

Individual Environmental Decision — The People’s Climate March

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1 Background: abstinence versus resistance

“I thought my job for a long time was just to write about these things. And I was like 27 when I wrote *The End of Nature*. I think my theory of change was, ‘I will write a book, people will read it, and then they will change.’ . . . But it turns out that’s really not how change happens, you know? So at a certain point I just figured out it would be necessary to go to work, trying to build a movement.” — Bill McKibben, 2012¹

One approach to addressing the problem of climate change is to make the greatest possible effort to reduce one’s personal emissions: people choose to become vegan, live off the grid by generating their own electricity, and so on. This approach has the virtue of defusing charges of hypocrisy. There are some critics who — whenever somebody advocates of reducing greenhouse gas (GHG) emissions — will point to any emissions that person is generating as evidence of hypocrisy and as a justification for the *status quo*.² Making substantial and visible efforts to reduce one’s personal GHG pollution has the potential to somewhat weaken this criticism.

At the same time, human emissions of GHGs include over thirty billion tonnes of carbon dioxide (CO₂) per year.³ Virtually the whole energy basis of human civilization is presently founded in the use of fossil fuels,

¹Maximov, *Bill McKibben talks about the fight against climate change*.

²The “Al Gore flies a lot” school of arguing against climate change action

³United States Environmental Protection Agency, *Global Greenhouse Gas Emissions Data*.

with a fairly small fraction coming from renewable and nuclear power sources. The global transportation infrastructure is almost completely reliant on fossil fuels and the agricultural system depends on them for the production of fertilizer and for the operation of machinery, transport, and refrigeration. This is not a situation that can be ameliorated significantly through voluntary individual actions. Rather, large-scale political change is required. Furthermore, if we are to avoid warming the Earth by more than 2°C (the threshold widely adopted by scientists and governments for when climate change becomes “dangerous”), massive changes in how the world produces and uses energy, conducts agriculture, and makes use of land need to happen in the timescale of the next 10–15 years.⁴ Achieving that requires global political action — not just incremental efforts at reducing one’s personal impact. The consequences of choices made during this timespan will extend far beyond the lifetimes of the people who make them:

“It will take centuries for global temperatures to reach equilibrium with changed concentrations of greenhouse gases in the atmosphere and even more time for biological systems to respond to the changes in climate.”⁵

This long-duration effect has substantial importance when evaluating the ethics associated with climate change.⁶

The seriousness and urgency of dealing with climate change are matters too large to be effectively dealt with in this document. Nevertheless, it is fair to say in summary that scientists now have a high degree of confidence that the accumulation of anthropogenic GHGs in the Earth’s atmosphere is demonstrably warming the Earth system — a conclusion supported by multiple mutually-reinforcing lines of evidence, ranging from paleoclimatic data from ice cores to planetary observations from space.⁷ Canada’s arctic provides an early glimpse into the implications of humanity’s post-industrial fossil fuel use.^{8,9,10} Keeping climate change below the 2°C ‘safe’ limit endorsed by many governments requires a major change of direction, in terms of global

⁴See: McKibben, *Global Warming’s Terrifying New Math*.

⁵Millennium Ecosystem Assessment Board, *Ecosystems and Human Well-Being*, p. 11.

⁶See: Shue, “Deadly Delays, Saving Opportunities”.

⁷For a much more detailed discussion with full citations, see the Executive Summary of: Ilnyckyj et al., *The Fossil Fuel Industry and the Case for Divestment*.

⁸See: Clark et al., “Polar bears and CITES: A rejoinder to Parsons and Cornick”.

⁹Peacock et al., “Conservation and management of Canada’s polar bears (*Ursus maritimus*) in a changing Arctic”.

¹⁰See also this animation showing the declining extent of multi-year ice in the arctic: http://stevengoddard.files.wordpress.com/2012/09/1988-1996_oldice21.gif

energy policy. Climate change has largely eclipsed population growth as the foremost source of concern about the sustainability of humanity's future prosperity and survival.¹¹ Conforming with this limit requires that the majority of the planet's remaining fossil fuels not be burned¹²¹³ — an outcome hugely at odds with current global energy trends. The climate change activist movement therefore faces a monumental challenge in bringing global energy policies in line with what maintaining climatic stability requires. Meeting that challenge requires doing more than reducing personal emissions. It requires large-scale political change, and for this change to take place with unprecedented speed.

