COMMIT/ infinity ADNEXT

Real-Time Storage and Processing of Geo-located Tweets in MongoDB

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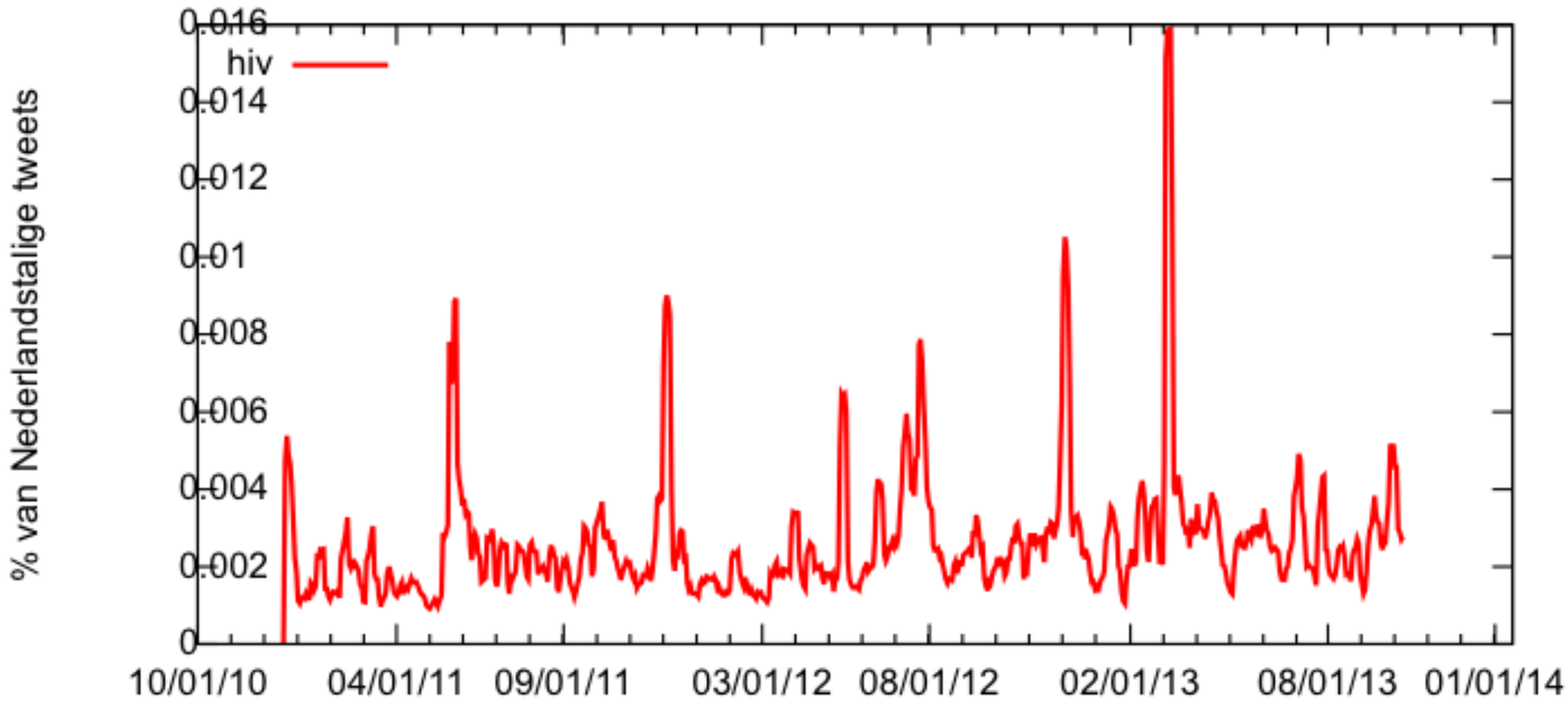
Zoek in tweets:

hiv Zoeken

18 december 2010 15 - 10 oktober 2013 01

GRAFIEK KAART WOORDEN GEBRUIKERS TWEETS HOME

Gezocht in: 2.374.168.897 tweets. Gevonden: 58.960 tweets met het trefwoord "hiv" (0.002%).



