HOT - Crowdsourced area based damage assessments and comparative damage rankings

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Agenda

- Background
- Objective
- Approach
- Current state
- Outlook

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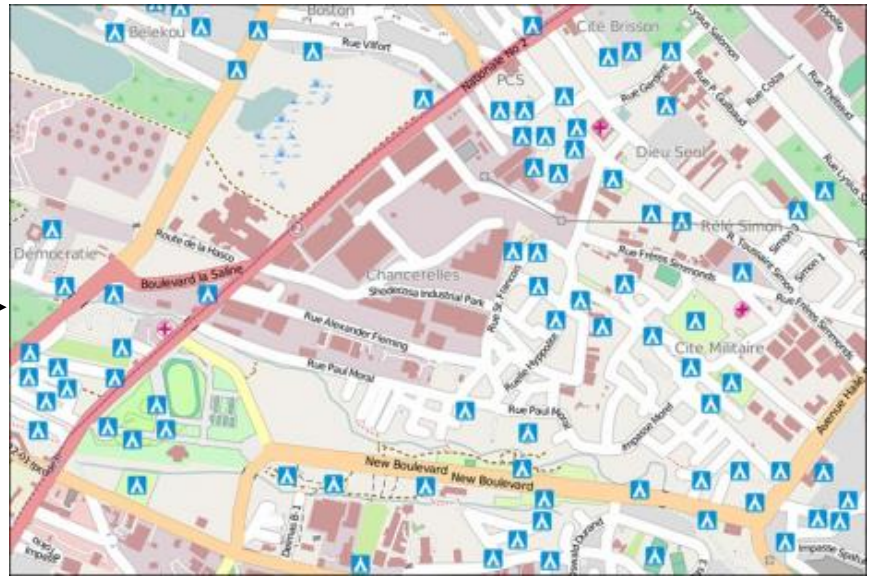

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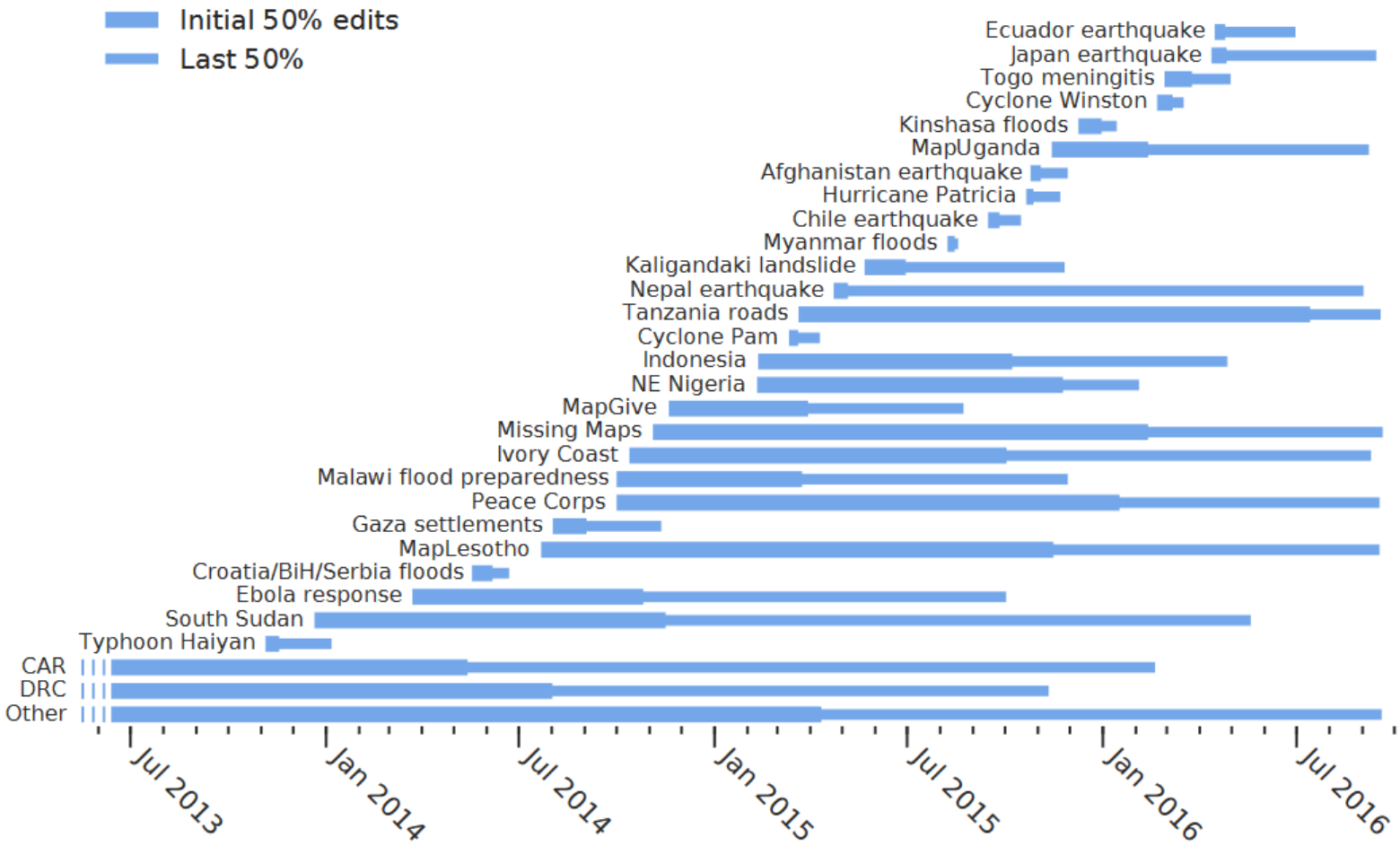