2 The People's Climate March

On September 21st, 2014 the international environmental non-governmental organization (eNGO) 350.org organized the People's Climate March (PCM) in New York City, intended to raise the profile of climate change as a political issue prior to Climate Summit 2014 — a meeting of world leaders at the United Nations on September 23rd organized by U.N. Secretary General Ban Ki-Moon.¹⁴¹⁵ The PCM was an international event which ultimately involved 2,646 solidarity events in 162 countries.¹⁶

A number of different options for participation were possible:

1. Take part in the local Toronto event in Nathan Phillips Square
2. Attend the New York City march and purchase carbon offsets to compensate from emissions generated on the trip
3. Attend the New York City march and do not purchase offsets

Given the decision to attend the New York City event, a variety of transportation options were possible:

1. Fly round-trip from Toronto to New York
2. Travel alone or with multiple people in a private automobile
3. Travel by train

¹¹ See also: Meyer, "Changes in Population and Society".

¹² Or, possibly, for large-scale geoengineering to be undertaken

¹³ See also: McKibben, *Global Warming's Terrifying New Math*.

¹⁴ See: Wikipedia, *People's Climate March*.

¹⁵ Wikipedia, *Climate Summit*.

¹⁶ 350.org, *People's Climate March*.

4. Travel by bus

As an organizer involved with Toronto350.org — the Toronto chapter of 350.org — I was involved in planning our collective participation in the PCM.¹⁷ As such, there were overlapping questions of personal choice and involvement in a group decision. For the purposes of this assignment, I will focus on my individual decision to take part in the Toronto350.org expedition to New York, rather than the process of helping to decide what the group as a whole was to do.

2.1 Local participation versus travel

Undoubtedly, there would be fewer emissions associated with walking from my home at Massey College to Nathan Phillips Square than would be associated with round-trip travel to New York. At the same time, there were arguments in favour of participating in the New York event. Canada and the United States have energy systems that are linked in many ways. The U.S. is the major importer of Canadian hydrocarbon exports, including those from the oil sands (Canada's fastest growing source of GHG emissions). Canada also exports electrical power to the U.S., particularly from dams in Quebec to states in the American Northeast. In addition, there are political considerations. The current elected government in Canada is highly supportive of continued growth in Canadian hydrocarbon production, and has yet to deploy meaningful plans capable of achieving GHG emission reductions to which the government is nominally committed. Similarly, the federal government of the U.S. has overseen a massive expansion in oil and gas production associated with the widespread use of hydraulic fracturing, and the limited participation of the U.S. in international efforts to control climate change has been widely cited as one of the major impediments to effective global action at the necessary scale. There is also an assumption in much of the media that — given Canada's status as a major hydrocarbon producer — Canadians are generally supportive of the fossil-fuel driven *status quo*. By choosing to attend the New York event, Canadians could improve the odds of widespread media coverage in both countries, somewhat increase the level of political pressure on elected leaders to take action on climate change, and make it more visible that at least some Canadians support strong climate action. A large Canadian continent

¹⁷See: Toronto350.org, *Join our buses to go to NYC for the Largest Climate March in History*.

could also contribute to a sense of international solidarity at the New York event, which might be particularly effective at encouraging a more productive outcome from the meeting of U.N. leaders. Finally, Canadian participation in the New York event could help foster personal connections and collaborative relationships between Canadian climate organizers and their counterparts from elsewhere, building capacity that could be used for future events and campaigns.¹⁸¹⁹

The possibility of providing useful photography was a further argument in favour of my participating in the New York march. I have photographed a series of climate change related events:

- Fill the Hill rally — Ottawa — 2009²⁰
- Keystone XL protest — Washington, D.C. — 2011²¹
- Moving Planet — Toronto — 2011²²
- Enbridge Line 9 protest — Toronto — 2013²³
- Forward on Climate rally — Washington, D.C. — 2013²⁴

In each case, I made my photos available for free non-commercial use via a Creative Commons license.²⁵ As a result, photos of mine from the event were widely used on social media. See: “Tar Sands Action”²⁶, “Nebraska Rancher Photo by Milan Ilnyckyj”²⁷, “What The Heck is Activism Anyway?”²⁸, “Visually arresting: Live from the tar-sands protests [SLIDESHOW]”²⁹, “Case Study: Tar sands action”³⁰, “Canadian Embassy DC Protest:

¹⁸Either from a critical or supportive perspective, this line of reasoning might be considered “appropriate decision making” in the jargon of: Nitta, *Decision making*.

