



Low Friction Personal Data Collection

@aaronpk • aaronparecki.com

Quantified Self • San Francisco • October 2013

Things I track **in**consistently



- **One photo every day** – off and on since 2007
- **Bike Rides** – Usually rides only > 1 mile – Strava
- **Heart Rate** – During bike rides or other activities – Strava
- **Food I Eat** – Aug 19-present – text file on my phone

Things I track consistently



- **Location: GPS** (since 2008) iPhone
- **Location: Checkins** (since 2009) Foursquare
- **Sleep** (since November 2011) Jawbone UP
- **Weight** (since October 2011) Withings Scale

Tracking My Location

aaronparecki.com

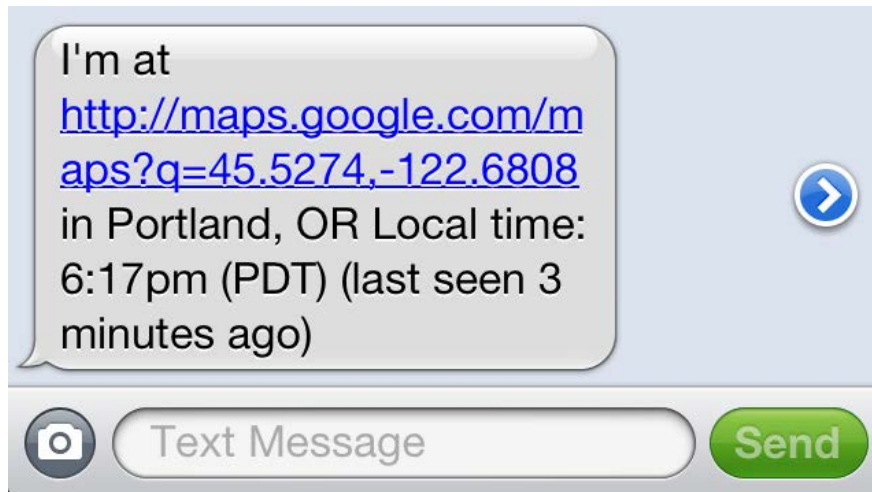
CURRENT LOCATION

Portland, OR (45.5, -122.7)

It is currently **4:34pm** (PDT)
at Aaron's location.

- One decimal point of precision (about 5km)
- City name
- Local time and timezone

Automatic reply to an SMS



- Four decimal points of precision (within a block)
- City name
- Local time and timezone

Tracking My Location

Hardware GPS Logger (2007)



Tracking My Location

GPS-Enabled Phone (2008-2009)



Tracking My Location

Geoloqi for iPhone (2010-Present)



Tracking My Location

Stored in PostGIS

id	date	latitude	longitude	accuracy	altitude	speed	point
770	2010-09-27 16:12:41	45.445412993431	-122.64243543148	2	0	6	0101000020E610
771	2010-09-27 16:12:42	45.445418357849	-122.64237105846	2	0	6	0101000020E610
772	2010-09-27 16:12:43	45.445429086685	-122.6423227787	2	0	4	0101000020E610
773	2010-09-27 16:12:44	45.445434451103	-122.64227986336	2	0	4	0101000020E610
774	2010-09-27 16:12:45	45.445439815521	-122.64225840569	2	0	3	0101000020E610
775	2010-09-27 16:12:46	45.445450544357	-122.64222621918	2	0	3	0101000020E610
776	2010-09-27 16:12:48	45.445455908775	-122.64218330383	3	0	2	0101000020E610
777	2010-09-27 16:12:49	45.445461273193	-122.642172575	3	0	2	0101000020E610
778	2010-09-27 16:12:50	45.445466637611	-122.64215111732	3	0	2	0101000020E610
779	2010-09-27 16:12:53	45.445477366447	-122.64208137989	3	0	2	0101000020E610
780	2010-09-27 16:12:54	45.44549882412	-122.64205992222	4	0	2	0101000020E610
781	2010-09-27 16:12:55	45.445504188538	-122.64202773571	3	0	2	0101000020E610
782	2010-09-27 16:12:56	45.445509552956	-122.64200091362	3	0	2	0101000020E610
783	2010-09-27 16:12:57	45.445514917374	-122.64198482037	3	0	2	0101000020E610
784	2010-09-27 16:12:58	45.445520281792	-122.64196872711	3	0	2	0101000020E610
785	2010-09-27 16:13:01	45.44552564621	-122.64194190502	2	0	1	0101000020E610
786	2010-09-27 16:13:03	45.445531010628	-122.6419043541	2	0	1	0101000020E610
787	2010-09-27 16:13:04	45.445536375046	-122.64188826084	2	0	2	0101000020E610
788	2010-09-27 16:13:05	45.445541739464	-122.64186680317	2	0	2	0101000020E610
789	2010-09-27 16:13:06	45.445547103882	-122.64185070992	2	0	2	0101000020E610

