

# **ENVIRONMENTAL ENGINEERING**

## **NEWSLETTER**

### **26 JAN. 2015**

**This week's edition includes:**

If you need older URLs contact George at ghh@att.net.

Please Note: This newsletter contains articles that offer differing points of view regarding climate change, energy and other environmental issues. Any opinions expressed in this publication are the responses of the editor alone and do not represent the positions of the Environmental Engineering Division or the ASME.

**George Holliday**

This week's edition includes:

#### **DIFICULTY WITH THE ASME LINK**

Hi,

Looks like the link is cutting off. It should be:

[https://community.asme.org/environmental\\_engineering\\_division/b/weblog/default.aspx](https://community.asme.org/environmental_engineering_division/b/weblog/default.aspx)

This should bring you to a page to download the PDF.

Hope that helps.

Chrissy

-----Original Message-----

**From:** George Holliday [<mailto:ghh@att.net>]

**Sent:** Friday, January 16, 2015 7:56 AM

**To:** 'Herbert Braden'

**Cc:** Christina Johns

**Subject:** RE: Newsletter, 19 JAN.. 2015

**Herb:**

I had no difficulty in bring up the articles. I find you need to wait for the article to appear. The system is slow. I suggest you contact Christina Johns at the NY Office. She always is of help to me.

Regards

George

-----Original Message-----

**From:** Herbert Braden [<mailto:hhbraden@gmail.com>]  
**Sent:** Thursday, January 15, 2015 10:17 AM  
**To:** George Holliday  
**Subject:** Re: Newsletter, 19 JAN.. 2015

This URL works to open the report. My problem is opening the URL for individual articles.

Thank you.

Herb Braden

On Thu, Jan 15, 2015 at 6:15 AM, George Holliday <[ghh@att.net](mailto:ghh@att.net)> wrote:

> The EED Health, Safety and Environment Newsletter and attachments are  
> available at

>

> [https://community.asme.org/environmental\\_engineering\\_division/b/weblog/default.aspx](https://community.asme.org/environmental_engineering_division/b/weblog/default.aspx)

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> initial page.

> Regards

> George

>

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## **ENVIRONMENT: A. EPA DELAYS CARBON RULES FOR POWER PLANTS**

The U.S. Environmental Protection Agency (EPA) announced that it would be delaying implementation of rules aimed at curbing carbon emissions from power plants and would write a separate implementation plan for states that have threatened to refuse to submit their own. EPA will issue final rules under a combined process by "mid-summer," said Janet McCabe, acting assistant administrator for the agency's Office of Air and Radiation.

According to an "EPA Fact Sheet: Clean Power Plan and Carbon Pollution Standards", the following list provides key dates from EPA's proposals and planned dates for proposing and

finalizing Clean Air Act standards and actions to address carbon pollution from existing, new, modified and reconstructed power plants:

- January 2015: EPA to begin the regulatory process for proposing a federal plan to meet goals for cutting carbon pollution from existing power plants.
- Summer 2015: EPA to issue final rules on: 1) Clean Power Plan for Existing Power Plants in States, Indian Country and U.S. Territories. 2) Carbon Pollution Standards for New, Modified and Reconstructed Power Plants. 3) EPA plans to propose a federal plan for meeting Clean Power Plan goals for public review and comment.
- Summer 2016: Proposed due date for states to submit compliance plans to EPA – these can be complete plans or initial plans with requests for 1- or 2-year extensions. EPA will also be in a position to issue a final federal plan for meeting Clean Power Plan goals in areas that do not submit plans.
- Summer 2017: Proposed due date for compliance plans with 1-year extension.
- Summer 2018: Proposed due date for multi-state compliance plans with 2-year extension.
- Summer 2020: Proposed beginning of the Clean Power Plan compliance period

The complete two-page fact sheet may be reviewed at: <http://ppec.asme.org/key-issues/energy/> under "Regulations and Announcements."

## **B. ICFORECAST ENERGY OUTLOOK: REGULATORY AND FUEL PRODUCTION SURPRISES ADD TO UNCERTAINTY IN POWER MARKETS**

ICF International, a leading provider of consulting services and technology solutions to government and commercial clients, has released its ICForecast Energy Outlook for the first quarter of 2015. This study highlights the near-, mid- and long-term future impacts of proposed U.S. federal environment regulations, including up-to-date analysis of U.S. Environmental Protection Agency's (EPA) rules and regulation activities; gas, coal and power market prices and coal production; and renewable energy development.

Among the outlook's findings are the following:

- **Regulatory Issues:** In advance of the planned implementation date of EPA's Mercury and Air Toxics Standards (MATS) rule, ICF projects 62 GW of coal generating unit retirements, including already announced plans. With the U.S. Supreme Court set to hear arguments related to the rule in early 2015, it is not yet clear whether that implementation date will change. However, EPA's restart of the Cross-State Air Pollution Rule and the final Clean Power Plan will continue to put pressure on those coal units, especially with natural gas prices expected to remain low in the near term.
- **Natural Gas Market:** The gas market is entering the new year with decidedly bearish price signals. Mild December weather and production growth that continues to outpace demand have kept prices low. Production from the Marcellus and Utica shale plays, concentrated in Pennsylvania and Ohio, now accounts for nearly one-quarter of all U.S. gas production. Assuming normal temperatures for the remainder of winter, ICF projects a slight seasonal rise in gas prices, followed by lower prices in 2015.
- **Coal Market:** While coal stockpiles remain near 10-year lows, they have increased enough to avoid a shortage this winter—unless the winter proves colder than forecasted or rail delivery delays spike again. Over the next 10 years, coal consumption is expected to remain relatively flat. Many coal producers had hoped the export market would

provide relief to the shrinking domestic demand, which has dropped nearly 200 million tons, or 20 percent, in the last four years. However, with both thermal and metallurgical coal prices at five-year lows, the export market is extremely competitive with most U.S. producers unable to compete with Colombian and South African coal into Europe.

