

EventPeriscope: a Pipeline to Analyze the Impact of Real-World Events on Twitter Discussions

Abstract

EventPeriscope is a pipeline designed to analyze and measure changes in the dynamics of Twitter discussions in response to real-world events. Such analysis provides valuable insight about the association between the dynamics of tweets and real-world events.

Introduction

► **Twitter is a valuable source to investigate whether a particular topic is drawing public's attention.**

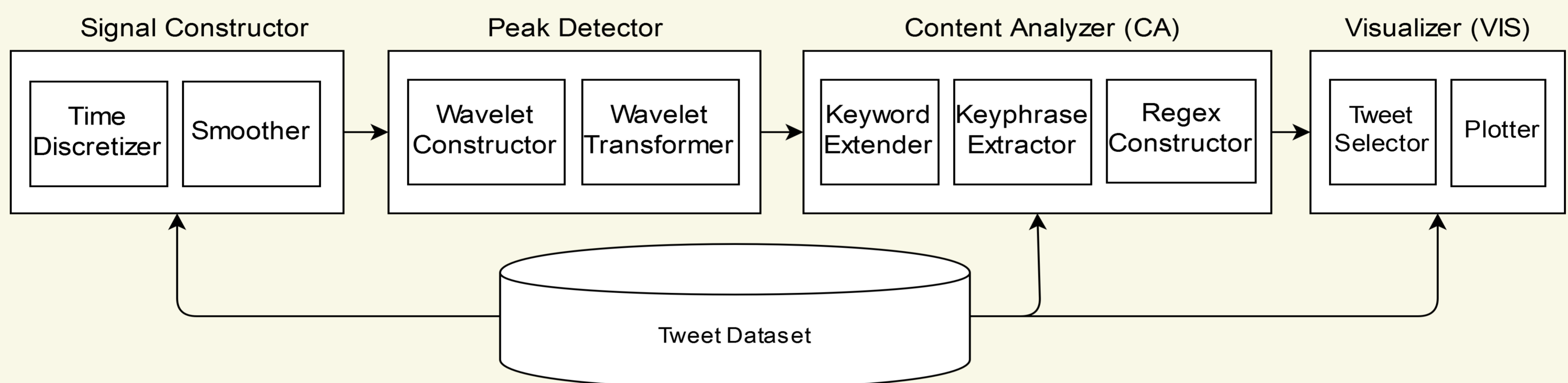
► **Question:**

- How much the public care about Zika outbreak?
- Are discussions about Zika influenced by real-world events such as Olympic Games?

► **Our Solution:**

- A pipeline, which utilizes signal processing, text mining, and NLP techniques, to quantify the effects of real-world events on Twitter discussions.

EventPeriscope Pipeline



Emperical Study: Zika Virus Outbreak

- Zika virus got epidemic in Brazil in early 2015
- Zika virus spread to most parts of south and north America in 2016.
- Investigate the influence of real-world events on Zika discussions on Twitter:
 - WHO announced a Public Health Emergency of International Concerns (PHEIC) on Feb 1, 2016.
 - Rio 2016 Olympic Games were held Aug 5-21, 2016.

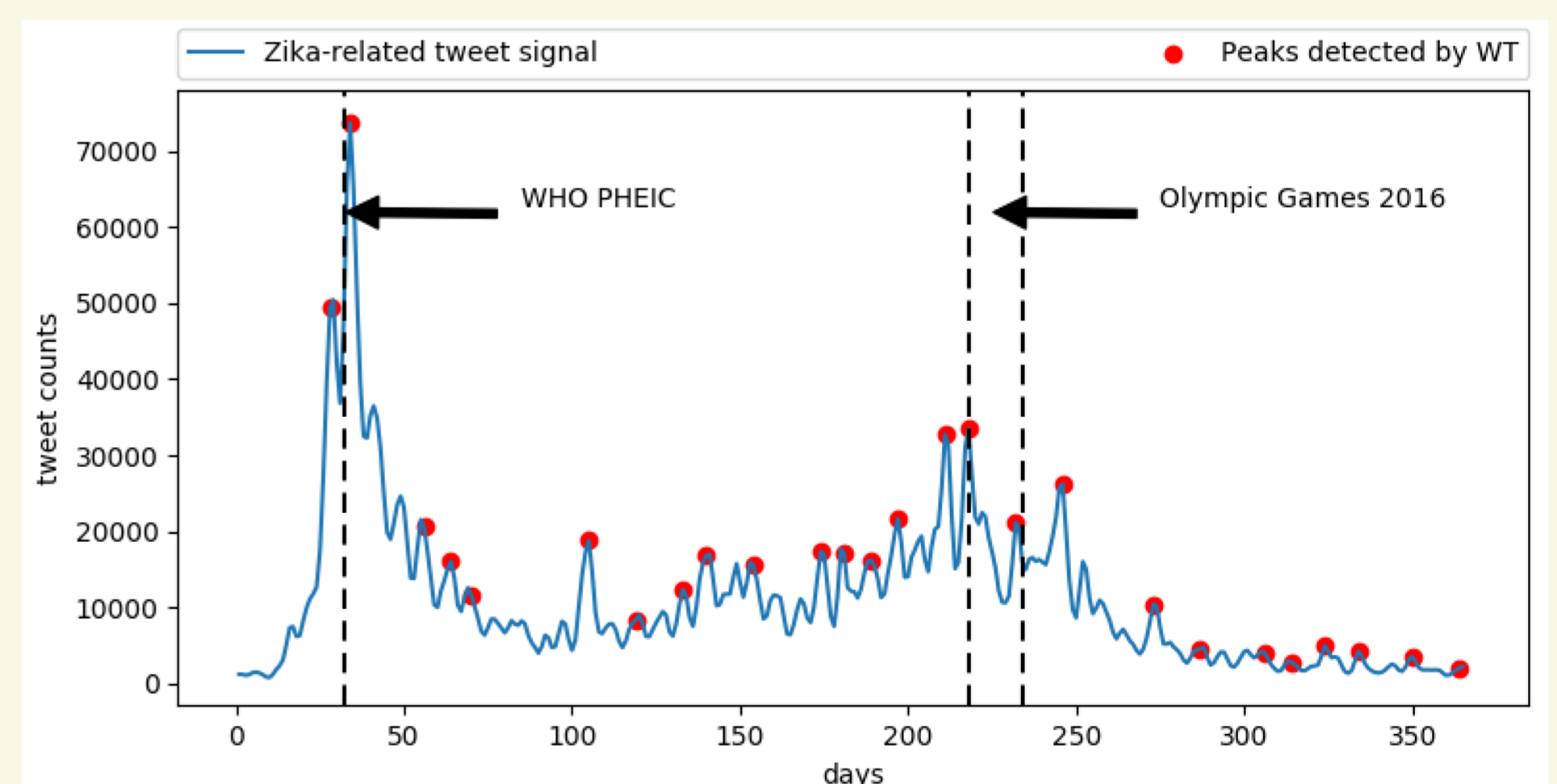


Figure 1: Peaks detected by EventPeriscope on constructed Zika signal.

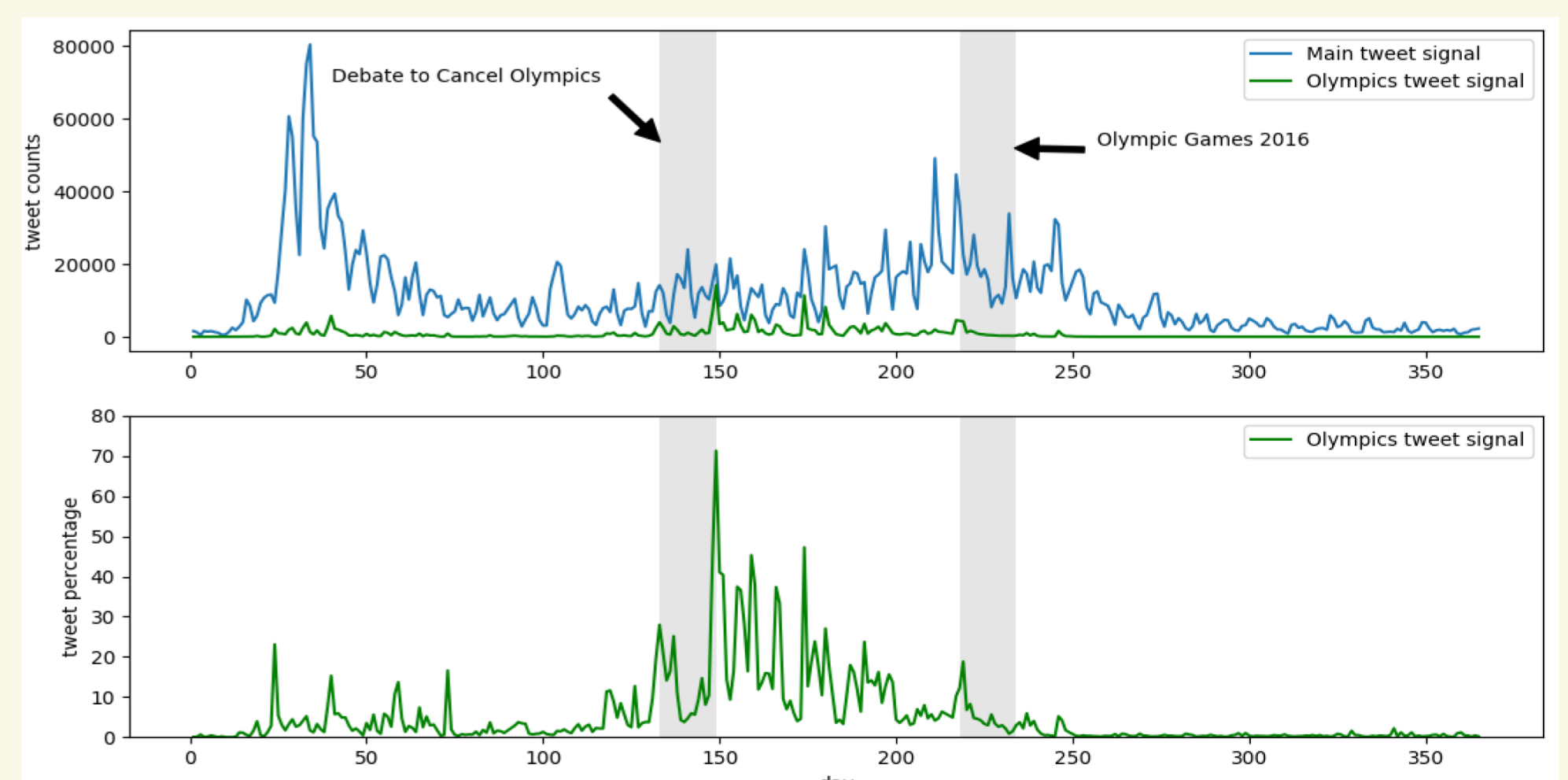
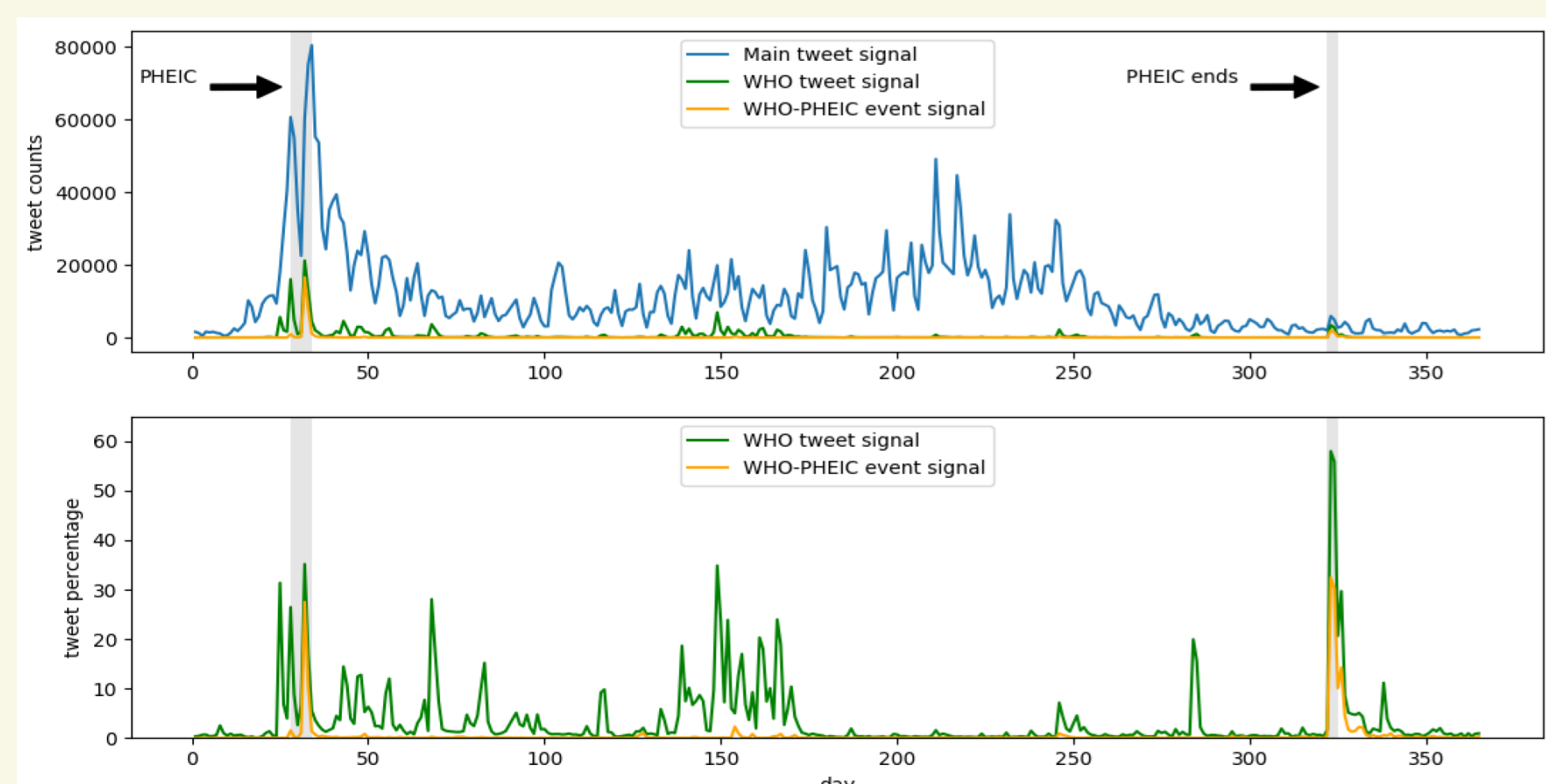


Figure 2: The impact of WHO PHEIC on the dynamics of Zika discussions. Figure 3: The Impact of Rio Olympics on the dynamics of Zika discussions.