

Backed by Deb Markowitz, ANR Secretary, the climate change team is working to facilitate enhancements to existing programs in order to promote sustainability, reduce greenhouse gas emissions, improve waste reduction, implement adaptation and mitigation methods, provide education and outreach and advance related economic opportunities.



THE CLIMATE CONNECTION

THE VERMONT AGENCY OF NATURAL RESOURCES - CLIMATE CHANGE TEAM NEWSLETTER

In
This
Issue...

ANR's Climate &
Vermont
Legislative
Summary

Vermont's Changing
Climate and Continuing
Weather Extremes

Trees Respond to
Summer Tempera-
tures in March

SolarFest 2012

ANR's Climate

A brief update on what the Agency has been working on

Irene Ate My Newsletter—After Hurricane Irene hit Vermont, Vermont's Agency of Natural Resources was forced to relocate from Waterbury to three locations: Graniteville, Winooski, and Waitsfield. In addition to our offices, the Fall 2011 Newsletter was a flood victim. To offset some of this increased travel, ANR staff are carpooling and using public transit. ANR will be moving again later this year to our new home in the National Life Building in Montpelier.

Environment Vulnerability Assessment Workshop—The Agency recently held a workshop in Montpelier to assess the vulnerability of Vermont's natural habitats and how climate risk factors will influence these environments in the future. Working with Tetra Tech, over 50 experts evaluated the vulnerability of wetlands, uplands, rivers and streams, and lakes. A report is scheduled for release early next year.



Vermont's new legislation bans the disposal of certain electronic devices.

To locate a Vermont E-Cycles Collection Location, click on the link below:

www.anr.state.vt.us/dec/e-waste/

2012 Vermont Legislative Summary

The Vermont Legislature closed this year's session on May 5. There were four bills that passed and became law that relate to climate change in Vermont, both on the adaptation and mitigation fronts - By Brian Woods VTANR



Photo: Marie Charbonneau

River and Lakes Management (S.202/Act 138):

This act covers many aspects of river corridor and floodplain management, as well as provisions relating to water quality protection.

It calls for new state regulations for development in floodplains that are currently exempt from municipal regulation (for example, road and bridge projects) and allows for regulations to be more protective than National Flood Insurance requirements. It clarifies the Agency of Natural Resources' responsibilities and authority during emergency situations. It requires the ANR to identify areas where river conditions pose a risk to life, property and infrastructure, and to develop model flood hazard area bylaws for municipalities. It also commissions a report to include recommendations on how to improve surface water quality and protect lake and pond shorelines.

A legislative summary of this bill can be found here: www.leg.state.vt.us/docs.2012/Acts/ACT138sum.htm



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Universal Recycling (H.485/Act 148): This act advances Vermont into the next generation of solid waste and materials management and ensures that Vermonters have good options for managing their recyclables and organic residuals.

It achieves this goal by banning the disposal of those materials over a period of years, beginning in 2014 and running to 2020. Solid waste haulers and facilities will be required to offer collection services for those materials. Large generators of food residuals will be required to send their residuals to an organics facility if there is one within twenty miles.

In addition, the act requires ANR to deliver several reports to the legislature, including an assessment of solid waste management options, an inventory of tire piles and a report on options for addressing them, and an evaluation of the costs and benefits of expanding the beverage deposit redemption program.

A legislative summary of the bill can be found here:

<http://www.leg.state.vt.us/docs/2012/Acts/ACT148sum.htm>

Micro-hydro (S.148/Act 165): This act requires the commissioner of the Public Service department, in consultation with the secretary of the Agency of Natural Resources, to enter into an agreement with the Federal Energy Regulatory Commission for a pilot project to expedite development of small, low impact hydroelectric plants. This legislation is modeled on a similar approach used in Colorado.

A legislative summary of the bill can be found here:

<http://www.leg.state.vt.us/docs/2012/Acts/ACT165sum.htm>

Energy Bill (S.214/Act 170): This is a large, wide-ranging measure that, among other things supports and expands renewable energy development in Vermont.

The act establishes goals for the percentage of renewable electricity sold in state that is generated from renewable resources, starting with 55% by January 1, 2017 and increasing to 75% by January 1, 2032 (for context, the percentage of renewable electricity sold in state in 2009 was 13%) and more than doubles the amount of new renewable energy eligible for incentives from 50 MW to 127.5 MW. It calls for additional guidance from ANR regarding wood biomass harvesting and use. It requires several reports back to the legislature on topics ranging from a renewable portfolio standard to smart meters. And it directs ANR to develop and issue rules for accounting of greenhouse gas emissions, including emissions of greenhouse gases from the use of fossil fuels and from renewable fuels.