- **Renewable Market:** A small extension of the renewable electricity production tax credit was included in the December 2014 tax extenders package; however, it fell short of the two-year extension that wind advocates were hoping to secure. Renewable portfolio standards will continue to drive development opportunities in regions where wind energy is otherwise uneconomic. On the other hand, distributed solar continues to receive incremental support among ongoing evolution of that landscape.
- **Power Market:** Gas units continue to dominate the build mix, while renewables pick up the slack. Wind and solar technologies will continue to dominate the renewable build mix, but low capacity factors will keep their share of total generation nearly constant through 2030, and then will slowly increase to approximately 20 percent by 2040. Coal generation will remain constant through 2020 at which point a downward trend will begin as coal loses its dominance in the generation mix. By 2030, the CO<sub>2</sub> price will be high enough to force more coal out of the dispatch stack as gas dominates the generation mix.

### **C. U.S. CAN MORE THAN TRIPLE SHARE OF RENEWABLE ENERGY BY 2030, NEW IRENA REPORT SAYS**

The United States can increase the use of renewable energy in its energy mix from 7.5 percent in 2010 to 27 percent by 2030, according to a new report, *Renewable Energy Prospects: United States of America*, prepared by the International Renewable Energy Agency (IRENA).

The report is part of IRENA's renewable energy roadmap, REmap 2030, which provides a plan to double the share of renewable energy in the world's energy mix by 2030 and determines the potential for the U.S. and other countries to scale up renewable energy in the energy system, including power, industry, buildings, and the transport sector.

The report also says the U.S. can increase its use of renewable energy in power generation from 14 percent to almost 50 percent by 2030, making it the world's second largest renewable energy user after China.

With current policies in place, the share of renewable energy in the U.S. energy mix will only reach 10 percent by 2030. REmap 2030 estimates that an annual investment of USD 86 billion between now and 2030 is required to reach the 27 percent renewables mark – an increase of USD 38 billion annually beyond the current projection. The higher renewable share will result in an annual savings of \$30 to \$140 billion by 2030 when accounting for factors like human health and reduced emissions.

The full report is available at: <http://ppec.asme.org/key-issues/energy/> under "Issue Reports."

### **D. EPA PROPOSES MORE RESTRICTIVE STANDARDS FOR OIL SPILL DISPERSANTS**

Mark Schleifstein, NOLA.com | The Times-Picayune

Citing lessons learned during the 2010 [BP Deepwater Horizon oil spill](#), the [Environmental Protection Agency](#) on Tuesday proposed sweeping changes in regulations for the use of [chemical dispersants](#) and other substances in future spills.

The 247-page proposed rule includes more stringent standards for toxicity. It also would mandate that the inclusion of the chemicals in regional spill response plans, and the way they are used, be reviewed every five years. The rule would ban the use of dispersants in freshwater. "Our emergency officials need the best available science and safety information to make informed spill response decisions when evaluating the use of specific products on oil discharges," said Mathy Stanislaus, assistant administrator for EPA's Office of Solid Waste and Emergency Response, in a news release announcing the proposed rule.

"These requirements are anticipated to encourage the development of safer and more effective spill mitigating products, and would better target the use of these products to reduce the risks to human health and the environment," said a summary statement included with the proposed rule. The new rule was praised by Christopher Reddy, a Woods Hole Oceanographic Institution researcher who tracked oil and dispersants from the BP well in the aftermath of the 2010 spill. In December, Reddy and another scientist co-authored an [opinion piece for CNN](#) that urged the public not to dismiss the use of dispersants in future spills. "These are entirely reasonable recommendations that ideally will provide decision-makers more content when faced with the reality of using dispersants and other agents," Reddy said Tuesday.

"I also hope that these efforts will help limit the concerns of people who fear using them," he said. "Ultimately, we should continue to strive to stop spills and reduce damages when they occur. And when dispersants are needed, we can increase the net environmental benefit of their usage."

The rule is aimed at assuring that those overseeing oil spill responses -- the on-scene coordinators, regional response teams of federal and state environmental officials, and the companies responsible for the spills -- have a list of preauthorized dispersants, oil absorbing materials, biological agents that promote oil degradation, and chemicals that help promote burning of the oil at the beginning of such an incident.

In the case of the BP oil spill, officials were limited in the choice of chemicals to a handful that already were on hand and were recommended for use by BP and its contractors.

According to the rule summary, more than 1 million gallons of dispersant chemicals were used on surface slicks over thousands of miles of the Gulf during the 3-month uncontrolled release of oil from the well.

The new rule also addresses the unprecedented injection of close to 750,000 gallons of dispersants directly into the stream of oil leaving BP's Macondo well a mile below the Gulf of Mexico's surface by requiring comprehensive monitoring in the future if that method is repeated. [BP used Corexit 9500A](#), which contains the potentially toxic chemical dioctyl sodium sulfosuccinate, or DOSS. Measurable amounts of Corexit and DOSS were found near the well for longer than two months after the well was capped in 2010. An EPA spokeswoman did not respond to a request for information on whether the new rule would prohibit the use of the Corexit product or of products containing DOSS.

