```
In [1]: import pylab
import pandas as pd
df = pd.read_csv("events_train_holdout.tsv", na_values=['-'], delimite
r="\t", error_bad_lines=False)
```

b'Skipping line 45149: expected 13 fields, saw 15\n'

In [2]: df.describe()

/Users/abhisheknigam/anaconda/lib/python3.5/site-packages/numpy/lib/function_base.py:3834: RuntimeWarning: Invalid value encountered in percentile

RuntimeWarning)

Out[2]:

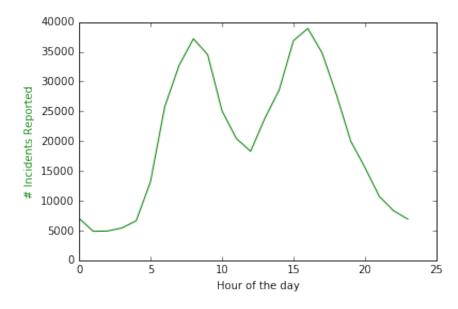
	latitude	longitude	number_of_responders	lanes_affected
count	653486.000000	653486.000000	651269.000000	323298.000000
mean	38.626247	-76.734431	0.936435	1.225928
std	6.792310	4.537582	1.475639	1.348536
min	-77.156882	-79.468413	0.000000	0.000000
25%	NaN	NaN	NaN	NaN
50%	NaN	NaN	NaN	NaN
75%	NaN	NaN	NaN	NaN
max	39.430725	5.000000	41.000000	28.000000

```
In [5]: clean_TS = clean_TS[clean_TS["created_tstamp"] != "0"]
    clean_TS = clean_TS[clean_TS["created_tstamp"] != "1"]
    clean_TS = clean_TS[clean_TS["created_tstamp"] != "2"]
    clean_TS = clean_TS[clean_TS["created_tstamp"] != "3"]
    clean_TS = clean_TS[clean_TS["created_tstamp"] != "4"]
    clean_TS = clean_TS[clean_TS["created_tstamp"] != "5"]
```

```
In [6]: clean TS.tail(100)
        clean_TS["event_type"].unique()
        ## accidentsAndIncidents
        ## road maintenance operations
        ## trafficConditions
Out[6]: array(['accidentsAndIncidents', 'obstruction', 'trafficConditions',
               'roadwork', 'DelayStatusCancellation', 'disasters', 'precipit
        ation',
               'deviceStatus', 'traffic lights not working', 'minor accident
               'accident', 'disabled vehicle', 'hazardous material spill',
               'disturbances', 'incident', 'fallen trees', 'abandoned vehicl
        e',
               'debris on roadway', 'work on underground services',
               'water main work', 'specialEvents', 'security incident',
               'pavementConditions', 'sportingEvents', 'incidentResponseEqui
        pment',
               'major event', 'traffic congestion', 'sign down',
               'road maintenance operations', 'warningAdvice', 'winds',
               'overgrown grass', 'visibilityAndAirQuality'], dtype=object)
In [7]: clean TS['hours'] = clean TS.apply(lambda row: float(row['created tsta
        mp'].split("T")[1].split(":")[0]), axis=1)
In [8]: hour grouped = clean TS.groupby('hours')
```

In [9]: %matplotlib inline import matplotlib.pyplot as pp fig, ax1 = pp.subplots() x = hour_grouped.size().index ax1.plot(x, hour_grouped.size(), 'g-') ax1.set_xlabel('Hour of the day') ax1.set_ylabel('# Incidents Reported', color='g')

Out[9]: <matplotlib.text.Text at 0x121a0f6a0>



In [10]: clean_TS.tail(100)

Out[10]:

	event_id	event_description	start_t
657662	VaTraffic_INNO4290267-12312013	Fairfax (County) - Rt. 644W (Fairfax County)	2013-1 31T13: 05:00
657663	MDOT_CHART_d5ffe6ba901407c30052fa2ec4235c0a	Incident @ I-270 NORTH PRIOR TO EXIT 11 MD 124	2013-1 31T14: 05:00
657664	MDOT_CHART_f9fff4d0901407c30052fa2ec4235c0a	Disabled Vehicle Event @ I-695 INNER LOOP PRIO	2013-1 31T14: 05:00
657665	MDOT_CHART_410012f9911407c30052fa2ec4235c0a	Disabled Vehicle Event @ US 50 EAST PRIOR TO M	2013-1 31T14: 05:00
		Disabled Vehicle	2013-1