Timezone API

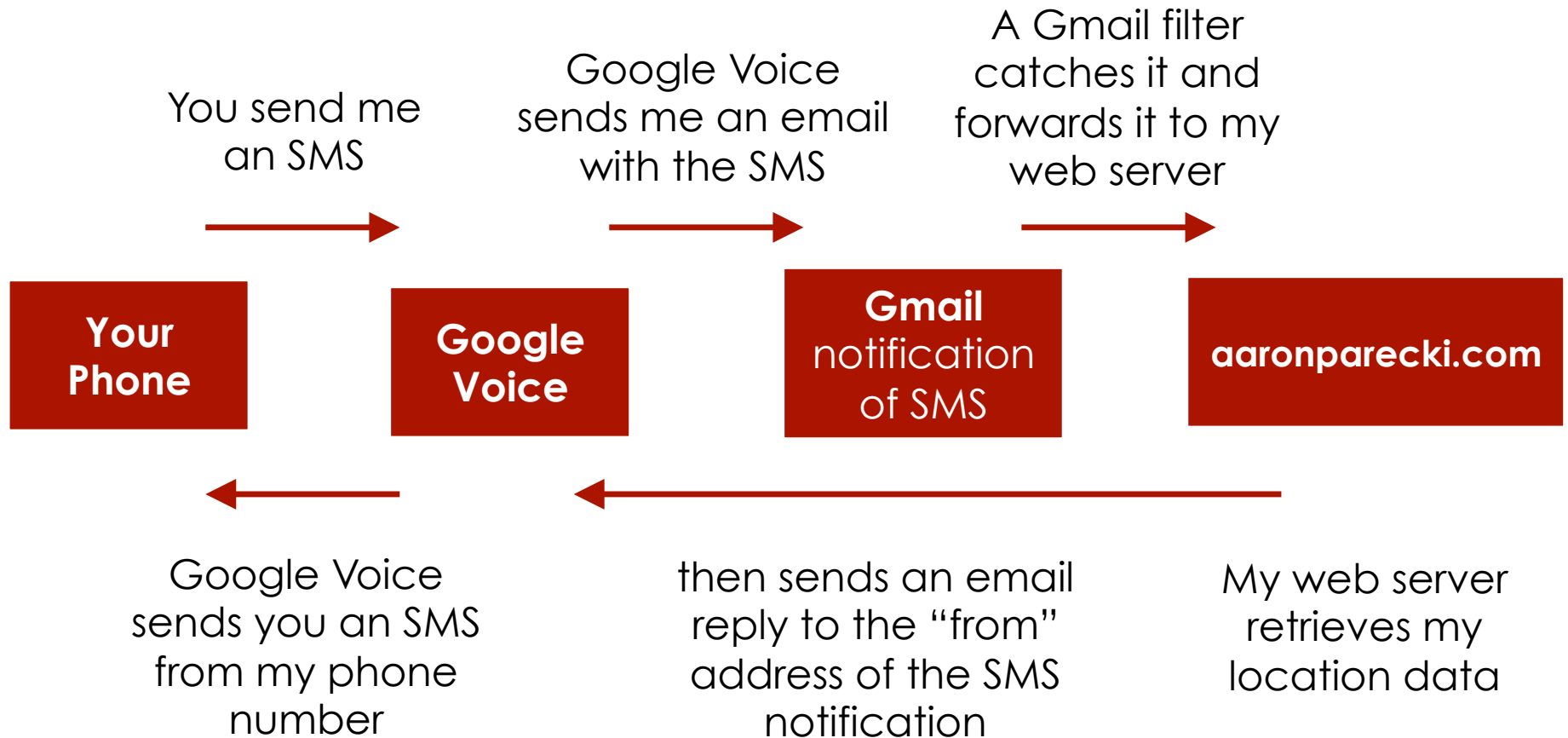
Created with github.com/esri/Terraformer

```
curl http://api.example.com/?lat=45.5118&lng=-122.6433
```

```
{  
  status: "ok",  
  timezone: "America/Los_Angeles"  
}
```

Tracking My Location

SMS Interface



* it would also be simpler to use Twilio for this, but I like that the SMSs are to and from my own number, hence the Google Voice round trip