The summary warns that dispersing oil below the surface increases the potential exposure of aquatic organisms to both dispersants and oil, requiring new monitoring conditions that can be conducted in deep water, and even in colder, Arctic waters.

Monitoring of subsurface use of dispersants would be required for oil discharges of more than 100,000 gallons in a 24-hour period, and when surface use of dispersants occurs for more than 96 hours.

Monitoring would include sampling of the water column in areas not yet affected by the spill immediately after the incident and then daily sampling in areas where the oil might be flowing as the incident continues.

The monitoring program also would include characterization of the "ecological receptors" -- the aquatic species, wildlife, or other biological resources -- their habitats, and exposure pathways. The rule also would require the company responsible for the spill to immediately report whenever the use of subsurface dispersant is deviated by more than 10 percent in the hourly application rate, warning that such deviations could "confound sampling interpretations." Manufacturers of the dispersants and other spill-fighting materials would be required to produce more detailed information about how their products are applied, as well as ecological toxicity data and human health and safety information, including detailed instructions on how the product should be used.

EPA estimates the new rule would cost industry between \$668,000 and \$694,000 a year, but would result in a better understanding of how the products will be allowed to use and the development of less toxic products..

Dispersants are a mixture of solvents and surfactants that break down oil into tiny droplets that are more quickly degraded into less harmful substances. Portions of the droplets dissolve and mix with water, and some of the droplets are eaten by microorganisms.

The new rule would require that regional and local preauthorization plans for use of dispersants must specify limits on the quantities and duration of use, and must contain parameters about where they can be used, including water depth, distance to shoreline, and how close they will be to populated areas.

"The agency believes that clearly stating the use parameters in a preauthorization plan will make it easier for planners to address concerns of preauthorizing agent use and in turn for responders to authorize their use," the summary said.

And those officials will be required to address regional factors in their plans, the summary said.

"Regional factors include the likely sources and types of oil that might be discharged, various discharge scenarios, and the existence and location of environmentally sensitive resources or restricted areas that might be impacted by discharged oil," it said. "Logistical factors include inventory, storage locations and manufacturing capability of available agents, availability of equipment needed for agent use, availability of adequately trained operators, and the availability of appropriate means to monitor agent use."

The rule defines environmentally sensitive resources to include fish, wildlife and their habitats and other special areas of ecological sensitivity. Restricted areas could include biologically sensitive features such as coral reefs and submerged rock formations colonized by a species. And while all members of a regional response team, including state and local officials, will be invited to review draft preauthorization plans, only response team members from EPA, the Department of Interior and Department of Commerce, which includes the National Marine Fisheries Service, and the affected state will have approval authority.

In addition to mandated 5-year reviews of those plans, the plans must also be reviewed after a major spill, to reflect new listings of threatened or endangered species, or for other major changes such as new or revised worst-case discharge estimates for potential spills, the summary said.

The rule allows on-scene coordinators to make an emergency decision authorizing the use of materials not on the official schedule under limited circumstances when protection of human life is paramount. The proposal used the case of a spill of a highly flammable petroleum

product in a harbor or near an inhabited area as an example.

Among materials prohibited from use are so-called "sinking agents," chemicals or other materials that bond with oil and make it sink to the water bottom.

The proposed rule also prohibits two chemicals that had been used in some dispersants in the past, called nonylphenol and nonylphenol ethoxylate. The two chemicals, often found in laundry detergent, are considered endocrine disruptors because they alter hormonal and homeostatic systems in humans and wildlife. The hormonal effects could include causing fish to change genders or disrupting their reproduction, and the homeostatic effects could include an inability to maintain proper internal body temperatures.

The summary said other chemicals that cause endocrine disruption were not being banned, but said such bans could occur in the future, once a national EPA of such chemicals is completed. Chemical constituents of the dispersants and other materials also must pass more stringent laboratory tests for acute toxicity, generally requiring that 10 parts per million of the chemical in water can't kill more than 50 percent of certain test organisms.

For chronic toxicity, the chemicals must meet a "No Observed Effect Concentration" requirement of 1 part per million in water during a seven-day period resulting in no problems for the test organisms.

EPA is accepting public comments on the [proposed rule](#) for 90 days after the it is published in the Federal Register, which should occur later this week.

## **HEALTH. A. COOL HIGH SPEED VIDEO: RAINFALL CAN RELEASE AEROSOLS, STUDY FINDS**

[Anthony Watts / 15 hours ago January 14, 2015](#)

From the Massachusetts Institute of Technology:

Ever notice an earthy smell in the air after a light rain? Now scientists at MIT believe they may have identified the mechanism that releases this aroma, as well as other aerosols, into the environment.

<http://wattsupwiththat.com/2015/01/14/cool-high-speed-video-rainfall-can-release-aerosols-study-finds/>

### **COMMENTS:**

#### **A. THE WEEK THAT WAS: 2015-01-17 (JAN. 17, 2015)**

*By Ken Haapala, President, Science and Environmental Policy Project (SEPP)*

**NOAA –NASA Temperature Announcement:** Perhaps few public statements exemplify the willingness of certain government agencies to mislead the public as clearly as this week's joint announcement by the National Oceanic and Atmospheric Administration (NOAA) and the National Aeronautics and Space Administration (NASA). The press release reads as if the announcement was considered more an opportunity for self-promotion than a scientific statement.