A legislative summary of the bill can be found here:

<http://www.leg.state.vt.us/docs/2012/Acts/ACT170sum.htm>

Vermont's Changing Climate and Continuing Weather Extremes in 2012

The severe weather events of 2011 which included the intense spring thunderstorms, Lake Champlain basin flooding and Tropical Storm Irene are still all too fresh in our minds. Meanwhile, 2012 continues to add to this memorable list of extreme weather events. Below is a recap of just a few we've experienced so far in the first half of this year - By Jeff Merrell VTANR

January 2012 - Vermont experienced its 3rd warmest December-January since recordkeeping began.

February 2012 - Vermont experienced its 3rd warmest and 4th driest February since recordkeeping began. February was the *eleventh month in a row* that Northeast temperatures averaged above normal.

March 2012 - Warmest March on record in Burlington, VT; Eight days of record breaking high temps, and 26 days at or above normal temperatures; An 80°F temperature reading on March 20th was the earliest occurrence of 80 degrees in any calendar year looking back in the historical record, which dates back to 1884; Burlington, VT received 37.7" of snowfall in the winter of 2011-2012, which was about half of the normal snowfall of 73.3 inches (for comparison, the winter of 2010-2011 was at the other extreme yielding 128.4 inches of snow!).

Tips to Having Green Meetings:



To reduce the amount of paper used and wasted, advertise the meeting electronically through email or website. Also make all materials available online whether it is by posting them online or sending them via email. If handouts are necessary, print using an Energy Star certified printer with 100% recycled, 100% post-consumer paper and print on both sides of the sheet.

Innovative Green Travel Tips:



When traveling, consider alternatives to driving, particularly if driving alone. Use public transportation such as buses or trains. See GoVermont at:

www.connectingcommuters.org



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Environmental Studies Senior Seminar at Middlebury College:

Seminar at Middlebury College:

This spring, students enrolled in the Environmental Studies Senior Seminar at Middlebury College studied community effects and responses to Tropical Storm Irene. Their report, "After Irene: Adaptation, Policy and Management" examines four topics: historical river channel migration, repeat damage to transportation infrastructure, post-flood behavior of affected residents and communities, and adaptation strategies for transportation and housing. See the full report at:

www.middlebury.edu/media/view/422751/original/final_2012_es_irene_report_web.pdf



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April 2012 - May 2011 through April 2012 was the warmest May through April on record for Vermont and 21 other states.

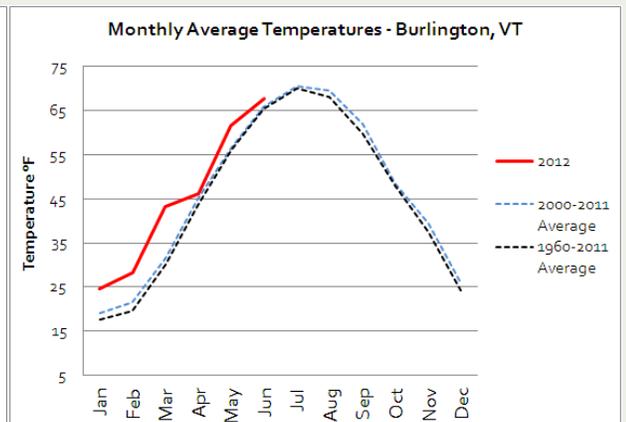
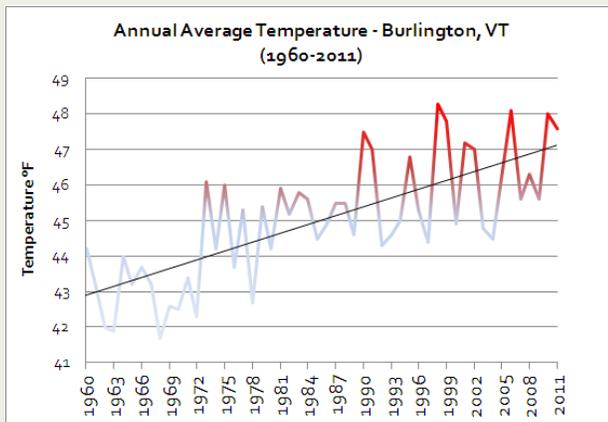
May 2012 - Vermont and 4 other states had May 2012 precipitation totals among their ten wettest on record; May 2012 was the 14th consecutive warmer-than-normal month in the Northeast; May 29 spawned the first significant severe weather outbreak of the 2012 season which included a confirmed tornado near Glover, VT and numerous reports of large hail, damaging thunderstorm winds, and heavy rainfall.

