SUNSHINE COAST CLEAN AIR SOCIETY

2° INSTITUTE

# President's Message

**2016. This year was different.** Our organization, the Sunshine Coast Clean Air Society, decided that in addition to our long-standing focus on air quality, we would include Climate Change as part of our mandate. I've been on the board of directors for the past 12 years, and during that time I have seen our society achieve many of the goals that we set out to accomplish. These include backyard burn and cosmetic pesticide ban bylaws as well as the development of a strong educational tool on air quality using social media. However, we still have work to do to reach our clean air mandate, so I initially resisted adding such a massive challenge as Climate Change to our agenda. My thoughts were that Climate Change could be better addressed by some other organization, and that it would be best for us to stay

focused on improving local air quality. I feel differently now.

I feel that the human race is on board the Titanic, and there's an iceberg dead ahead. That iceberg is rapidly accelerating climate change. For us to concern ourselves merely with air quality would be like the Titanic crew focusing all their energy on having the ship's deck looking nice and clean while ignoring that approaching iceberg. Sure, it's important to have the ship looking its best, but it matters not a whit if we do nothing about our crash course with the iceberg.

The future we need to strive for if we are to avoid that iceberg is clearly a low carbon one. We need to quit fossil fuels and get our energy from renewables. This clean energy needs to power our transportation and heat our homes. We need to power our bodies with a lower carbon food source like plants, eat more locally and what's in season. We need to change our shopping behaviour by buying less, buying quality and sharing more. It's a tough challenge, no doubt, but we have role models all around us that are doing just that, so it is clearly possible.

The great thing about the low carbon future we are working towards is that air quality will automatically improve as we move closer to this goal.

The Clean Air Society's first climate change campaign — under our brand the 2° Institute — focuses on the largest component of an individual's carbon footprint: transportation. To quit fossil fuels, we need to stop using machines that are powered by them. Indeed, continuing to drive gas and diesel powered vehicles will soon be incompatible with our survival as a species. Fortunately, clean alternatives exist! We launched the ElectricPledge.org as a tool to inform and inspire people. We are asking people to pledge that the next (or first) vehicle they buy will be an electric one. BC's grid is almost exclusively powered by zero carbon hydro power, so when BC drivers switch to electric cars it will have one of the largest net climate benefits of any place on earth. BC Hydro has enough extra capacity to charge 2.7 million vehicles at night when power consumption is low. No extra power stations are needed.

The Clean Air Society's goal is to introduce campaigns in the future that tackle other components of a person's carbon footprint, thus providing a clear blueprint for those who wish to become part of the solution, rather than contributing to the problem.

- Ryan Logtenberg, President

**Who is the 2° Institute?**

The Sunshine Coast Clean Air Society is now also known as the 2 Degrees Institute. Our board of directors felt it was best to handle our climate change campaigns under a name that better represented this mission. Unlike local air pollution sources, the impacts of greenhouse gas emissions emitted locally are not directly experienced locally. Therefore the 2 Degrees Institute website focuses on North American and even worldwide campaigns.

**Why 2° Celsius?**

The historic Paris Climate Conference of December 2015 resulted in a collective resolve among 197 countries to limit the planet's average global temperature increase to no more than 2°C above pre-industrial levels to avoid a critical threshold above which the planet could experience irreversible catastrophic impacts. To achieve this, governments and individual citizens in these countries will each need to do their part to reduce their own carbon footprint in order to keep the temperature increase below 2°C. Our focus will be on encouraging each individual to look at their own contribution to climate change and then provide guidance on how to lower their own carbon footprint so that they are no longer part of the problem.

**The 2° Institute Mission Statement.**

The 2° Institute official mission is to develop and support strategies that empower people to make the behavioural and lifestyle changes needed to keep our planet from warming by 2 degrees Celsius. Congratulations! You are now

part of an organization that is working to make substantial contributions to the fight to stop global warming, but we need your help. <<First Name>>, we need donations, we need volunteers and we need enthusiasm! Yes, Improving local air quality is still a priority. The Sunshine Coast Clean Air Society is still forging ahead on projects aimed at improving the Sunshine Coast's air quality.