** if you have an Android, you can just use Tasker



Publishing My Weight

aaronparecki.com/metrics



Weighed 154.8lbs (70.4kg) 17.1% body fat

September 12, 2013 4:47pm GMT-0700



Weighed 155.2lbs (70.6kg) 17.3% body fat

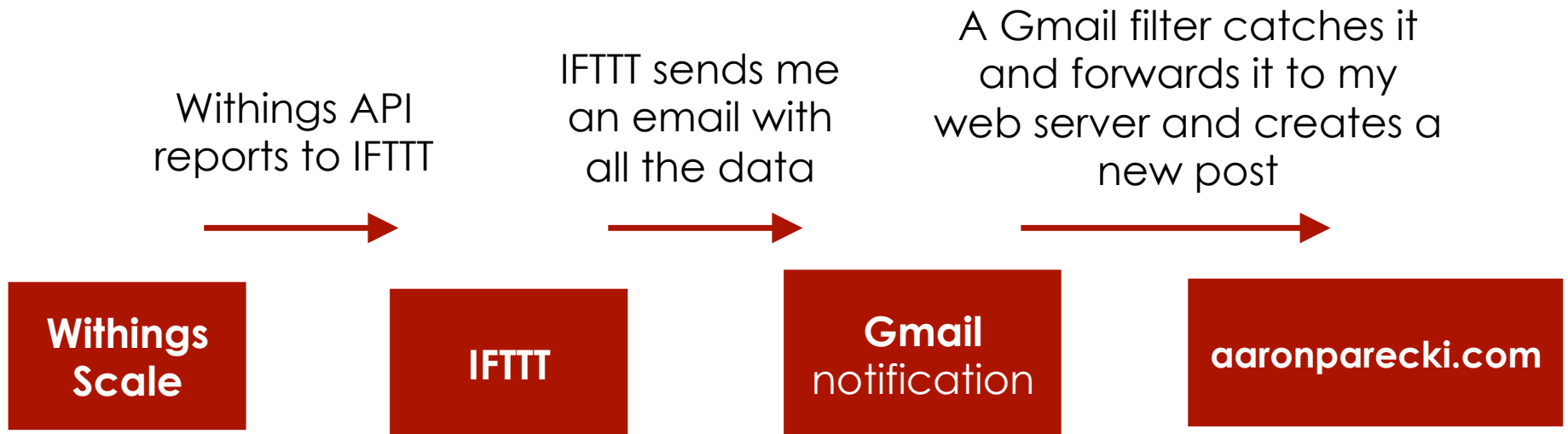
September 12, 2013 7:11am GMT-0700

Tracking My Weight

