

# Mass participation during emergency response: **Event-centric crowdsourcing** in humanitarian mapping

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# Aid teams need maps when responding to crises





# However: much of the world has never been mapped!

*“Anyone who says the world is mapped, ask them to show you where the population of Congo is living. Ask them where the villages are. If they can do it, please let me know.”*

Ivan Gayton, Médecins Sans Frontières (MSF)

<https://www.theguardian.com/science/2017/feb/07/faultlines-black-holes-glaciers-mapping-uncharted-territories>

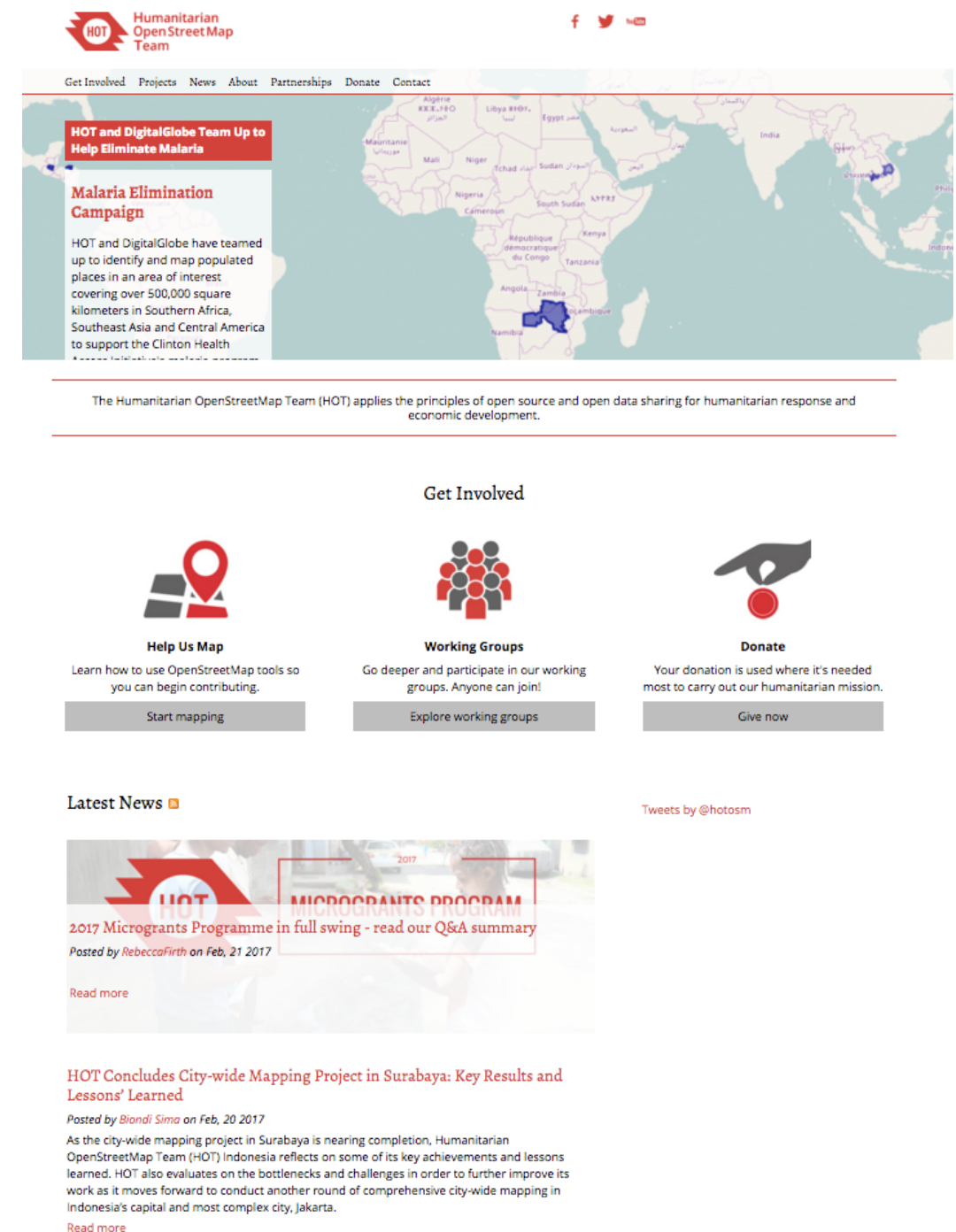
# The Humanitarian OpenStreetMap Team (HOT)

**Making maps** to support field logistics by aid orgs.

Online **crowdsourcing** with thousands of volunteers.

Activities across dozens of larger **campaigns**.

Haiti earthquake, typhoon Haiyan in the Philippines, Nepal earthquake, Ebola epidemic, ... many others.



**HOT** Humanitarian OpenStreetMap Team

Get Involved Projects News About Partnerships Donate Contact

**HOT and DigitalGlobe Team Up to Help Eliminate Malaria**

**Malaria Elimination Campaign**

HOT and DigitalGlobe have teamed up to identify and map populated places in an area of interest covering over 500,000 square kilometers in Southern Africa, Southeast Asia and Central America to support the Clinton Health Access Initiative's malaria response.

The Humanitarian OpenStreetMap Team (HOT) applies the principles of open source and open data sharing for humanitarian response and economic development.

**Get Involved**

**Help Us Map**  
Learn how to use OpenStreetMap tools so you can begin contributing.  
Start mapping

**Working Groups**  
Go deeper and participate in our working groups. Anyone can join!  
Explore working groups

**Donate**  
Your donation is used where it's needed most to carry out our humanitarian mission.  
Give now

**Latest News**

Tweets by @hotosm

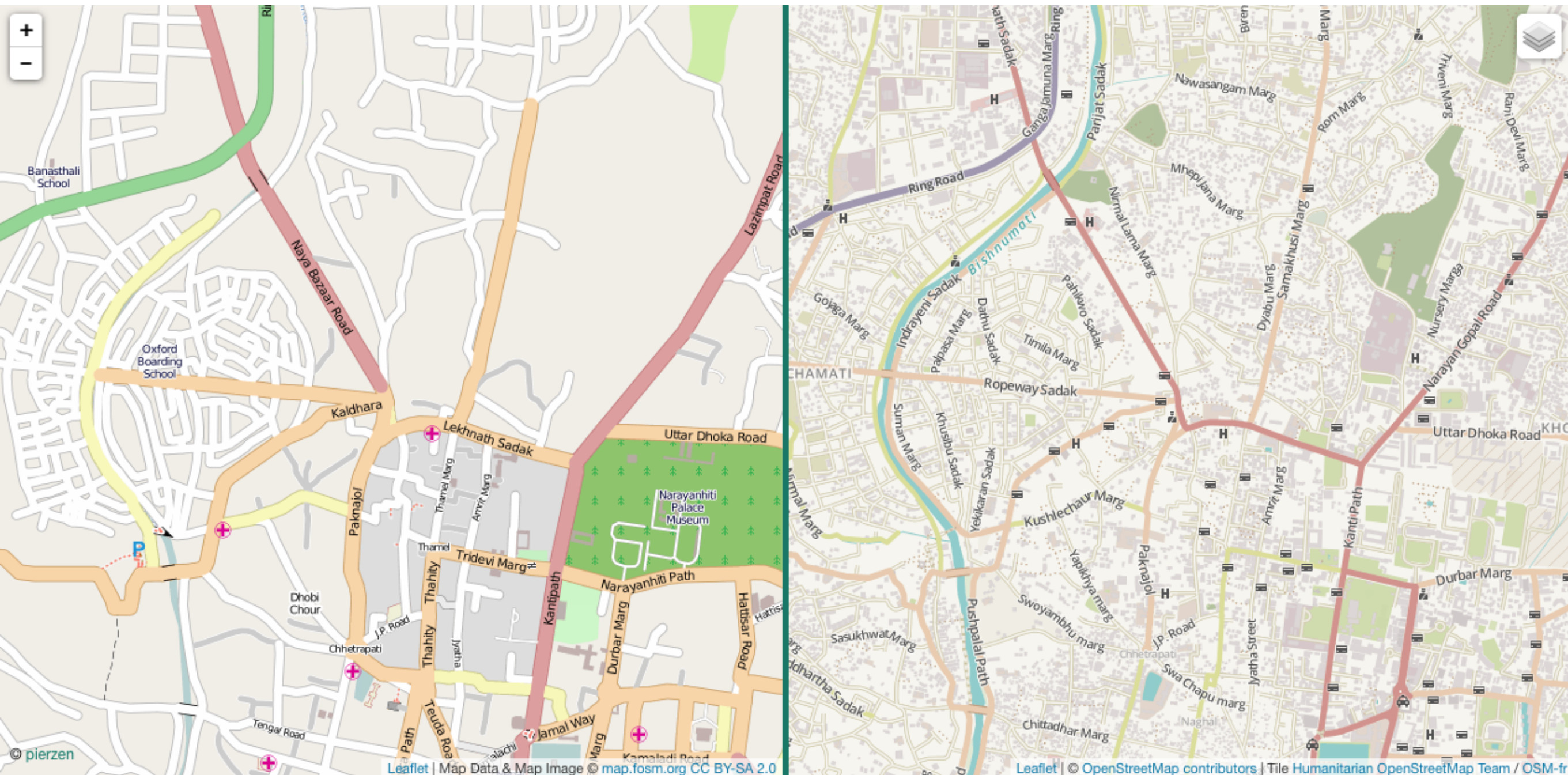
**2017 Microgrants Programme in full swing - read our Q&A summary**  
Posted by Rebecca Firth on Feb, 21 2017  
Read more