657666	MDOT_CHART_f2004674911607c30052fa2ec4235c0a	Event @ US 29 NORTH AT EXIT 1	31T14 05:00
657667	MDOT_CHART_e0006443911707c30052fa2ec4235c0a	Incident @ MD 295 SOUTH PRIOR TO MD 193 [Colli	
657668	MDOT_CHART_71ff9b99911b07c30052fa2ec4235c0a	Incident @ I-95X INNER LOOP PRIOR TO EXIT 27 I	2013- 31T14 05:00
657669	MDOT_CHART_fdffc5fa911c07c30052fa2ec4235c0a	Disabled Vehicle Event @ I-695 INNER LOOP AT H	2013- 31T14 05:00
657670	VDOT_NOVA_NOVA4290523	NaN	2013- 31T14 05:00
657671	VaTraffic_INNO4290523-12312013	Fairfax (County) - I-495S - 50.0 - South - the	2013-1 31T14 05:00
657672	MDOT_CHART_2e00d915911e07c30052fa2ec4235c0a	Disabled Vehicle Event @ US 50 WEST PRIOR TO E	2013- 31T14 05:00
657673	MDOT_CHART_3100fdf3911f07c30052fa2ec4235c0a	Disabled Vehicle Event @ US 50 WEST PRIOR TO E	2013- 31T14 05:00
657674	VDOT_NOVA_NOVA4290649	NaN	2013- 31T14 05:00
657675	MDOT_CHART_ce004247922207c30052fa2ec4235c0a	Disabled Vehicle Event @ I-95 SOUTH AT EXIT 67	2013- 31T15 05:00
657676	MDOT_CHART_ab005015922307c30052fa2ec4235c0a	Disabled Vehicle Event @ MD 32 EAST AT WASHING	2013- 31T15 05:00