(download data van grafiek)

(smoothfactor: 10264; verlagen; verhogen)

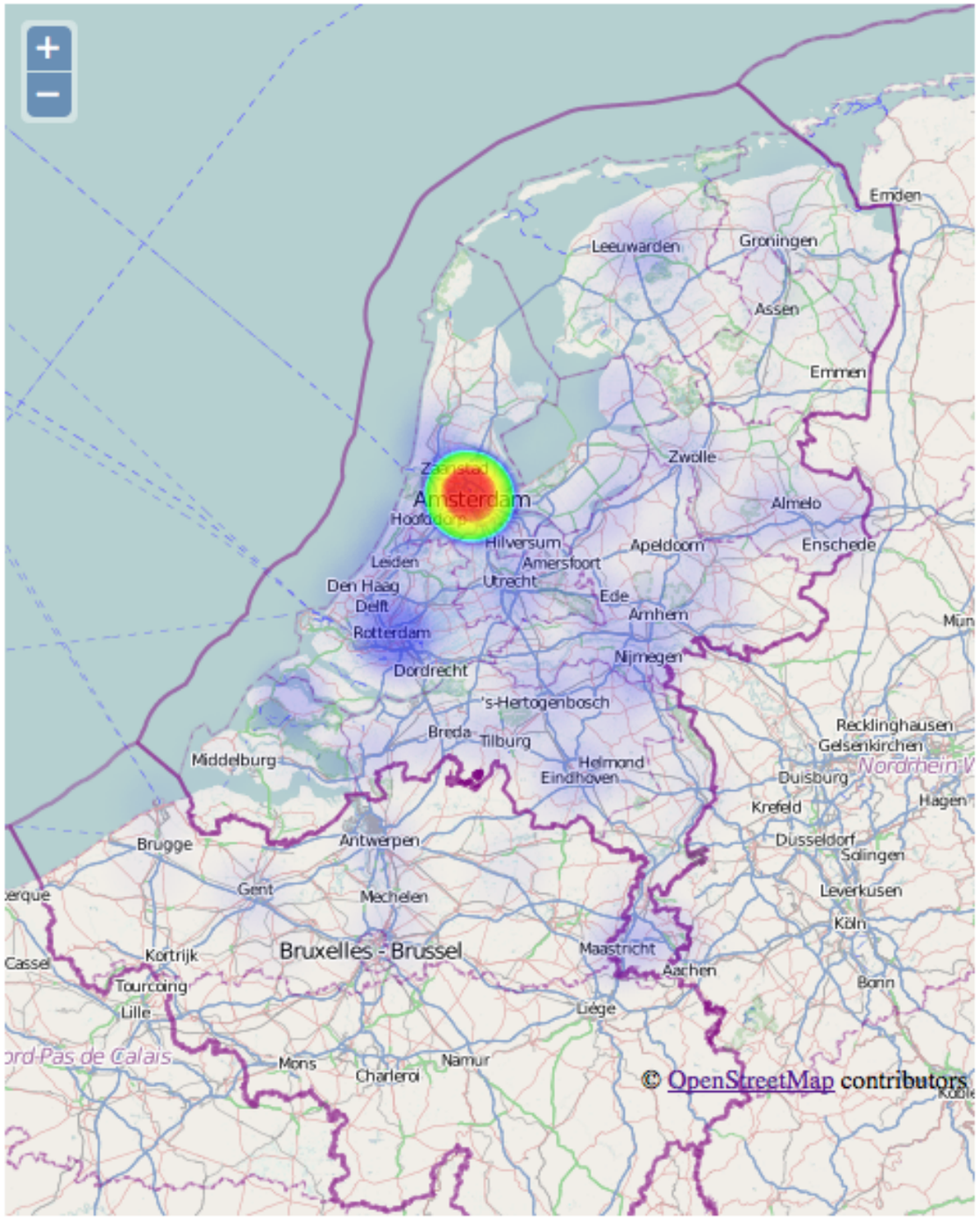
Created at: 19 November 2013 16:46:56. erikt(at)xs4all.nl (clusterstatus)

Zoek in tweets: twinl-geo+hiv Zoek

18 december 2010 15 - 15 oktober 2013

GRAFIEK KAART WOORDEN GEBRUIKERS

Gezocht in: 2.378.670.058 tweets. Gevonden: 674 tweets van de categorie "twi



(download data van kaart) (kaart met positiemarkeringen)

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Created at: 13 November 2013 10:30:16. erikt(at)xs4all.nl (clusterstatus)