Withings Wireless Scale – 2011-Present

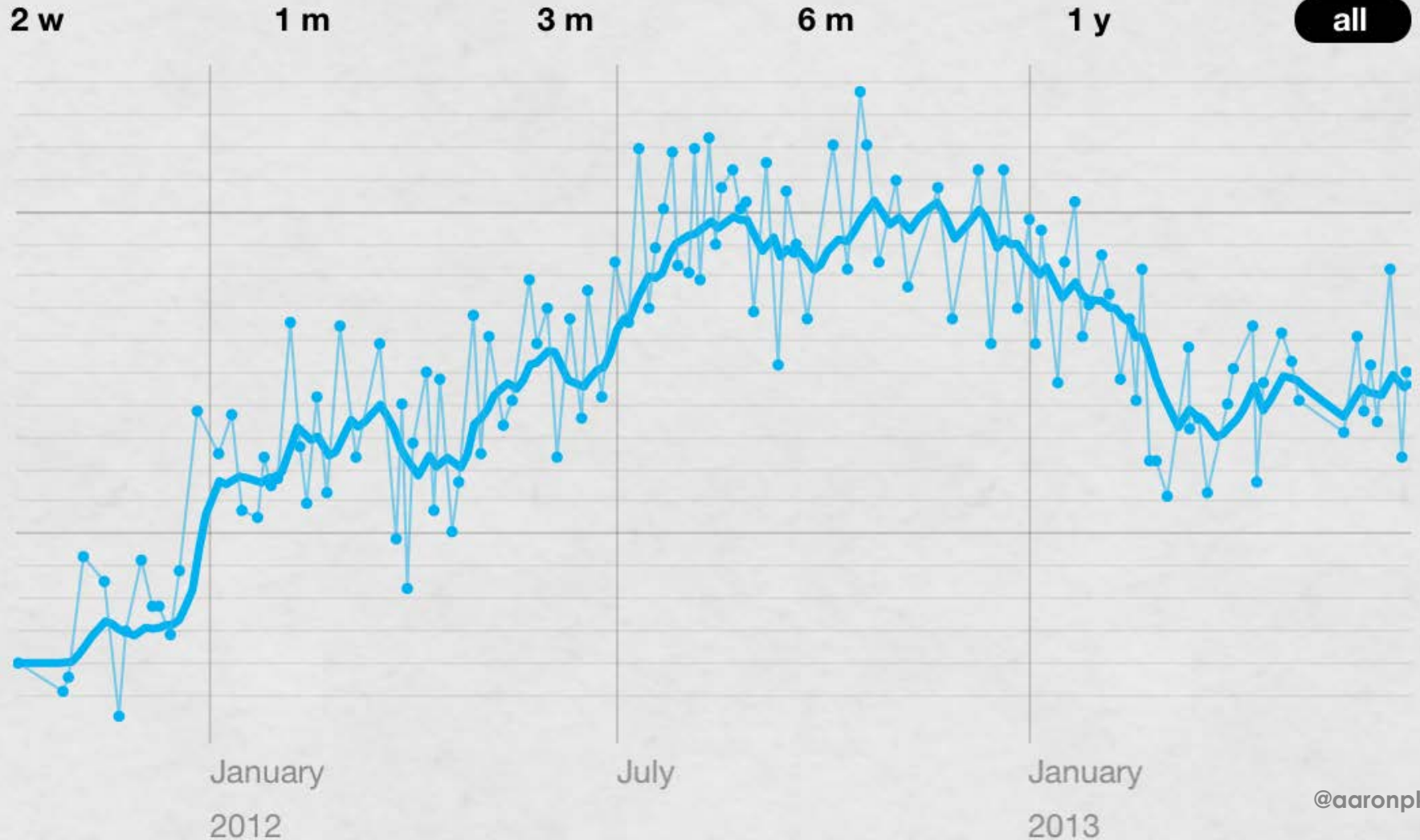


Weight Data Flow

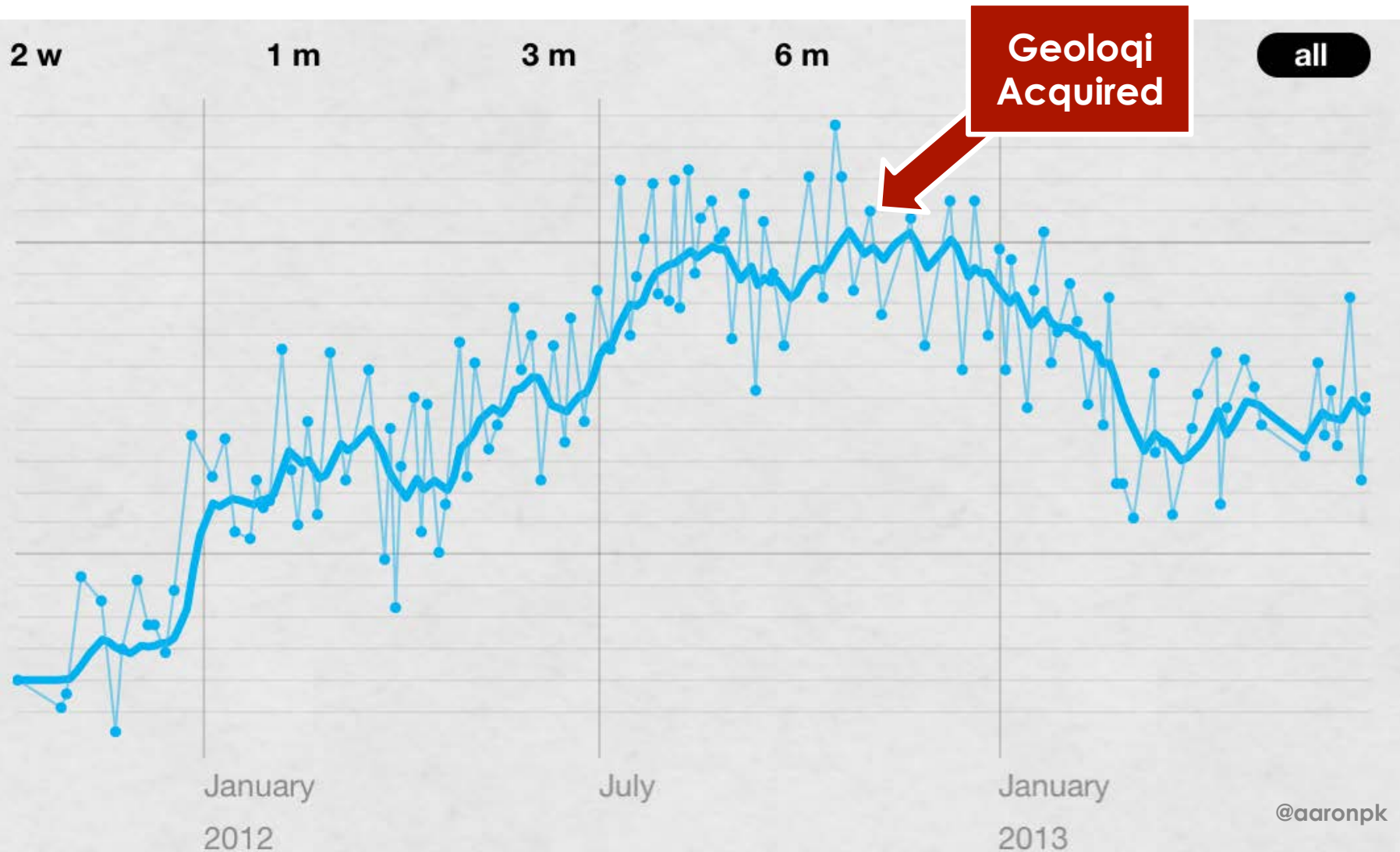


* the Withings API was too difficult to use directly, so I had to go through IFTTT as a proxy. I would love to find a simple Ruby/Sinatra or PHP app that someone else has written as a template!