NINER LOOP	657677	DDOT_CAPTOP_65880	NaN	2013-1 31T15: 05:00
657679 VaTraffic_INNO4290649-12312013 I-495N - 49.0 - North - the 31T15.05:00 657680 MDOT_CHART_69001705932907c30052fa2ec4235c0a Incident @ I-270 NORTH AT MD 80 [Collision, Pr 2013-1 31T15.05:00 657681 VDOT_NOVA_NOVA4290917 NaN 31T15.05:00 657682 VDOT_NOVA_NOVA4290918 NaN 31T15.05:00 657683 VaTraffic_INNO4290917-12312013 Arlington (County) - I-66W - 71.0 - West - the 05:00 657684 MDOT_CHART_f0003e64932a07c30052fa2ec4235c0a Incident @ I-695 OUTER LOOP PRIOR TO EXIT 31 M 2013-1 31T15.05:00 657685 MDOT_CHART_96005deb932a07c30052fa2ec4235c0a Action Event @ I-695 INNER LOOP AT EXIT 18 MD 2013-1 31T15.05:00 657686 MDOT_CHART_5eff848b932b07c30052fa2ec4235c0a Action Event @ MD 210 (INDIAN HEAD) @ AUDREY L 2013-1 31T15.05:00 657687 VaTraffic_WZNO2740559-12312013 WZ - Construction - Road Widening Project Acti NaN	657678	MDOT_CHART_1700ba14922607c30052fa2ec4235c0a	INNER LOOP PRIOR TO EXIT 13	2013-1 31T15: 05:00
657680 MDOT_CHART_69001705932907c30052fa2ec4235c0a NORTH AT MD 80 [Collision, Pr 31T15: 05:00 657681 VDOT_NOVA_NOVA4290917 NaN 31T15: 05:00 657682 VDOT_NOVA_NOVA4290918 NaN 31T15: 05:00 657683 VaTraffic_INNO4290917-12312013 Arlington (County) - 1-66W - 71.0 - West - the 05:00 657684 MDOT_CHART_f0003e64932a07c30052fa2ec4235c0a Incident @ I-695 OUTER LOOP PRIOR TO EXIT 31 M 05:00 657685 MDOT_CHART_96005deb932a07c30052fa2ec4235c0a Action Event @ I-695 INNER LOOP AT EXIT 18 MD 05:00 657686 MDOT_CHART_5eff848b932b07c30052fa2ec4235c0a Action Event @ MD 210 (INDIAN HEAD) @ AUDREY L 2013-1 MD 210 (INDIAN HEAD) @ AUDREY C 657687 VaTraffic_WZNO2740559-12312013 WZ - Construction - Road Widening Project Acti NaN	657679	VaTraffic_INNO4290649-12312013	I-495N - 49.0 -	2013-1 31T15: 05:00
657681 VDOT_NOVA_NOVA4290917 NaN 31T15: 05:00	657680	MDOT_CHART_69001705932907c30052fa2ec4235c0a	NORTH AT MD 80	2013-1 31T15: 05:00
657682 VDOT_NOVA_NOVA4290918 NaN 31T15: 05:00 657683 VaTraffic_INNO4290917-12312013 Arlington (County) - I-66W - 71.0 - West - the 2013-1 05:00 657684 MDOT_CHART_f0003e64932a07c30052fa2ec4235c0a Incident @ I-695 OUTER LOOP PRIOR TO EXIT 31 M 2013-1 05:00 657685 MDOT_CHART_96005deb932a07c30052fa2ec4235c0a Action Event @ I-695 INNER LOOP AT EXIT 18 MD 2013-1 05:00 657686 MDOT_CHART_5eff848b932b07c30052fa2ec4235c0a Action Event @ MD 210 (INDIAN HEAD) @ AUDREY L 2013-1 05:00 657687 VaTraffic_WZNO2740559-12312013 WZ - Construction - Road Widening Project Acti NaN	657681	VDOT_NOVA_NOVA4290917	NaN	2013-1 31T15: 05:00
657683 VaTraffic_INNO4290917-12312013 - I-66W - 71.0 - West - the 31T15: 05:00 657684 MDOT_CHART_f0003e64932a07c30052fa2ec4235c0a Incident @ I-695 OUTER LOOP PRIOR TO EXIT 31 M 2013-13 05:00 657685 MDOT_CHART_96005deb932a07c30052fa2ec4235c0a Action Event @ I-695 INNER LOOP AT EXIT 18 MD 2013-13 05:00 657686 MDOT_CHART_5eff848b932b07c30052fa2ec4235c0a Action Event @ MD 210 (INDIAN HEAD) @ AUDREY L 2013-13 05:00 657687 VaTraffic_WZNO2740559-12312013 WZ - Construction - Road Widening Project Acti NaN	657682	VDOT_NOVA_NOVA4290918	NaN	2013-1 31T15: 05:00
657684 MDOT_CHART_f0003e64932a07c30052fa2ec4235c0a OUTER LOOP PRIOR TO EXIT 31 M 2013-1 31T15: 05:00 657685 MDOT_CHART_96005deb932a07c30052fa2ec4235c0a Action Event @ I-695 INNER LOOP AT EXIT 18 MD 2013-1 31T15: 05:00 657686 MDOT_CHART_5eff848b932b07c30052fa2ec4235c0a Action Event @ MD 210 (INDIAN HEAD) @ AUDREY L 2013-1 31T15: 05:00 657687 VaTraffic_WZNO2740559-12312013 WZ - Construction - Road Widening Project Acti NaN	657683	VaTraffic_INNO4290917-12312013	- I-66W - 71.0 -	2013-1 31T15: 05:00
657685 MDOT_CHART_96005deb932a07c30052fa2ec4235c0a 695 INNER LOOP AT EXIT 18 MD 31T15:05:00 657686 MDOT_CHART_5eff848b932b07c30052fa2ec4235c0a Action Event @ MD 210 (INDIAN HEAD) @ AUDREY L 2013-13:05:00 657687 VaTraffic_WZNO2740559-12312013 WZ - Construction - Road Widening Project Acti NaN	657684	MDOT_CHART_f0003e64932a07c30052fa2ec4235c0a	OUTER LOOP PRIOR TO EXIT 31	2013-1 31T15: 05:00
657686 MDOT_CHART_5eff848b932b07c30052fa2ec4235c0a MD 210 (INDIAN HEAD) @ AUDREY L 31T15:05:00 657687 VaTraffic_WZNO2740559-12312013 WZ - Construction - Road Widening Project Acti NaN	657685	MDOT_CHART_96005deb932a07c30052fa2ec4235c0a	695 INNER LOOP	2013-1 31T15: 05:00
657687 VaTraffic_WZNO2740559-12312013 - Road Widening Project Acti NaN 2013-1 2013-1	657686	MDOT_CHART_5eff848b932b07c30052fa2ec4235c0a	MD 210 (INDIAN HEAD) @ AUDREY	2013-1 31T15: 05:00
	657687	VaTraffic_WZNO2740559-12312013	- Road Widening	NaN
05:00	657688	VDOT_NOVA_NOVA4291001	NaN	2013-1 31T15: 05:00