*"NASA is at the forefront of the scientific investigation of the dynamics of the Earth's climate on a global scale," said John Grunsfeld, associate administrator for the Science Mission Directorate at NASA Headquarters in Washington. "The observed long-term warming trend and the ranking of 2014 as the warmest year on record reinforces the importance for NASA to study Earth as a complete system, and particularly to understand the role and impacts of human activity."*

*“NOAA provides decision makers with timely and trusted science-based information about our changing world,” said Richard Spinrad, NOAA chief scientist. “As we monitor changes in our climate, demand for the environmental intelligence NOAA provides is only growing. It's critical that we continue to work with our partners, like NASA, to observe these changes and to provide the information communities need to build resiliency.”*

*“NASA monitors Earth's vital signs from land, air and space with a fleet of satellites, as well as airborne and ground-based observation campaigns. NASA develops new ways to observe and study Earth's interconnected natural systems with long-term data records and computer analysis tools to better see how our planet is changing. The agency shares this unique knowledge with the global community and works with institutions in the United States and around the world that contribute to understanding and protecting our home planet.”*

**The press release touts a fleet of satellites, yet ignores the measurements from these satellites, the most comprehensive set of global temperature ever compiled, which do not support the claim that 2014 was the warmest year on record.** As discussed in the January 10 TWTW, the reporting agencies for satellite temperatures, independently supported by data from radiosondes on weather balloons, are the Earth System Science Center at the University of Alabama in Huntsville (UAH) and Remote Sensing Systems (RSS). UAH reported that 2014 was the third warmest since 1979, barely exceeding several other years such as 2002, 2005, and 2013. RSS, reported that 2014 only the sixth warmest.

It is unfortunate that these government agencies both claim to be scientific, with one responsible for the US civilian space program (NASA), and the other claims its mission is “to understand and predict changes in climate, weather, oceans, and coasts” (NOAA), ignore the finest scientific temperature data available. Clearly, these agencies subordinate scientific discovery to other purposes.

Writing for the Global Warming Policy Forum (GWPF), David Whitehouse, among others, pointed out that the NASA-GISS (Goddard Institute of Space Studies) database of **surface data** showed that the margin of warming for 2014 was about 0.02 deg C above the data for 2010. He asserts that the margin of error of the measurements is about +/-0.1 deg C. Thus, the “bump” in temperatures is within the margin of error of the reported data and “[t]alk of a record is therefore scientifically and statistically meaningless.”

TWTW would argue that, given poor geographic coverage of the surface-air observations, the movement of observation points on the surface, and the frequent manipulation of the data by the reporting entities, not clearly publically disclosed, the margin of error is likely to be well above +/-0.1 deg C and it is actually unknown.

Further, when comparing satellite observations, which comprise volumes of air contrasting with points on the surface, the surface data is inferior.

Whitehouse also points out that the Berkeley Earth (BEST) analysis team reported its findings, which are similar but its press release is starkly different. “The global surface temperature average (land and sea) for 2014 was nominally the warmest since the global instrumental record began in 1850; however, within the margin of error, it is tied with 2005 and 2010 and so we can't be certain it set a new record.”

Judith Curry observes that the *New York Times* promoted the claim that 2014 was the hottest year ever and quoted Gavin Schmidt, the head of NASA-GISS, who claimed the

next time a strong El Niño occurs, “it is likely to blow away all temperature records”. Curry discusses the issue of the issue of the El Niño, which is occurring but not as strong or as typical as some expected.

Schmidt’s mention of an El Niño raises a critical issue. If it takes a natural event such as an El Niño to push temperatures higher, then there is something very wrong with the science in which the UN Intergovernmental Panel on Climate Change (IPCC) proclaimed 95% certainty that humans are the primary cause of global warming and with the models based on this science.

Curry brings up that Senator Ted Cruz (R-Texas) was just named to be the chairman of the Subcommittee on Space, Science, and Competitiveness. “The folks at *Slate* are not happy: *Yup, a Climate Change Denier Will Oversee NASA. What Could Possibly Go Wrong?* They are particularly up in arms over this statement from Ted Cruz: *‘The last 15 years, there has been no recorded warming. Contrary to all the theories that—that they are expounding, there should have been warming over the last 15 years. It hasn’t happened.’*” As Curry points out, there is nothing irrational or incorrect about Senator Cruz’s statement. No wonder he is opposed by global warming promoters. See links under Challenging the Orthodoxy, Questioning the Orthodoxy, and Measurement Issues.

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**Legislative Opportunities:** With the new Congress, SEPP was asked in what five major areas can there be some legislative improvement. One area is data quality as illustrated by the above press release by NOAA –NASA. Even in press releases, agencies claiming to be scientific must use the finest data available. Important data should not be hidden or ignored. Someone with NOAA or NASA may argue that satellite data do not go as far back 1880. The rebuttal is what type of surface coverage was there in 1880 in Greenland, Antarctica, Asia, Africa, etc? From a global perspective, the claim that the surface record goes back to 1880 is meaningless.

A second area is the use of models that have not been validated in establishing policy, particularly long-rang projections from such models. As we are witnessing, global climate models are failing in the short-term. There is no logical reason to assume that their long-range projections will fare any better. Establishing energy policy, land use policy, etc. on such models can create unneeded, major hardships. Such energy policies include those under Germany’s *Energiewende*, the UK’s Climate Change Act of 2008, and the US Administration’s Clean Power Plan.