## UBC Community Partnership Project.

A 4th year UBC Environmental Science Community Project is underway on the Sunshine Coast in collaboration with our local School District 46 and UBC. The primary goal of the project is to examine the feasibility of converting the District's school bus diesel powered vehicles to electric buses.Three students have begun work to determine the costs and benefits of such a conversion. They will also undertake emission testing of the current diesel buses while the buses are picking up and dropping off school children. GHG emissions savings will be modelled based on bus fuel consumption.

## The Electric Car Pledge.

The world's climate scientists are telling us that the planet doesn't have the luxury to wait for governments to "maybe" or "someday" mandate the lifestyle changes scientists believe need to happen. The time is now for people to wake up from their daily routines and take personal action by making the necessary changes in their lifestyle and purchases that experts are saying must occur. A transition away from a fossil fuel driven economy is one of those steps and thankfully individuals now have a

The three students are Sylvester Fu, Steuart Tannason and Wenhao Chen. Louis Legal is our community liaison.

## Possible Legal Fight with BC Government over open burns.

The provincial Open Burn Smoke Control Regulation (OBSCR) mandates that open burns cannot occur with 500 meters of schools and medical facilities while they are in session. We have reported many violations of this buffer zone over the years, however the conservation office believes that non-industrial burns (backyard) are exempt from this regulation and as a result these open burns are allowed to continue - even though they may on occasion create Beijing like air quality for our children. Under the advice of West Coast Environmental Law, we have contacted a Sunshine Coast lawyer

choice to drastically reduce their own carbon footprint through a single decision of making the next car they buy an electric one. This is the first campaign under the 2° Institute. You may have seen some of our electric car information ads we have published on Facebook already. <<First Name>>, we are always looking for help and donations to get the word out. Visit ElectricPledge.org.


## The Disinformation Task Force.

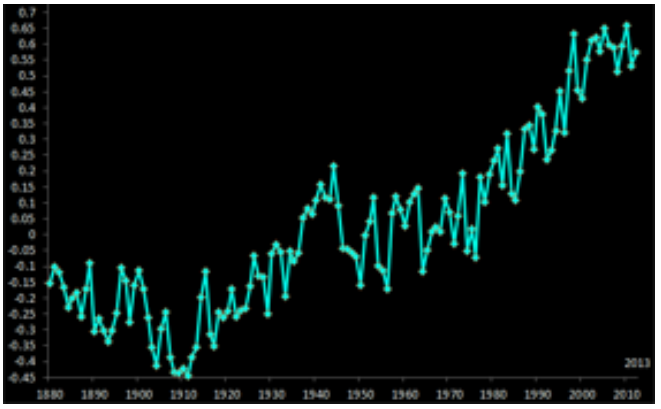
We are in need of enthusiastic volunteers to be part of our Disinformation Task Force: volunteers charged to politely respond with factual references to social media and other article

who is reviewing our argument currently for free. We should have an updated position for you at the AGM in January. <<First Name>>, we could use your help in this campaign!


## Real-time air quality monitoring at Pender Harbour Elementary.

The SCCAS has always been somewhat frustrated with the lack of air quality monitoring on the coast. As a result of this frustration in 2015 we applied for a grant from the SCRD to set up a rudimentary monitoring network. When we were offered a good price on Laser Egg monitors, we purchased six monitors with about half of the grant funds. We are still hoping to be able to launch the pilot program in early 2017. We plan to install air quality monitors both inside and outside the classroom at Pender Harbour

comment threads that inaccurately dismiss the benefits of electric cars and climate change in general. <<First Name>>, If you want to be directly involved in having an impact on climate change, (besides from what you can do personally to reduce your own carbon footprint), this is a powerful use of your time!




## Climate Data for all.

The first phase of our climate graphs is complete and we are currently preparing a press release to announce them. Check them out here: climatelevels. These interactive graphs feature atmospheric greenhouse gas levels that combine measurements from as far back as 800,000 years up to the present day. Website owners, researchers, news organizations and schools are free to embed the graphs on their own websites and make them available to their own users.

