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# Sentiment Analysis

March 2016 | DAT-30

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# The Question

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- ❖ Is there a possible *relationship* between the perception of environmental factors expressed in social media comments, such as beach cleanliness, to airline revenue?
- ❖ In English: if we look at comments about a specific travel location, Bermuda for example, on Twitter and TripAdvisor and score them for negative or positive sentiment, do the results over time suggest anything about travel volume to that place?

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# The Data: Twitter

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- ❖ **Twitter API search:** Geolocation coordinates and key words determined to return relevant comments :

“<https://twitter.com/search?q=beach%20trash%20jamaica&src=typd>”



**Dr. Claire Nelson** @DrClaireNelson · 12 Nov 2015

Now that would be nice.. I am sick of seeing people leave their **trash** on the **beach** in **Jamaica**. We mustban Styrofoam



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# The Data: TripAdvisor

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## ❖ TripAdvisor: TA “place” codes

*“constant barrage of beach sales”* NEW

○○○○○ Reviewed yesterday

beautiful beach but constant barrage of peddlers takes enjoyment away, beautiful white sand with narrow beach

Helpful? 👍 Thank travellermt13 🚩 Report

*“Great Beach”* NEW

○○○○○ Reviewed yesterday 📱 via mobile

Bavaro Beach never disappoints. Great sand and water, no stone or coral. The sea grass was minimal and really not an issue during our stay and the ocean was very warm. The only disappointment is the constant barrage of locals selling cigars, sunglasses, hair braiding, henna and trinkets. What a pain, we wrote a do not disturb sign in Spanish...

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# Exploring Social Media is Hard!

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## **Twitter: search API using TwitterSearch**

- Geocodes don't help
- Keywords lead to irrelevant returns
- Very hard to search anything except new tweets

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# Exploring Social Media is Hard!

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**TripAdvisor: direct from the website using Scrapy**

- Keywords lead to irrelevant returns
- Huge results!
- Need to organize a lot of results
- Not allowed to use API for mining data!



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# Yikes!

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- ❖ Without being able to search Tweets far into the past I can't compare sentiment scores with volume data!
- ❖ On the other hand TripAdvisor reviews are far better qualitatively!

# Better Quality but More Work

8,842 Reviews from our TripAdvisor Community

Read reviews that mention:

Search reviews

All reviews can walk for miles long walks plenty of palm trees seaweed problem white powder

walk forever great sand cleaned every day washed ashore great walking lots of water sports

seaweed floating cleaned everyday gentle surf great resorts lovely ocean washing up

plenty of sun beds nice temperature clean rooms

**Traveler rating**

☐ Excellent (25)

☐ Very good (15)

☐ Average (4)

☐ Poor (4)

☐ Terrible (0)

**Traveler type**

☐ Families (12)

☐ Couples (24)

☐ Solo (1)

☐ Business (0)

☐ Friends (4)

**Time of year**

☐ Mar-May (7)

☐ Jun-Aug (15)

☐ Sep-Nov (11)

☐ Dec-Feb (15)

**Language**

☐ All languages

☒ English (48)

☐ Spanish

☐ Portuguese

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<div class="entry">
  <p id="review_301296294">
    "
    This is a lovely beach when the "
    <span class="searchHit">seaweed</span>
    " isn't bad. For most days of our trip, it w
    the last day, it was so bad the hotels just
    one of the resorts next to ours was using a
    entire time I was ankle deep in it and had t
    always so bad, but due to it, I would not ch
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# Decisions, Decisions ...

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- ❖ Use only TripAdvisor?
- ❖ How to deal with reviews that include keywords but are not relevant? Naive Bayes?
- ❖ How long will it take to gather enough data, scrape it and process it?