

The presentation this morning is a joint one by Janet and I. We chose this topic because we gave some rather grave details of what is being called the “existential threat” of climate change last spring, and because climate change is now a major focus for Unitarian Universalists on a nation-wide level. Janet will start by giving us a global perspective with insights from NASA, and I will conclude by trying to bring some of this information home to us here in Visalia and within our own congregation.



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2. Climate change is one of the most complex issues facing us today. It involves science, economics, society, and politics and raises moral and ethical questions. It is a global problem felt on local scales, and one that will be around for decades and even centuries to come.



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3. Carbon dioxide, the heat-trapping greenhouse gas that is driving global warming, lingers in the atmosphere for hundreds of years. And that creates long-term problems. **primarily because it takes time for the planet to respond to those triggers.** Even if we stopped emitting all greenhouse gases today, global warming and climate change will continue to affect future generations.



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5. Unfortunately we are not slowing the release of these emissions. Despite increasing awareness of climate change over the course of the past few decades, our emissions of greenhouse gases have continued on a relentless rise. Back in 2013, the daily level of carbon dioxide in the atmosphere surpassed 400 parts per million for the first time in human history. **The last time levels were that high was about three to five million years ago, during the Pliocene era.**



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4. And because of this, humanity is already “committed” to some level of climate change. How much the climate will change will be determined by how our emission rates continue to rise and how Earth’s climate system will respond to that increase.



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6. Throughout human history, people and societies have had to deal with localized changes in climate, and have adapted to those changes with varying degrees of success. Drought in particular has been determined to be responsible for the rise and collapse of several civilizations.



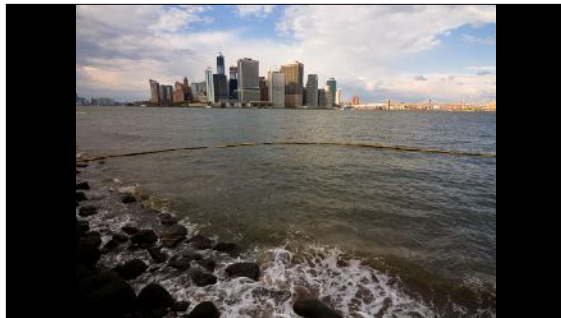
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7. But overall Earth’s **global** climate has been relatively stable for the past 12,000 years and this stability has been crucial for the development of modern civilization and life as we know it. But as our climate changes,



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8. we will have no alternative than to adapt—and the **faster** the climate changes, the harder that may be. While climate change is a global issue, ...



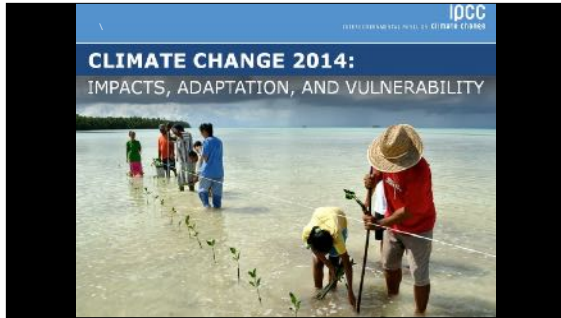
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9.it is felt on a local scale. And in the absence of national climate policy direction, cities and states are on the frontlines for dealing with these issues.



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10. Fortunately, cities, states, and local communities around the world have begun to take action toward addressing climate change issues.



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12. According to the 2014 report on Climate Change Impacts, Adaptation and Vulnerability from the United Nations Intergovernmental Panel on Climate Change, governments at various levels are already getting better at planning for adaptation.



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13. Climate change is starting to be factored into a variety of development plans as can be seen in this image of a plan for California Wine Growers.



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14. Plans are being developed for managing increasingly extreme weather conditions and their associated risks, and determining how to protect areas like coastlines from sea-level encroachment,



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15. They are looking at how to best manage public lands and forests and making plans for dealing with reduced water availability...



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11. they are building flood defenses, planning for heatwaves and higher temperatures, installing water-permeable pavements to better deal with floods and stormwater, and improving water storage and use.



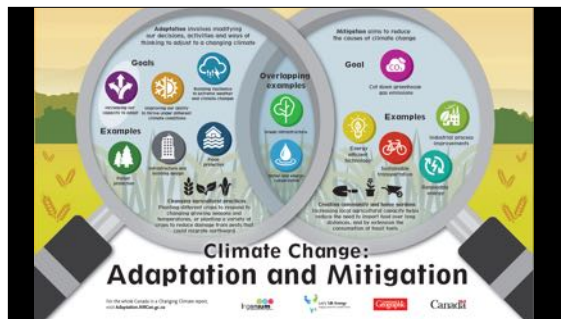
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16. and creating resilient crop varieties, and determining ways to protect energy and public infrastructure from damage from extreme weather events.



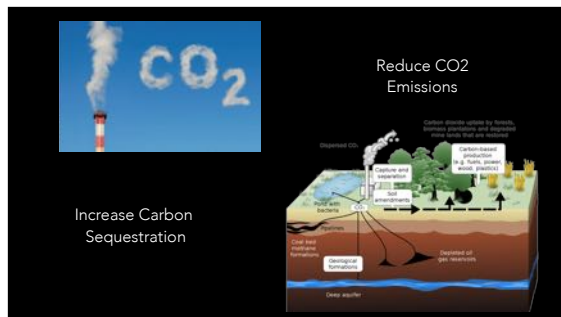
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The challenge of climate change requires at least three major categories of solutions. Modeling future climate gives us the scientific baseline to address the two major solutions.



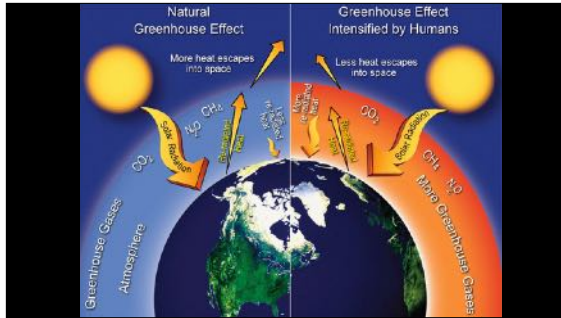
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17. These are: first by reducing emissions and stabilizing the levels of heat-trapping greenhouse gases already in the atmosphere. This is called “mitigation”; and second is “adaption” which refers to adapting to the climate change already in the pipeline.