**HOT Concludes City-wide Mapping Project in Surabaya: Key Results and Lessons Learned**  
Posted by Biondi Sima on Feb, 20 2017  
As the city-wide mapping project in Surabaya is nearing completion, Humanitarian OpenStreetMap Team (HOT) Indonesia reflects on some of its key achievements and lessons learned. HOT also evaluates on the bottlenecks and challenges in order to further improve its work as it moves forward to conduct another round of comprehensive city-wide mapping in Indonesia's capital and most complex city, Jakarta.  
Read more

<http://hotosm.org>



# Before and after: mapping in Nepal

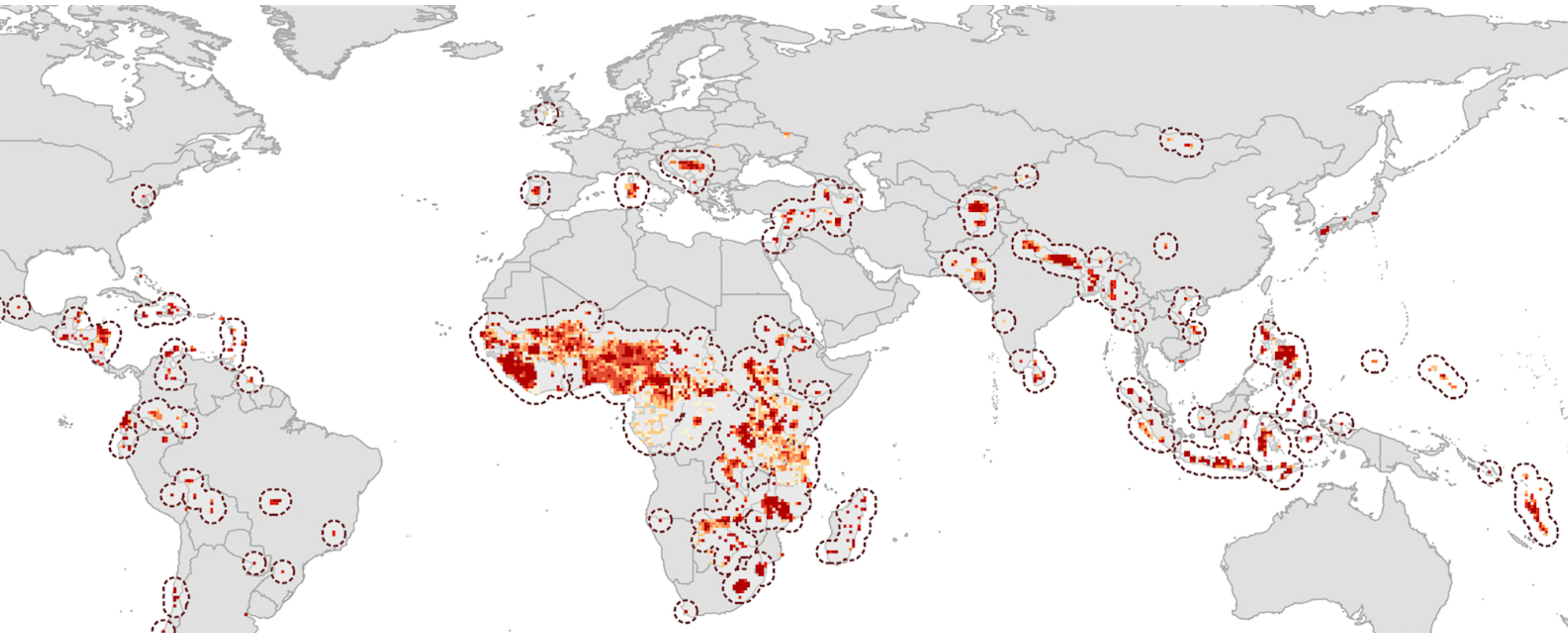


<http://pierzen.dev.openstreetmap.org/hot/leaflet/OSM-Compare-before-after.html#15/27.7193/85.3098>



# HOT contributor activity (Sept 2016)

- Across more than 2000 projects,
- with 32,000 contributors to date,
- involving 180M changes made to the map,
- an estimated total of **240,000 hours of volunteer work.**



Arguably characteristic for HOT is the coexistence of two kinds of campaigns:

**Event-centric** campaigns and  
**Mission-centric** campaigns



# Event-centric campaigns: urgent responses after a humanitarian event





# Mission-centric campaigns: all other mapping in absence of an emergency

**Proactive** mapping in anticipation of needs.

Preparing **basemaps** for field work.

**Thematic mapping:** water supplies, hospitals, ...

Ongoing mapping activities with **volunteering groups**.

British and American Red Cross,  
Médecins Sans Frontières, Peace Corps, ...