657689	VaTraffic_INNO4291001-12312013	Prince William (County) - I-66W - 41.3 - West	2013-1 31T15: 05:00
657690	MDOT_CHART_0700c3f3932d07c30052fa2ec4235c0a	Disabled Vehicle Event @ I-270 NORTH AT EXIT 1	2013-1 31T15: 05:00
657691	VDOT_NOVA_NOVA4291031	NaN	2013-1 31T15: 05:00
657732	DDOT_CAPTOP_65882	NaN	2013-1 31T18: 05:00
657733	MDOT_CHART_840012fc964f07c30052fa2ec4235c0a	Disabled Vehicle Event @ MD 295 SOUTH PAST MD 193	2013-1 31T18: 05:00
657734	VDOT_NOVA_NOVA4291895	NaN	2013-1 31T18: 05:00
657735	VaTraffic_INNO4291895-12312013	Fairfax (County) - I-95N - 170.0 - North - Rt	2013-1 31T18: 05:00
657736	DDOT_CAPTOP_65885	NaN	2013-1 31T18: 05:00
657737	VDOT_NOVA_NOVA4292009	NaN	2013-1 31T18: 05:00
657738	VaTraffic_INNO4292009-12312013	Fairfax (County) - I-495N - 54.8 - North - Ram	2013-1 31T18: 05:00
657739	VDOT_NOVA_NOVA4292030	NaN	2013-1 31T18: 05:00
657740	VaTraffic_INNO4292030-12312013	Fairfax (County) - I-66W - 64.0 - West - Count	2013-1 31T18: 05:00
		Incident @ I-95	

657741	MDOT_CHART_a90073b9965607c30052fa2ec4235c0a	INNER LOOP PRIOR TO EXIT 15 MD	2013-1 31T18: 05:00
657742	VDOT_NOVA_NOVA4292141	NaN	2013-1 31T18: 05:00
657743	VaTraffic_INNO4292141-12312013	Fairfax (County) - I-95S - 167.2 - South - the	2013-1 31T19: 05:00
657744	VDOT_NOVA_NOVA4292235	NaN	2013-1 31T19: 05:00
657745	VaTraffic_INNO4292235-12312013	Fairfax (County) - I-495N - 50.0 - North - the	2013-1 31T19: 05:00
657746	VDOT_NOVA_NOVA4292500	NaN	2013-1 31T20: 05:00
657747	VaTraffic_INNO4292500-12312013	Fairfax (County) - I-66E - 49.9 - East - Count	2013-1 31T20: 05:00
657748	VDOT_NOVA_NOVA4292658	NaN	2013-1 31T20: 05:00
657749	VaTraffic_INNO4292658-12312013	Fairfax (County) - I-66E - 52.0 - East - the r	2013-1 31T20: 05:00
657750	VDOT_NOVA_NOVA4292683	NaN	2013-1 31T20: 05:00
657751	VaTraffic_INNO4292683-12312013	Fairfax (County) - I-495S - 44.0 - South - the	2013-1 31T20: 05:00
657752	MDOT_CHART_a60035d7987107c30052fa2ec4235c0a	Disabled Vehicle Event @ I-95 SOUTH PRIOR TO E	2013-1 31T20: 05:00
657753	VaTraffic_INNO4292677-12312013	Fairfax (County) - I-495S - 42.4 -	2013-1 31T21:

		South - Cap	05:00
657754	DDOT_CAPTOP_65886	NaN	2013-1 31T21: 05:00
657755	VDOT_NOVA_NOVA4292826	NaN	2013-1 31T21: 05:00
657756	VaTraffic_INNO4292826-12312013	Fairfax (County) - I-495N - 51.4 - North - the	2013-1 31T21: 05:00
657757	VDOT_NOVA_NOVA4292910	NaN	2013-1 31T23: 05:00
657758	VaTraffic_INNO4292910-12312013	Fairfax (County) - I-495N - 54.0 - North - the	2013-1 31T23: 05:00
657759	She said \"WE NEE"	2014-03-28 11:34:00-04	NaN
657760	The tracking number is 14-00124925."	2014-05-02 17:39:00-04	NaN
657761	The tracking number is 14-00243898."	2014-08-23 13:00:00-04	NaN