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18. Mitigation involves reducing the flow of heat-trapping greenhouse gases into the atmosphere, either by reducing sources of these gases such as the burning of fossil fuels, or enhancing the “sinks” that accumulate and store these gases -- such as the oceans, forests and soil. This is called Carbon Sequestration.



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19. The goal of mitigation is to avoid significant human interference with the climate system, and to “stabilize greenhouse gas levels in a timeframe sufficient to allow ecosystems to adapt naturally to climate change. This will ensure that food production is not threatened and will enable economic development to proceed in a sustainable manner”.



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20. Adaptation involves adjusting to actual or expected future climate. The goal is to reduce our vulnerability to the harmful effects of climate change like sea-level encroachment, more intense extreme weather events, and minimize the potential for food insecurity.



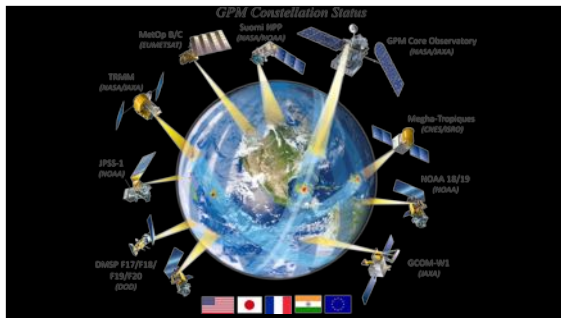
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21. With the wealth of information collected by its Earth-Observing satellites, NASA has become one of the world’s experts in climate science. While its role is not to set climate policy or prescribe particular responses or solutions to climate change, its purview does include providing the robust scientific data needed to understand and cope with it.



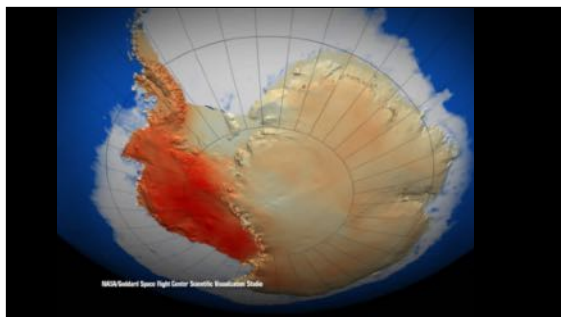
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22. NASA monitors Earth's vital signs from land, air and space with a fleet of satellites and ambitious airborne and ground-based observation campaigns. NASA scientists are continually developing new ways to observe and study Earth's interconnected natural systems, and thereby creating computer analysis tools to better track how our planet is changing.



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22. NASA then makes this information available to the scientific global community who in turn share the data with public policy decision-makers and planning agencies around the world.



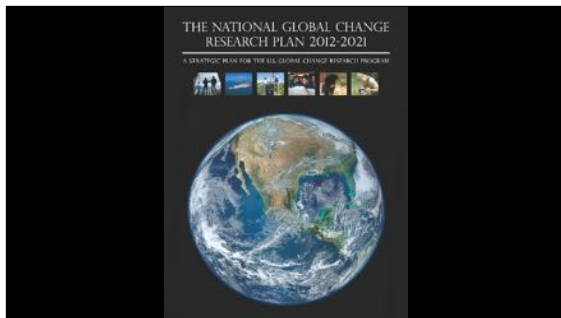
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24. For example, data from NASA's Gravity Recovery and Climate Experiment (GRACE) and Ice, Cloud and land Elevation Satellite (ICESat) have shown rapid changes in the Earth's great ice sheets. Loss of the mass of these vast ice sheets are already creating concern about projected sea level rise.



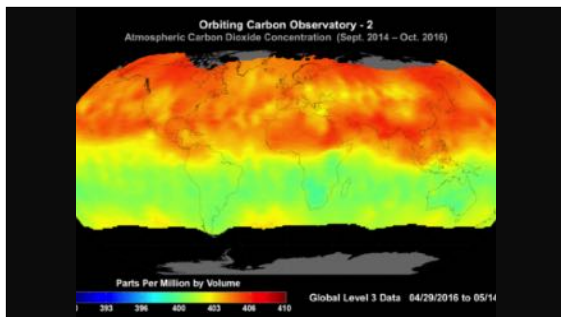
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25. And data from the Jason Surface Topography Mission (OSTM) have, in fact, documented an increasing rise in sea level since 1992, justifying concerns about the effect of sea level rise on low-lying coastal communities in the US such as the state of Florida.



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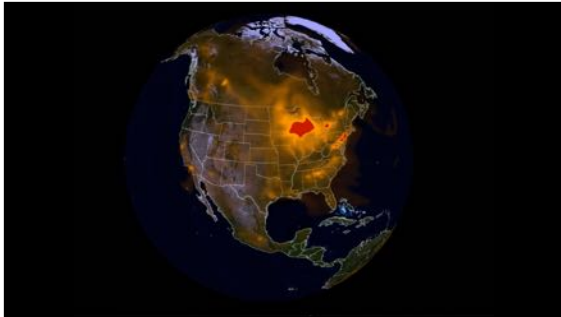
26. NASA is one of 13 U.S. government agencies that also includes the Department of Agriculture, the Environmental Protection Agency and the Department of Energy, that form the U.S. Global Change Research Program, which has a legal mandate to help the nation and the world understand, assess, predict and respond to global climate change.



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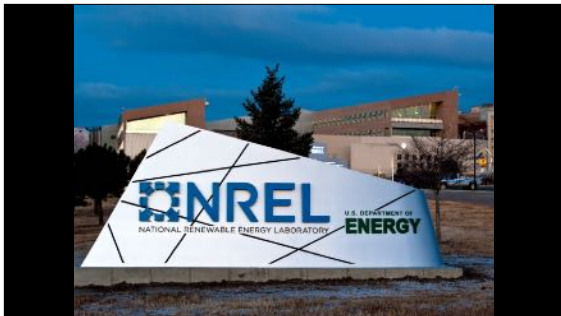
27. There are two NASA projects that are of particular importance in monitoring climate change.