July 2012 - Intense thunderstorms caused widespread damage from flooding in Burlington to toppled large trees and capsized boats on Joe's Pond in Danville, VT resulting from strong wind gusts and heavy precipitation.

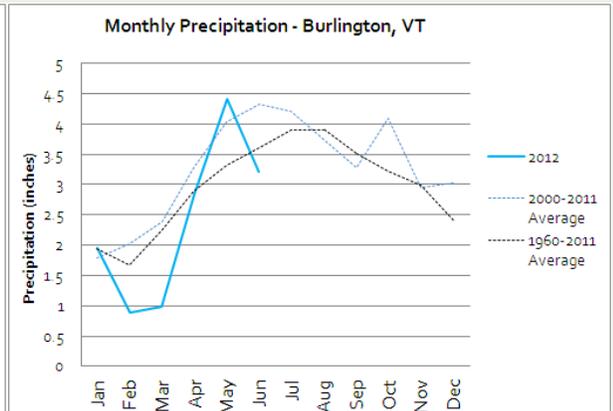
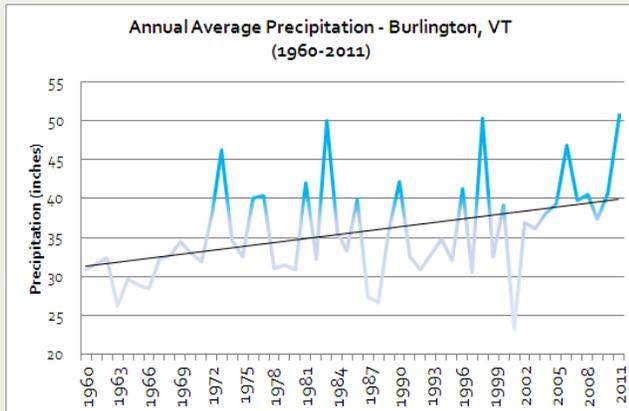
If we look at historical *Annual Average Temperature* data for Burlington, VT (1960-2011) we see an unmistakable warming trend. How does the first half of 2012 look when compared to this trend? *Monthly Average Temperature* data indicate that average temperatures for each of the first 6 months of 2012 are well above the average monthly temperatures during the past decade, as well as the past fifty plus years.



A crushed truck is victim to the July thunderstorms near Joe's Pond Photo: stamfordadvocate.com



Annual Average Precipitation is also showing a tendency to increase over time in Vermont. However, there is a high variability from year to year and month to month. Climate science tells us that as the atmosphere warms, it can hold more moisture (about 4% more for each 1°F rise in temperature). Warmer temperatures tend to enhance drying conditions and the potential for periods of drought. However, when precipitation does happen, the warmer moisture-laden air can unleash more intense precipitation events.



The first half of 2012 has been unquestionably warm with a mix of wet and dry conditions. It will be interesting to see what the latter half of this year will bring. One thing we can be sure of is that Vermont's climate is changing, and it seems for the more extreme. For a more detailed discussion about seasonal changes that we are likely to experience in Vermont in the years to come, please visit the following links: www.anr.state.vt.us/anr/climatechange/Pubs/VTCCAdaptClimateChangeVTBetts.pdf ; and www.environmentamerica.org/reports/ame/when-it-rains-it-pours

(Data courtesy of the National Oceanic and Atmospheric Administration (NOAA) National Weather Service, the Northeast Regional Climate Center, and the National Center for Atmospheric Research)

Trees Respond to Summer Temperatures in March

By Sandy Wilmot



Record-setting March temperatures forced sugar maple flowers to open 30 days earlier than the 21 year average. For every previous year, there was little to no bud activity before April 1st. In 2012, monitoring began in the middle of March, at which time flower buds were already visibly swollen. When colder spring temperatures resumed maple syrup producers reported "buddy" syrup resulting from changes in tree chemistry as buds developed. Although sugaring weather resumed, salable syrup production was compromised.