Dittus, SotM 2016

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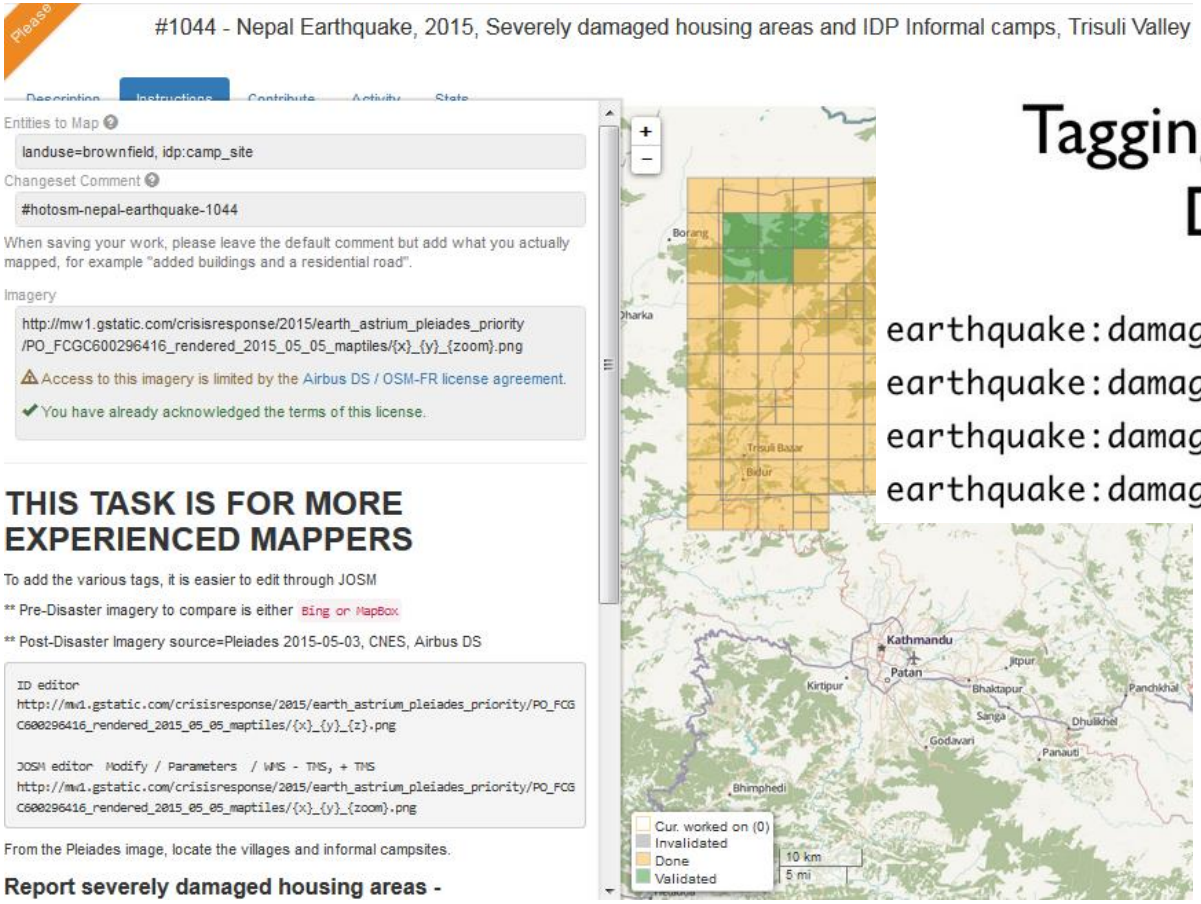
Crowdsourced damage mapping