¹⁹The event also constituted “A Chance to Learn” within the typology of: Dietz, “What is a good decision? Criteria for environmental decision making”, p. 36.

²⁰See: <https://secure.flickr.com/photos/sindark/sets/72157622530933539/>

²¹See: <https://secure.flickr.com/photos/sindark/sets/72157627496416444/>

²²See: <https://secure.flickr.com/photos/sindark/sets/72157627744743948/>

²³See: <https://secure.flickr.com/photos/sindark/sets/72157632615925623/>

²⁴See: <https://secure.flickr.com/photos/sindark/sets/72157632797381801/>

²⁵See: <https://www.sindark.com/projects/copyright-info/>

²⁶<https://hannamade.wordpress.com/2011/08/27/tar-sands-action/>

²⁷http://www.yesmagazine.org/topics/planet/copy2_of_copy_of_Untitled5.jpg/view

²⁸<http://www.alternativesjournal.ca/community/blogs/aj-special-delivery/>

what-heck-activism-anyway

²⁹<http://grist.org/slideshow/2011-08-25-visually-arresting-live-from-the-tar-sands-protests/>

³⁰<http://beautifultrouble.org/case/tar-sands-action/>

Stop lobbying for tar sands”³¹, “Tar Sands White House: Portraits of Arrests Final Day”³², “Problems With the Keystone XL Pipeline”³³, “Actors Margot Kidder and Tantoo Cardinal among at 60 Arrested White House Pipeline Protest”³⁴, “Native Americans and First Nations To Be Arrested at White House Protesting TransCanada Keystone XL Pipeline”³⁵, “The Tar Sands Sit-In: Something is Happening!”³⁶, “Putting his body on the pipeline”³⁷, “Finding Freedom in Prison”³⁸, “Action Opportunity: Keystone Tar Sands Pipeline – Ottawa, September 26, 2011”³⁹, “Bill McKibben on Protesting Pipeline Expansion”⁴⁰, “Keystone XL clears major hurdle, but opponents see silver lining”⁴¹, “Press Release: Actors Margot Kidder and Tantoo Cardinal among 60 Arrested at White House Pipeline Protest”⁴², “Courage, Credibility and Conviction: James Hansen’s Remarkable Career at NASA”⁴³, “Daniel Choi”⁴⁴, “Tar Sands Protest May Greet Obama’s Campaign Manager Jim Messina at Harvard”⁴⁵, “Tar sands pipeline ‘another dirty needle feeding America’s fossil fuel addiction’”⁴⁶, “A united call: Largest environmental organizations in the USA stand against the Keystone XL pipeline”⁴⁷, “Keystone XL Protesters descend upon Washington DC . . . too bad President Obama was out golfing in Florida”⁴⁸, and “How Bill McKibben changed environmental politics and took on the oil patch”⁴⁹. From the perspective of encouraging more action on climate change, it seemed reasonable to hope that my ability to take photos of

³¹<http://bsnorrell.blogspot.ca/2011/08/canadian-embassy-dc-protest-stop.html>

³²http://bsnorrell.blogspot.ca/2011/09/tar-sands-white-house-portraits-of_04.html

³³<http://www.motherearthnews.com/nature-and-environment/problems-keystone-xl-pipeline-zmvz14fmzsto.aspx>

³⁴<http://www.commondreams.org/newswire/2011/08/23/actors-margot-kidder-and-tantoo-cardinal-among-60-a>

³⁵<http://narcosphere.narconews.com/notebook/brenda-norrell/2011/09/native-americans-and-first-nations-be-arrested-white-house-friday>

³⁶<http://rabbibrant.com/2011/08/30/the-tar-sands-sit-in-something-is-happening/>

³⁷<http://www.abc.net.au/environment/articles/2012/01/25/3415606.htm>

³⁸<http://onedressprotest.com/2011/08/finding-freedom-in-prison/>

³⁹<http://goo.gl/pXoE1p>

⁴⁰<http://www.loe.org/shows/segments.html?programID=11-P13-00036&segmentID=5>

⁴¹<http://www.eenews.net/stories/1059993889>

⁴²<http://tarsandsaction.org/2011/08/23/aug-23-press-release-actors-margot-kidder-and-tantoo-cardinal->