A third area for legislative correction is the tailoring of global models for regional analysis, without independent validation. Further, when models are inconsistent with data, data should take preference. For example, the budget of the US Global Change Research program is about \$2.5 billion and has remained at that level since 2010 (adjusted for inflation). The USGCRA states its mission as: “Thirteen Agencies, One Vision: Empower the Nation with Global Change Science.”

On May 6, 2014 USGCRP released its National Climate Assessment. The report contains 8 regional reports and one for the 48 states contiguous states. The regional report for the Southeast U.S. projects a major general warming of about 10 F for the region even though “The lack of mid-20th century warming in the Southeast is not simulated by the models. However, 21st century simulations of temperature indicate that future warming will be much larger than the observed values for the 20th century.” There is no logically reason for this assertion ant the inconsistency between data and models.

A fourth area for legislative improvement is the social benefits of carbon dioxide. Increased atmospheric carbon dioxide is a great benefit to agriculture, the environment, and humanity. We have thousands of empirical studies showing these benefits. Fear of increased atmospheric carbon dioxide is not substantiated, yet the benefits are being ignored.

And a fifth area is false fossil fuel limitations and electricity issues. Neither the US nor the world will run out of fossil fuels in the foreseeable future. The US has hundreds of years of coal, and at least decades of oil and natural gas. We do not know how much. As being demonstrated in China, with metallurgy improvements, ultra-supercritical coal-fired plants are a reality. These plants are more efficient and cleaner than coal-fired plants in the past. The only remaining issue is disposal of the coal ash, which is solvable. Yet, Washington opposes coal-fired power plants and fossil fuels.

Civilization requires affordable, reliable electricity. Who would check into a modern hospital for a major operation if the electricity frequently failed without warning? Until an affordable, reliable electricity-storage system is available on a commercial scale, solar and wind generation is second-class. The storage issue has been recognized for about 100 years. Subsidies and mandates for deployment of unreliable electricity should stop until the storage issue is solved.

Links supporting above statements from US government include:

<http://www.whitehouse.gov/sites/default/files/microsites/ostp/FY%202015%20Climate.pdf>,

<http://www.globalchange.gov/ncadac> , and

[http://scenarios.globalchange.gov/sites/default/files/NCA-SE\\_Regional\\_Scenario\\_Summary\\_20130517\\_banner.pdf](http://scenarios.globalchange.gov/sites/default/files/NCA-SE_Regional_Scenario_Summary_20130517_banner.pdf)

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**A Different Climate Model?** Statistician William Matt Briggs introduces us to a different, simple, climate model designed by Christopher Monckton, Willie Soon, David Legates and Briggs. According to the press release by Briggs, the model was explained in a paper accepted by *Science Bulletin* (formerly Chinese Science Bulletin), the Orient's equivalent of *Science* or *Nature*. The press release states the simple model was designed to answer the question why the general circulation models used by the IPCC overestimate warming since 1990. Based on the information given, the new model tracks much better than the highly complex general circulation models, favored by the IPCC and the organizations that follow it. The main difference between the simple model and the IPCC models is that in the new model, it is assumed that natural processes will reduce the impact of warming caused by increased carbon dioxide (negative feedback), while the IPCC models, in general, assume natural processes will enhance the impact of warming caused by increased carbon dioxide (positive feedback such as water vapor).

No doubt, some in the orthodox Climate Establishment will dismiss or ignore the new model. But the climate research being conducted by Chinese scientists is important and, in some cases, supersedes the empirical research by the climate establishment and the IPCC. Other errors by the climate establishment are coming to the fore, such as the inability to physically find the so called "hot spot", a region of pronounced warming centered over the tropics at about 33,000 feet (10km). The "hot spot" is part of EPA's claim that humans are the cause of late 20th century warming and its justification for regulating carbon dioxide emissions.

According to the press release, Monckton states: “Our irreducibly simple climate model does not replace more complex models, but it does expose major errors and exaggerations in those models, such as the over-emphasis on positive or amplifying temperature feedbacks. ...”

Although significant additional work and testing remains, the approach by Monckton, et al. of a negative feedback is consistent with prior findings by Spencer and Braswell, and Lindzen and Chou. Given that both Spencer and Lindzen have reported great difficulty in having their work published, the *Science Bulletin* may become a welcome addition to science journals. See links under Challenging the Orthodoxy.

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**Oil Prices, How Low?** The recent drop in oil prices has created massive speculation on how low can the prices go? Much of this speculation involves petro-states, the governments of nations that derive a large portion of their budgets from state-owned oil companies. Several conclusions can be drawn from this controversy. One, the shale-gale is real. Deep underground hydraulic fracturing of dense shale to produce oil works, even though the initial oil production tapers off very quickly. Two, the frequently proclaimed monopoly of big oil is a myth. Much of major production is controlled by governments. The shale-gale in the US is dominated by small and mid-sized producers that took advantage by leasing drilling rights in shale formations very early. Three, contrary to prior predictions, oil production will be a major source of energy for years to come (unless the anti-fossil fuel groups seize control of most of the world’s productive areas). Writing in Project Syndicate, Anatole Kaletsky offers a different approach than most commentators, many of whom focus on the revenue needs of the governments of the petro-states. Kaletsky suggests that the floor price for oil is determined by the lowest-cost major oil producer, Saudi Arabia, and that the ceiling is determined by marginal costs of the North American shale producers.