Study Outline

- Gathering data & management
- Content analysis of the data

Twitter API

- Twitter API provide JSON format of the tweets, %1 of the stream
- It is possible to query it by using key terms, geo-boxes: [-180,-90,180,90]
- It provides a random sample which is not clear what covers

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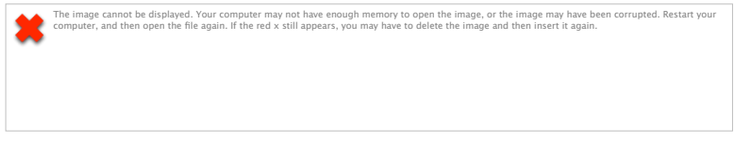
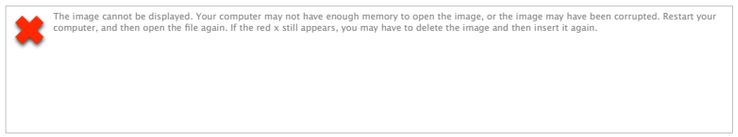
MongoDB

- Flexible storage possibility allows compact storage:
  - Default valued and duplicate attributes of a tweet are ignored, 2/3 of a document
  - Store just geo-time series which has some activity in them
- Geo-coordinate indexes and query operators: $near, $geoWithin, $geoIntersects
- GeoJSON compatibility, 2dsphere index



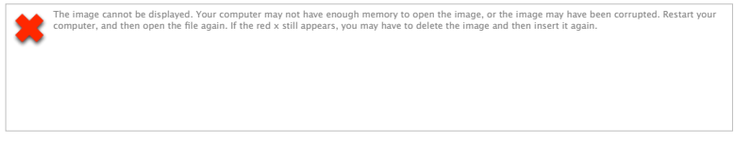
MongoDB

- Month numbers start from 0 in MongoDB
- Tweet creation time should be compared with datetime.utcnow()
- Incremental map-reduce: update every 5 minutes



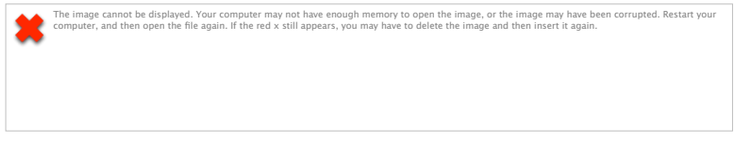
MongoDB - Map

```
function geotimeMap(){

        var mydatetime = this.created_at;

        var mylon = Math.floor(this.coordinates.coordinates[0]/10);
        var mylat = Math.floor(this.coordinates.coordinates[1]/10);

        var created_at_minute = new Date(mydatetime.getFullYear(),
                                         mydatetime.getMonth(),
                                         mydatetime.getDate(),
                                         mydatetime.getHours(),
                                         mydatetime.getMinutes());

    emit({created_at_min:created_at_minute, longitude:mylon, latitude:mylat}, {count: 1});
    }
```



MongoDB - Reduce

```
function geotimeReduce(key,values){

        var total = 0;
        for (var i = 0; i < values.length; i++){
                total += values[i].count;
        }
        return {count: total};
}
```



Tweets since page loac

- - 8 2 0 3 9

Legend

tweet cluster

lastest tweet

Filters

cluster view heatmap view

keywords filter

hashtags filter

5 most popular hashtags

HürTeşebbüseDARBE (6456)

MentionSomeoneYouAreThankfulFor (3

HappyThanksgiving (2312)