⁴³<http://blog.nwf.org/2013/04/courage-credibility-and-conviction-james-hansens-remarkable-career-at-a>

⁴⁴<http://www.oneequalworld.com/profiles/daniel-choi/>

⁴⁵<http://my.firedoglake.com/scarecrow/2011/09/12/tar-sands-protest-may-greet-obamas-campaign-manager->

⁴⁶<http://boilingpot.blogspot.ca/2011/10/tar-sands-pipeline-dirty-needle-feeding.html>

⁴⁷<http://tcktcktck.org/2011/08/united-call-largest-environmental-organizations-usa-stand-keystone-xl-9935>

⁴⁸<http://3rdeyeimagery.net/2013/02/17/keystone-xl-protesters-descend-upon-washington-dc-too-bad-pres>

⁴⁹<http://policyoptions.irpp.org/issues/arctic-visions/nisbet/>

the PCM would help its message be more widely seen.

Collectively, I found these benefits sufficiently convincing to justify the emissions associated with travel to New York.

2.2 Transport options

Estimating the emissions associated with various transportation options is surprisingly challenging, even when the task is simplified to considering direct emissions from vehicles while ignoring the wider infrastructure implications of each. Online GHG calculators — many of them made available by companies which sell offsets — provide quite different estimates about the quantity of GHG emissions associated with traveling a set distance by various possible means. This is an issue which I have personally encountered before — notably, when I was considering whether it would be justified to visit friends and family in Vancouver when I was living in Ottawa. Frustrated by the inconsistent figures provided by online calculators (particularly for air travel), I collaborated with an engineer friend of mine to calculate emissions from air travel using fuel burn data from commonly used aircraft and the chemistry of burning kerosene jet fuel:

YYZ-YVR round trip	Fuel Burn (x 1000 kg)	Molar Consumption Kerosene	Molar Consumption Carbon	Molar Output CO ₂	Mass output CO ₂ (x 1000kg)
Westbound					
767-300	20.00	118,826.94	1,425,923.29	1,425,923.29	62.75
A320	11.70	69,513.76	834,165.12	834,165.12	36.71
Eastbound					
767-300	17.60	104,567.71	1,254,812.49	1,254,812.49	55.22
A320	10.40	61,790.01	741,480.11	741,480.11	32.63
Atomic Weight (g/mol)					
Carbon	12.01	CO₂ per person per trip (kg)			
Hydrogen	1.01				
Oxygen	16.00				
Molecular Weight C ₁₂ H ₂₄	168.31				
Molecular Weight CO ₂	44.01				
		Seats:	Westbound	Eastbound	
		767-300 @ 100%: 211 seats	297.42	261.73	
		767-300 @ 80%: 169 seats	371.33	326.77	
		767-300 @ 50%: 105 seats	597.67	525.95	
		A320@ 100%: 140 seats	262.23	233.09	
		A320@ 80%: 112 seats	327.78	291.36	
		A320@ 50%: 70 seats	524.45	466.18	

Figure 1: Estimated carbon dioxide (CO₂) emissions resulting from flying from Ottawa to Vancouver

Further complicating these calculations is the way in which CO₂ emissions from aircraft are considered to

have a greater impact than the same quantity of emissions from a ground-based source. An Intergovernmental Panel on Climate Change (IPCC) Special Report on Aviation and the Global Atmosphere estimated that: “the RFI [radiative forcing impact] from air travel in 1990 to be between 2 and 4, averaging 2.7 times the carbon impact alone”.⁵⁰⁵¹ For the sake of comparison, I used data from the Travel Calculator provided by the offset company NativeEnergy to estimate GHG emissions from bus and train travel.⁵² Using the calculated CO₂ figures and the IPCC’s multiplier, I calculated that for each kilometer traveled, choosing rail instead of air travel would produce about about 25% fewer emissions while choosing bus travel would produce about 70% fewer emissions. The Vancouver calculations took into account prevailing wind patterns in North America, somewhat reducing their applicability for a Toronto to New York journey. Nevertheless, I took the general magnitude of emissions associated with the different options to be sufficiently different to make me confident that of these three options, bus travel is likely to have the smallest climatic impact per passenger-km of travel.⁵³

At least theoretically, there were options for making the journey to New York that would not have required any direct fossil fuel use, such as bicycling or walking. However, the PCM was happening on Sunday, September 21st, right between two weeks of term time at the University of Toronto. Coursework and teaching obligations made any such low-speed travel infeasible for me. Practically speaking, any tolerably quick voyage from Toronto to New York necessitates the use of some sort of fossil-fuel-powered transportation, given the absence of electrically-powered intercity rail in North America.