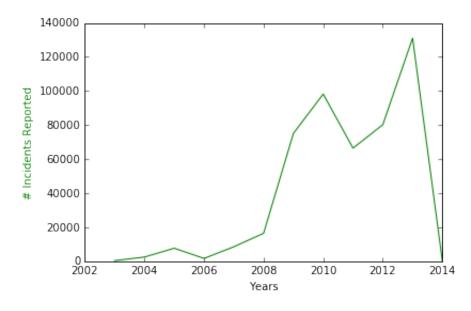
100 rows × 14 columns

```
In [11]: import numpy as np
    def split_year(row):
        val = str(row['created_tstamp'])
        val1 = str(row['start_tstamp'])
        val2 = str(row['confirmed_tstamp'])
        if "-" in val:
            return val.split('T')[0].split('-')[0]
        if "-" in val1:
            return val1.split('T')[0].split('-')[0]
        if "-" in val2:
            return val2.split('T')[0].split('-')[0]

        clean_TS['new_year'] = df.apply(lambda row: split_year(row), axis=1)
        year_grouped = clean_TS.groupby('new_year')
```

```
In [92]: fig, ax1 = pp.subplots()
x = year_grouped.size().index
ax1.plot(x, year_grouped.size(), 'g-')
ax1.set_xlabel('Years')
ax1.set_ylabel('# Incidents Reported', color='g')
```

Out[92]: <matplotlib.text.Text at 0x144cab470>



In [13]: year_grouped.head()

Out[13]:

	event_id	event_description	start_
0	MDOT_CHART_4aff02b300110095003f0be8b3035daa	Action Event @ BWI Parking	NaN
1	MDOT_CHART_4fffe16700a60095003f04e897035daa	Incident @ I-95 PRIOR MD 202[Vehicle Fire]	NaN
2	MDOT_CHART_89ff153200d70096003f05e89f035daa	Incident @ N/B I- 97 AT MD 100[Collision, Perso	NaN
3	MDOT_CHART_0aff378a01e50096003f05e897035daa	Incident @ I-270 N. OF SHADY GROVE RD[Debris I	NaN
4	MDOT_CHART_9aff47fb01f40096003f05e897035daa	Incident @ MD 320 AT SLIGO AVE[Collision, Fata	NaN
		Incident @ MD 355	

419	MDOT_CHART_67ff82ce005500f5003f05e897035daa	AT MARINELLI D[Collision, Pe	NaN
420	MDOT_CHART_c9003853007d00f5003f04e897035daa	Incident @ MD ROUTE 5 AT AUTH RO[Collision, Pr	NaN
421	MDOT_CHART_dbff064900c200f5003f05e89f035daa	Disabled Vehicle Event @ O/L I-695 MD 150	NaN
422	MDOT_CHART_c200325100c500f5003f17e83d035daa	Disabled Vehicle Event @ I-95 @ EXIT 57 BOSTON	NaN
423	MDOT_CHART_65ff169000d600f6003f8fe833035daa	Incident @ I-495 RAMP TO US 50 E[Collision, Pe	NaN
2934	MDOT_CHART_1200a5561e4500d60041b48c33235daa	Action Event @ US 50 AT EXIT 22	NaN
2935	MDOT_CHART_5c00a7771e6c00d60041b48c33235daa	Incident @ US 1 AT RITZ WAY [Collision, Person	NaN
2936	MDOT_CHART_0800af0e1e7900d60041b48c33235daa	Incident @ US 50 AT MD 202 [Collision, Persona	NaN
2937	MDOT_CHART_74ffc8db1eff00d60041b48c33235daa	Action Event @ 12504 MD 185 (CONNECTICUT AVE)	NaN
2938	MDOT_CHART_5400cc7f1e3600d70041b48c33235daa	Incident @ MD 223 @ ROSARYVILLE [Collision, Pr	NaN
10628	MDOT_CHART_acff05c6ef5a00b80043b48c33235daa	Incident @ U S 50 BAY BRIDGE LN [Collision, Pr	NaN
10629	MDOT_CHART_47000f4aef6700b80043b48c33235daa	Congestion Event @ FMT TOLL PLAZA	NaN

