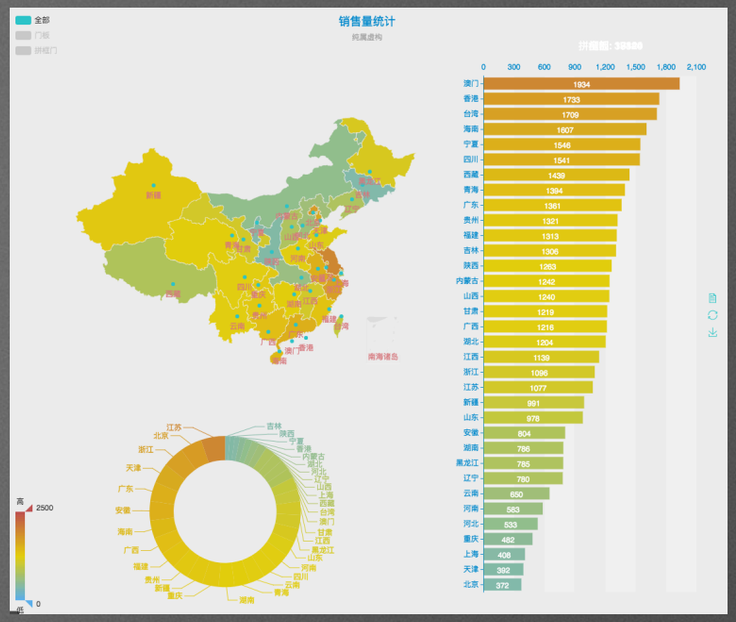
数据可视化的另一种选择

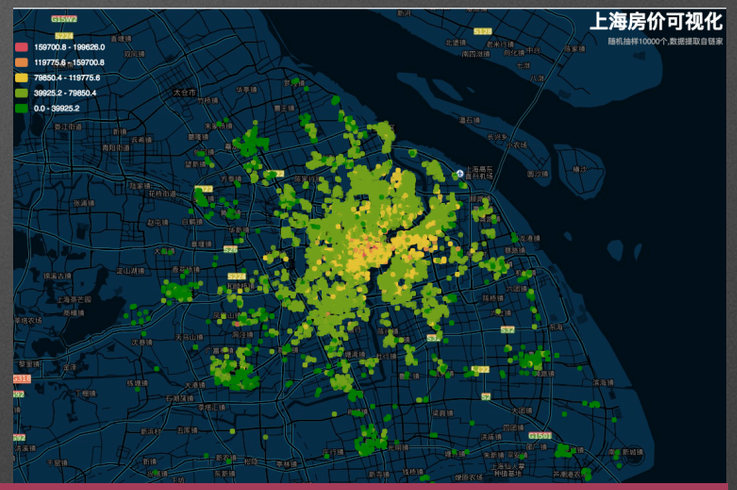
@rockybean

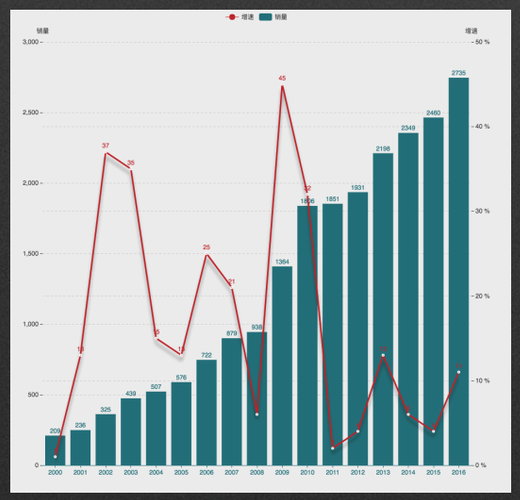


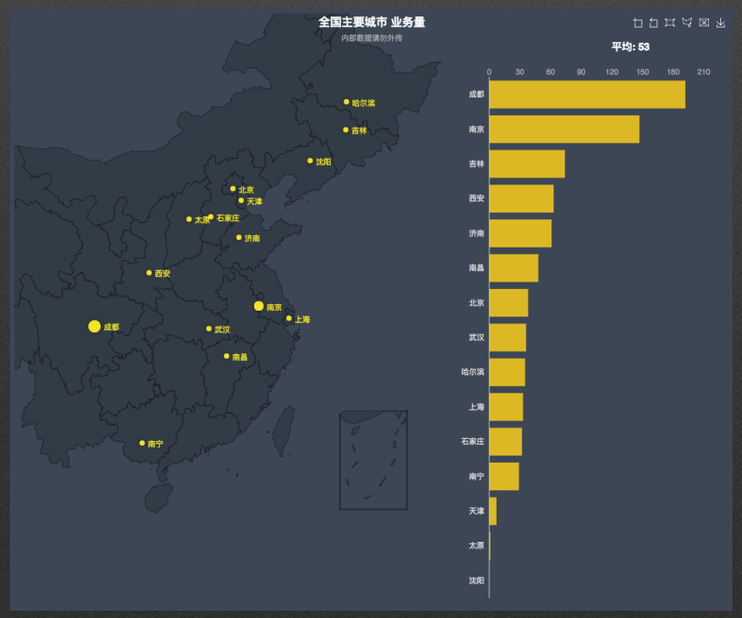
数据可视化

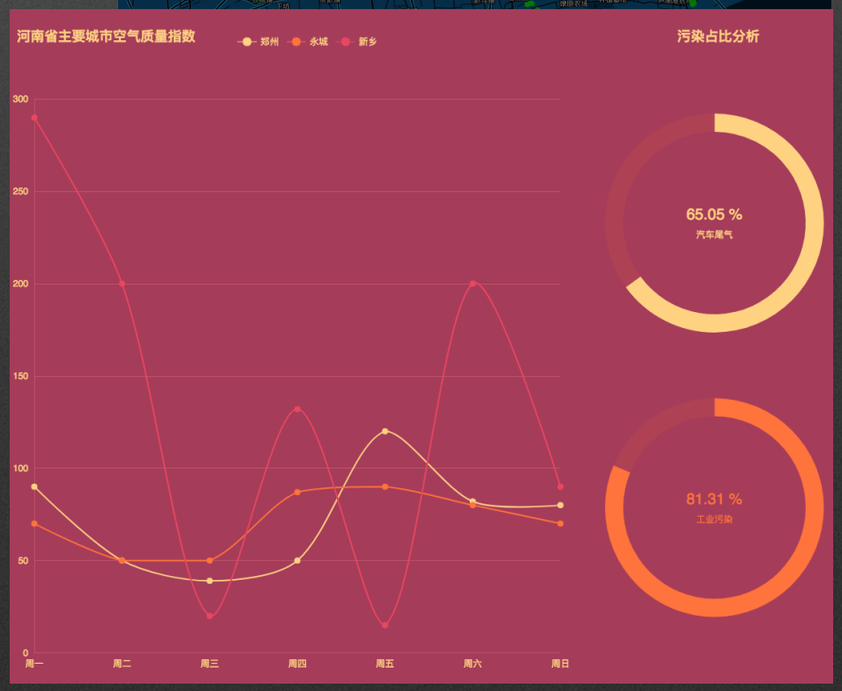
Data Visualization

抽象数据　　可视结构









数据可视化

Data Visualization

数据可视化

Data Visualization

2010

Shay Banon

OpenSource

Community

Elastic Stack

Lucene

简单易用

下载情况

搜索引擎

日志分析

Elastic Stack

大数据分析

数据可视化

百度

Google

腾讯

Elastic Stack

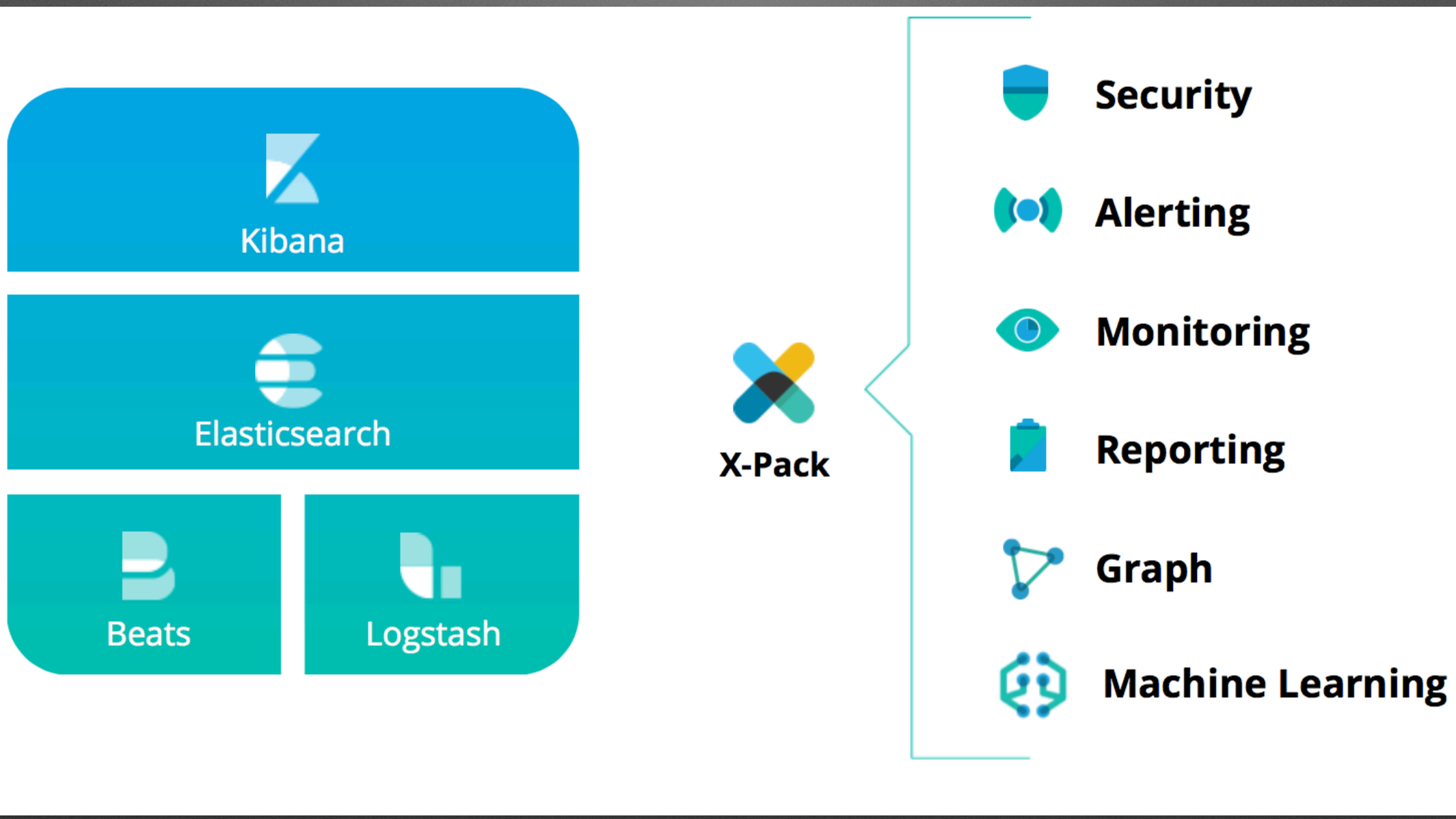
有赞

Github

ebay

整个互联网公司基本都在用