NASA's Carbon Monitoring System (CMS) works to improve the monitoring of where carbon is stored around the planet and how carbon is cycled from one location to the next in an effort to better quantify, understand and predict how worldwide carbon sources and sinks are changing.



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28. The other is NASA's Megacities Carbon Project which is focused on accurately measuring and monitoring greenhouse-gas emissions from the world's biggest cities. About three-quarters of fossil-fuel carbon dioxide emissions come from cities which represent only about 2 percent of the land surface.



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30. Although NASA's main focus is not on energy-technology research and development, work is being done by the agency in conjunction with other governmental and private agencies including the federal National Renewable Energy Laboratory (NREL),



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31. Their goal is to find viable alternative sources of energy to power our needs and ultimately help to make the conversion to wind, waves, the sun and biofuels which have a significantly reduced impact on the environment.



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32. Here are just a few examples of the work that is specifically being done by NASA to achieve this goal.

1. Jet Airplanes are one of the fastest growing sources of greenhouse gas emissions and a source that arguably releases such emissions in the worst possible spot —higher in the atmosphere.



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33. Jet exhaust contains carbon dioxide and soot left over from incomplete combustion. Soot has been determined to be the second largest man made contributor to global warming after CO₂— and its influence on climate has been greatly underestimated. Soot absorbs sunlight which causes warming of the atmosphere.



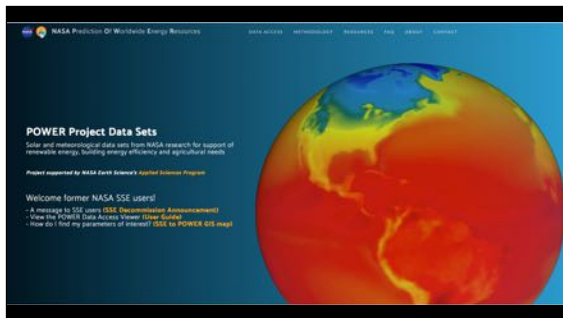
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34. NASA is helping to develop the technology that will blend standard jet fuel with biofuel in an effort to significantly reduce the emission of soot particles from jet engines—up to as much as 50 percent. While this technology is still under development the outlook is very promising.



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35. Many of the decisions that are made in the fields of building design, renewable energy, and agriculture depends upon the knowledge of local environmental conditions. But in the past, reliable data had been hard to come by.



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36. So NASA developed the Prediction Of Worldwide Energy Resource or POWER project. The POWER project creates data sets derived from the various Earth Observing satellite systems and then translates it into a user-friendly form which can be utilized by local planners and designers everywhere..



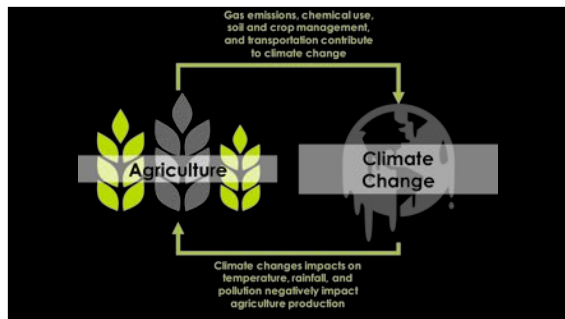
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37. The POWER project targets three user communities: (1) Renewable Energy, (2) Sustainable Buildings, and (3) Agroclimatlogy. The Renewable Energy Archive is designed to provide access to the data that is specifically tailored to assist in the design of solar and wind powered renewable energy systems.



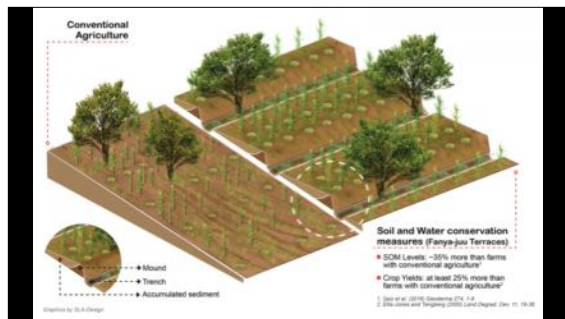
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38. The Sustainable Buildings Archive is designed to provide industry-friendly data for the buildings community including multi-year monthly averages of temperature, wind, humidity, and incoming solar radiation that is essential for the design of environmentally friendly buildings.



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39. The Agroclimatology Archive is designed to provide web-based access in industry-friendly data formatted for input to agricultural crop models. The POWER project not only incorporates meteorological data such as wind and precipitation along with solar radiance.....



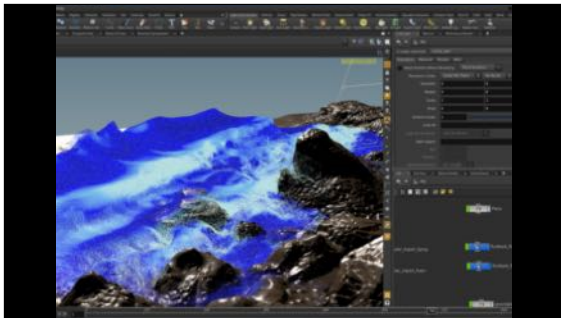
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40. it also tailors data—for people who conduct agricultural research.



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41. Ocean waves hold a tremendous amount of energy that is almost entirely untapped primarily because developing the technology to do so is prohibitively expensive.



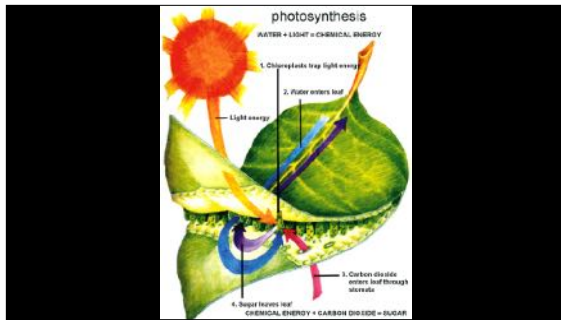
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42. However, NASA is working with the U.S. Department of Energy (DOE) to develop sophisticated software Modeling Tools. With these tools the experts are able to study a wide range of input data such as differences in wavelength and ocean depth without the expense of actually constructing a prototype and deploying it in the ocean for testing.