If so, then recent news about major US shale oil producers should give pause to those speculating on a major price increase. According to the *Wall Street Journal*, companies such as EOG Resources Inc. “are drilling better wells faster. EOG said recently it takes 4.3 days to drill its average well in the Eagle Ford Shale in South Texas, down from 14.2 days in 2012. What’s more, as it drills more of them, it has figured out how to locate wells to get the highest oil output... Combining lowering costs and increasing output means that EOG says it can drill wells at \$40 per barrel in North Dakota, South Texas and West Texas, while still earning a 10% return.”

One can add that the traditional drilling risks of hitting a dry hole have virtually disappeared. See Article # 2, links under Energy Issues –Non-US, Energy Issues –US and Oil and Natural Gas –the Future or the Past?

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**Additions and Corrections:** Following last week’s altered quote of the week: “You can fool all the people some of the time, and some of the people all the time, but you cannot fool Nature!”. Professor of Mathematics Christopher Essex quipped: “Ah, but you can fool the magazine by that name.”

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**Number of the Week: 0.02°C.** As reported by David Whitehouse of GWPF, and others, the bump in global temperature, that created a great triumphal announcement among

global warming promoters, was all of 0.02°C, well within the range of error. See comments under NOAA-NASA Temperature Announcement.

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<http://www.sepp.org/twtwfiles/2015/TWTW%201-17-15.pdf>

## **B. KEYSTONE KOPS: THE OBAMA ADMINISTRATION'S JOBS DENIERS**

Just call them the Keystone Kops. They're the gang that can't take yes for an answer.

Desperate to appease his leftist base, President Obama has been eagerly looking for a reason—any reason—not to approve the Keystone XL pipeline. First he claimed that it might harm the environment. But his own State Department released an [environmental impact statement](#) stating that Keystone XL would not have a major impact on the environment.

Even more important than the direct jobs from the Keystone XL pipeline are the indirect benefits of affordable, abundant American energy.

Next, the President claimed that he wanted to let the Nebraska courts rule on land disputes related to the pipeline before giving it the federal go-ahead. Well, the Nebraska Supreme Court recently issued its ruling, dismissing the lawsuit and allowing the pipeline project to go ahead in the Cornhusker State—if only Washington would get its own act together and approve it.

<http://www.foxnews.com/opinion/2015/01/15/keystone-kops-obama-administrations-jobs-deniers/>

## **C. JUDGE'S RULING ON GULF OIL SPILL LOWERS CEILING ON THE FINE BP IS FACING**

By [JOHN SCHWARTZ](#) JAN. 15, 2015

A federal judge will hold [BP](#) responsible for spilling 3.19 million barrels of oil into the Gulf of Mexico in the 2010 Deepwater Horizon disaster — a finding that could lead to a penalty of nearly \$14 billion.

Judge Carl J. Barbier of Federal District Court in New Orleans issued the ruling on Thursday. In a 44-page finding of fact that anticipates the coming third phase of the sprawling federal case over the spill, Judge Barbier wrote that the company actually spilled four million barrels of oil into the gulf but, considering its collection efforts, BP should be held responsible for a net discharge of 3.19 million, or about 134 million gallons.

The estimated number of barrels is substantially less than the five million barrels experts for the federal government estimated (4.19 million after taking collection efforts into account), and substantially more than the 3.26 million the company said had been released (2.45 million after collection).

Because Judge Barbier previously found the company grossly negligent in causing the spill, the maximum penalty for each barrel under the Clean Water Act is \$4,300. BP is appealing the court's gross negligence finding.

If the government's estimate had been used, the penalty could have been as much as \$18 billion. Under Judge Barbier's ruling, the figure could be as high as about \$13.7 billion.

In Thursday's ruling, Judge Barbier did not demonstrate how he arrived at the 3.19 million barrel figure. In fact, he wrote, the evidence from the government and from the company was "voluminous, dense, highly technical, and conflicting."

He gave examples of the complexities of the conflicting arguments. “Both sides presented evidence to support their cumulative flow estimates,” he wrote, “and each mounted effective attacks on the other’s calculations.”

[http://www.nytimes.com/2015/01/16/business/energy-environment/judge-sets-top-penalty-for-bp-in-deepwater-horizon-spill-at-nearly-14-billion.html?\\_r=0](http://www.nytimes.com/2015/01/16/business/energy-environment/judge-sets-top-penalty-for-bp-in-deepwater-horizon-spill-at-nearly-14-billion.html?_r=0)

## **D. CALAMITIES OVERSOLD**

Guest Post by Bob Tisdale

The overselling of calamities in environmental sciences has reached unseemly proportions...so much so in one field that in 2014 a team of marine researchers exposed the problems in a journal article. The paper is Duarte et al. (2014) **Reconsidering Ocean Calamities**. The abstract reads (my boldface): The proliferation of a...

<http://wattsupwiththat.com/2015/01/16/calamities-oversold/>

## **E. 2014 BREAKS HEAT RECORD, CHALLENGING GLOBAL WARMING SKEPTICS**

By JUSTIN GILLISJAN. 16, 2015

The New York Times

Last year was the hottest on earth since record-keeping began in 1880, scientists reported on Friday, underscoring warnings about the risks of runaway greenhouse gas emissions and undermining claims by climate change contrarians that global warming had somehow stopped. Extreme heat blanketed Alaska and much of the western United States last year. Records were set across large areas of every inhabited continent. And the ocean surface was unusually warm virtually everywhere except near Antarctica, the scientists said, providing the energy that fueled damaging Pacific storms.

