

???

????????????????????, ???

- [?????](#)
- [?????](#)
- [?????](#)
- [?????](#)
- [?????](#)

?????

??

???

?????.png

???

. ???

```
[{
  year: '1991',
  value: 15468
}, {
  year: '1992',
  value: 16100
}, {
  year: '1993',
  value: 15900
}, {
  year: '1994',
  value: 17409
}, {
  year: '1995',
  value: 17000
}, {
  year: '1996',
  value: 31056
}, {
  year: '1997',
  value: 31982
}, {
  year: '1998',
```

```
value: 32040
}, {
  year: '1999',
  value: 33233
}]
```

• ??

40,40, 60, 60

• ??? Scale

year ??? ? X? ?

??	???
??	year
??	linear
????	1
??????	??

value ??? ? Y? ?

??	???
??	value
??	linear
??????	??
???	10000
???	35000
?????	<div>function formatter(val) {   return (val / 10000).toFixed(1) + 'k'; }</div>

## • ? Geom

???? area ?

??	???
??	year*value
??	???

??? Line ?

??	???
??	year*value
??	??

?????

??  
??  
??

???

?????.png

???

. ???

```
[{
  country: 'Asia',
  year: '1750',
  value: 502
}, {
  country: 'Asia',
  year: '1800',
  value: 635
}, {
  country: 'Asia',
  year: '1850',
  value: 809
}, {
  country: 'Asia',
  year: '1900',
  value: 5268
}, {
  country: 'Asia',
  year: '1950',
  value: 4400
}, {
```

```
    country: 'Asia',
    year: '1999',
    value: 3634
  }, {
    country: 'Asia',
    year: '2050',
    value: 947
  }, {
    country: 'Africa',
    year: '1750',
    value: 106
  }, {
    country: 'Africa',
    year: '1800',
    value: 107
  }, {
    country: 'Africa',
    year: '1850',
    value: 111
  }, {
    country: 'Africa',
    year: '1900',
    value: 1766
  }, {
    country: 'Africa',
    year: '1950',
    value: 221
  }, {
    country: 'Africa',
    year: '1999',
    value: 767
  }, {
    country: 'Africa',
    year: '2050',
    value: 133
  }, {
    country: 'Europe',
    year: '1750',
    value: 163
  }, {
```

```
    country: 'Europe',
    year: '1800',
    value: 203
  }, {
    country: 'Europe',
    year: '1850',
    value: 276
  }, {
    country: 'Europe',
    year: '1900',
    value: 628
  }, {
    country: 'Europe',
    year: '1950',
    value: 547
  }, {
    country: 'Europe',
    year: '1999',
    value: 729
  }, {
    country: 'Europe',
    year: '2050',
    value: 408
  }, {
    country: 'Oceania',
    year: '1750',
    value: 200
  }, {
    country: 'Oceania',
    year: '1800',
    value: 200
  }, {
    country: 'Oceania',
    year: '1850',
    value: 200
  }, {
    country: 'Oceania',
    year: '1900',
    value: 460
  }, {
```

```

country: 'Oceania',
year: '1950',
value: 230
}, {
country: 'Oceania',
year: '1999',
value: 300
}, {
country: 'Oceania',
year: '2050',
value: 300
}]

```

• ??

40,40, 80, 60

• ??? Scale

year ??? ? X? ?

??	???
??	year
??	linear
????	50
??????	??

• ? Geom

???? area ?

??	???
??	year*value
??	???



????	country
????	??   stack

??? Line ?

??	???
??	year*value
??	??
????	country
??	2
????	??   stack

• ?? Legend

??	???
??	??
??	country
??	?
??	??

?????

???

?????.png

???