10630	MDOT_CHART_2bff21f4ef8f00b80043b48c33235daa	Incident @ MD 702 AT MARLYN AVE [Collision, Pe	NaN
10631	MDOT_CHART_8aff9318ef5700b90043b48c33235daa	Incident @ I/L 695 AT EX I9 I-7 [Collision, Pe	NaN
10632	MDOT_CHART_d6fef9b1efa400b90043b48c33235daa	Incident @ MD 450 AT RACETRACK [Collision, Pe	NaN
15862	MDOT_CHART_08ff0a842ed200980045b48c33235daa	Action Event @ MD 650 @ MD 193 (NEW HAMPSHIRE	NaN
16228	MDOT_CHART_96ff33bc66b700a80045b48c33235daa	Incident @ I-495 AT D'ARCY RD [Collision, Fata	NaN
17796	MDOT_CHART_e4ff3ec727f400e20045b48c33235daa	Action Event @ BWI Parking	NaN
17875	MDOT_CHART_46007e3369cc00e50045ea8c96235daa	Incident @ I-495 @ GW PARKWAY [Collision, Prop	NaN
17876	MDOT_CHART_9bff860203cd00e50045198cea235d0a	Action Event @ MD 355 @ HOILDAY DRIVE	NaN
26423	MDOT_CHART_e600526f00c800790047b48c33235daa	Action Event @ MD 32 AT CEDAR LANE	NaN
26424	MDOT_CHART_c4005e050383007b0047198cea235d0a	Incident @ MD 27 AT PENN SHOP R [Collision, Pr	NaN
26425	MDOT_CHART_330011d50b83007b00470a8c3d235daa	Incident @ ~I-695 PAST EXIT 43 [Vehicle Fire]	NaN
26426	MDOT_CHART_640040ed03d5007b0047b48c33235daa	Incident @ MD 10 AT DOVER RD [Collision, Perso	NaN
26427	MDOT_CHART_630006f50404007c0047b48c33235daa	Incident @ I-695 PRIOR EX 11 [Debris In Roadway]	NaN

			_
30175	ROP 8 assisted MPD and cleared the scene	NaN	NaN
30179	ROP 8 monitored the traffic until MPD arrived	NaN	NaN
30195	NaN	NaN	NaN
30223	NaN	NaN	NaN
30243	kawasaki va 459188	NaN	NaN
43590	VDOT_NOVA_NOVA186194	NaN	2009- 01T01 05:00
43591	DDOT_CAPTOP_12465	pedestrian struck. acura tags md 2dwm72 chrsys	NaN
43592	DDOT_CAPTOP_12466	Tow on scene. All lanes clear.	NaN
43593	DDOT_CAPTOP_12467	scion tags va 2fr35h	NaN
43594	DDOT_CAPTOP_12468	Chevy Impala; Nissan Pick Up Truck.Possible fa	NaN
51793	MDOT_CHART_64ff31d1f6ac00a60049e32e96235daa	Planned Closure @ I-95 OUTER LOOP AT ARENA DR	2009- 26T09 05:00
51794	MDOT_CHART_7aff3fd9f6ac00a60049e32e96235daa	Planned Closure @ I-95 OUTER LOOP AT ARENA DR	2009- 26T09 05:00
51798	MDOT_CHART_b7ff5bfaf6ac00a60049e32e96235daa	Planned Closure @ I-95 INNER LOOP AT MD 202	2009- 26T09 05:00

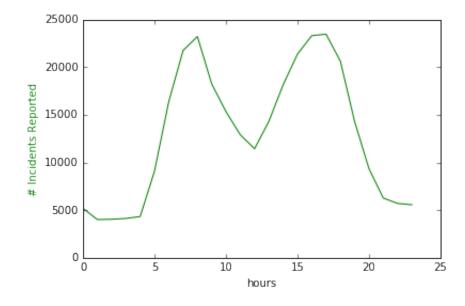
53382	MDOT_CHART_f4ffad311c3001af0049e32e96235daa	Planned Closure @ I-95 INNER LOOP/OUTER LOOP A	2009- 04T20 05:00
54372	MDOT_CHART_2b00e3d92f6f01b60049e32e96235daa	Planned Closure @ I-95 INNER LOOP AT I-295	2009- 10T09 04:00
219370	VDOT_NOVA_NOVA903651	NaN	2011- 01T0 ⁻ 05:00
219371	VaTraffic_INNO2166244-01012011	Arlington (County) - I-66W - 69.0 - West - the	2011- 01T0 ⁻ 05:00
219372	VDOT_NOVA_NOVA903656	NaN	2011- 01T0 ⁻ 05:00
219373	VaTraffic_INNO2166245-01012011	Fairfax (County) - I-95S - 169.0 - South - Ram	2011- 01T0 ⁻ 05:00
219374	VDOT_NOVA_NOVA903669	NaN	2011- 01T02 05:00
502929	DDOT_CAPTOP_55091	NaN	NaN
502933	VDOT_NOVA_NOVA2699827	NaN	2013- 01T0 ⁻ 05:00
502934	VaTraffic_INNO2699827-01012013	Fairfax (County) - I-66W - 57.0 - West - the r	2013- 01T0 ⁻ 05:00
502938	VDOT_NOVA_NOVA2699851	NaN	2013- 01T0 ⁻ 05:00
502939	VaTraffic_INNO2699851-01012013	Fairfax (County) - I-95S - 173.0 - South - the	2013- 01T0 ⁻ 05:00
657759	She said \"WE NEE"	2014-03-28 11:34:00-04	NaN