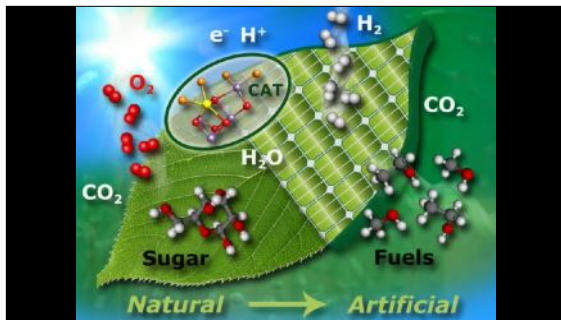
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43. Several national and international companies are beginning to do on-site testing of designs that have been based on the results produced of this modeling software.



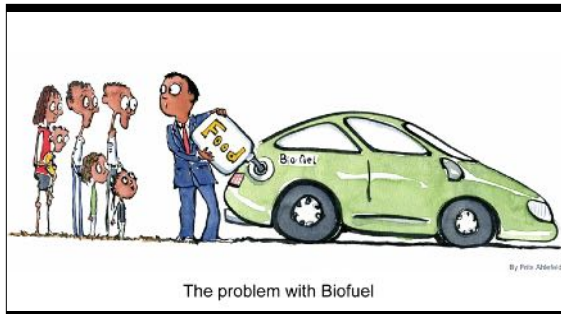
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44. Natural photosynthesis is the remarkable ability of plants to transform sunlight into useful energy and it powers virtually all life on Earth. But plants only absorb 10% of the solar energy they receive while the remaining 90 percent goes unused.



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45. But NASA researchers are working with industry and educational institutions to create an artificial photosynthesis system that will produce energy-packed liquid fuel at 10 times the efficiency of plants, using only sunlight, water and carbon dioxide as ingredients. Unlike fossil fuels these will not contribute to the climate-changing greenhouse effect.



48

46. And unlike some biofuels, such as those derived from corn, it will not compete with food crops for farmland, require fertilizer or consume large amounts of precious water.



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47. One significant benefit of the technology to reduce green house gases is in the area of large scale transportation vehicles. While photovoltaic solar panels are already used to convert sunlight to electricity, it is not sufficient to supply enough energy to power most heavy-duty trucks, ships and aircraft.



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48. This newly developed photosynthetic technology has enormous potential to provide the high-energy, carbon-neutral liquid fuel to power global commerce while eliminating the emission of harmful greenhouse gases.



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49. NASA scientists have proposed another ingenious process to produce "clean energy" biofuels—one that cleans waste water, removes carbon dioxide from the air, and does not compete with agriculture for land or freshwater. Their method employs the use of oil-producing algae.



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50. Algae are similar to other plants in that they remove carbon dioxide from the atmosphere and produce oxygen as a by-product of photosynthesis.. Unlike many plants, however, they also produce fatty, lipid cells loaded with oil that can be used as fuel.



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51. Land plants currently used to produce biodiesel and other fuels include soy, canola, and palm trees. By comparison, soy beans only produce about 50 gallons of oil per acre per year; whereas some types of algae can produce at least 2,000 gallons of oil per acre per year.



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52. NASA scientists are developing a way to utilize this algae to both produce oil and clean up the oceans at the same time. A large plastic bag filled with sewage and algae can be deployed into the ocean. Floating on the ocean's surface, the inexpensive plastic bags collect solar energy as the algae inside produce oxygen by photosynthesis. The algae will feed on the nutrients in the sewage, growing rich, fatty cells.



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53. Through osmosis, the bag will absorb carbon dioxide from the air, and release oxygen and fresh water. When the process is completed, biofuels will be made and the sewage will be processed. For the first time, harmful sewage will no longer be dumped into the ocean. The algae and nutrients will be contained and collected in a bag. Analysts conclude that the system ideally is fail proof. Even if the bag leaks, it won't contaminate the local environment, and the enclosed fresh water algae will simply die in the ocean.



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58. While the politics surrounding climate change is challenging, one of the most positive signs that it will remain in the forefront of American national policy is the recent admission by newly appointed NASA administrator, Jim Bridenstine that he knows Earth's climate is changing, and that humans contribute to it "in a major way," He also affirmed support for NASA's research into that important area.



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59. Bridenstine, who is a former "climate change denier" has expressed doubt about human-caused climate change in the past and even claimed that any changes in global temperature were linked to natural cycles and not increases in carbon dioxide in the atmosphere from industrial activity. As recently as 2016, he introduced a bill to end all NASA's Earth Science research. In his confirmation hearing to become NASA administrator, he still refused to admit that humans were the main cause of climate change. . As a Congressman, Jim Bridenstine spent years as a vocal climate change skeptic. In 2013, as



58

61. It took him less than a month leading NASA to change his mind. Speaking at an agency town hall event on May 17, 2018, he described how his thinking had "evolved" on the subject and stated "I don't deny the consensus that the climate is changing; in fact, I fully believe and know that the climate is changing. "I also know that we, human beings, are contributing to it in a major way. Carbon dioxide is a greenhouse gas. We're putting it into the atmosphere in volumes that we haven't seen, and **that** greenhouse gas is warming the planet."



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60. He also added "We need to make sure that NASA is continuing to do the science, and we need to make sure that the science is void and free from partisan or political rhetoric,". "We have guidance from the apolitical, nonpartisan National Academy of Science telling us what is important for humanity, and we're going to follow it." So if Jim Bridenstine can change his mind, it is hoped that the rest of the skeptics in America can too.



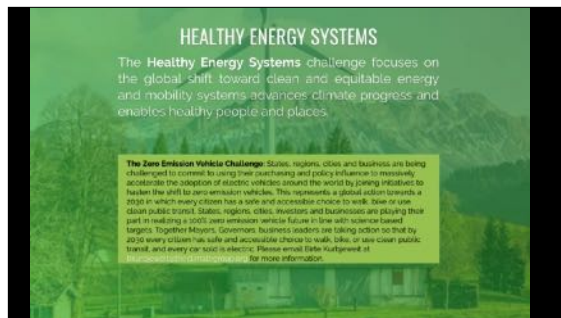
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With so many solutions being researched by NASA and others, how do we figure out which are the best avenues to follow? In particular, what can we as a congregation and as individuals do? What might be the most productive ways for individuals and congregations to take action on climate change? I'd like to start with a refinement of priorities from a global perspective, then get down to what we might do to "think globally; act locally."



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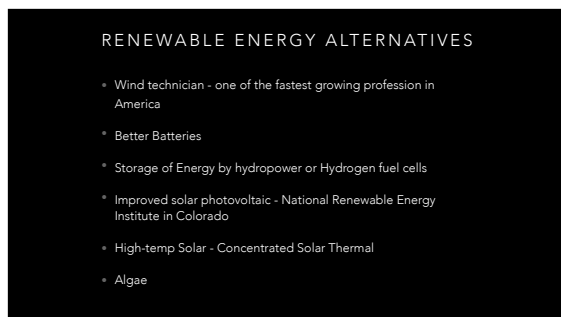
The international Global Climate Action Summit held two weeks ago identified 5 broad categories of climate change solutions. What I like about each of these categories is, that for each of them, the Summit came up with at least one **specific** policy challenge goal. Notably, the proposed solutions include not only innovative engineering solutions, but solutions involving application of existing knowledge to make changes. And many of the solutions the conference identified are undertakings individuals, cities, states, or businesses can do on their own without waiting for any kind of grand national or international



62

In the first category, Healthy Energy Systems, the conference identified a specific goal targeting the year 2030 as the year every person should have a safe and accessible access to clean public transit and zero emission cars. This category is of particular importance here in California, where transportation represents roughly 40 percent of California's greenhouse gas emissions.

DO NOT READ:



63

Other clean energy solutions based on renewable energy is probably what most comes to mind when thinking about how we can address climate change.



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California is already producing more wind power than it needs, but it cannot use the excess power due to lack of storage. New methods of storage, such as high-capacity batteries, is one way of dealing with this. Storing water in reservoirs or tanks, then releasing it at night, is another method.



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Another solution makes use of natural gas as a transitional fuel in combination with solar. Unlike the solar photovoltaic panels, Concentrated Solar Thermal power plants generate power by angling mirrors to gather sunlight to produce intense heat. The mirrors reflect sunlight onto power towers, where steam turns turbines to generate electricity.



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Because concentrated solar plants are more sensitive to clouds than photo-voltaic panels, natural gas is used to maintain peak power generation during times of intermittent clouds. This means these plants may release more CO₂ than we'd like. But that is still 15 times less than a conventional fossil fuel powered power plant.

DO Not rEAD

One current problem is that this kind of “concentrating” solar thermal



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For the Inclusive Economic Growth category, the goal is to get businesses to set a science-based emissions reduction target required to keep global temperature increase below 2 degrees celsius, aligning with the goals of the Paris Agreement. Importantly, this goal also asks business, governments, and labor organization to help manage impact on workers and communities transitioning away from high-carbon sectors. We see the need for this particularly here in the San Joaquin Valley, where Bakersfield has 15,000 oil industry workers, and is the source of most of the oil



68

Indeed, hundreds of U.S. businesses are pledging their support to transitioning to a clean energy future. For example, Apple now a trillion dollar company, announced that as of January, 2018, 100% of the electricity the company uses at all of its facilities comes from renewable sources. Its next goal is to accomplish the same thing in its manufacturing.

DO NOT READ BELOW:
As we know, many major companies have adopted climate change



69

As noted by Amory Lovins, the ability to operate without fossil fuels will define winners and losers in business - not forced by public policy, but by profit. According to Lovins & the Rocky Mountain Institute, in their 2011 book "Reinventing Fire," it is possible to combat climate change while creating a bigger 2050 U.S. economy that needs no oil, no coal, no nuclear energy, one-third less natural gas, even with no new inventions. And all this while saving businesses money, while eliminating the externalities cost of fossil fuels.

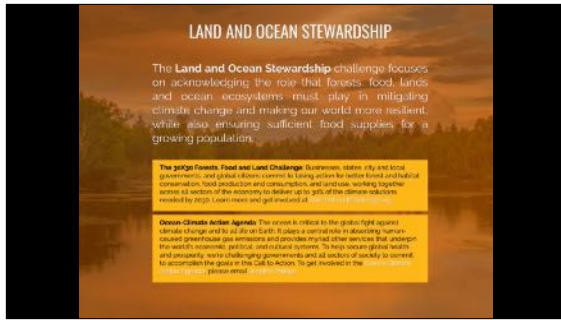


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The Sustainable Communities Challenge focuses, among other things, on net zero carbon buildings. This is not pie in the sky - the American Institute of Architects has established a target that by 2030 *all* new construction and major renovations will be for zero carbon (ZNC) buildings.

DO NOT READ:

And some of the changes do not require major technical innovations,



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Land and Ocean stewardship asks for different management of forests, food, the land, and the oceans in order to deliver 30% of the climate solutions needed by 2030.



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Australian scientist Tim Flannery believes that drawing carbon out of the atmosphere is an essential component in limiting climate change. It is not enough just to reduce future carbon emissions. He believes that kelp can be used on a large scale to convert carbon from the air to a non-gaseous form, and then sequester the carbon at the sea bottom. In the meantime, these kelp farms could also provide for an enriched habitat for fish, thus increasing Earth's protein supply to humans.

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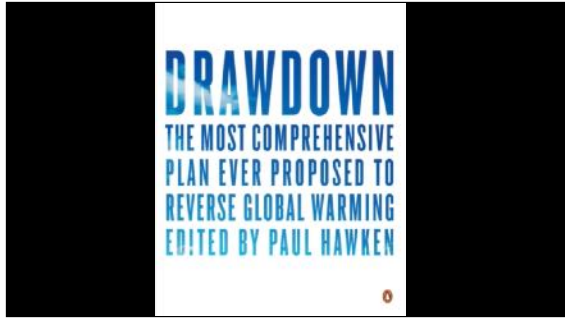
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The Investor Agenda is an adopted set of protocols designed to encourage investors to invest in low-carbon opportunities. Among the many large institutional investors which have accepted this challenge, we find nearly all of California’s large governmental pension programs, and nationally this list includes the Unitarian Universalist Association.



74

Another important climate think tank is C2ES, which is the successor to the Pew Center on Global Climate Change, which was founded in 1998, and is widely recognized as an influential and pragmatic voice on climate issues. Their primary objective is a national market-based program to reduce emissions cost-effectively. They believe a sound climate strategy is essential to ensure a strong, sustainable economy.



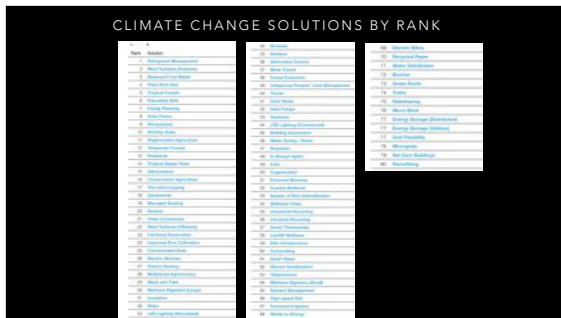
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In April 2017, a think tank organized by noted businessman and environmentalist Paul Hawken published a book proposing dozens of solutions to reverse global warming.



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The book, and its companion website, lists 100 solutions to reverse global warming. But more than just listing these, the authors spent considerable effort to evaluate and rank the most important of all the solutions. While all the solutions are “important,” some of them have a much larger impact on the amount of CO2 they would reduce than others.



77

This table provides the detailed results of what they consider solutions which are most effective in reducing greenhouse gas emissions. They are ranked in priority of being most effective in reducing greenhouse gas emissions.

Rank	Solution	Sector
1	Refrigerant Management	Materials
2	Wind Turbines (Onshore)	Electricity Generation
3	Reduced Food Waste	Food
4	Plant-Rich Diet	Food
5	Tropical Forests	Land Use
6	Educating Girls	Women and Girls
7	Family Planning	Women and Girls
8	Solar Farms	Electricity Generation
9	Silvopasture	Food
10	Rooftop Solar	Electricity Generation
11	Regenerative Agriculture	Food
12	Temperate Forests	Land Use

78

Here are the top 12 solutions from Drawdown, listed in order of greatest degree of GHG emission reductions. While Electricity Generation is the category that most of us think about in trying to combat climate change, note that those solutions represent only 3 of the sectors. Moreover, the 3 electrical generation sectors account for 146 gigaton of GHG reductions. By contrast, the Food sector in this list accounts for 191 gigatons. The Food related solutions collectively add up to a greater impact, and that’s just in the top 12 solutions.



79

Near the top of the priority list of climate change solutions according to Project Drawdown, perhaps surprisingly, is reducing food waste. The food we waste is responsible for roughly 8 percent of global emissions. Food is wasted all along the supply chain. Solutions include not merely personal efforts to avoid food waste, but changing policies to reduce food waste from farm to wholesale to retail.

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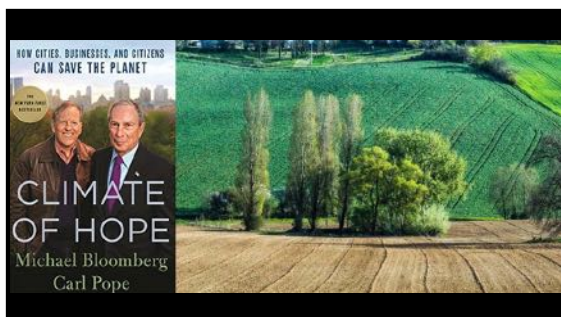


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In this Food sector, there are several solutions that are especially amenable to individual actions. Adopting a Plant Rich Diet is #4 in the ranking system. The meat-centered western diet is considered to account for one-fifth of global emissions. If cattle were their own nation, they would be the world's third-largest emitter of greenhouse gases.

DO NOT READ:

Plant-rich diets reduce emissions and also tend to be healthier, leading



81

As a global solution, this is a challenging one. Former Sierra Club Executive Director Carl Pope points out that changing people's eating habits is one of the most difficult things to do. He says "eating is something you learn from your parents, and once you've learned it it's very hard to learn anything different." He argues that while eating less meat overall is a good thing, it's not all meat that's the biggest problem, it's corn-fed beef that's the biggest problem. So by avoiding corn-fed beef in particular, we can do a lot to address climate change.



82

The #9 highest ranked solution is Silvopasture. This is an ancient practice that integrates trees and pasture into a single system for raising livestock. Since Tulare County has 4 times as many cows as people, this is certainly a topic which bears looking at!

DO NOT READ:

with cattle and dairy high on our list of most valuable agricultural products cattle raising should be of a particular interest to us. Pastures



83

#11 on the list is Regenerative Agriculture. Under this category is a whole host of techniques, including green manure, compost application, organic production, cover crops, crop rotation, and reduced tillage. Our own local Quaker Oaks Farm is doing a lot of work in this area!

DO NOT READ:



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In addition to these “top-ten” solutions related to food, Project Drawdown also identifies many additional solutions that target food and agriculture. One of the most important is to encourage transition in tropical countries from annual crops to perennial tree crops. Other food-focused solutions include tree inter-cropping, better managed grazing, clean cookstoves, farmland restoration, improved rice cultivation, multi-strata agroforestry, composting, improved farmland irrigation, and more.



85

Another solution amenable to individual action is FOOD COMPOSTING

Nearly half of the solid waste produced globally is organic or biodegradable. Much of it ends up in landfills; there, it decomposes in the absence of oxygen and produces the greenhouse gas methane, which is up to 34 times more powerful than carbon dioxide over a century. While many landfills have some form of methane management, it is far more effective to divert organic waste to composting.