Withings Wireless Scale

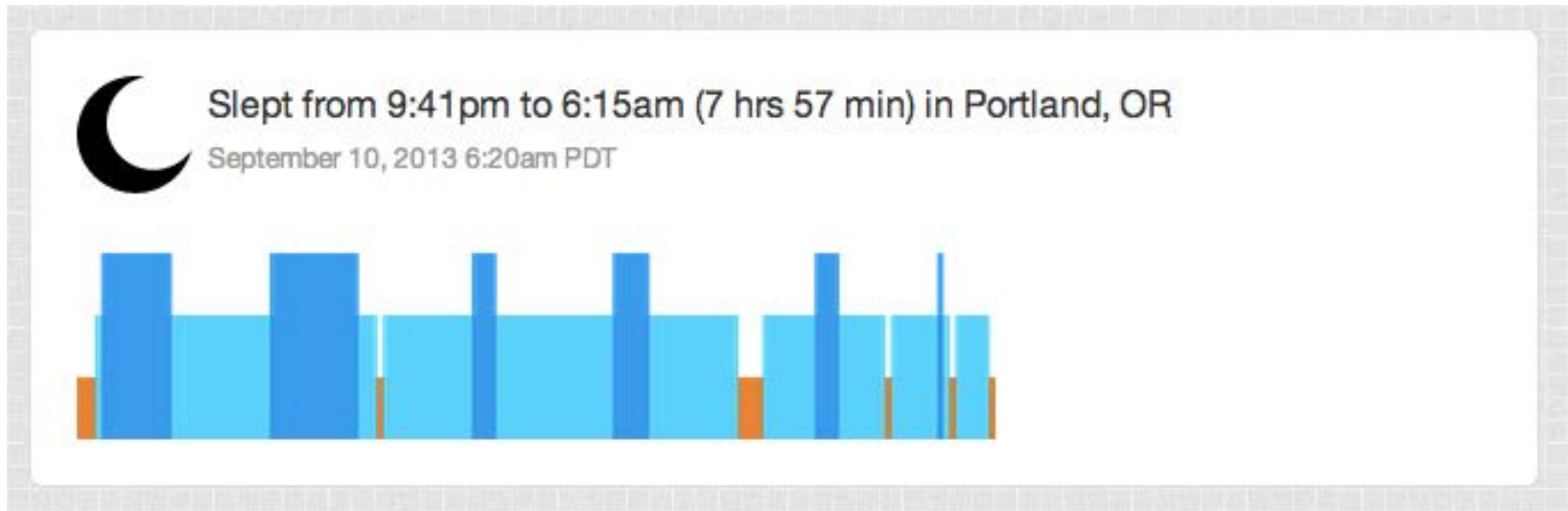


Withings Wireless Scale



Publishing My Sleep

aaronparecki.com/metrics



- Local time based on the timezone of my location
- Includes city I slept in from my GPS data

Sleep Cycle App



- Place your phone on your bed
- Requires your phone to be plugged in

Original Fitbit



- To track sleep, requires you wear it around your wrist
- I was not able to sustain this because of the extra effort of using the wrist strap
- Long button press to put into “Sleep” mode, gives visual feedback but no vibration (timer starts running)

Jawbone UP – 2011-Present



- Always on my wrist, so I never forget about it
- Battery lasts 8-10 days
- Long button press to put into “Sleep” mode, gives visual and tactile feedback

