What is the "Greta effect" in the U.S.?   
  
The takeaway: Thanks to Greta Thunberg, more than half of states cared more about climate change, even where she did not lead a strike in.   
  
When Greta Thunberg took the U.S. by storm in the fall of 2019, many, including myself, hoped she can bring real change to the climate change movement. Thunberg started her U.S. journey in New York City. She spent a few weeks there, delivering her famous U.N. speech and leading strikes. How can we evaluate her impact on raising awareness in New York as well as the rest of the U.S.? Almost a year has passed since her voyage, let's review the “Greta effect”.   
  
Historically, people in the U.S. inquired about climate change on Google more in the spring and the fall, with a notable low in the summer. Such pattern existed across all 50 states. One reason for this pattern is the school schedule, when students learn about climate change during the school year.

A picture containing clock

Description automatically generated

As a whole, the U.S. demonstrates no clear upward trend on climate change inquiries. The year 2019 was a positive outlier because the climate change movement escalated that year.   
  
In the U.S., the Google searches on "Greta Thunberg" reached their peaks in September 2019. That was a national phenomenon. After accounting for state-specific and seasonal patterns, we can quantify the true "Greta effect" in the U.S. In the Alabama and New York examples, more people looked up climate change for a good part of the 2019, even before Thunberg’s arrival. Because of the coronavirus outbreak, the attention to climate change had considerably reduced in 2020.

A screenshot of a cell phone

Description automatically generated

During Thunberg’s U.S. visit, the searches on climate change heightened in all 50 states, which was an evidence of the "Greta effect". This sweeping effect was remarkable. Hawaii, Rhode Island, and Texas recorded the highest increases nationwide. It is worth mentioning that both the Global Climate Strikes and the U.N. Climate Action Summit were held during her U.S. trip, so Thunberg was not the only factor that was associated with the increased searches on climate change.



Even after her U.S. trip, the "Greta effect" led to more inquiries about climate change, compared to the baseline before August 2019. A total of 27 states, including the most populous states like California, Florida, New York, and Texas, experienced increased searches on climate change after November 2019, when she sailed back to Europe. The increased searches were not correlated with the states where she led her signature Friday school strikes in (chronically, New York, D.C., Illinois, Iowa, South Dakota, Colorado, California, and North Carolina); some central and southern states like Georgia, Kansas, and Kentucky recorded the boost in Google searches.



Overall, we shall thank Greta Thunberg for motivating a lot more people in the U.S. to learn about climate change.   
  
Methodology:   
  
The raw data from Google Trends represent the normalized values of searches of “Greta Thunberg” and “climate change” each week at a location, from 2004 to present. I implemented two filters on the raw data: the normalization uses the 5-year mean of each state on the weekly data; the detrending uses the 5-year monthly mean of a state. In the U.S. map, I compared the Google searches for "climate change" of three periods: from July 2015 to July 2019 (baseline), from August to November 2019 (Thunberg’s U.S. trip), and from December 2019 to (part of) July 2020 (post-Thunberg’s U.S. trip). The contour represents mean differences of the baseline and the two respective periods.   
  
Caveats:

* Many factors influence Google searches on climate change, such as changes in agriculture patterns, severe weather events, etc.
* The Google search data include all types of searches, such as inquiries on discrediting the human-caused climate change.