# How is **contributor engagement** constituted across these campaigns?

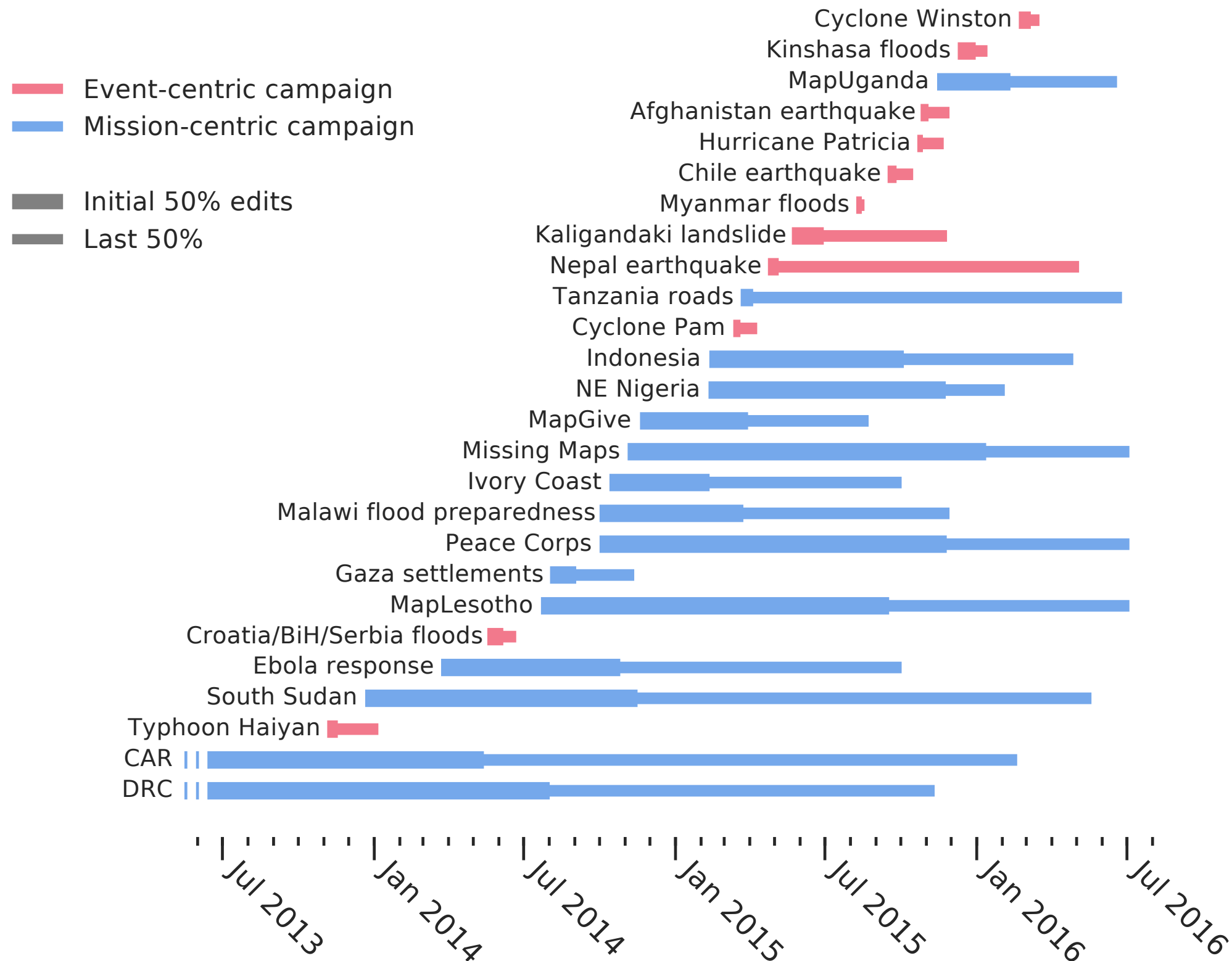
Is HOT an on-demand task force that springs to action when urgent needs arise?

- Are disaster events also **recruiting moments**?
- Are there **dormancy-reactivation** cycles?

How does this affect **outcomes**?