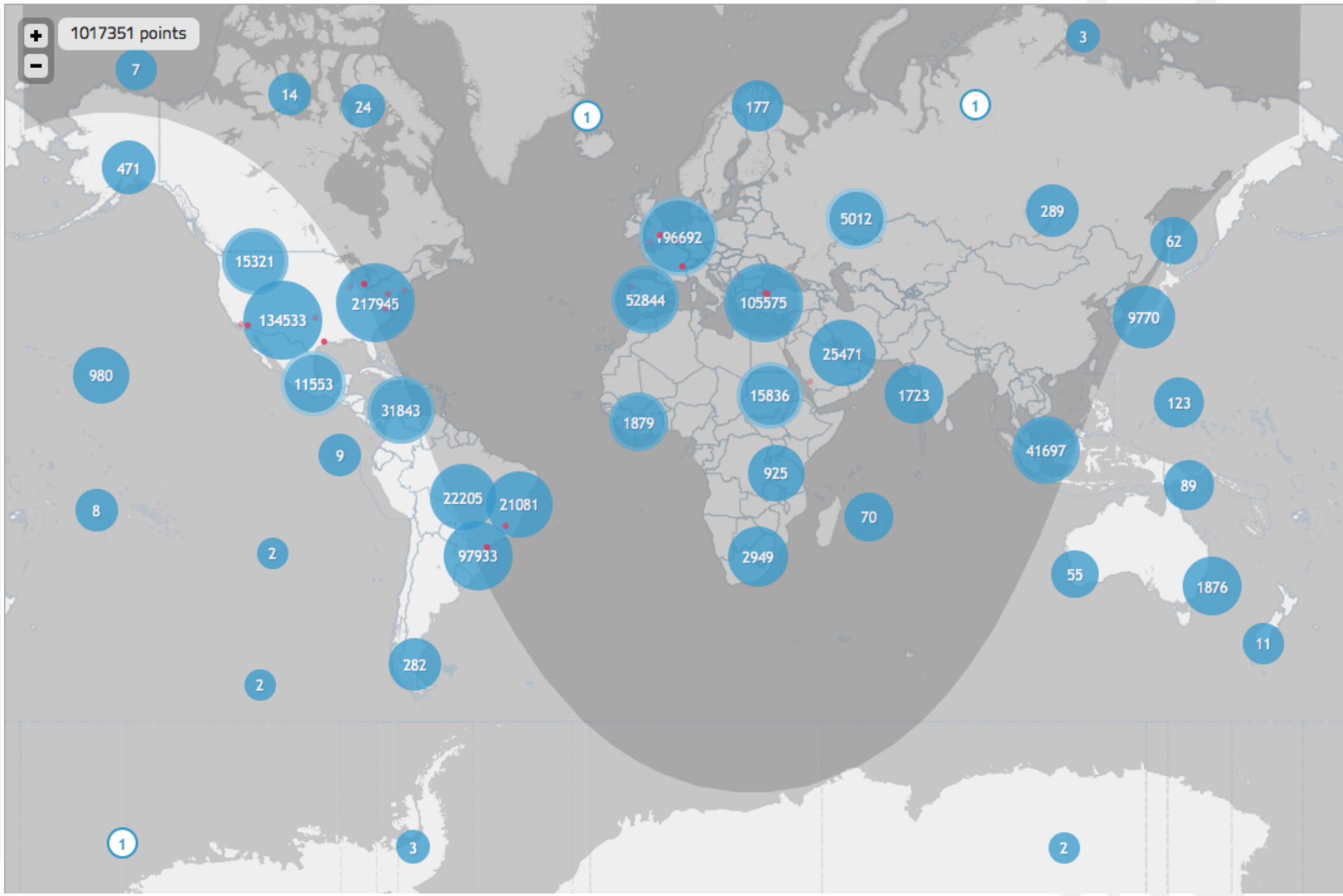
Thanksgiving (2058) PeoplesChoice (20

No Time Filtering

If you want to start with a blank map, clic reset map button (reload the page to see tweets again).

