Research project opportunities

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| **“Local” question examples** | **Wider context examples** |
| 1. How different are weather conditions where I live from those at the nearest NWS station? | How variable are weather conditions at any given moment in Maine compared with (another place)? |
| 2. Is turbidity or water color related to some aspect of lake chemistry?  | Is there any evidence that lake water quality is changing in any of Maine’s lakes? [Maine Lakes database; KB] |
| 4. Are certain cloud types associated with particular weather conditions or wind directions? How well does cloud type predict weather?  | Does the same relationship hold up in other locations or biomes? [NWS, Weather Underground…] |
| 5. Where is most heat lost from my house?  | How does use of alternative energy sources compare in the US and Europe? [US Energy Information Agency…] |
| 6. How does conductivity of precipitation falling under a canopy compare with conductivity of precip falling in the open?  | How does chemistry of precipitation compare at coastal and inland sites? National Atmospheric Deposition Program |
| How does CO2 concentration vary in buildings during the day? During the season?  | How does atmospheric CO2 vary globally? Where is it changing the fastest? |
| How do populations of bird species change in my yard during the fall semester?  | How have bird ranges changed in New England during the last 2 decades? (Cornell Project Feeder Watch, e-Bird, Christmas Bird Count…) |
|  How does diurnal temperature (soil or surface) vary in open areas vs. hardwood and softwood stands? | Howland data, Ameriflux, CASTNET, etc. |
| How does the turbidity of streams compare before and after rain events? Is there a relationship between amount of rainfall and stream turbidity? | USGS Real-time streamflow database; NADP |
| To what extent is the rate of bee traffic leaving the Murray Hall hive correlated with outside ambient temperature or cloud cover? | Bee map data base  |
| How do measurements of DO taken with a handheld meter compare with measurement made by titration? | How variable are Maine Lakes in dissolved oxygen? Are dissolved oxygen and turbidity related? |
| How do temperatures of a lake change through the fall season?  | Maine Lakes Database; Gulf of Maine Buoy system |
| Is there a relationship between wind direction, wind speed, and weather at my house? | Does the same relationship hold up at a regional scale (e.g. Gulf of Maine, or Southwest US)? |
| How does the timing of leaf fall compare at sites near me? What factors correlate with the timing of leaf fall? | National Phenology Network; SOS |
| How do two streams (or sites) compare in composition of macro-invertebrates? | Is water quality rating of Maine streams related to human population density? |
| How does the species composition (or age of trees) compare at (two forest sites)? | How has the timing of bud break for red maples changed in the last decade or two? (NPN) |

Other Citizen science opportunities:

CoCoRAHS

Maine Beach Profiling Project

Maine Healthy Beaches

Hawkwatch