657760	The tracking number is 14-00124925."	2014-05-02 17:39:00-04	NaN
657761	The tracking number is 14-00243898."	2014-08-23 13:00:00-04	NaN

```
In [14]: clean_TS_AI = clean_TS[clean_TS['event_type'] == 'accidentsAndIncident
s']
AI_grouped = clean_TS_AI.groupby('hours')
```

```
In [15]: fig, ax1 = pp.subplots()
    x = AI_grouped.size().index
    ax1.plot(x, AI_grouped.size(), 'g-')
    ax1.set_xlabel('hours')
    ax1.set_ylabel('# Incidents Reported', color='g')
```

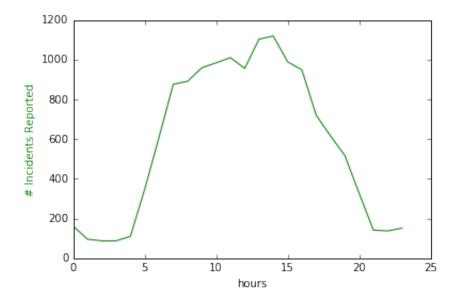
Out[15]: <matplotlib.text.Text at 0x133a98c88>



```
In [16]: clean_TS_AI = clean_TS[clean_TS['event_type'] == 'obstruction']
AI_grouped = clean_TS_AI.groupby('hours')
```

```
In [17]: fig, ax1 = pp.subplots()
    x = AI_grouped.size().index
    ax1.plot(x, AI_grouped.size(), 'g-')
    ax1.set_xlabel('hours')
    ax1.set_ylabel('# Incidents Reported', color='g')
```

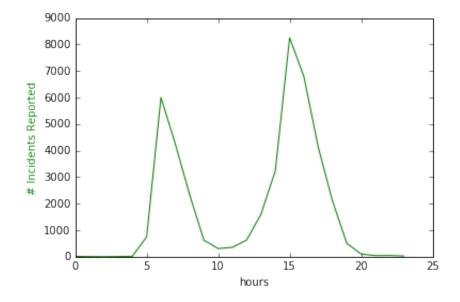
Out[17]: <matplotlib.text.Text at 0x133a68668>



```
In [18]: clean_TS_AI = clean_TS[clean_TS['event_type'] == 'trafficConditions']
    AI_grouped = clean_TS_AI.groupby('hours')
```

```
In [19]: fig, ax1 = pp.subplots()
    x = AI_grouped.size().index
    ax1.plot(x, AI_grouped.size(), 'g-')
    ax1.set_xlabel('hours')
    ax1.set_ylabel('# Incidents Reported', color='g')
```

Out[19]: <matplotlib.text.Text at 0x133a3ffd0>



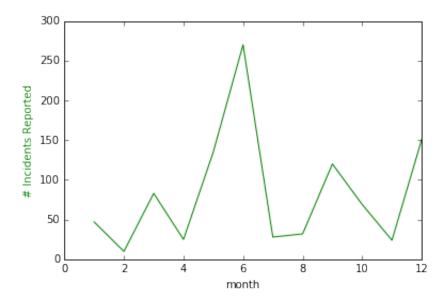
```
In [22]: def split_month(row):
    val = str(row['created_tstamp'])
    val1 = str(row['start_tstamp'])
    val2 = str(row['confirmed_tstamp'])
    if "-" in val:
        return val.split('T')[0].split('-')[1]
    if "-" in val1:
        return val1.split('T')[0].split('-')[1]
    if "-" in val2:
        return val2.split('T')[0].split('-')[1]

clean_TS['new_month'] = df.apply(lambda row: split_month(row), axis=1)
    month_grouped = clean_TS.groupby('new_month')
```

```
In [32]: clean_TS_AI = clean_TS[clean_TS['event_type'] == 'disasters']
    AI_grouped = clean_TS_AI.groupby('new_month')
```

```
In [33]: fig, ax1 = pp.subplots()
    x = AI_grouped.size().index
    ax1.plot(x, AI_grouped.size(), 'g-')
    ax1.set_xlabel('month')
    ax1.set_ylabel('# Incidents Reported', color='g')
```