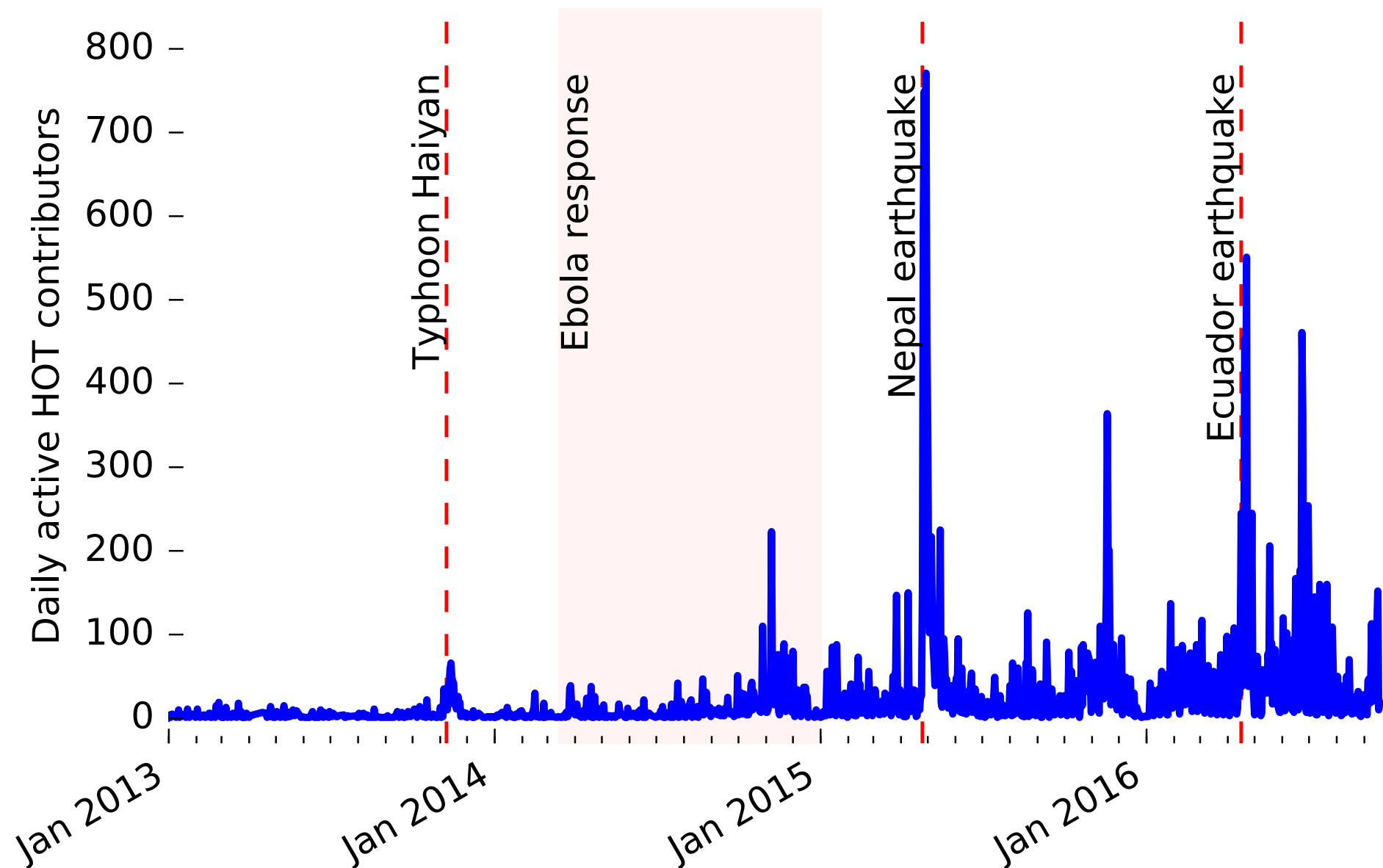


# We observe **26 campaigns** across a 4-year period, with 22,000 participants

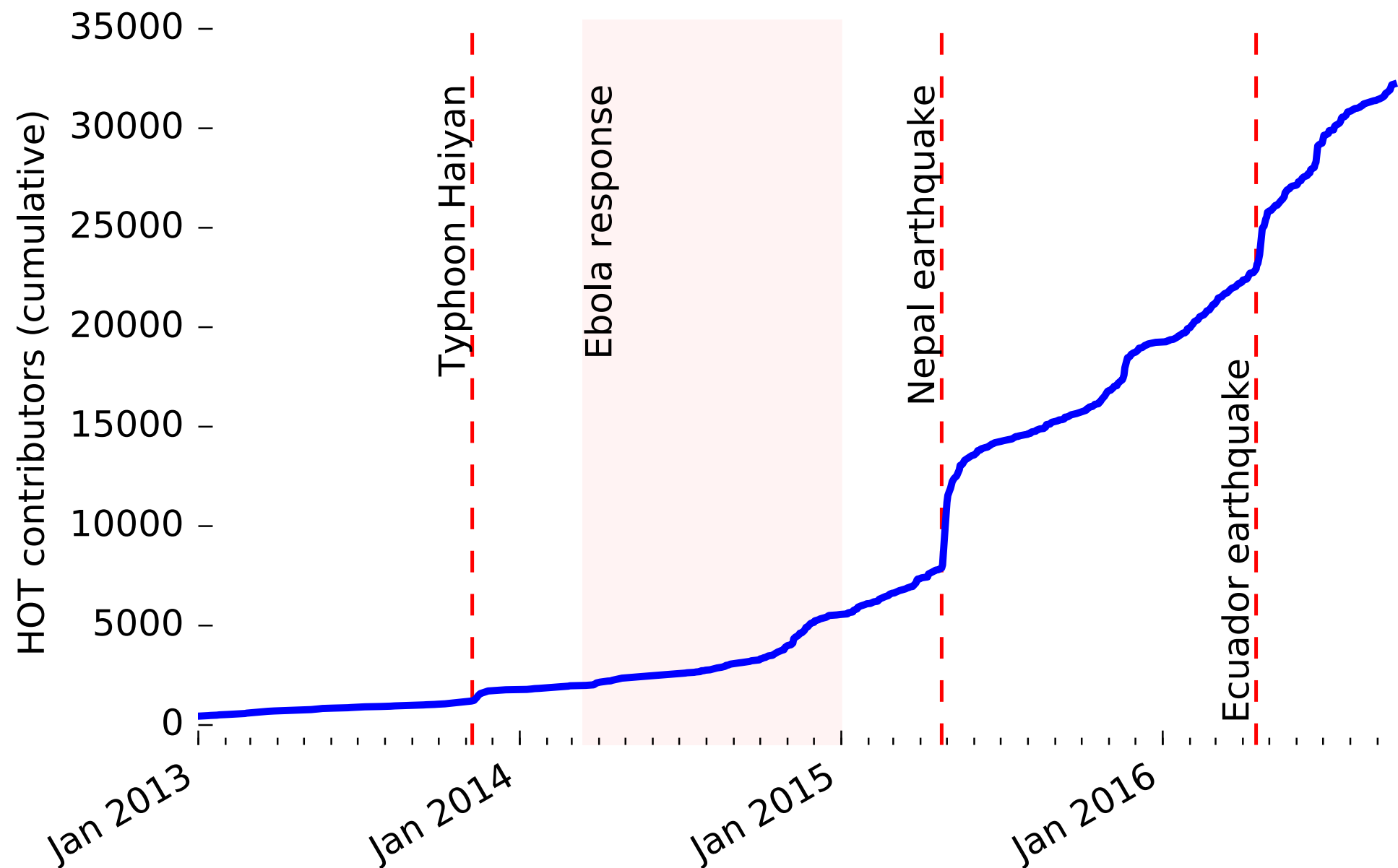




# HOT community is always active, with event-related **bursts of activity**

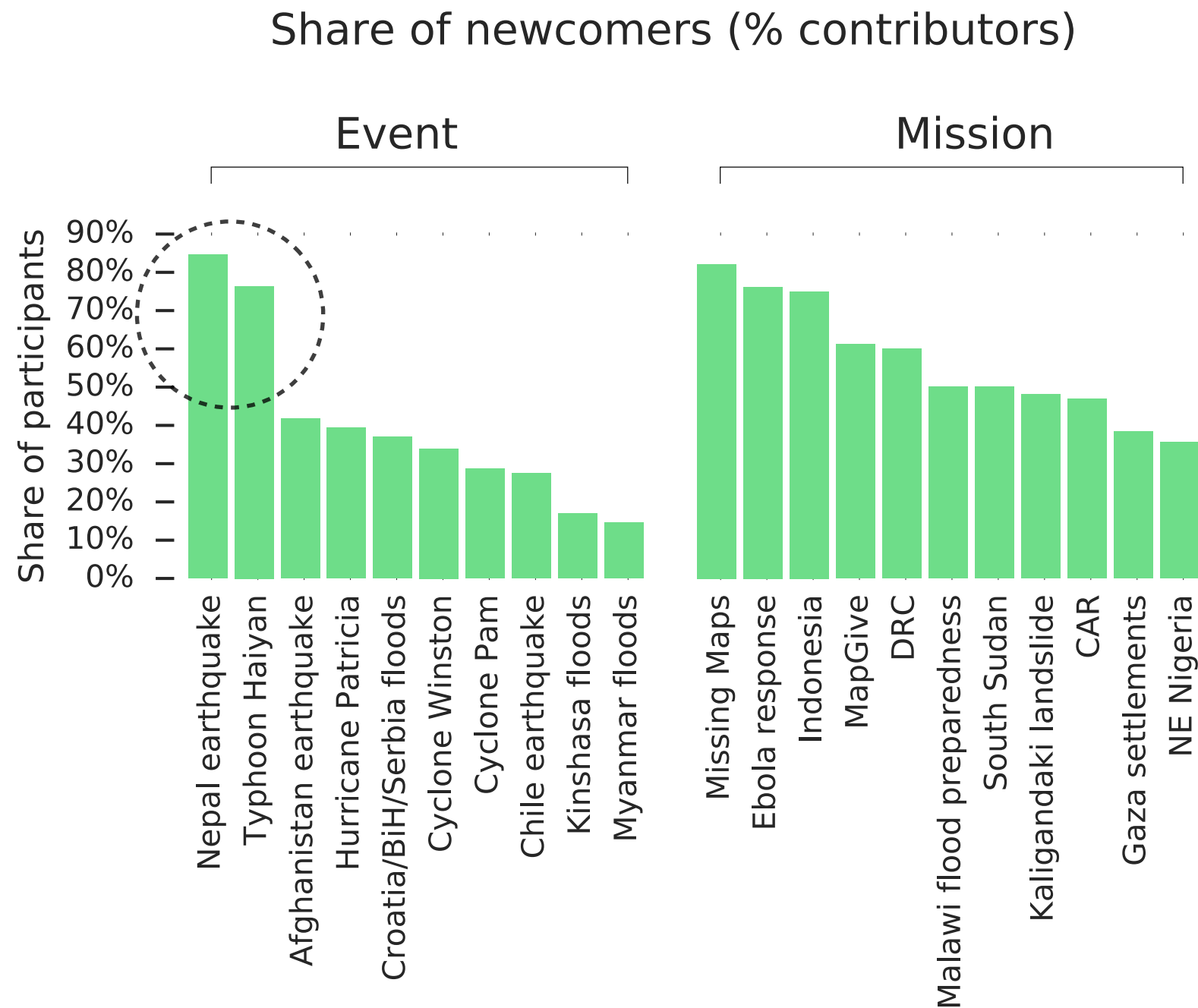


