

Ice Ice Baby - Measuring Ice in Vermont

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Dr. Jason Shafer, Professor, Northern Vermont University-Lyndon

jason.shafer@northernvermont.edu



Partners



Research and
Development



Commercialization
activities related to
research



Vermont Low-Income
Trust for Electricity
(research support)



Vermont Electric Power Company



Vermont Electric Utilities

Motivation

Can we develop a simple way to objectively quantify ice thickness with or without taking direct measurements?

Freezing Rain Icing

- Ice accretion is based upon:
 - Air temperature
 - Wind speed
 - Precipitation rate
 - Material characteristics



Asking observers for help

CoCoRaHS Observer,

Winter continues its cruelty with an April ice storm upon us. We continue testing our power outage system working with electric utilities - they have been well informed of the storm's potential and planned accordingly.

Critical to this work is verification of ice thickness values. We would really appreciate your reports! You can simply reply to this email with any icing observations, especially by this evening and after total ice buildup Monday.

Photos are helpful too, but all you need to do is **pick the icing category** you think best suits what's happening at your location.

Average observer response rate ~50-60% of active observers responded to a direct email around storms. Most successful of all methods.

Ice thickness Table for Vermont

Category	Ice Thickness (inches)	Description
0	zero	no ice or a trace
1	0.01-0.05"	enough to be annoying scraping off your car & look pretty on bushes, shrubs
2	0.06-0.10"	shrubs and other non-native shrubbery weighed down, trees manage ok
3	0.11-0.15"	small tree branches start to bend
4	0.16-0.20"	small and medium branches bend, a few small branches may fail
5	0.21-0.25"	birch trees are starting to bend, minor branch damage to weak trees
6	0.26-0.30"	birch trees sag moderately, small and large limbs start to break, ~5-10% branch loss
7	0.31-0.40"	birch trees bent nearly completely, ~10-20% branch loss on small and large limbs
8	0.40-0.50"	moderate to significant tree damage, most trees have some damage

Observation Examples



CoCoRaHS observers measurement from Jan 24, 2017 across VT

Observation Examples - Feb 7, 2020



As of 2:00 pm we received Number 5 on your report 3/16" measured on twigs and clothes line. Then about 1" of heavy wet snow starting to switch over to finer flakes at 3:00 pm.

On second thought....I just took my dog out for a walk, and on closer inspection, I wonder if we might not be a 3 instead of a 2. The evergreen boughs are weighted down, and there is a nice coating of ice on every twig on the trees. I snapped some shots with my cell phone. If you would like me to text them to you, just send the number and I will do that.

Best,
Amy in Norwich

Useful results