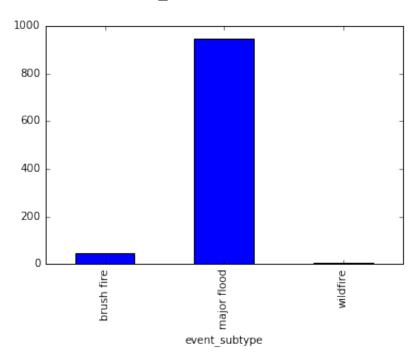
Out[33]: <matplotlib.text.Text at 0x142c870f0>



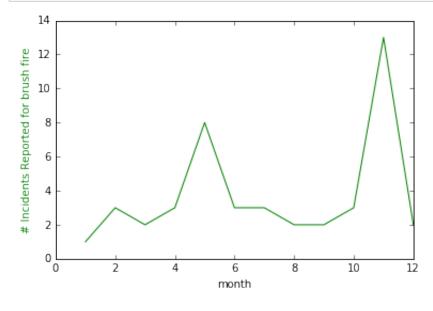
```
In [46]: AI_grouped = clean_TS_AI.groupby('event_subtype')
uniqueDisasters = AI_grouped['event_subtype'].unique()
```

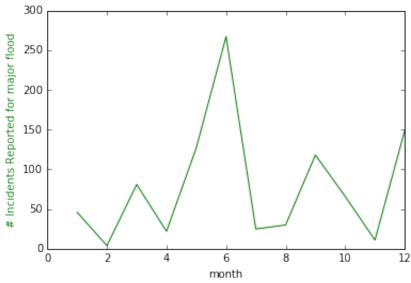
In [47]: clean_TS_AI.groupby('event_subtype').size().plot.bar()

Out[47]: <matplotlib.axes._subplots.AxesSubplot at 0x142734eb8>



```
In [112]:
          count = 0
          for i in uniqueDisasters:
              count = count + 1
              if count == 3:
                  continue;
              else:
                  p = clean_TS[clean_TS['event_subtype'] == i.item()].groupby('n
          ew_month')
                  x = p.size().index
                  y = p.size()
                  fig, ax1 = pp.subplots()
                  ax1.plot(x, y, 'g-')
                  ax1.set_xlabel('month')
                  ax1.set_ylabel('# Incidents Reported for ' + i.item(), color='
          g')
```

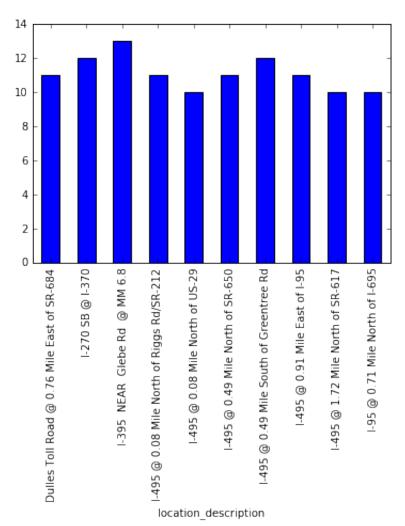




```
In [98]: max_used = df_lane.groupby('location_description').size().sort_values(
    ).tail(10)
```

In [102]: topusedroads.groupby('location_description').size().plot.bar()

Out[102]: <matplotlib.axes._subplots.AxesSubplot at 0x13cf961d0>



In [105]: clean_TS[clean_TS['event_subtype'] == 'wildfire']

Out[105]:

	event_id	event_description	start_tstamp	confirmed_tstamp	С
233123	VaTraffic_INNO2175507- 02192011	Fairfax (County) - I-66W - 60.0 - West - the r	2011-02- 19T18:15:00- 05:00	NaN	21 1! 0:
233141	VaTraffic_INNO2175516- 02192011	Fairfax (County) - I-66E - 60.0 - East - the r	2011-02- 19T19:09:00- 05:00	NaN	2: 1: 0:
233148	VaTraffic_INNO2175521- 02192011	Fairfax (County) - I-66E - 60.0 - East - the r	2011-02- 19T20:27:00- 05:00	NaN	2(1) 0)

In []: