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## **Warm fall brings hope**

**Alan Betts** (<http://alanbetts.com/writings>)

The leaves are turning color rather late as it has been a remarkably warm and green September. Of course the Earth is also setting new high temperature records this year. A strong El Nino in the equatorial Pacific has brought very warm water to the South American coast, while the North Pacific has shifted from a cold to warm phase that we call the Pacific decadal oscillation.

As greenhouse gases accumulate in the atmosphere, the cooling of the Earth to space is reduced, and the extra heat from the sun is mostly stored in the ocean. So the overturning of the North Pacific has brought this stored heat up from the depths, and this will affect North America for some years.

So people ask me: "Will this winter be like the last one?" and I reply probably not, because of this shift to a warmer ocean to the west. But the ocean patterns are never the same and the Arctic is warming also. Ocean, atmosphere, mountain waves, clouds, crops and forests are all coupled together in our weather and climate, so we cannot give detailed forecasts a season ahead.

So I add to my winter wood supply, since so little was left after last winter. I delight in the second crop of peas that are in flower and the new batch of buttercrunch lettuce, and I plant a cover crop of rye grass. The summer squash are unusually prolific for the beginning of fall, as they simply adapt to current weather. The brilliant sunshine of September brought us power as well.

Tall locust trees shade the south side of our home, so we cannot install solar panels. But this month a Clean Energy Collective community solar array in West Haven Vermont came on-line, and is now supplying our electricity. We made an up-front payment for 4.8 kW of solar panels which will provide about 5700 kWh of electricity per year. Green Mountain Power credits this to our electric bill.

For the investors among you this is a 7% tax-free return on investment at present. The price of electricity will vary of course over this long time, as the contract lasts twenty years. This is investing in our children's future. I can resell my investment, but unlike a bank CD my cash will not be returned in twenty years. But contrast this investment with the purchase of a new car: every year I pay a further 10% for fossil fuel, insurance, service and repairs, and it still rusts away in about ten years.

The visit of Pope Francis to the Americas last month showed us a vision of compassion and hope, and challenged us to face the future with an open heart. "Many things have to change course, but it is we human beings above all who need to change. We lack an awareness of our common origin, of our mutual belonging, and of a future to be shared with everyone."

In Cuba he said: "Service is never ideological, for we do not serve ideas, we serve people." He has pointed out that serving the Earth and serving people are now closely intertwined, because we are all part of the same ecosystem. Sadly many have not grasped this vision. Hundreds of thousands of families are making the arduous 2000-mile trek by land and sea to Europe, driven from their land by spreading drought, only to be bombed in the cities by feuding ideologies, and forced to leave their countries.

This century, as ecosystems crumble and refugees flee from war and drought, it is our foresight and compassion that will bring hope.