Tagging Earthquake Damage

```
earthquake:damage: collapsed_building
earthquake:damage: spontaneous_camp
earthquake:damage: damaged_infrastructure
earthquake:damage: landslide
```

http://tasks.hotosm.org/

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Crowdsourced damage mapping

"[…] **image-based damage assessment** can be considered **more challenging than base data mapping** […].
Damage mapping requires that **a single ordinal scale label is given to a structure in a complex state** […]. That essentially makes **"damage" a concept rather than a physical state**."

(Kerle 2013, p. 127f.)

"OSM contributors did a reasonably good job of identifying affected buildings but **overestimated the number of buildings completely destroyed** by the typhoon and **underestimated the number of buildings that were majorly damaged**.[…]"

(ARC 2014)

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Objective

Examine further opportunities for crowdsourcing of damage assessment information following major disasters.

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Approach

- *Demand Survey*

  -Post Disaster Needs Assessment requirements

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Approach

- *Area based assessment*

  - Rather than rating the level of damage to individual buildings, testing scoring the amount of damage in a given area

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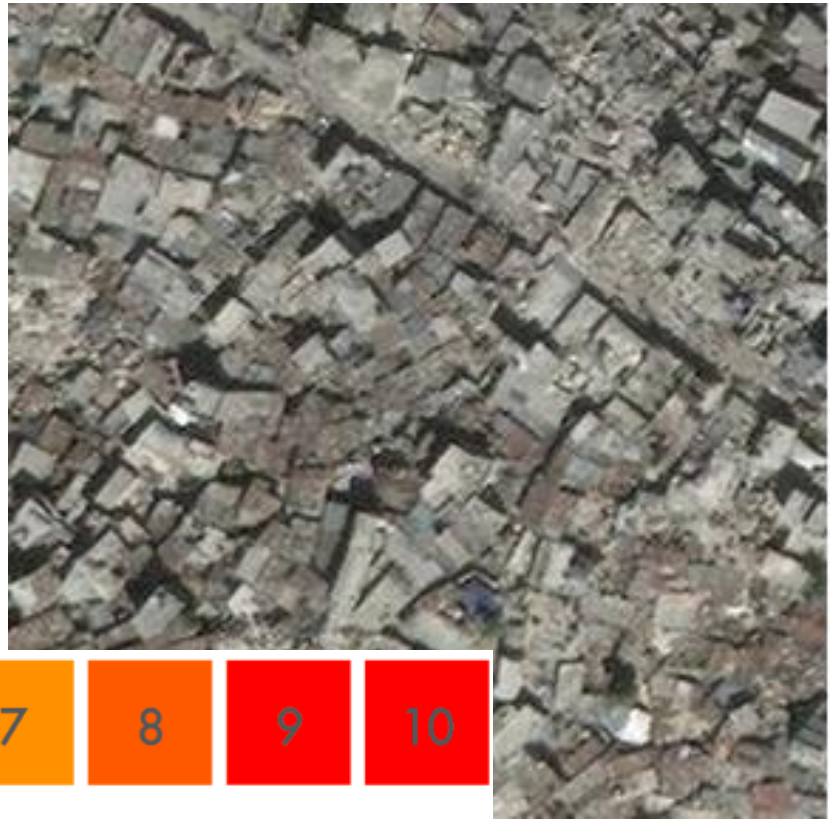
Approach

- *Area based assessment*



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Approach

- *Comparative damage rankings*
  - Rather than rating each building/ area individually, testing method by which participants are asked to compare two separate areas.