# Recruitment: event-centric campaigns can be important growth moments

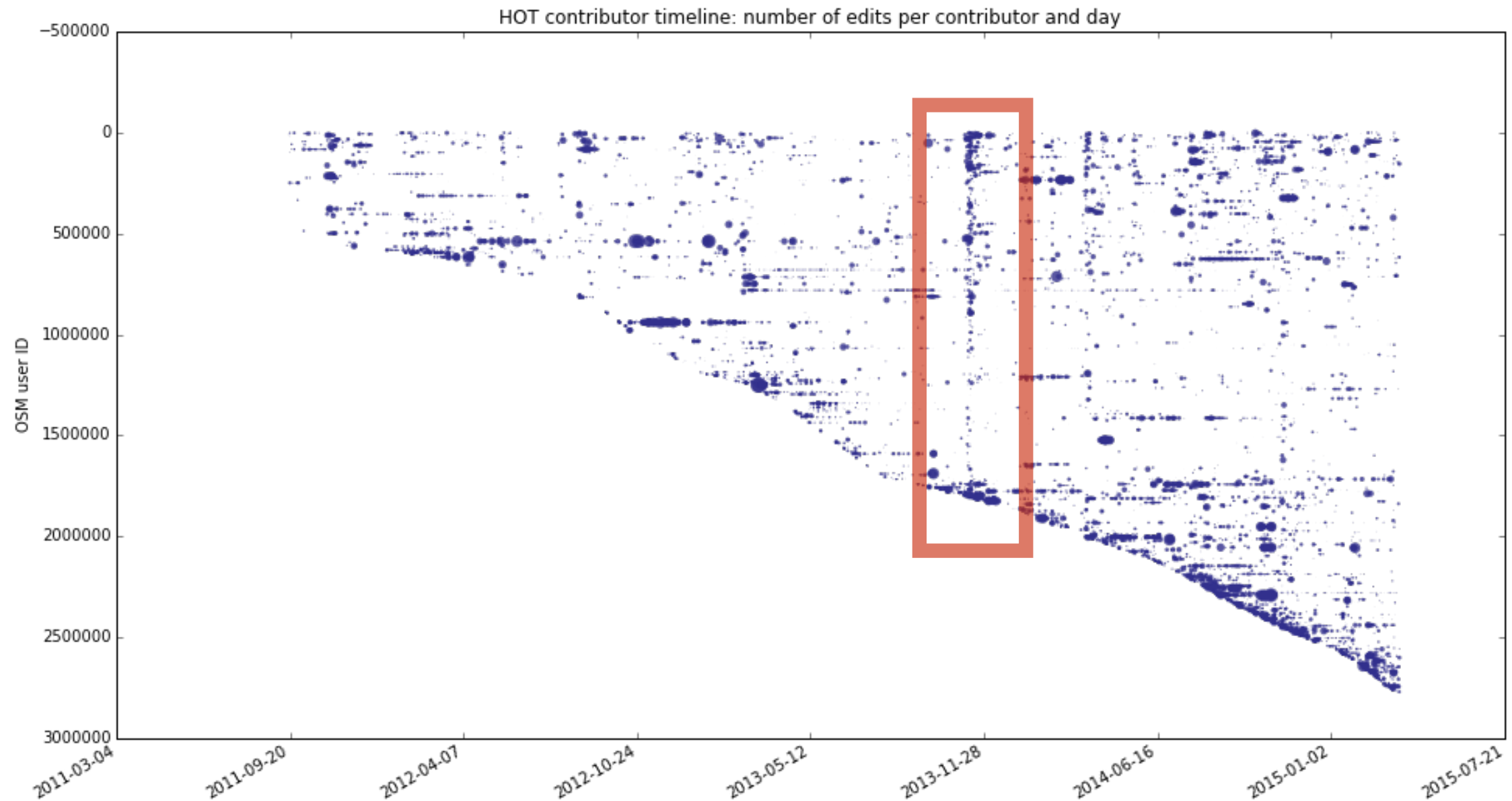




# Recruitment: event-centric campaigns can be important growth moments



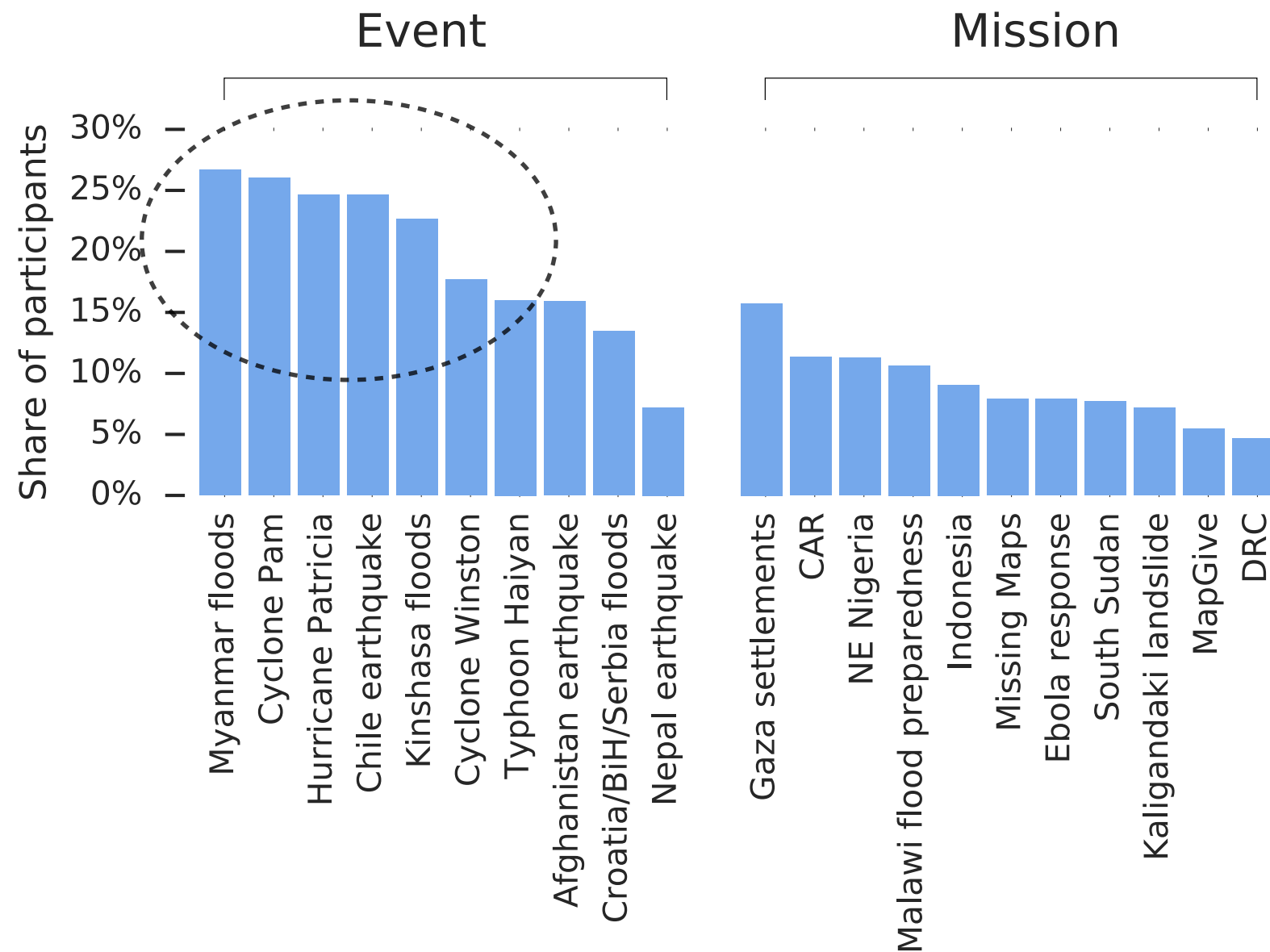
# Reactivation: event-centric campaigns can reactivate dormant contributors