Elastic Stack



Elastic Stack

数据存储

elasticsearch

beats

数据解析

kibana

数据可视化

PM2.5

2016年冬季北京雾霾严重

北京市环保局：2016空气质量达标天数较2015增加12天

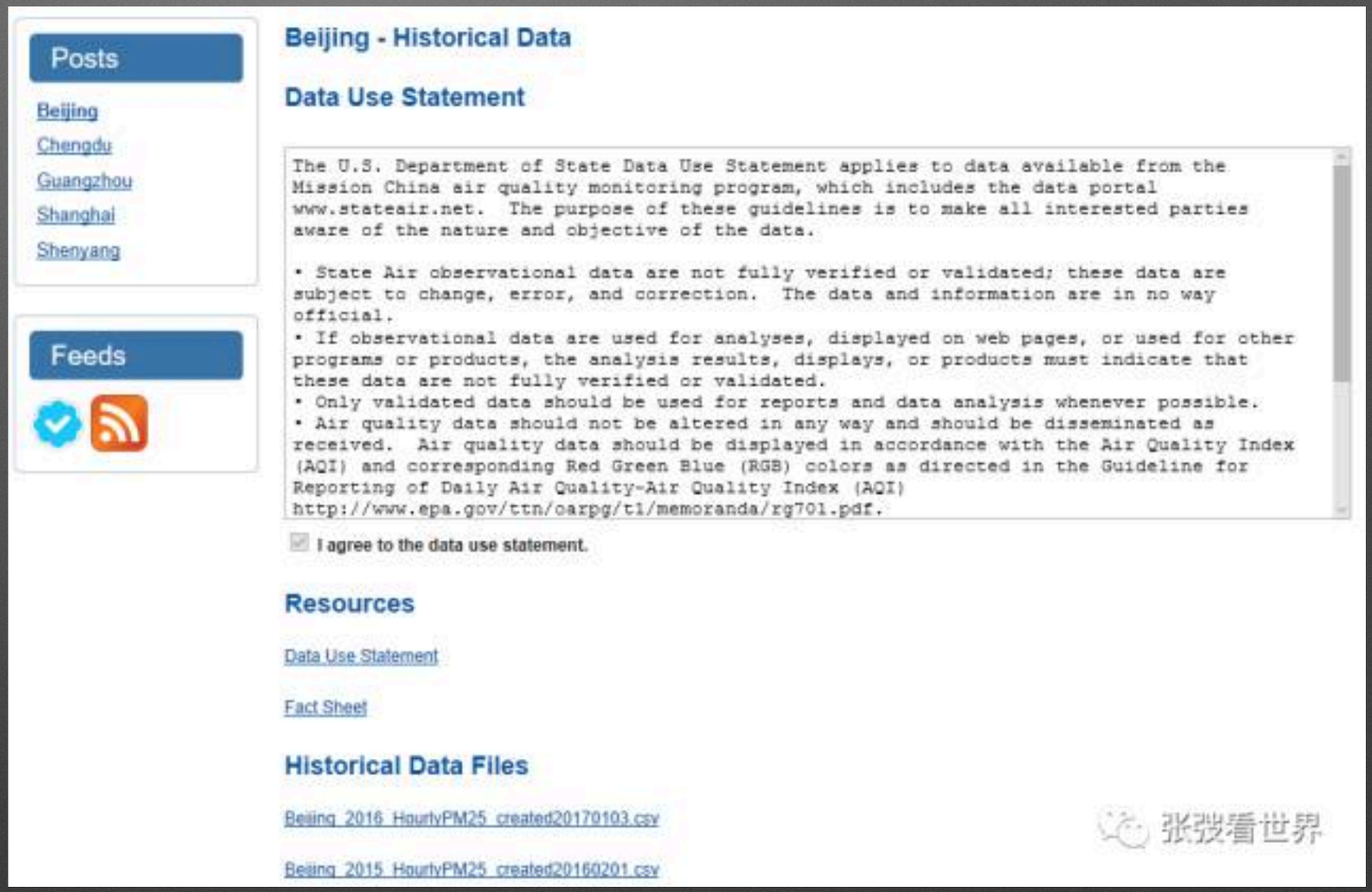
2017-01-03 12:28 国际在线

?

我们就来分析下北京的PM2.5数据！

数据来源

美大使馆


Posts
Beijing
Chengdu
Guangzhou
Shanghai
Shenyang
Feeds
Beijing - Historical Data
Data Use Statement
The U.S. Department of State Data Use Statement applies to data available from the Mission China air quality monitoring program, which includes the data portal www.stateair.net. The purpose of these guidelines is to make all interested parties aware of the nature and objective of the data.
• State Air observational data are not fully verified or validated; these data are subject to change, error, and correction. The data and information are in no way official.
• If observational data are used for analyses, displayed on web pages, or used for other programs or products, the analysis results, displays, or products must indicate that these data are not fully verified or validated.
• Only validated data should be used for reports and data analysis whenever possible.
• Air quality data should not be altered in any way and should be disseminated as received. Air quality data should be displayed in accordance with the Air Quality Index (AQI) and corresponding Red Green Blue (RGB) colors as directed in the Guideline for Reporting of Daily Air Quality-Air Quality Index (AQI)
http://www.epa.gov/ttn/oarpg/t1/memoranda/rg701.pdf.
I agree to the data use statement.
Resources
Data Use Statement
Fact Sheet
Historical Data Files
Beijing_2016_HourlyPM25_created20170103.csv
Beijing_2015_HourlyPM25_created20160201.csv
张戎看世界