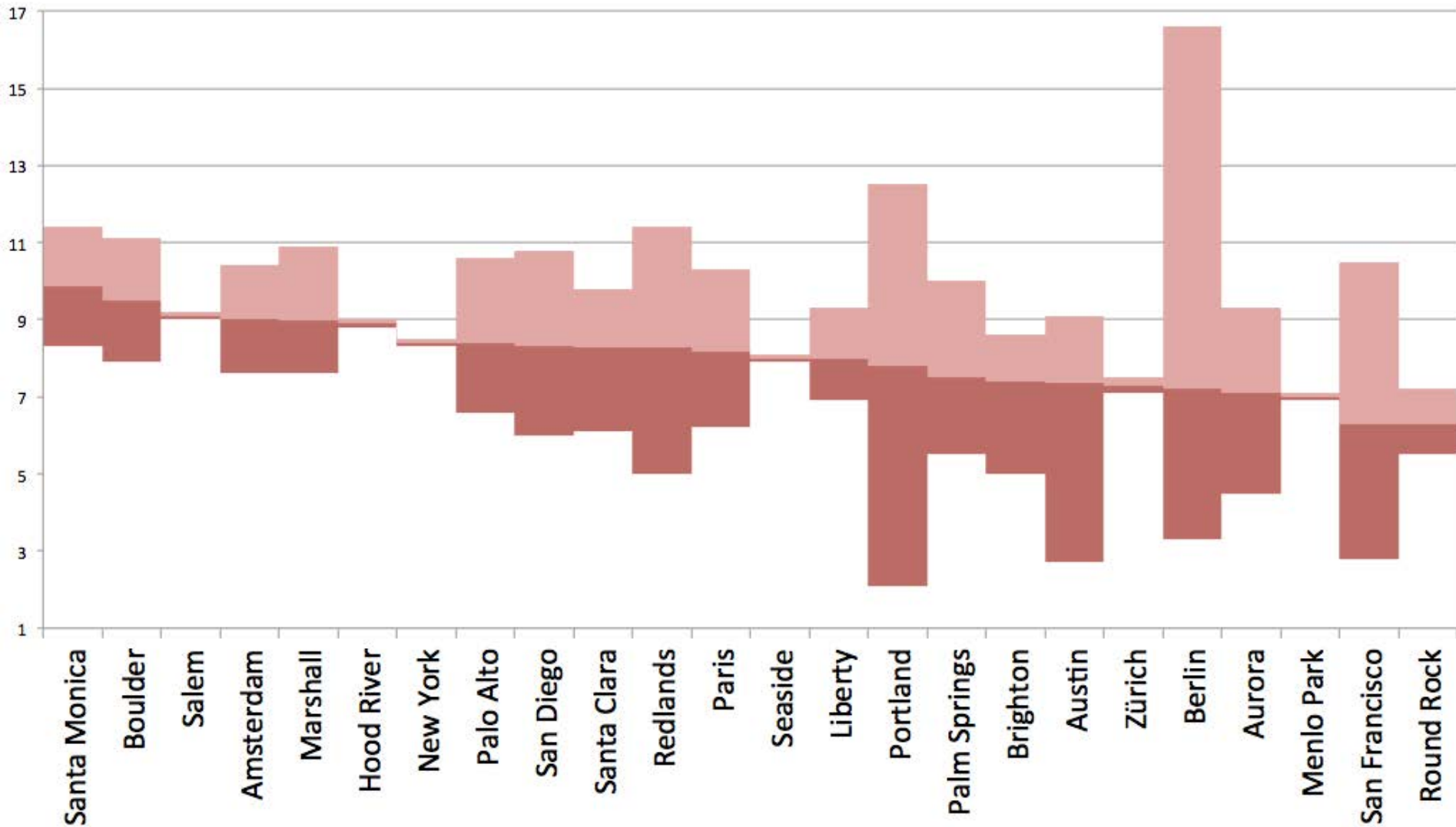
Sleep Logs

- Times are localized using location data
- Timezone is found using Terraformer
- Using a reverse geocoder to add City, State, Country

date	asleep	awake	hours	location
2011-12-27	00:51:33	06:20:24	5.5	Portland, OR, US
2011-12-28	22:27:27	06:23:22	7.9	Aurora, CO, US
2011-12-29	21:28:35	06:31:36	9.1	Aurora, CO, US
2011-12-30	00:06:41	06:46:25	6.7	Aurora, CO, US
2011-12-31	21:56:41	07:13:33	9.3	Aurora, CO, US
2012-01-01	01:29:38	06:44:35	5.2	Aurora, CO, US
2012-01-02	02:18:47	06:46:48	4.5	Aurora, CO, US
2012-01-03	21:31:20	08:40:01	11.1	Boulder, CO, US
2012-01-04	00:10:26	08:03:14	7.9	Boulder, CO, US
2012-01-05	22:21:16	07:35:26	9.2	Portland, OR, US
2012-01-06	02:27:16	08:35:15	6.1	Portland, OR, US
2012-01-07	22:55:23	08:50:43	9.9	Portland, OR, US
2012-01-08	23:57:48	08:22:50	8.4	Portland, OR, US
2012-01-09	23:56:00	08:01:55	8.1	Portland, OR, US
2012-01-11	23:50:33	07:56:49	8.1	Portland, OR, US
2012-01-12	21:59:53	04:05:28	6.1	Portland, OR, US
2012-01-13	00:42:44	08:21:41	7.6	Portland, OR, US
2012-01-14	23:46:23	08:19:10	8.5	Portland, OR, US
2012-01-15	23:50:45	07:43:23	7.9	Portland, OR, US
2012-01-16	00:23:44	07:55:08	7.5	Portland, OR, US
2012-01-17	00:33:54	07:09:52	6.6	Portland, OR, US
2012-01-18	23:18:23	04:18:11	5.0	Portland, OR, US
2012-01-19	12:09:16	13:17:30	1.1	New York, NY, US
2012-01-20	21:36:00	05:59:35	8.4	New York, NY, US
2012-01-21	00:30:53	09:39:25	9.1	Portland, OR, US
2012-01-22	22:57:50	08:44:43	9.8	Portland, OR, US
2012-01-23	22:23:57	04:47:09	6.4	Portland, OR, US
2012-01-24	22:10:28	08:47:27	10.6	Palo Alto, CA, US
2012-01-25	22:47:05	06:06:39	7.3	Portland, OR, US