Of course, the environmental impacts associated with traveling to New York cannot be restricted to GHG emissions from bus travel alone. The bus also produced toxic air pollution in the form of nitrous and sulphur oxides, particulate matter, and other toxins (some of which are also GHGs). Manufacturing the bus and the roads on which it drove had numerous environmental effects from the mining of ore and its refinement into usable metals to habitat disruption from construction. Such effects are difficult to approximate, and impossible

⁵⁰Intergovernmental Panel on Climate Change, *IPCC Special Report: Aviation and the Global Atmosphere*.

⁵¹See also: Monbiot, *Heat: How to Stop the Planet From Burning*, p. 173.

⁵²NativeEnergy, *Travel Calculator*.

⁵³Working with European data, David Mackay also concluded that the emissions per passenger kilometer for a full coach were better than those associated with a full diesel high-speed train (which do not exist in North America), as well as jet and turboprop driven aircraft. See: MacKay, *Sustainable Energy — Without the Hot Air*.

to directly compare with the climatic costs and benefits of the voyage. From a certain perspective, it may even be relevant to consider emissions from idling motor vehicles that were delayed or sent on longer journeys because of the disruption caused by the march in Manhattan. Nonetheless, given that climate change is among the most pressing environmental problems on the Earth today and the plausible case that actions like the PCM are an important part of addressing it, it seemed reasonable to consider these additional environmental costs to be acceptable.

2.3 1,580 km by bus

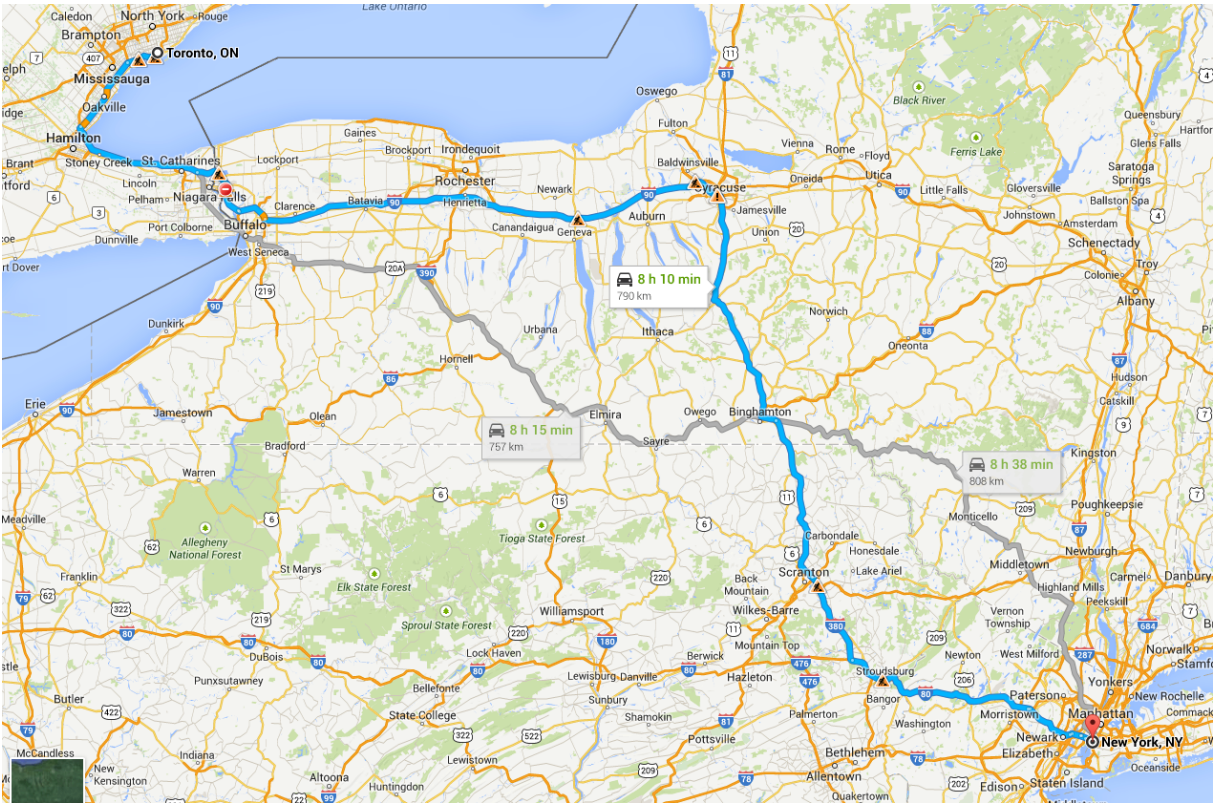


Figure 2: Overland route from Toronto to New York — estimated distance 790 km each way