Elementary school. Details and permissions from the school and School District 46 have not been worked out yet because we're still tackling some technical hurdles. We wish to be able to publish and display the data in real time. These monitors will take samples of the air every 5 minutes so that parents, teachers and others can know how safe the air is that their children breathe. <<First Name>>, we could use your help!

## Joint Meeting Planned with the Sea to Sky Clean Air Society.

The Sea to Sky Clean Air Society (SSCAS - seatoskyairquality.ca) has proposed a joint meeting with our society. We are proposing a joint meeting in Horseshoe Bay later this winter (March or April). The SSCAS has agreed to publicize our Electric Car Pledge and our AGM scheduled for January 22, 2017.

## Welcome Dr. James Hansen to our team of Scientific Advisors.

To ensure we have our climate data right, we have recruited a team of notable and published climate scientists as Scientific Advisors for the 2° Institute. Welcome Dr. Pieter Tans (NOAA), Dr. Jeremy Shakun (Boston College), and Dr. Ed Dlugokencky (NOAA). Now we are pleased to announce that Dr. James Hansen has joined our team.

Dr. Hansen was a former Director of the NASA Goddard Institute for Space Studies. He is now an Adjunct Professor at Columbia University's Earth

Institute, where he directs a program in Climate Science, Awareness and Solutions. He was trained in physics and astronomy in the space science program of Dr. James Van Allen at the University of Iowa. His early research on

the clouds of Venus helped identify their composition as sulfuric acid. Since the late 1970s, he has focused his research on Earth's climate, especially human-made climate change. Dr. Hansen is best known for his testimony on climate change to congressional committees in the 1980s that helped raise broad awareness of the global warming issue.

Dr. Hansen was elected to the National Academy of Sciences in 1995 and was designated by Time Magazine in 2006 as one of the 100 most influential people on Earth. He has received numerous awards including the Carl-Gustaf Rossby and Roger Revelle Research Medals, the Sophie Prize and the Blue Planet Prize.

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## Solar on my Roof: Update

**By Elizabeth McNeil**

In the Clean Air Society's Spring newsletter, I wrote about having twelve solar panels installed on my roof February 2016. I'm so pleased I went ahead with solar. By the end of this October, the system generated 2.55 mWh of electricity.

In the first month, February, not known for lots of sunshine, 109 kWh were produced with a carbon offset of 167 pounds, the equivalent of 2 trees. In July, known for lots of sunshine, 388 kWh were produced with a carbon offset of 591 pounds, the equivalent of 7 trees.

A friend, who's knowledgeable about alternative energy, told me that there are two types of people who buy solar. One does it for economic reasons; the other because they believe in it. I'm both. As you can see from above, my monthly savings will not pay for the solar system. However it did pay for itself when the value of my house increases to just about the price of the solar system. I won't realize that gain until I sell the house, but I have no plans to do that in the near future.

Hydro rates go up; B.C. Hydro published future increases for the next several years. Solar system costs continue to come down dramatically. It's a good investment in so many ways.

*Editor's Note:* Heating Degree-days (HDD) for a day is the number of Celsius degrees that the mean temperature is below 18 °C.

Vancouver HDD 2015 (Apr-Sep) = 532.7
Vancouver HDD 2016 (Apr-Sep) = 500.3
The average daily temperature for April to September in 2016 was only 0.18 degrees warmer than in 2015.

How did that translate into savings?

2015 2016

April/May $188 $54
June/July $ 70 $13
Aug/Sept $135 $13

Those were the months with maximum sunshine, so, of course, the savings were greatest during those months. It's not a precise comparison since many factors influence how much electricity we use month by month and year by

year. For example, we had a mild Spring and Fall, and this lowered the cost of electricity on the Sunshine Coast.

I see savings each month though much less than the summer months. However, I've noticed that during the rainy season, there will quite often be a couple of hours when the rain stops and the sun peaks through. My panels produced energy each month since February. Those twelve panels on my roof are doing their job quietly and pollution free.