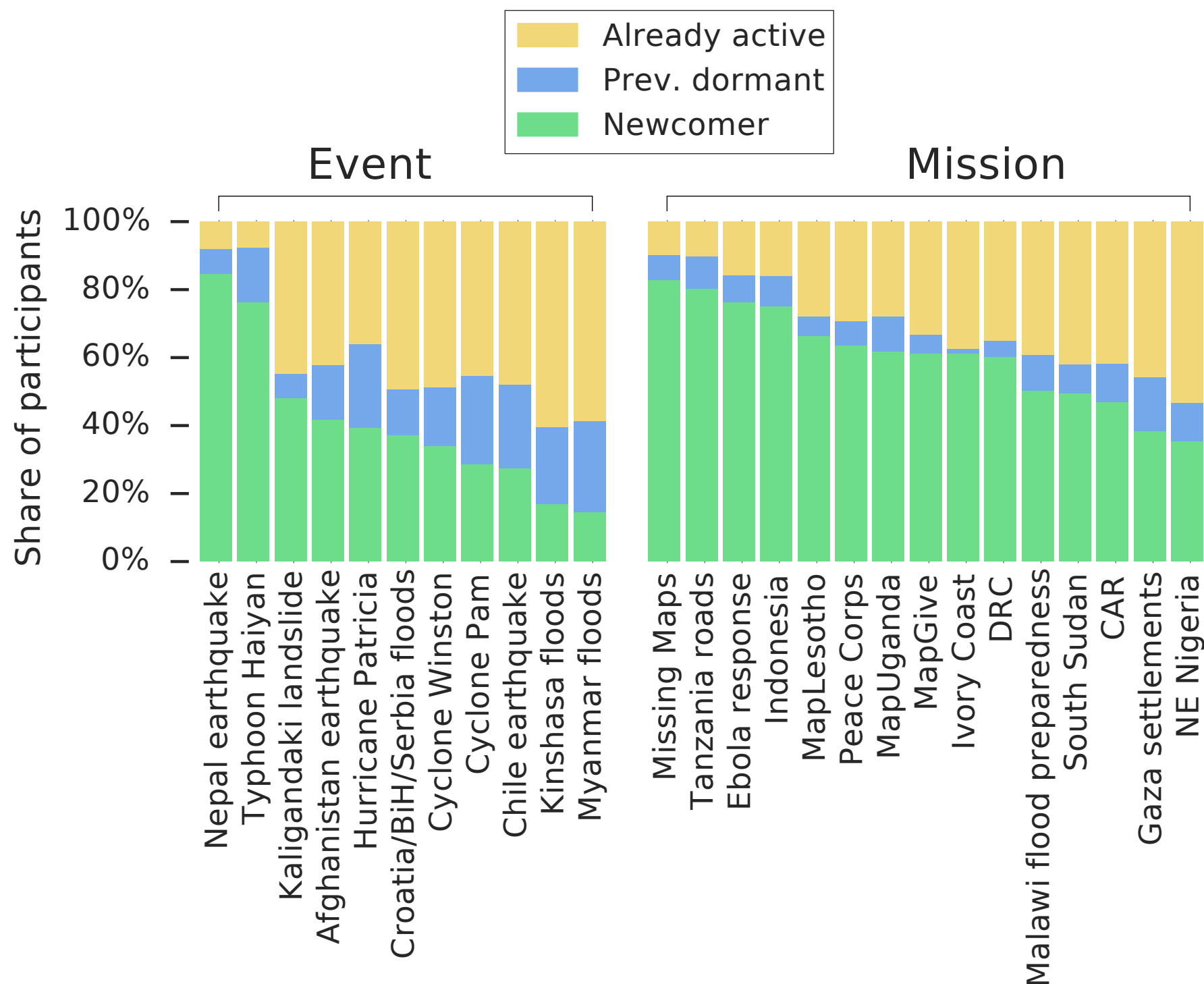


# Reactivation: event-centric campaigns can reactivate dormant contributors

Share of previously dormant (% contributors)



# Overall distribution of participants

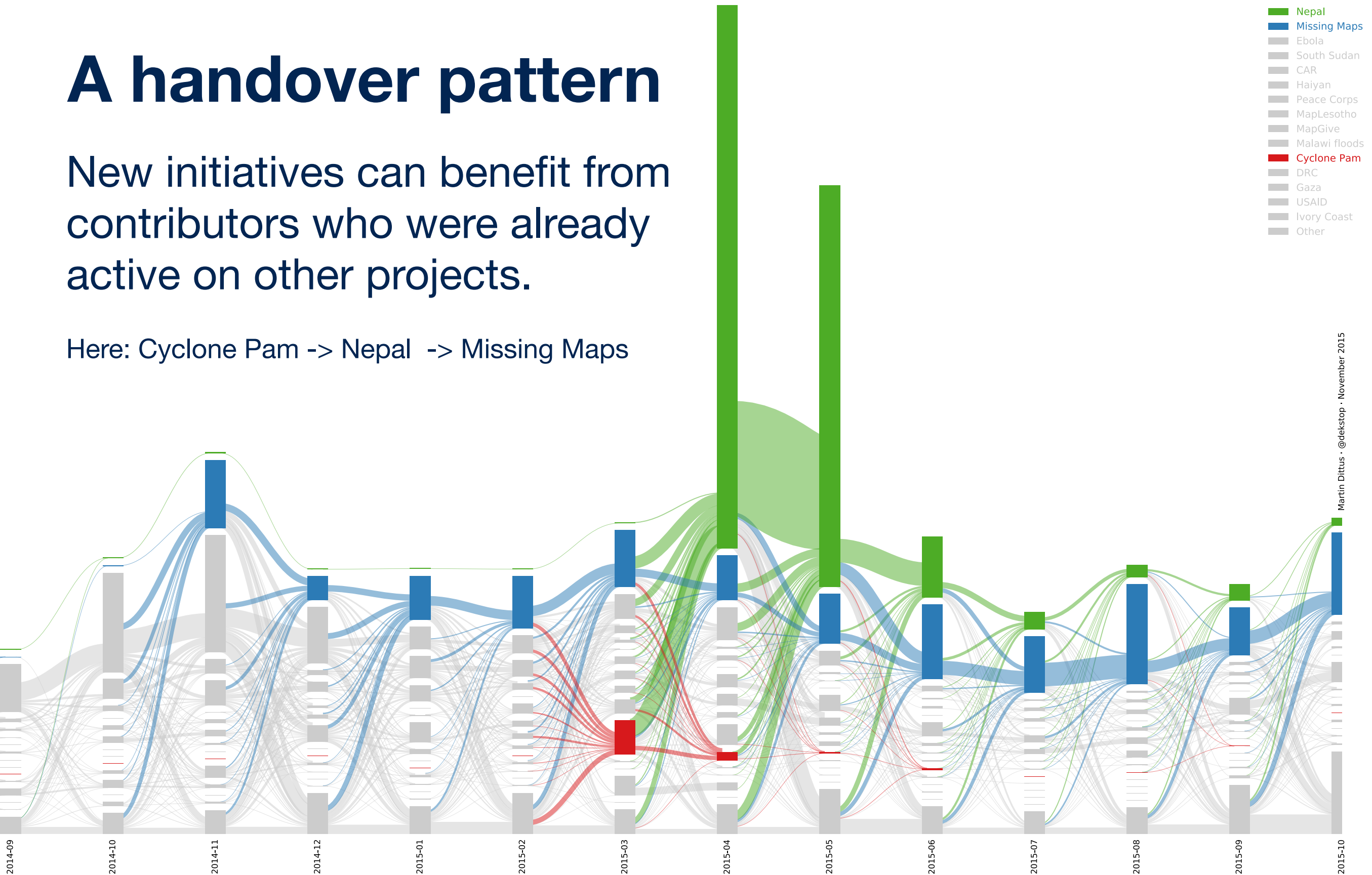




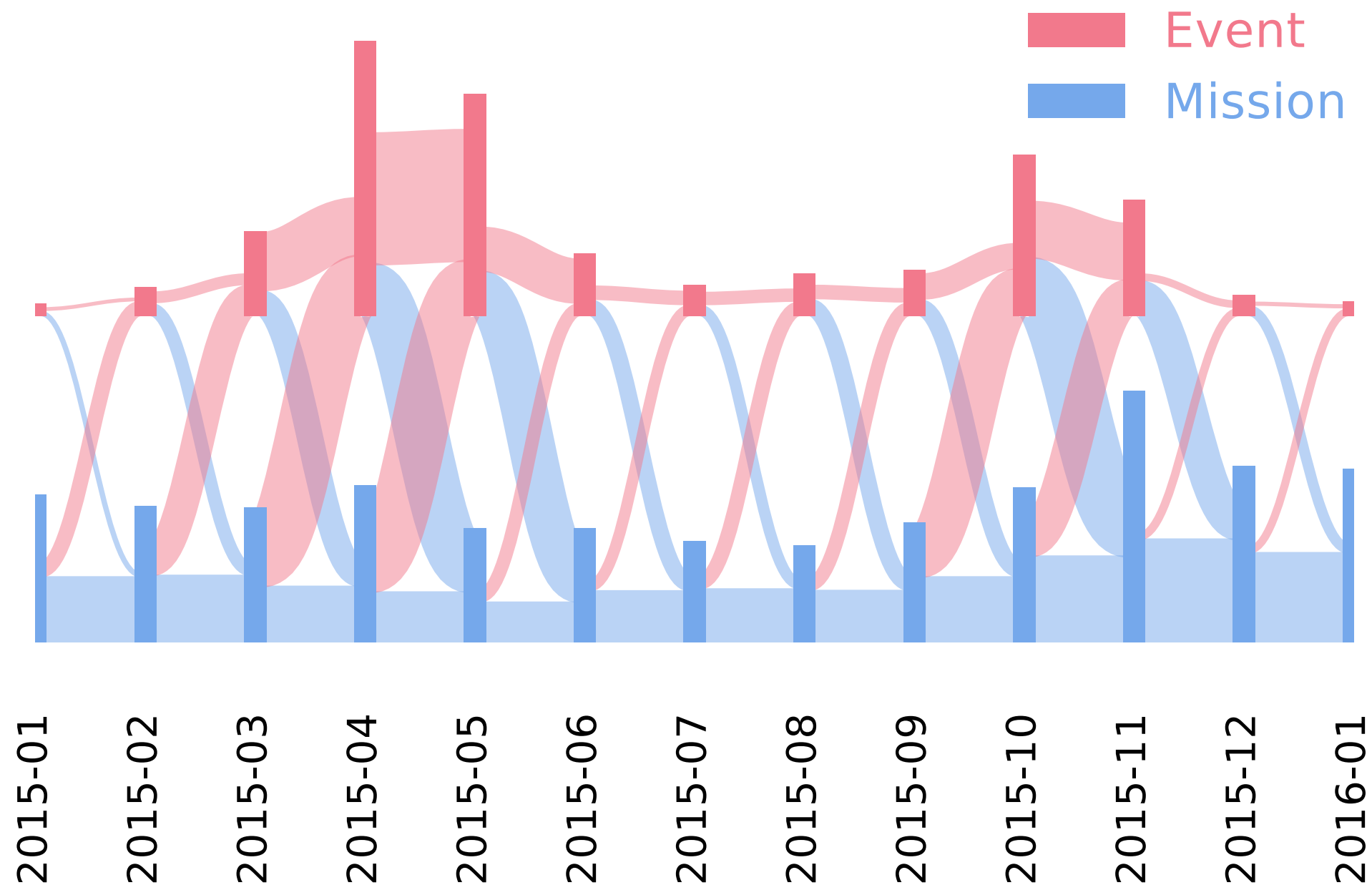
# A handover pattern

New initiatives can benefit from contributors who were already active on other projects.

Here: Cyclone Pam -> Nepal -> Missing Maps



# Redirection: event campaigns can pull contributors from other projects





Less an “on-demand task force”...

... instead a steady stream of activity that is redirected.

**Few reactivations:** dormant capacity is not necessarily released!

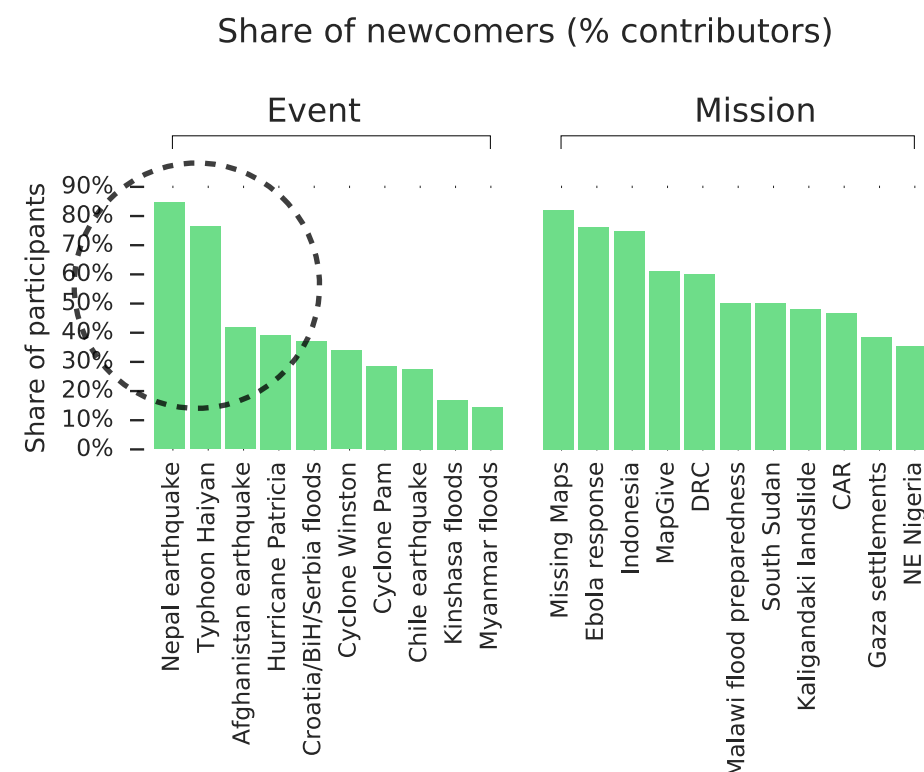
These observations may suggest **a lack of effective notification mechanisms.**

# Not all events are equal!

## Only two events drew significant crowds: Nepal earthquake & Typhoon Haiyan.

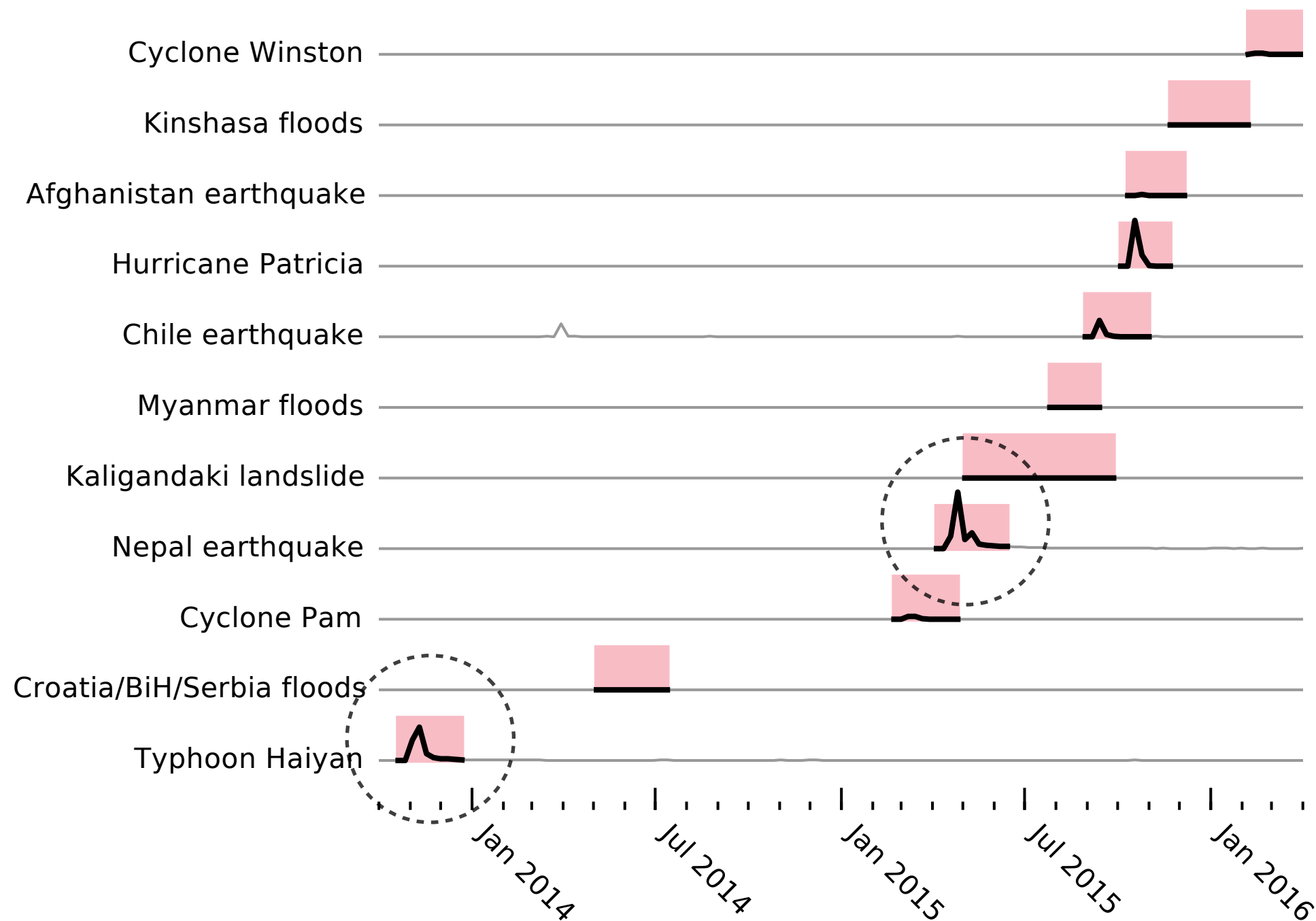
- Both had highest participant count and highest newcomer share.
- HOT project wiki suggests: both also received significant media coverage (40+ articles listed per campaign. Other campaigns listed few, if any.)

## Did media promotion affect participation?





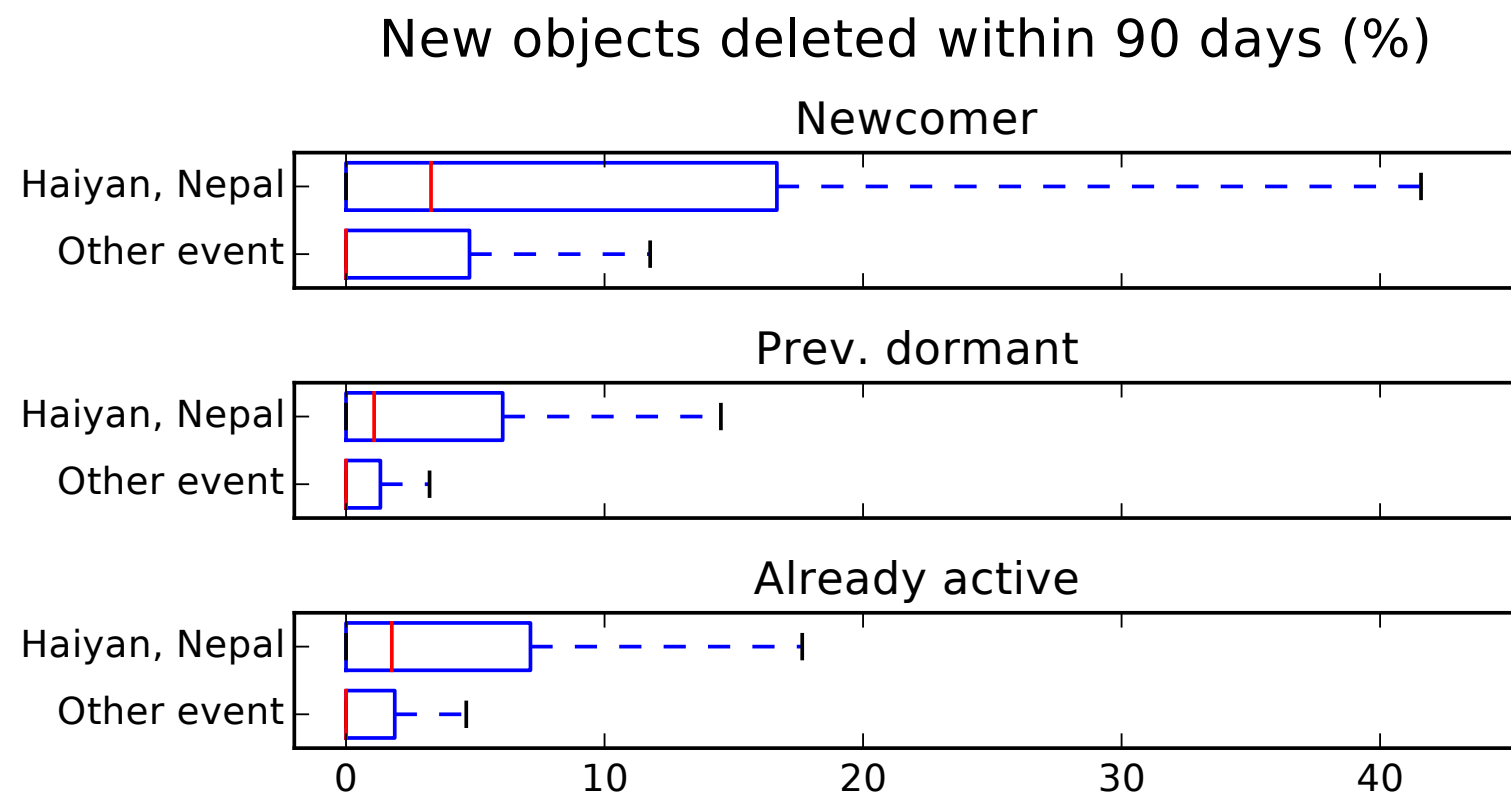
# Google Trends as a relative measure of public interest in event campaigns



# This may negatively affect outcomes!

When relying on newcomers for peak capacity...

- Nepal, Haiyan: **lowest newcomer retention**
- And: likely also **lower contribution quality**





# Lessons for organisers of crowd platforms with event-centric dynamics

Emergency response, breaking news, forums for public discourse, opinion-gathering platforms, ...

Consider **media effects** around public-interest topics! They may strongly **bias your responses**.

Develop means to release dormant capacity: **inform experts** when they are most needed.

# Research opportunities...

## How can we best **conceptualise the size and growth of such a community?**

- Not just limit to actives; also need to consider passive capacity, recruitment potential. **“Potential capacity”?**

## More rigorous understanding of **“media effects”**.

- Increased recruiting, reduced contribution quality/retention.  
**An inevitable result of broader targeting?**
- Can organisers **manage recruitment effects outside of the platform?**  
(By the time people arrive at the platform it's already too late.)

# Thank you.

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Research diary:

[openstreetmap.org/user/dekstop/diary](https://openstreetmap.org/user/dekstop/diary)