In the annals of climatology, 2014 surpassed 2010 as the warmest year. The 10 warmest years have all occurred since 1997, a reflection of the relentless planetary warming that scientists say is a consequence of human activity and poses profound long-term risks to civilization and nature.

“Climate change is perhaps the major challenge of our generation,” said Michael H. Freilich, director of earth sciences at NASA, one of the agencies that track global temperatures.

Of the large land areas where many people live, only the eastern portion of the United States recorded below-average temperatures in 2014, in sharp contrast to the unusual heat in the West. Some experts think the weather pattern that produced those American extremes is an indirect consequence of the release of greenhouse gases, though that is not proven.

Several scientists said the most remarkable thing about the 2014 record was that it had occurred in a year that did not feature a strong El Niño, a large-scale weather pattern in which the Pacific Ocean pumps an enormous amount of heat into the atmosphere.

Skeptics of climate change have long argued that global warming stopped around 1998, when an unusually powerful El Niño produced the hottest year of the 20th century. Some politicians in Washington have seized on that claim to justify inaction on emissions.

But the temperature of 1998 is now being surpassed every four or five years, and 2014 was the first time that happened without a significant El Niño. Gavin A. Schmidt, head of NASA’s Goddard Institute for Space Studies in Manhattan, said the next strong El Niño would probably rout all temperature records.

Continue reading the main story

The Warmest Year on Record

Parts of the eastern United States were cooler than average last year, but globally 2014 was the warmest year in recorded history.

Full article: [http://www.nytimes.com/2015/01/17/science/earth/2014-was-hottest-year-on-record-surpassing-2010.html?\\_r=0](http://www.nytimes.com/2015/01/17/science/earth/2014-was-hottest-year-on-record-surpassing-2010.html?_r=0)

Rob W. Taylor

## **F. NASA CLIMATE SCIENTISTS: WE SAID 2014 WAS THE WARMEST YEAR ON RECORD... BUT WE'RE ONLY 38% SURE WE WERE RIGHT**

NASA admits this means it is far from certain that 2014 set a record at all

Does that mean 97% of climate experts are 62% sure they are wrong?\*

The thing with half-truths is that they generate a glorious fog, but it has no substance. Ask the spin-cloud of a couple of sensible questions and the narrative collapses. This is the kind of analysis that would have stopped the rot 25 years ago if most news outlets had investigative reporters instead of science communicators trained to “raise awareness”. (The media IS the problem). If there was a David-Rose-type in most major dailies, man-made global warming would never have got off the ground.

The claim made headlines around the world, but yesterday it emerged that GISS’s analysis – based on readings from more than 3,000 measuring stations worldwide – is subject to a margin of error. Nasa admits this means it is far from certain that 2014 set a record at all.

Yet the Nasa press release failed to mention this, as well as the fact that the alleged ‘record’ amounted to an increase over 2010, the previous ‘warmest year’, of just two-hundredths of a degree – or 0.02C.

The margin of error is about a tenth of a degree, so those error bars are 500% larger than the amount pushed in headlines all over the world. Gavin Schmidt of course, is horrified that millions of people may have been misled:

GISS’s director Gavin Schmidt has now admitted NASA thinks the likelihood that 2014 was the warmest year since 1880 is just 38 per cent. However, when asked by this newspaper whether he regretted that the news release did not mention this, he did not respond.

I’m sure he’s too busy contacting newspapers and MSNBC to make sure stories from NASA GISS are accurate and scientifically correct.

Read more: <http://www.dailymail.co.uk>

<http://joannenova.com.au/2015/01/gavin-schmidt-now-says-they-are-only-38-sure-2014-was-the-hottest-year/>

Don Shaw

## **G. ‘WARMEST YEAR’, ‘PAUSE’, AND ALL THAT**

Posted on [January 16, 2015](#) | [735 comments](#)

by Judith Curry

So, was 2014 the ‘warmest year’? Drum roll . . .

<http://judithcurry.com/2015/01/16/warmest-year-pause-and-all-that/#more-17601>

## **H. ON THE BIASES CAUSED BY OMISSIONS IN THE 2014 NOAA STATE OF THE CLIMATE REPORT**

Guest Post by Bob Tisdale [Update:

Corrected a few typos in the paragraph before Figure 4. My thanks to rogerknights.] I hadn't read the NOAA State of the Climate (SOTC) Report for 2014 when I prepared the post Does the Uptick in Global Surface Temperatures in 2014 Help the Growing Difference between Climate Models and Reality?...