86

Deforestation and forest degradation contributes as much as 30 percent of global greenhouse gas emissions each year—rivaling emissions from transportation globally. Therefore, the importance of tropical forests in particular, including their ability to store carbon and thereby slow climate change, cannot be emphasized enough.

DO NOT READ:

At the 2018 Global Climate Action Summit, Dr. Jane Goodall pointed



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When thinking about forests, it is not only tropical forests at risk. As Harrison Ford said at the Climate Action Summit, “If we can’t protect nature, we can’t protect ourselves.” He pointed out that the destruction of nature accounts for more global emissions than all the cars and trucks in the world.

Desert Tortoise Vs. Solar Energy: Which Side Will Win?



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Renewable energy projects can be damaging to wildlife too. More careful studies to locate solar projects away from prime tortoise nesting habitat are being made.

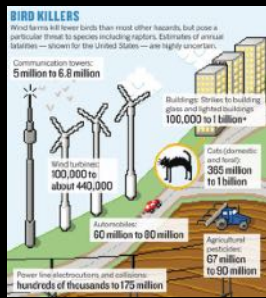


California Desert Biological Conservation Framework

89

At the end of 2016, state and federal agencies collaborated in adopting a plan to improve the protection of habitat as renewable energy resources are developed in the California desert.

It is part of an even larger Desert Renewable Energy Plan. The plan was adopted by all the relevant state and federal agencies - California Energy Commission, California Department of Fish and Wildlife, U.S. Bureau of Land Management, and the U.S. Fish and Wildlife Service.



90

While many are rightly concerned about habitat loss from solar projects and the birds killed by wind turbines, research that solar panels and wind turbines fare better than nuclear or fossil-fueled power plants in terms of harm to wildlife. By comparison, Fossil-fueled power stations kill about 35 times as many birds as wind power.

- The greatest threat to birds and other wildlife isn't even any of these primary killers; it is simply habitat loss. Habitat degradation is linked to climate change, which has already had a negative impact on many wildlife species.



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I'd like to conclude this morning by returning back to our local level.



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The City of San Francisco however is one of the world's leaders in addressing climate change with practical solutions. The city is part of a network of the world's largest cities who have formed C40 Cities which collaborates on stronger collective climate action. In 2006, the network had 40 cities; now it has almost 100 members of its network.




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The City of Visalia adopted a Climate Action Plan in 2013, as required by state law. Our City has a fairly limited reduction target compared to many cities around the U.S., and its plan has not been updated since 2013. Of the various mitigation efforts already underway, the compact fluorescent light program accounted for their greatest single figure for GHG emission reductions. Meanwhile, recent attacks against some of the city's programs, like the PACE program, have been narrowly avoided. There is certainly much more room for action here locally.

VISALIA'S FIRST ELECTRIC BUS

- City of Visalia has acquired 3 new electric buses (Sept. 2018)
- They are part of a pilot program which monitors their performance in comparison to the Compressed Natural Gas (CNG) vehicles currently used in the city's transit fixed routes.



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Some new promising efforts are underway. In this program, our San Joaquin Valley APCD is deploying 15 battery electric transit buses and supporting depot charging stations around the valley. The project will advance commercialization of zero-emission transit buses. While the initial cost of such electric vehicles is higher than diesel or CNG, over the lifetime of use studies show that they are likely actually cheaper.

California Climate Strategy
An Integrated Plan for Addressing Climate Change

Vision
Reducing Greenhouse Gas Emissions to 40% Below 1990 levels by 2030

Goals
Governor's Key Climate Change Strategies

- Increase Renewable Production to 50%
- Reduce GHG Emissions from Natural and Working Lands
- Reduce Petroleum Use by 50% in Vehicles
- Reduce Short-Lived Climate Pollutants
- Double Energy Efficiency Savings at Existing Buildings
- Subsequent Goals



95

The California Climate Strategy was adopted in 2005, with major amendments in 2010 and 2016. It was just revised on September 10, 2018 when Governor Brown signed a new target to have 100% carbon-free electricity by 2045. That this seemed possible at all is shown by the fact that California greenhouse gas emissions in July of 2018 fell below 1990 levels, meeting the existing 2020 target nearly 4 years ahead of schedule. But note that the new mandate is not for 100% renewables but rather 100% carbon-free. This could allow other kinds of “carbon-free” electrical production, leaving the way open for nuclear power,

UU's Take on Global Warming



Statement of Conscience
on Global Warming and Climate Change
Adopted June, 2006

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Our own denomination, the Unitarian Universalist Association, adopted a strong Statement of Conscience on Global Warming and Climate Change back in June 2006.

2006 UUA GENERAL ASSEMBLY

- The Statement of Conscience on Global Warming and Climate Change included:
 - a call for a strong denominational response,
 - a call to UUs to reduce our personal energy consumption and carbon emissions by at least 20% by 2010 or sooner, and
 - provided clear guidelines for other congregational and individual action.

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These goals set in motion denominational, congregational, and individual responses in many ways.

COOKING LOCAL FOR A SUSTAINABLE TULARE COUNTY

A COOKBOOK AND GUIDE TO LOCAL AND HEALTHY EATING IN TULARE COUNTY, CALIFORNIA



98

One of our efforts in our congregation is our “Ethical Eating” cookbook which we published in 2012, which shows the long tradition our congregation has of being focused on food! The book sought to engage people into sustainable living through what and how we eat.