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## US Passenger Vehicle Emissions Comparable to 1980 Mt. St Helens Eruption Occurring Every 3 Days

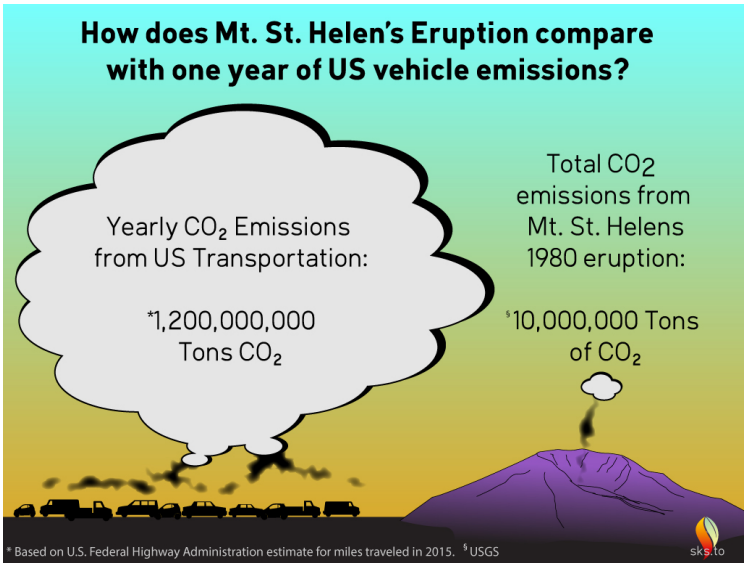
**by Ryan Logtenberg**

The eruption of Mount St Helens on May 18th 1980 was an event that few who were alive at the time will forget.  The dramatic explosion and subsequent flooding was deeply surreal, and for 57 people, deadly.  Many climate change skeptics believe that volcanic CO2 emissions like Mt. St Helens exceed those created by human generated emissions, and make any effort to reduce carbon emissions irrelevant. Climate scientists scoff at this idea, but given events as dramatic as Mt. St. Helens, it's a tough criticism to ignore.  But how does Mt. St Helen's famous eruption compare in size to other volcanic events that have occurred around the globe?


The volcanic explosive index scale (VEI) is a form of measurement similar to the index that is used to measure earthquake intensities. The VEI scale ranges from 1 to 8, with 1 being the lowest and an 8 being a super volcano eruption like the one that occurred at Yellowstone National Park 640,000 years ago. Mt. St Helens eruption was a VEI-5. A VEI-5 volcanic eruption is seen as a significant volcanic event that occurs on average once every 12 years on the planet. Since Mt St. Helens, there has been only 3 other volcanic eruptions on earth that were equal or larger. The USGS estimates that 10 million tons of CO2 was released over its 9 hour eruption. That's a pretty huge number, but still a small fraction of the 260 million tons of $CO_2$ released annually by all volcanoes on earth.

Now how does that compare to human emissions? For starters, there are 318 million people and 253 million passenger vehicles in the USA. The Federal Highway Administration estimates that Americans totalled 3.06 trillion miles of driving in 2015. That works out to an average driving distance of approximately 12,000 miles per vehicle. The average fuel economy in 2015 was 25.5mpg. Based on those numbers, 3.06 trillion miles divided by 25.5 mpg = 120 billion

gallons of gasoline consumed each year. A gallon (or 6.3lbs) of gas burned in an engine produces 20lbs of CO2 because the burning of gas requires oxygen which then binds to the carbon atom to make the heavy CO2 molecule. So, 120 billion gallons x 20lbs = 2,400 billion lbs of CO2 (or 1,200 million tons) is produced each year from passenger vehicle emissions in the USA.




Since the Mount St Helens eruption produced 10 million tons of CO2, this means that passenger vehicles in the USA alone emit as much CO2 as a Mt St. Helens eruption happening somewhere in America every 3 days. The transportation sector (airplanes, trains, ships and automobiles) makes up 26% of US greenhouse gas emissions with the remainder coming from electricity, industry, agriculture and commercial/residential use. Total US greenhouse gas emissions (6.8 billion tons per year) are the equivalent of a Mt St. Helen's eruption happening almost twice a day in the USA alone. Factor in global human greenhouse gas emissions (46 billion tons per year) and that works out to 4,600 Mt St. Helen's eruptions occurring every year (or 12.6 eruptions per day). Remember, a VEI-5 volcano like Mt. St Helens only happens on average once every 12 years on the entire planet so to have CO2 emissions from one of these explosions happening 12.6 times a day is quite disturbing.

Comparing human emissions to famous volcanic events puts into perspective how our species can easily have an impact on the atmosphere of our planet. Atmospheric stations around the world including the NOAA lab in Hawaii has been keeping records of CO2 levels in the atmosphere daily since 1958. CO2 levels have been consistently going up annually since they started keeping track of it. With CO2 gas emissions equivalent to 12.6 Mt St. Helens occurring every day - it is not surprising to see why.

To see current CO2 Emissions, visit ClimateLevels.org.

# Provincial Wood Stove Exchange Program

Over 6,000 wood-burning stoves have been replaced by cleaner burning models since the provincial Wood Stove Exchange Program began five years ago. This equates to a reduction of more than 370 tonnes annually of particulate matter released into the air. The new high-efficiency wood stoves, when used properly, burn one-third less wood and decrease emissions by up to 70%.

From 1995-2004, community exchange programs achieved 1350 exchanges (the SCRD administered the program on the SC). A new approach using community-based social marketing was implemented in the province starting in 2008, and the results have been significant. By the end of 2015 over 6500 stoves will have been exchanged. The SCCAS began its participation in 2010. We have facilitated over 300 exchanges to date.

The SCCAS has been approved for funding 25 wood stove exchanges in 2017. We have also just hired a coordinator for the program. We welcome Nara Benchley to our team.

# Update of Enhanced Smoking Control Bylaws in Gibsons & Sechelt

### By Bonnie Vankoughnett of Vancouver Coastal

Health reported in our March newsletter that both Suncoast Coast municipalities were in the process of enacting or planning to enact enhanced smoking bylaws within their jurisdictions.

The buffer zone for existing bylaws will be increased to 9.5 meters around doors, windows, and air intakes of public buildings. As well the bylaw would prohibit smoking on all hospitality patios, at all transit stops, on beaches, parks, playgrounds, in public places where people gather, including: playing fields,

outdoor or partly enclosed sport venues, stadiums, and sports facilities. Also prohibited would be other smoking materials such as “weeds and other substances”, water pipes, hookahs, e-cigarettes and “other tobacco products”.

Bonnie has left the Sunshine Coast for warmer climes (Whiterock, BC) but Lindsay MacDonald, Regional Tobacco Reduction Coordinator for the North Shore and Sea to Sky is covering for her until a new Sunshine Coast person is in place.

Lindsay advises that the Gibsons’ bylaw has been passed and is expected to come into effect in February. Sechelt"s bylaw requires some revisions to the signage requirements, etc. There has been a recent change in staffing so it may take a few months before it is presented to council.

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## The SC Clean Air Society Signs Contract with the Ministry

The Sunshine Coast Clean Air Society signed a contract with the Regional Ministry of the Environment in November. The Ministry will provide us with funding to carry out a number of functions related to our mandate. We hope that this funding will become more permanent in order to help us continue our day to day operations.

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## The SC Clean Air Society AGM

Our AGM will be held at 1:00 to 3:00 on Sunday January 22, 2017. It will be at the usual location in the Clubhouse at Port Stalashen. Official notice to follow

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## Our Team: Sunshine Coast Clean Air Society & 2 Degrees Institute

Ryan Logtenberg – President
Louis Legal – Vice President
Valerie Thorsteinson – Treasurer
Jeff Hoag - Director
James Pawley - Director
Nara Brenchley – Wood Stove Exchange Coordinator

**Scientific Advisors for the 2 Degrees Institute**
Dr. Jeremy Shakun
Dr. Ed Dlugokencky
Dr. James Hansen
Dr. Pieter Tans

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## <<First Name>>, do you use twitter? You can help us right now!

To help spread awareness to the 2 Degrees Institute's campaigns, we ask you to find and share articles about electric cars and climate change in general with your account and include the following hash tags in your post:

- For electric cars articles:  #ev #climatechange @2degreesinst or @carpledge
- For climate change articles:  #climatechange @2degreesinst

This will accomplish 2 things; allow these important articles to get more exposure and secondly, it will advertise the 2DI organization.