. ???

```
[{
  time: 1246406400000,
  constest: 21.5,
  temperature: [14.3, 27.7]
}, {
  time: 1246492800000,
  constest: 22.1,
  temperature: [14.5, 27.8]
}, {
  time: 1246579200000,
  constest: 23,
  temperature: [15.5, 29.6]
}, {
  time: 1246665600000,
  constest: 23.8,
  temperature: [16.7, 30.7]
}, {
  time: 1246752000000,
  constest: 21.4,
  temperature: [16.5, 25.0]
}, {
  time: 1246838400000,
  constest: 21.3,
  temperature: [17.8, 25.7]
}, {
```

```
time: 1246924800000,  
constest: 18.3,  
temperature: [13.5, 24.8]  
}, {  
time: 1247011200000,  
constest: 15.4,  
temperature: [10.5, 21.4]  
}, {  
time: 1247097600000,  
constest: 16.4,  
temperature: [9.2, 23.8]  
}, {  
time: 1247184000000,  
constest: 17.7,  
temperature: [11.6, 21.8]  
}, {  
time: 1247270400000,  
constest: 17.5,  
temperature: [10.7, 23.7]  
}, {  
time: 1247356800000,  
constest: 17.6,  
temperature: [11.0, 23.3]  
}, {  
time: 1247443200000,  
constest: 17.7,  
temperature: [11.6, 23.7]  
}, {  
time: 1247529600000,  
constest: 16.8,  
temperature: [11.8, 20.7]  
}, {  
time: 1247616000000,  
constest: 17.7,  
temperature: [12.6, 22.4]  
}, {  
time: 1247702400000,  
constest: 16.3,  
temperature: [13.6, 19.6]  
}, {
```

```
time: 1247788800000,  
constest: 17.8,  
temperature: [11.4, 22.6]  
}, {  
time: 1247875200000,  
constest: 18.1,  
temperature: [13.2, 25.0]  
}, {  
time: 1247961600000,  
constest: 17.2,  
temperature: [14.2, 21.6]  
}, {  
time: 1248048000000,  
constest: 14.4,  
temperature: [13.1, 17.1]  
}, {  
time: 1248134400000,  
constest: 13.7,  
temperature: [12.2, 15.5]  
}, {  
time: 1248220800000,  
constest: 15.7,  
temperature: [12.0, 20.8]  
}, {  
time: 1248307200000,  
constest: 14.6,  
temperature: [12.0, 17.1]  
}, {  
time: 1248393600000,  
constest: 15.3,  
temperature: [12.7, 18.3]  
}, {  
time: 1248480000000,  
constest: 15.3,  
temperature: [12.4, 19.4]  
}, {  
time: 1248566400000,  
constest: 15.8,  
temperature: [12.6, 19.9]  
}, {
```

```
time: 1248652800000,
constest: 15.2,
temperature: [11.9, 20.2]
}, {
time: 1248739200000,
constest: 14.8,
temperature: [11.0, 19.3]
}, {
time: 1248825600000,
constest: 14.4,
temperature: [10.8, 17.8]
}, {
time: 1248912000000,
constest: 15,
temperature: [11.8, 18.5]
}, {
time: 1248998400000,
constest: 13.6,
temperature: [10.8, 16.1]
}]
```

• ??

40,40, 60, 60

• ??? Scale

time?X??

??	???
??	time
??	time
??????	??
????	MM-DD

constest?Y? ?

??	???
??	constest
??	linear
??????	??
???	5
???	35

temperature? Y? ?

??	???
??	temperature
??	linear
??????	??
???	5
???	35

- ??? Axis

constest? Y? ?

??	???
??	constest
??	??

- ? Geom

???? area ?

??	???
??	time*temperature
??	???

??? Line ?

??	???
??	time*constest
??	??
??	2

??? point ?

??	???
??	time*constest
??	??
??	circle
?? - ??	#ffffff
?? - ??	1

?????

???

?????.png

???

. ???

```
[{
  time: 1246406400000,
  constest: 21.5,
  temperature: [14.3, 27.7]
}, {
  time: 1246492800000,
  constest: 22.1,
  temperature: [14.5, 27.8]
}, {
  time: 1246579200000,
  constest: 23,
  temperature: [15.5, 29.6]
}, {
  time: 1246665600000,
  constest: 23.8,
  temperature: [16.7, 30.7]
}, {
  time: 1246752000000,
  constest: 21.4,
  temperature: [16.5, 25.0]
}, {
  time: 1246838400000,
  constest: 21.3,
  temperature: [17.8, 25.7]
}, {
```



```
time: 1246924800000,  
constest: 18.3,  
temperature: [13.5, 24.8]  
}, {  
time: 1247011200000,  
constest: 15.4,  
temperature: [10.5, 21.4]  
}, {  
time: 1247097600000,  
constest: 16.4,  
temperature: [9.2, 23.8]  
}, {  
time: 1247184000000,  
constest: 17.7,  
temperature: [11.6, 21.8]  
}, {  
time: 1247270400000,  
constest: 17.5,  
temperature: [10.7, 23.7]  
}, {  
time: 1247356800000,  
constest: 17.6,  
temperature: [11.0, 23.3]  
}, {  
time: 1247443200000,  
constest: 17.7,  
temperature: [11.6, 23.7]  
}, {  
time: 1247529600000,  
constest: 16.8,  
temperature: [11.8, 20.7]  
}, {  
time: 1247616000000,  
constest: 17.7,  
temperature: [12.6, 22.4]  
}, {  
time: 1247702400000,  
constest: 16.3,  
temperature: [13.6, 19.6]  
}, {
```

```
time: 1247788800000,  
constest: 17.8,  
temperature: [11.4, 22.6]  
}, {  
time: 1247875200000,  
constest: 18.1,  
temperature: [13.2, 25.0]  
}, {  
time: 1247961600000,  
constest: 17.2,  
temperature: [14.2, 21.6]  
}, {  
time: 1248048000000,  
constest: 14.4,  
temperature: [13.1, 17.1]  
}, {  
time: 1248134400000,  
constest: 13.7,  
temperature: [12.2, 15.5]  
}, {  
time: 1248220800000,  
constest: 15.7,  
temperature: [12.0, 20.8]  
}, {  
time: 1248307200000,  
constest: 14.6,  
temperature: [12.0, 17.1]  
}, {  
time: 1248393600000,  
constest: 15.3,  
temperature: [12.7, 18.3]  
}, {  
time: 1248480000000,  
constest: 15.3,  
temperature: [12.4, 19.4]  
}, {  
time: 1248566400000,  
constest: 15.8,  
temperature: [12.6, 19.9]  
}, {
```

```
time: 1248652800000,
constest: 15.2,
temperature: [11.9, 20.2]
}, {
time: 1248739200000,
constest: 14.8,
temperature: [11.0, 19.3]
}, {
time: 1248825600000,
constest: 14.4,
temperature: [10.8, 17.8]
}, {
time: 1248912000000,
constest: 15,
temperature: [11.8, 18.5]
}, {
time: 1248998400000,
constest: 13.6,
temperature: [10.8, 16.1]
}]
```

• ??

40, 40, 80, 60

• ?????? Transform

????? fold ?

??	???
??	????
??????	ACME,Compitor
????	year
key	type
Value	value

• ??? Scale

year? X? ?

??	???
??	year
??	linear
????	1
??????	??

• ? Geom

???? area ?

??	???
??	year*value
??	???
????	type
??	smooth

??? Line ?

??	???
??	year*value
??	??
????	type
??	smooth
??	2

• ?? Legend

??	???
??	??
??	type
??	?

??	??
----	----

?????

???

?????.png

???

• ???

```
[{
  year: '1996',
  north: 322,
  south: 162
}, {
  year: '1997',
  north: 324,
  south: 90
}, {
  year: '1998',
  north: 329,
  south: 50
}, {
  year: '1999',
  north: 342,
  south: 77
}, {
  year: '2000',
  north: 348,
  south: 35
}, {
  year: '2001',
  north: 334,
  south: -45
}, {
```

```
    year: '2002',
    north: 325,
    south: -88
  }, {
    year: '2003',
    north: 316,
    south: -120
  }, {
    year: '2004',
    north: 318,
    south: -156
  }, {
    year: '2005',
    north: 330,
    south: -123
  }, {
    year: '2006',
    north: 355,
    south: -88
  }, {
    year: '2007',
    north: 366,
    south: -66
  }, {
    year: '2008',
    north: 337,
    south: -45
  }, {
    year: '2009',
    north: 352,
    south: -29
  }, {
    year: '2010',
    north: 377,
    south: -45
  }, {
    year: '2011',
    north: 383,
    south: -88
  }, {
```

```

    year: '2012',
    north: 344,
    south: -132
  }, {
    year: '2013',
    north: 366,
    south: -146
  }, {
    year: '2014',
    north: 389,
    south: -169
  }, {
    year: '2015',
    north: 334,
    south: -184
  }
]
```

• ??

40, 20, 80, 60

• ?????? Transform

????? fold ?

??	???
??	????
??????	north,south
????	year
key	type
Value	value

• ? Geom

???? area ?

??	???
----	-----



??	year*value
??	???
????	type

??? Line ?

??	???
??	year*value
??	??
????	type
??	2

• ?? Legend

??	???
??	??
??	value
??	?
??	??