UU VISALIA BECOMES A GREEN SANCTUARY

Received: June 6, 2007

Accomplished 12 Projects to achieve our certification, including:

- Educational Projects
- Donated 1,000 CFLs to Landon Community Council
- Carbon Offsets
- Replaced Meetinghouse Refrigerator
- Recycling
- Environmental Investing



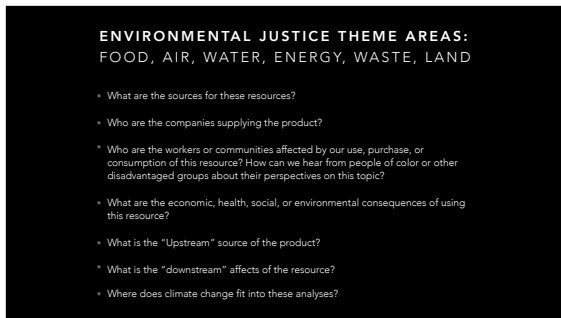
99

Our congregation addressed the issue by working to become a certified Green Sanctuary Congregation, which we achieved in 2007. But now, the UUA has asked us whether we want to update our Green Sanctuary certification. The achievements we made 10 years ago do not account for environmental justice issues, and several of our one-time efforts might now be considered obsolete - for example, replacing incandescents with compact fluorescents is no longer the goal, but instead the current technology encourages replacing lighting with much more energy efficient LED lights.



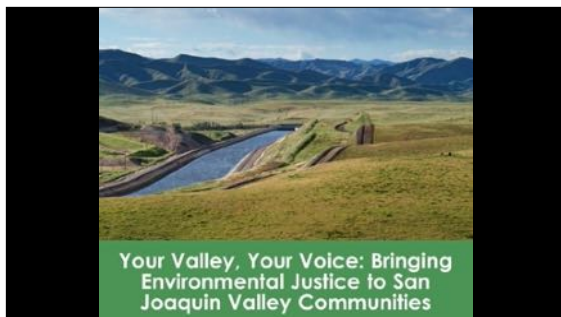
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Accordingly, we have just started a new class on Environmental Justice to address this issue. Rather than just another typical study-course, this one asks our congregation to examine some of the specific impacts we have both downstream and upstream in key categories like food, air, water, waste, energy, and land, with special attention towards disadvantaged people who are most directly harmed by pollution and climate change.



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At our class this Wednesday, we will be assigning “homework” to investigate our congregation and members’ environmental impact. Although there are six potential themes to choose from, we will likely want to identify just one or two to focus on. Since we don’t have our own building, Mark and I are recommending that we choose Food as at least one of the themes to explore. If you cannot attend Wednesday, contact Mark or I to get the homework assignment because this is something you can do even without attending the class.



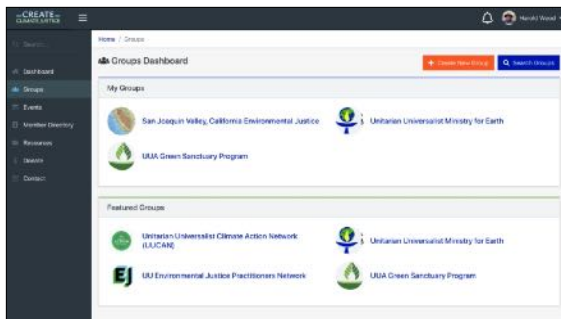
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Several of us got a head start on this by attending an Environmental Justice conference here in Visalia last May. We learned that California now has an especially strong legal framework requiring local governments to implement environmental justice programs. We made connections with some local EJ groups, and learned about numerous tools to address this issue locally.



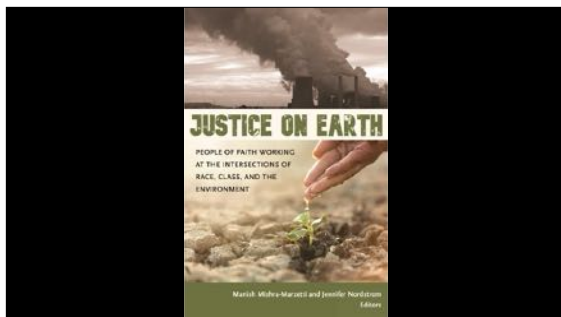
103

The UUA and the UU Ministry for Earth have created a new online community organizing hub for UU climate activists. This program, the Create Climate Justice network, is just getting started, but is a tool that we can use not only for our congregation, but in partnership with the UU Ministry for Earth, of which we are a member, and neighboring UU congregations.



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To begin with, I created a new Group on this platform, called the San Joaquin Valley California Environmental Justice Group. I have started populating this new group with documents from the May conference, as well as new information as it becomes available, such as the new Purple Air air quality sensors that enable “citizen science” to help with achieving air quality. I invite you to join this platform and participate.



105

Another recent action from UUA is the newly UU 2018-19 Common Read, a new book focused on Environmental Justice. A study guide is coming out for this book soon, so we may want to consider exploring it for a future Create Meaning program.

DO NOT READ:

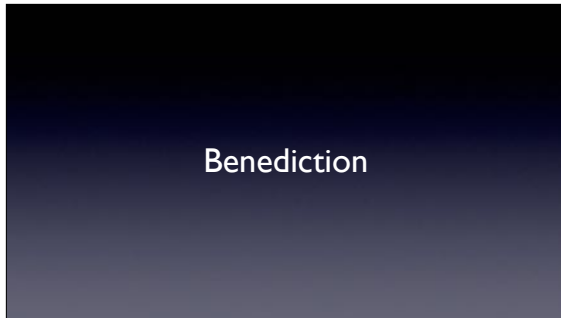
This year it is a new book from our own publishing house titled: **Justice on Earth: People of Faith Working at the Intersections of**



106

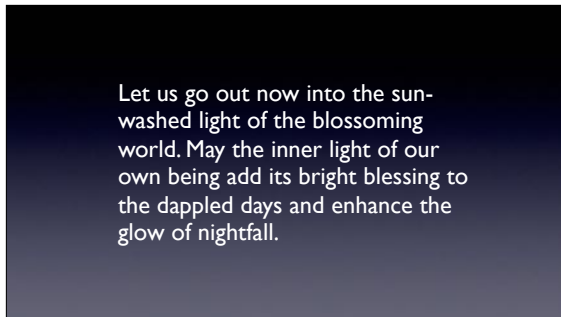
So as UU's we are all called to work to create climate justice. Despite the threat and the challenges, there is indeed a positive way forward, combining both new technologies and a lot of old-fashioned efforts as well, including extending of our circle of compassion to the entire web of life.

Thank you.



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Benediction



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Let us go out now into the sun-washed light of the blossoming world. May the inner light of our own being add its bright blessing to the dappled days and enhance the glow of nightfall.