49
6	1984	N	14.47	15.3	15.58	15.01	13.58
7	1985	N	14.72	15.47	15.89	15.36	14.07
8	1986	N	14.89	15.78	15.91	15.06	13.38
9	1987	N	14.97	16.05	15.82	15.21	13.74
10	1988	N		15.58	15.96	15.12	13.56
11	1989	N	14.95	15.5	15.42	14.33	13.04
12	1990	N	14.78	15.58	15.87	14.65	13.23
13	1991	N	14.36	15.25	15.42	14.86	13.47
14	1992	N	14.64	15.46	15.48	14.68	13.22
15	1993	N	14.9	15.69	15.81	15.08	13.37
16	1994	N	14.73	15.56	15.55	14.89	13.62

Data Input Dialog Box

Dynamic Radar/Spider Plot

Year
Hemisphere
Jan
Feb
Mar
Apr
May
Jun
Jul
Aug
Sep
Oct
Nov
Dec

Data:

▶ Jan
Feb
Mar
Apr
May
Jun
Jul
Aug
Sep
Oct
Nov
Dec

Slicer:

▶ Year

Identifier:

▶ Hemisphere

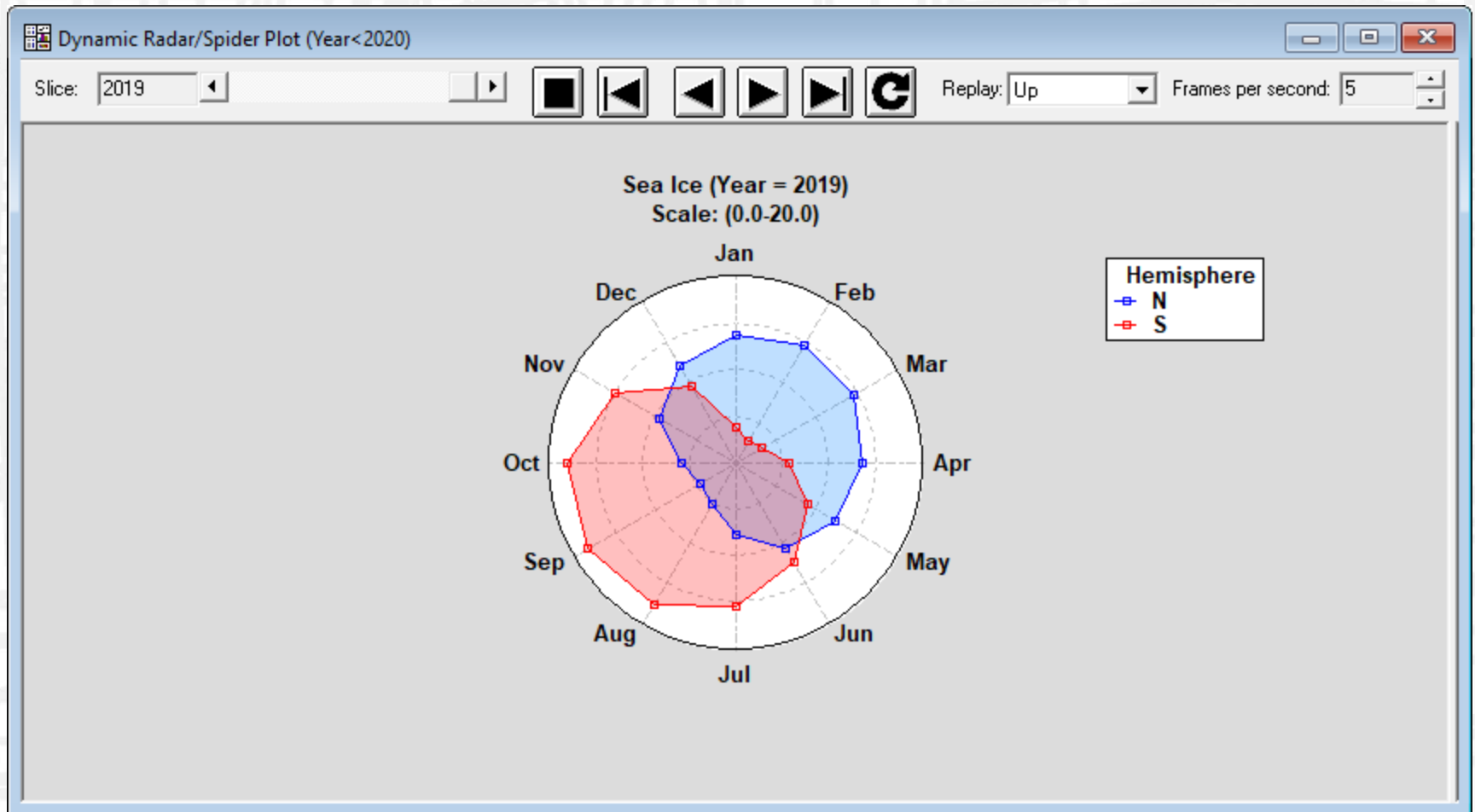
(Select.)

▶ Year<2020

☐ Sort column names

OK Cancel Delete Transform... Help

Dynamic Radar/Spider Plot



References

- Oncology data: Pandya, Niraj J. (2012) “Waterfall Charts in Oncology Trials – Ride the Wave”.
<https://www.pharmasug.org/proceedings/2012/DG/PharmaSUG-2012-DG13.pdf>
- Median income data: *U.S. Census Bureau*
- COVID-19 data: *European Center for Disease Prevention and Control* website
<https://www.ecdc.europa.eu/en/covid-19/data>
- Sea ice data: *National Snow & Ice Data Center*
- Charlottesville weather data: *National Oceanic and Administrative Center*

Saved Webinar

Check out:

www.statgraphics.com/webinars

for a recording of this webinar, PowerPoint slides and sample data.