[Data collected by ANR: Forests, Parks & Recreation]

Christmas tree producers reported browning and mortality in plantations across VT and

NH this spring. While species and sites varied, the most likely cause was desiccation due to little to no snow cover that caused soil freezing, an end of winter drought, and 80F March temperatures.

For survey results and additional information see "2012 Christmas Tree Losses: the role of late winter desiccation" at www.vtfrp.org/protection/foresthalthfrontpage.cfm



 **Algae blooms hit Champlain in wake of phosphorus runoff:**

www.addisonindependent.com/2012/07/cyanobacteria-blooms-hit-champlain-wake-record-phosphorus-runoff

 **Cool Roofs** can lower the temperature of your roof by up to 50

degrees by using a type of highly reflective paint, sheet covering, or reflective shingles. Cool roofs help to reduce energy demand, emissions from power plants, and air temperatures. (U.S. Dept. of Energy)

2012 SolarFest

By Alex Geller, Photographs provided by SolarFest



SolarFest Field

val was a great way to learn about how to renovate an existing home to be energy efficient.

The festival is generally organized with three main components. At Solarfest's core, you will find the conference, which consist of workshops and talks that occur throughout the day. What separates Solarfest from other sustainability events, are the other two components that generally run alongside the conference. Throughout the day, children and youth activities were available and for those looking for entertainment, the main stage always had something going on. This year we were treated to bands such as Sarah Lee Guthrie & Johnny Irion, The Wood Brothers and The Grift. Keynote Speakers included Steven Strong of Solar Design Associates and Bill McKibben who founded 350.org.

This weekend marked the 18th year of SolarFest, and my first. At first glance, I assumed that this event would revolve around music and with a bit of information thrown in on how to live a more environmentally conscious lifestyle. However, what I discovered is that this is much, much more and it can appeal to many different demographics ranging from the musical enthusiast to the family and even the "bean counting" energy efficiency aficionado. The festival began as a way to showcase solar energy. Over the years it has developed to include entertainment, as well as alternative energy and energy efficiency workshops and displays. In my particular case, the festival



SolarFest Mainstage

During the day, the conference aspect of the festival is focused on five major areas of sustainability.

1) **Green Building** category hosted workshops that ranged from a hands-on timber frame building to a talk that outlines the steps taken to build a "Net-Zero" house. There was also a workshop on how to weatherize your own house, which walked participants through hands on demonstration of spraying expanding foam, cutting out and installing insulation boards and installing them in your attic space or basement walls.

2) The **Renewable Energy** category hosts presentations from how to evaluate which solar energy solution best fits your needs, to a presentation on the lifecycle of heating with wood pellets from three companies; Vermont Wood Pellet Company, which harvests lumber and manufactures the pellets, to Vermont renewable fuels, the company that delivers and distributes the pellets, and finally Pellery, a Vermont based company the designs and manufactures wood pellets heating systems.

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Children's Enchanted Forest

3) The **Sustainable Agriculture** category covered informative topics such as wild, edible food and making your own teas and tinctures to learning about the multitude of resources available to start your own farming business including government incentives and community financing.

4) The **Solar Generation** category is oriented toward educating youth on sustainability with workshops including making your own solar powered race car and then racing them at the end of the festival, to helping adults connect to the younger generations through sustainability focused social media.

5) The **Thriving Locally** category focused on community and local issues and opportunities. Workshops included how to collect and filter waste vegetable oils to run your biodiesel vehicle, how to create backyard herbal medicines, and how to invest your money with social responsibility in mind.

What makes this gathering a truly unique and successful destination is the ability to immerse people of all demographics with a rich, mostly hands on experience. You can attend the festival for a day or camp out in the field for all three days. Whatever you are looking for - families, sustainability enthusiast and industry professionals alike can find plenty engaging workshops or entertainment all day long, in the beautiful, rural setting of Tinmouth, Vermont.



Vendor exhibits



Have you changed all your light bulbs? Looking at LEDs?

Wondering about smart power strips? Visit Efficiency Vermont for energy saving tips, resources and rebates.

www.encyvermont.com



Tips:

When landscaping, keep in mind

the placement of plants, shrubs, and trees. By carefully planting, you can save up to 25% of a normal household's energy and reduce the air temperature from 3-6 degrees. (U.S. Dept. of Energy)



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