Reset map

Maptimize



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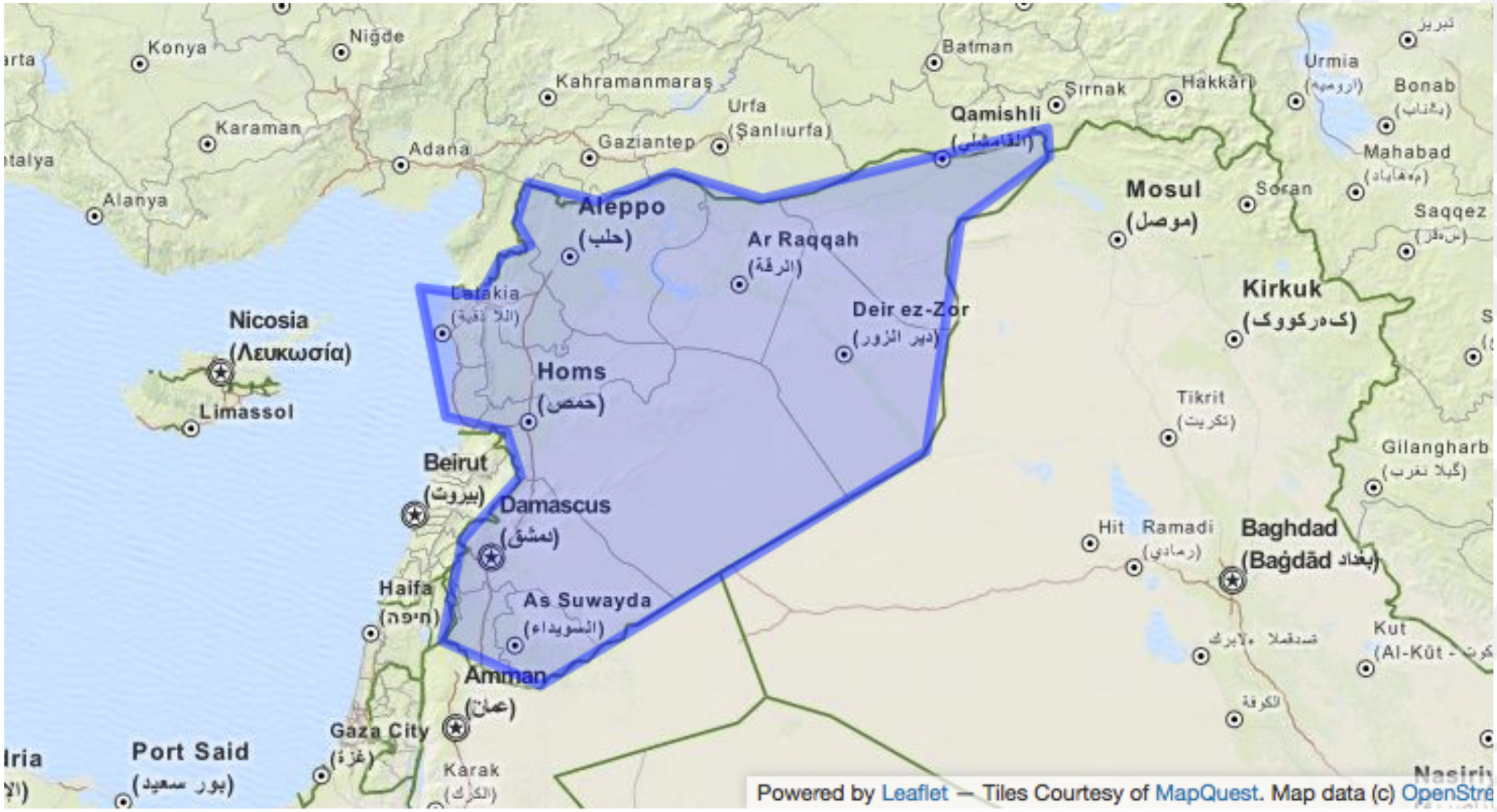
Study Outline

- Content analysis of the data

Content Analysis - Syria



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Content Analysis - Syria

- Platform diversity
  - Fousquare, Path, Here, Instagram, etc.
- Keyword independence
  - Although tweets are sparse, their content is diverse

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foursquare

I'm looking for...

Rotterdam, NL

KrSd B. checked in at **KarKamış**

Turkey | September 6 via foursquare for iPhone

LIKE

sınırda bir hareketlilik var tanklar Suriye tarafına saf tutmuşlar ayrıca siyasi bir hareketlilikte var

Log in to foursquare to leave a comment!

About this check-in

Holding down the mayorship!

KarKamış

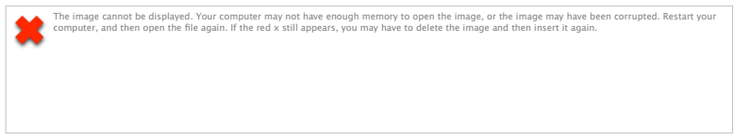
General Travel

SAVE

Switch Language: English

Conclusion

- Geo-tagged tweets can provide geographical region based information
- We can gather as diverse/rich as possible information
- We can gather textual/meta data independent of language and domain
- By using geographical region relevant hashtags and links we can search for them in the non-geotagged tweets to enrich the data
- We can track the content over time and geo-regions
- MongoDB enable us to store and process this information effectively



Future Research

- Extend the study to other regions
- Use geographical and user based information
- Spatio-temporal analysis of hashtags, links
- Compare the random sample of Twitter API

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References

- http://geojsonlint.com/
- http://twiqs.nl/
- http://onemilliontweetmap.com/

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Thanks for your time !

Any Questions or Comments ?