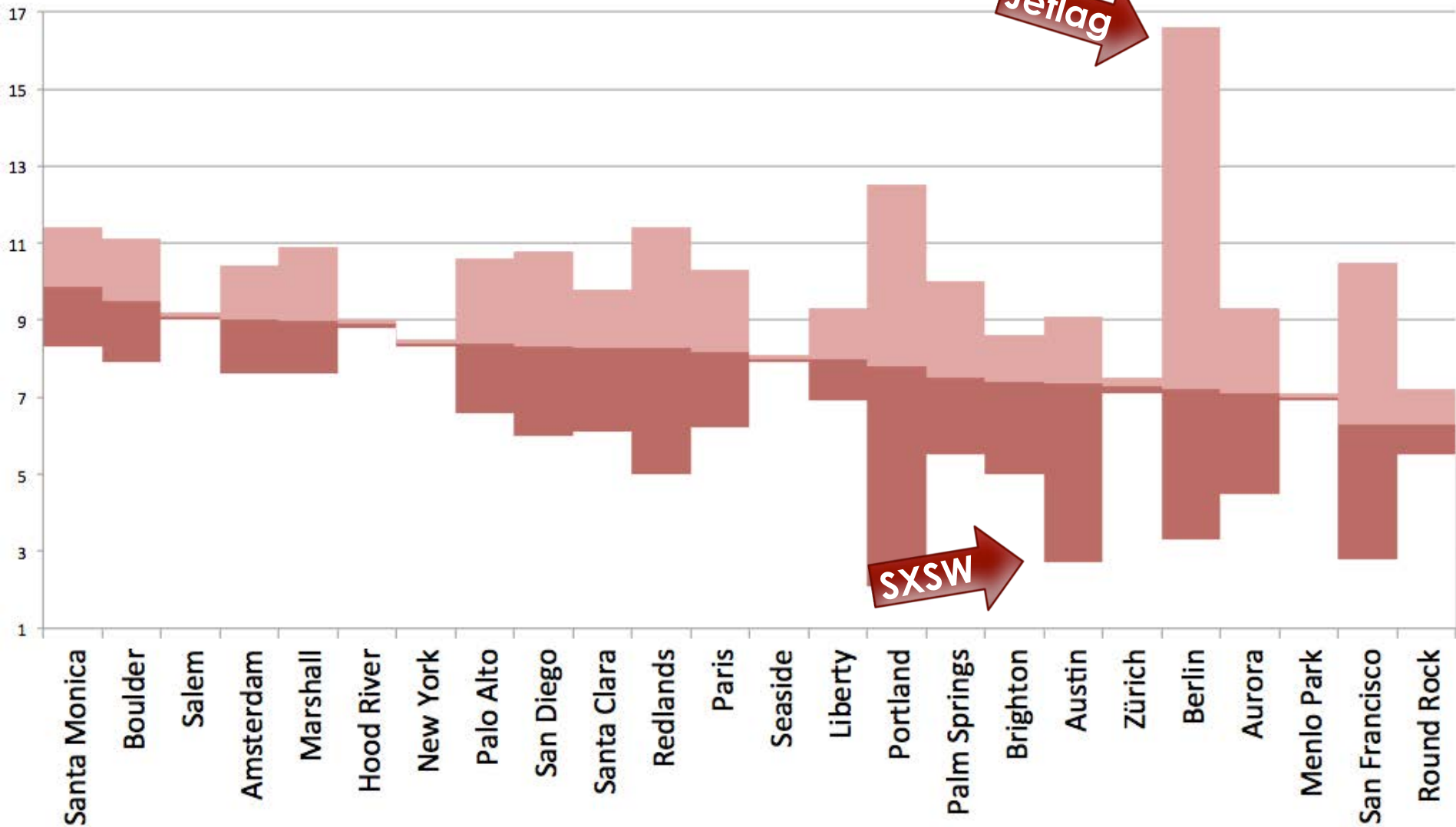
Tracking My Sleep

Sleep Logs by City



Tracking My Sleep

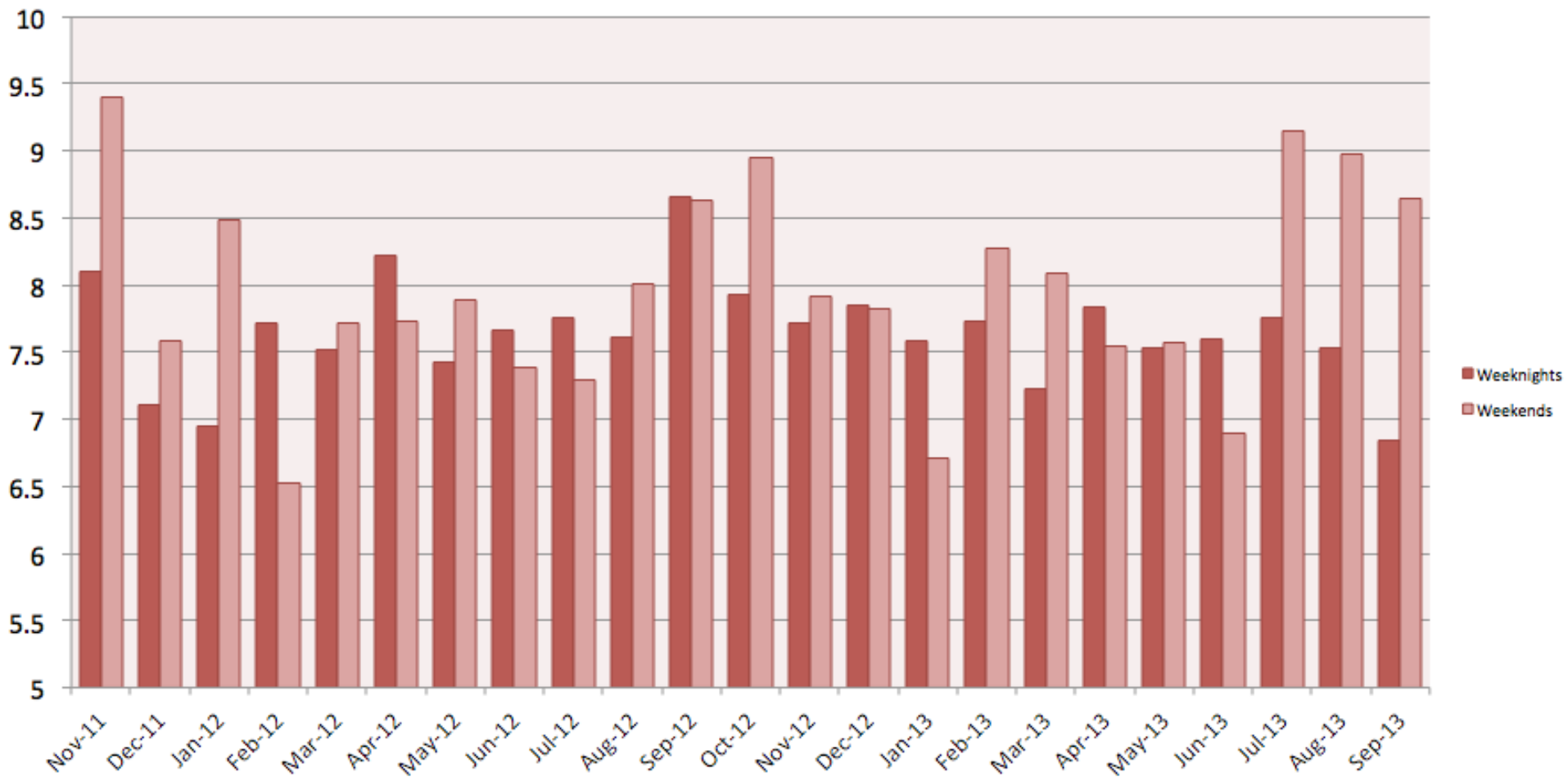
Sleep Logs by City



Tracking My Sleep

Sleep Logs

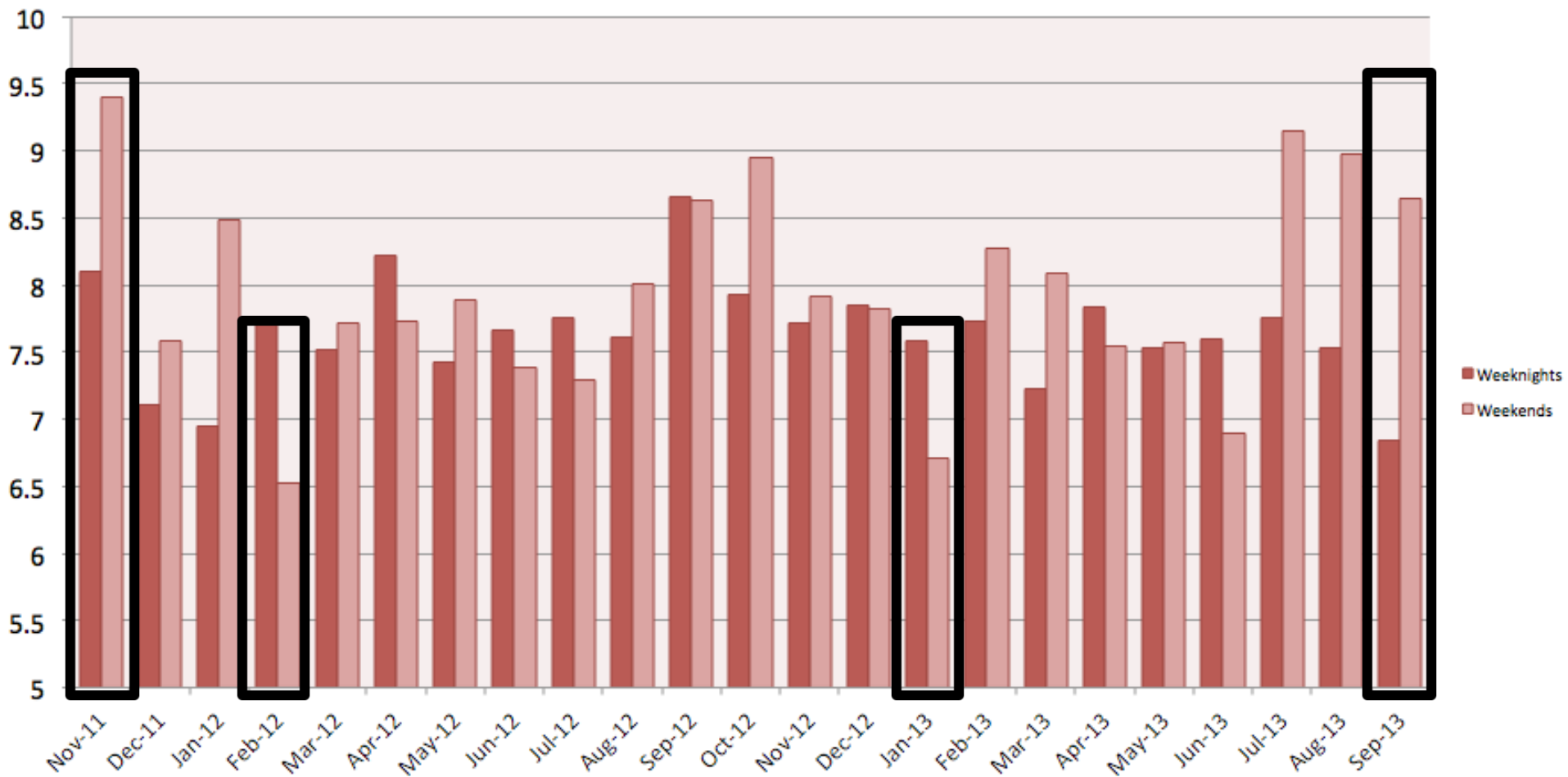
Nov 2011 – September 2013



Tracking My Sleep

Sleep Logs

Nov 2011 – September 2013





Withings

STRAVA™

geolqi

fitbit

SmartThings



Private Database

Public

aaronparecki.com

Some patterns are only visible after looking at a long-term dataset.

I set up systems to passively collect data so that I have lots to work with later!

Low Friction:

collect passively

analyze actively