数据导入

Filebeat

Grok Processor

Elasticsearch Ingest Node

```
1. A fact sheet with definitions and metadata for this dataset can be found at
2. The U.S. Department of State Data Use Statement at http://www.stateair.net/
3. ,,,,,,,,,,
4. Site,Parameter,Date (LST),Year,Month,Day,Hour,Value,Unit,Duration,QC Name
5. Beijing,PM2.5,1/1/2016 0:00,2016,1,1,0,231,μg/m≥,1 Hr,Valid
6. Beijing,PM2.5,1/1/2016 1:00,2016,1,1,1,239,μg/m≥,1 Hr,Valid
7. Beijing,PM2.5,1/1/2016 2:00,2016,1,1,2,205,μg/m≥,1 Hr,Valid
8. Beijing,PM2.5,1/1/2016 3:00,2016,1,1,3,167,μg/m≥,1 Hr,Valid
9. Beijing,PM2.5,1/1/2016 4:00,2016,1,1,4,132,μg/m≥,1 Hr,Valid
10. Beijing,PM2.5,1/1/2016 5:00,2016,1,1,5,169,μg/m≥,1 Hr,Valid
11. Beijing,PM2.5,1/1/2016 6:00,2016,1,1,6,162,μg/m≥,1 Hr,Valid
12. Beijing,PM2.5,1/1/2016 7:00,2016,1,1,7,123,μg/m≥,1 Hr,Valid
13. Beijing,PM2.5,1/1/2016 8:00,2016,1,1,8,100,μg/m≥,1 Hr,Valid
14. Beijing,PM2.5,1/1/2016 9:00,2016,1,1,9,101,μg/m≥,1 Hr,Valid
15. Beijing,PM2.5,1/1/2016 10:00,2016,1,1,10,111,μg/m≥,1 Hr,Valid
16. Beijing,PM2.5,1/1/2016 11:00,2016,1,1,11,115,μg/m≥,1 Hr,Valid
17. Beijing,PM2.5,1/1/2016 12:00,2016,1,1,12,135,μg/m≥,1 Hr,Valid
18. Beijing,PM2.5,1/1/2016 13:00,2016,1,1,13,165,μg/m≥,1 Hr,Valid
19. Beijing,PM2.5,1/1/2016 14:00,2016,1,1,14,176,μg/m≥,1 Hr,Valid
20. Beijing,PM2.5,1/1/2016 15:00,2016,1,1,15,187,μg/m≥,1 Hr,Valid
21. Beijing,PM2.5,1/1/2016 16:00,2016,1,1,16,207,μg/m≥,1 Hr,Valid
22. Beijing,PM2.5,1/1/2016 17:00,2016,1,1,17,235,μg/m≥,1 Hr,Valid
23. Beijing,PM2.5,1/1/2016 18:00,2016,1,1,18,268,μg/m≥,1 Hr,Valid
24. Beijing,PM2.5,1/1/2016 19:00,2016,1,1,19,302,μg/m≥,1 Hr,Valid
25. Beijing,PM2.5,1/1/2016 20:00,2016,1,1,20,330,μg/m≥,1 Hr,Valid
26. Beijing,PM2.5,1/1/2016 21:00,2016,1,1,21,345,μg/m≥,1 Hr,Valid
27. Beijing,PM2.5,1/1/2016 22:00,2016,1,1,22,375,μg/m≥,1 Hr,Valid
28. Beijing,PM2.5,1/1/2016 23:00,2016,1,1,23,400,μg/m≥,1 Hr,Valid
```

```
cat Beijing_2016_HourlyPM25_created20170201.csv|filebeat -e -c filebeat.yml
```

数据转换

原始数据

小时

@timestamp	value
December 31st 2016, 23:00:00.000	507
December 31st 2016, 22:00:00.000	488
December 31st 2016, 21:00:00.000	482
December 31st 2016, 20:00:00.000	432
December 31st 2016, 19:00:00.000	409
December 31st 2016, 18:00:00.000	443
December 31st 2016, 17:00:00.000	464
December 31st 2016, 16:00:00.000	444
December 31st 2016, 15:00:00.000	365
December 31st 2016, 14:00:00.000	213
December 31st 2016, 13:00:00.000	185
December 31st 2016, 12:00:00.000	185
December 31st 2016, 11:00:00.000	143
December 31st 2016, 10:00:00.000	172
December 31st 2016, 09:00:00.000	227
December 31st 2016, 08:00:00.000	198
December 31st 2016, 07:00:00.000	256

分析数据

天

@timestamp	value_max	value_min
December 31st 2016, 00:00:00.000	507	143

python 脚本搞定

分析目标

Air Quality Guide for PM2.5

Air Quality Index (AQI)	PM2.5 Health Effects Statement	PM2.5 Cautionary Statement
Good (0-50)	PM2.5 air pollution poses little or no risk.	None
Moderate (51-100)	Unusually sensitive individuals may experience respiratory symptoms.	Unusually sensitive people should consider limiting prolonged outdoor exertion.
Unhealthy for Sensitive Groups (101-150)	Increasing likelihood of respiratory symptoms in sensitive individuals, aggravation of heart or lung disease and premature mortality in persons with cardiopulmonary disease and the elderly.	Active children and adults, and people with respiratory disease, such as asthma, should limit prolonged outdoor exertion.
Unhealthy (151-200)	Increased aggravation of heart or lung disease and premature mortality in persons with cardiopulmonary disease and the elderly; increased respiratory effects in general population.	Active children and adults, and people with respiratory disease, such as asthma, should avoid prolonged outdoor exertion; everyone else, especially children, should limit prolonged outdoor exertion.
Very Unhealthy (201-300)	Significant aggravation of heart or lung disease and premature mortality in persons with cardiopulmonary disease and the elderly; significant increase in respiratory effects in general population.	Active children and adults, and people with respiratory disease, such as asthma, should avoid all outdoor exertion; everyone else, especially children, should limit outdoor exertion.
Hazardous (301-500)	Serious aggravation of heart or lung disease and premature mortality in persons with cardiopulmonary disease and the elderly; serious risk of respiratory effects in general population.	Everyone should avoid all outdoor exertion.
Beyond Index (>500)	Extremely High Levels of PM2.5: Steps to Reduce Your Exposure – Click Here	

2016年北京的蓝天数有无增多?

2016年北京的空气质量占比如何?

2016年北京冬天为什么感觉污染很严重?

北京环保局公布的数据是正确的吗?

Kibana

Basic Charts


Area


Heat Map


Horizontal Bar


Line


Pie


Vertical Bar

Data


Data Table

1,234

Metric

Maps


Tile Map

Time Series


Timelion

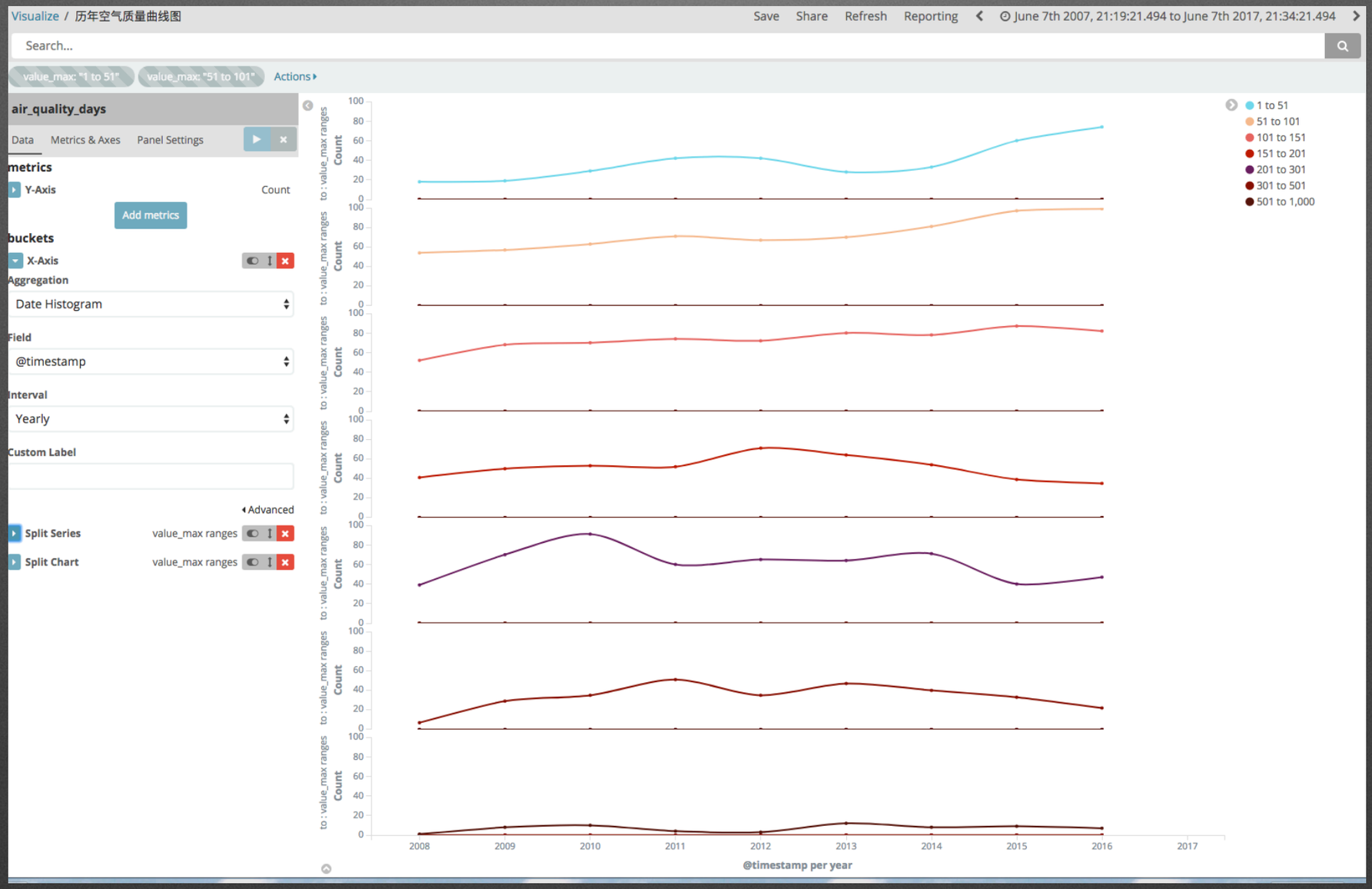

Visual Builder

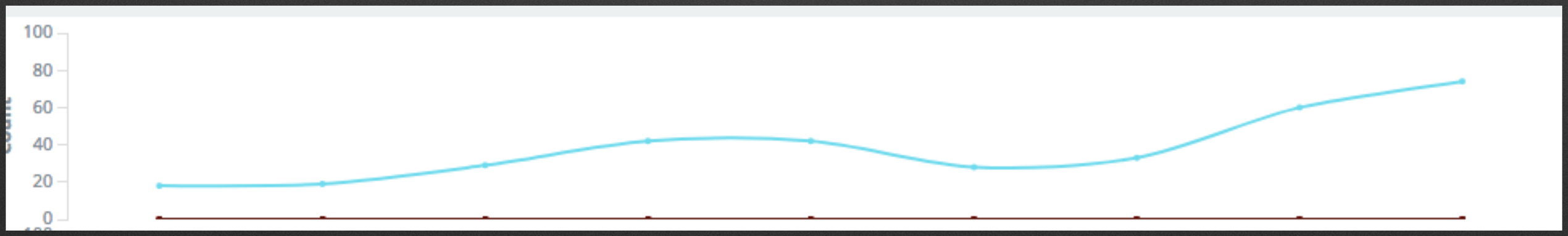
Other


Markdown

Tag Cloud

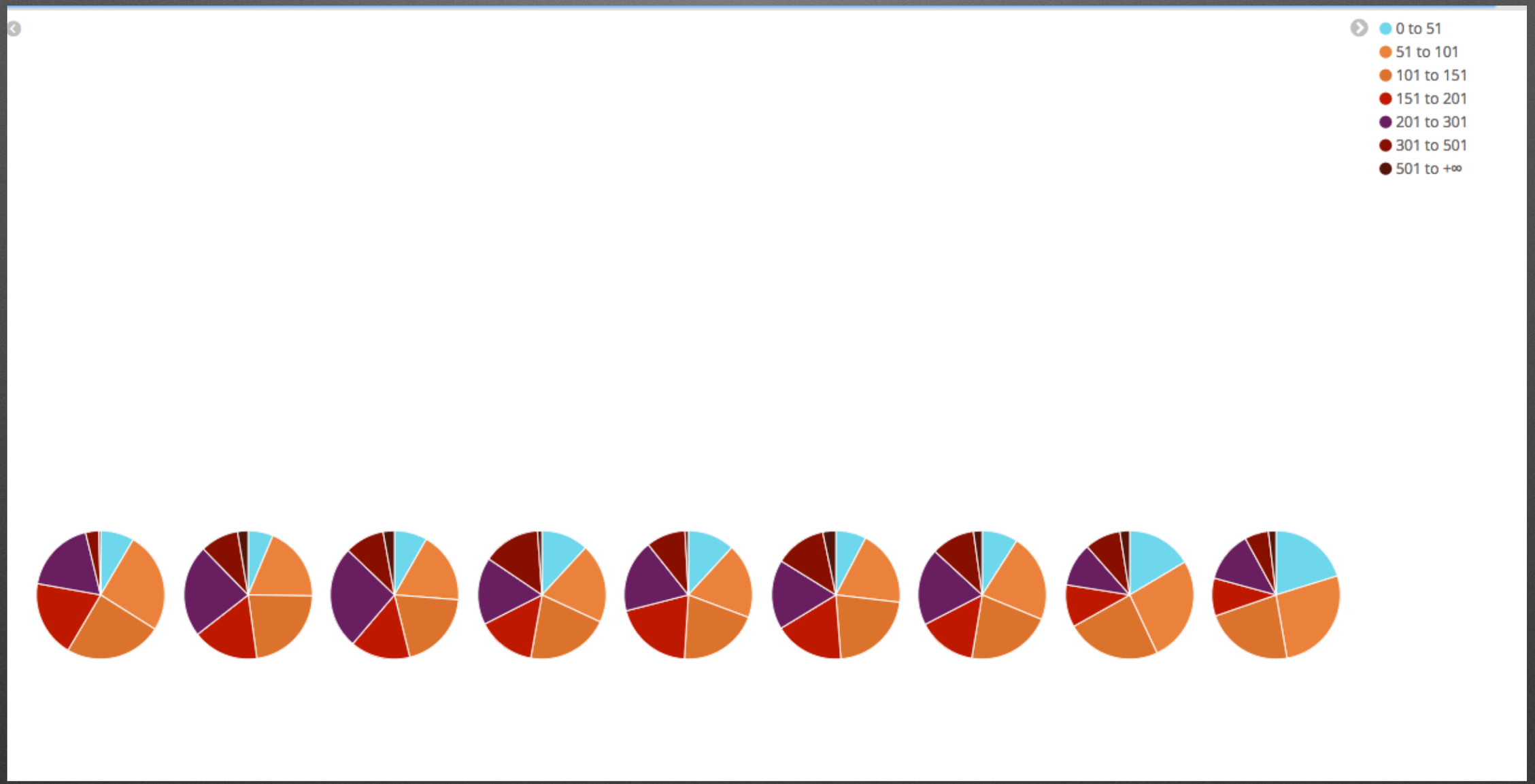
折线图





蓝天数是有增多的!!!

饼状图



历年空气质量占比

热力图

2016年冬季的空气质量很差，

导致虽然全年好转但大家感受污染依然严重的结果！

Dashboard

集中展示

联动搜索

数据处理更自由

可视化方式可自定制

社区支持

Elastic Stack

大数据支持

运行简便

编程基础

动手能力强

Q&A