Toronto350.org’s decision to hire Greyhound-style coaches to transport 280 people to New York City was not primarily motivated by the relative GHG-intensity of this form of transport, but more by financial and logistical considerations. Nevertheless, the choice of bus transport accorded with my best estimates about the

least carbon-intensive reasonably rapid transport option. Also, traveling with a large number of other people from Toronto who are concerned about climate change enhanced some of the benefits of making the journey to New York compared with attending the local event, primarily in terms of relationship-building as an aid to further climate action.

2.4 The question of offsets

The basic idea of carbon offsets is that there are many places around the world where, for a marginal additional cost, it is possible to reduce GHG emissions compared to some baseline scenario. Offsets take many forms, including those based on preventing land use changes that would otherwise occur, those based on enhancing carbon sinks through mechanisms like planting trees, those based on encouraging the deployment of renewable energy, and those based on the capture of GHGs like methane that would otherwise be vented into the atmosphere. Many certification programs and processes exist for offsets and there has been extensive debate within governments, academia, and the environmental movement about the credibility and relative desirability of different types. There are also normative discussions about the implications of offsets, with enthusiasts interpreting them as a relatively unproblematic way of counteracting either essentially unavoidable GHG emissions (such as those associated with eating the most climate-friendly possible diet) or purely discretionary emissions (such as choosing to fly to a tropical location for a holiday).

There are at least two reasons to question the usefulness of carbon offsets. Firstly, there is the question of whether the emission reductions they claim to represent are justified. In the case of tree-planting offsets, it is reasonable to ask whether the trees planted will exist for long enough to play a significant role in counteracting GHG emissions which will endure in the atmosphere for thousands of years.⁵⁴ In the case of many renewable energy offsets, it is reasonable to ask whether the renewable capacity in question would have been built even in the absence of the offset (part of the broader problem of establishing “additionality” for offsets). For instance, they may be sold by hydroelectric dams built decades before climate change became a major topic of public concern. Also, there may be cases where the existence of offsets perversely encourages the production of

⁵⁴Inman, “Carbon is forever”.

GHGs that would not otherwise be made. A notable example is the gas HFC-23 which has a powerful climatic effect, making it highly profitable for companies to produce and then destroy in order to sell offsets.⁵⁵ Secondly, there is the rationale for buying offsets for engaging in climate activism. Since the entire purpose of this voyage is to take part in a climate change rally, the comparison of costs and effects in climatic terms is the basis of the ethical calculation from the beginning. If attending the march wasn't going to be worth the GHGs (and other pollution and environmental effects) generated, it wouldn't be worthwhile to go with or without offsets. When motivated by the intent to engage in political activism at some environmental cost, the consideration made must be whether the environmental benefits likely to be associated with participation exceed the environmental costs.

On the basis of these two lines of argument, I decided that purchasing carbon offsets for the emissions associated with travel to the PCM would be superfluous.

⁵⁵The Economist, *The smoking greenhouse gun*.

3 Conclusions



Figure 3: 280 participants who traveled to the People's Climate March in New York with Toronto350.org

Over 400,000 people ended up attending the PCM in New York, making it the largest climate change march in history.⁵⁶ ⁵⁷ The Toronto event was also well-attended, with 3,000 people showing up at Nathan Phillips Square.⁵⁸ I made 484 photos of the expedition and march available for use via a Creative Commons license.⁵⁹

⁵⁶Alter, *Hundreds of Thousands Converge on New York to Demand Climate-Change Action*.

⁵⁷The diversity of the march is illustrated in the photos I took on behalf of Toronto350.org, accessible at: <https://secure.flickr.com/photos/sindark/sets/72157647868371652/>

⁵⁸Lou, *3,000 join climate march at Nathan Phillips Square*.

⁵⁹See: <https://secure.flickr.com/photos/sindark/sets/72157647868371652/>

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