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Approach

- *Comparative damage rankings*

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Approach

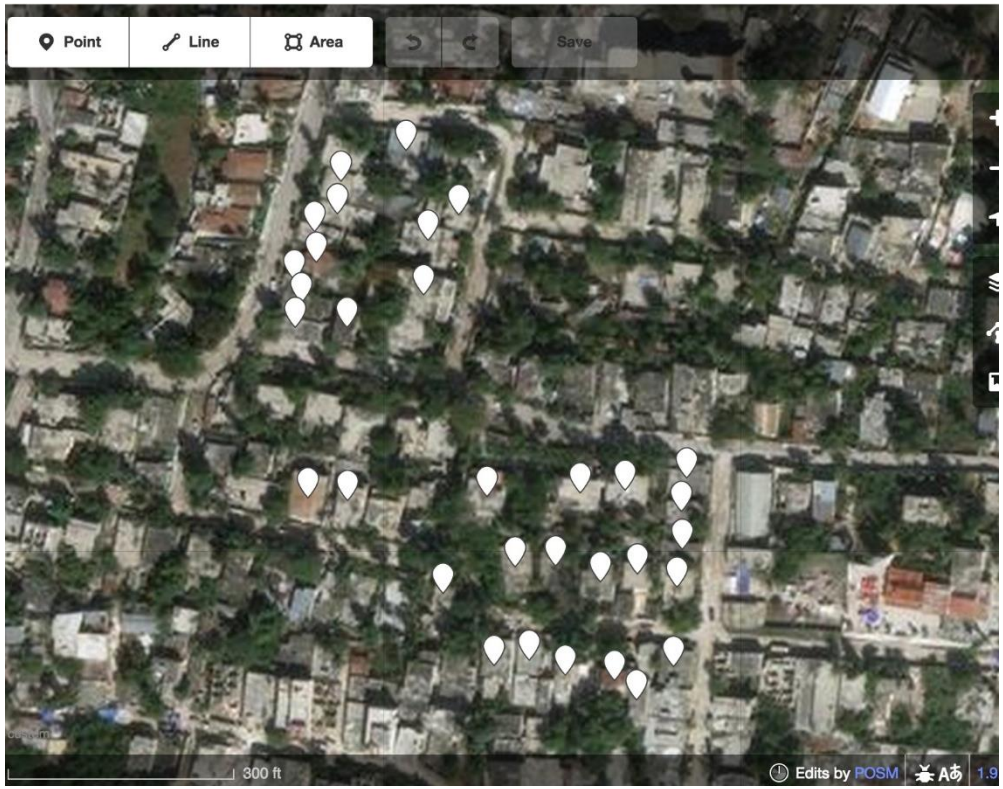
- *Statistical methods of aggregation*

  - rather than testing accuracy of individual building marking, aggregating results to ward or district levels

  - including multiple passes and weighting user

Approach

- OSM damage mapping



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Approach

- Training material

„Creating **generic and disaster-specific damage assessment guidance** materials for remote mappers would **improve the accuracy of results** and **reduce the number of potentially inaccurate judgment calls** contributors are asked to make. […]

Tailored materials featuring disaster-specific imagery could help to better identify damage patterns common to **local construction types** […]." (ARC 2014)

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Approach

- Training material

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Current state

- Pre-experiment ✓
- Think alouds ✓
- Internal review ✓

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Next steps

- Finalize experiment setup
- Run experiment with OSM, HOT and Stanford community
- Presentation of experiments and results at HOT Summit and further conferences and discuss results with practitioners

Thank you for your attention!

Questions? Comments?

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