<http://wattsupwiththat.com/2015/01/17/on-the-biases-caused-by-omissions-in-the-2014-noaa-state-of-the-climate-report/>

## **I. PEER-REVIEWED POCKET-CALCULATOR CLIMATE MODEL EXPOSES SERIOUS ERRORS IN COMPLEX COMPUTER MODELS AND REVEALS THAT MAN'S INFLUENCE ON THE CLIMATE IS NEGLIGIBLE**

[Anthony Watts](#) / [2 hours ago](#)

### **What went wrong?**

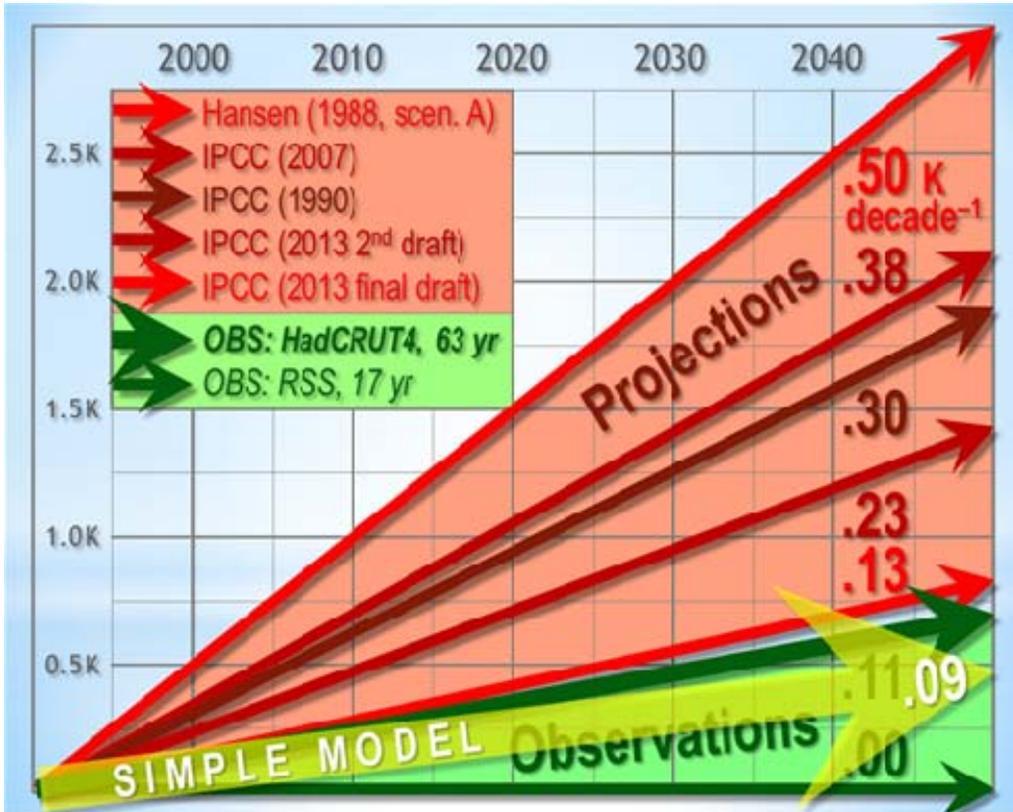
"A major peer-reviewed climate physics paper in the first issue (January 2015: vol. 60 no. 1) of the prestigious *Science Bulletin* (formerly *Chinese Science Bulletin*), the journal of the Chinese Academy of Sciences and, as the Orient's equivalent of *Science* or *Nature*, one of the world's top six learned journals of science, exposes elementary but serious errors in the general-circulation models relied on by the UN's climate panel, the IPCC. The errors were the reason for concern about Man's effect on climate. Without them, there is no climate crisis.

Thanks to the generosity of the Heartland Institute, the paper is open-access. It may be downloaded free from <http://www.scibull.com:8080/EN/abstract/abstract509579.shtml>. Click on "PDF" just above the abstract.

The IPCC has long predicted that doubling the CO<sub>2</sub> in the air might eventually warm the Earth by 3.3 C°. However, the new, simple model presented in the *Science Bulletin* predicts no more than 1 C° warming instead – and possibly much less. The model, developed over eight years, is so easy to use that a high-school math teacher or undergrad student can get credible results in minutes running it on a pocket scientific calculator.

The paper, *Why models run hot: results from an irreducibly simple climate model*, by Christopher Monckton of Benchley, Willie Soon, David Legates and Matt Briggs, survived three rounds of tough peer review in which two of the reviewers had at first opposed the paper on the ground that it questioned the IPCC's predictions.

When the paper's four authors first tested the finished model's global-warming predictions against those of the complex computer models and against observed real-world temperature change, their simple model was closer to the measured rate of global warming than all the projections of the complex "general-circulation" models:



Next, the four researchers applied the model to studying why the official models concur in over-predicting global warming. In 1990, the UN's climate panel predicted with "substantial confidence" that the world would warm at twice the rate that has been observed since.



The very greatly exaggerated predictions (orange region) of atmospheric global warming in the IPCC's 1990 *First Assessment Report*, compared with the mean anomalies (**dark blue**) and trend (**bright blue straight line**) of three terrestrial and two satellite monthly global mean temperature datasets since 1990.

The measured, real-world rate of global warming over the past 25 years, equivalent to less than 1.4 C° per century, is about half the IPCC's central prediction in 1990.

The new, simple climate model helps to expose the errors in the

complex models the IPCC and governments rely upon. Those errors caused the over-predictions on which concern about Man's influence on the climate was needlessly built.

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Among the errors of the complex climate models that the simple model exposes are the following –

- The assumption that “temperature feedbacks” would double or triple direct manmade greenhouse warming is the largest error made by the complex climate models. Feedbacks may well reduce warming, not amplify it.
- The Bode system-gain equation models mutual amplification of feedbacks in electronic circuits, but, when complex models erroneously apply it to the climate on the IPCC's false assumption of strongly net-amplifying feedbacks, it greatly over-predicts global warming. They are using the wrong equation.
- Modelers have failed to cut their central estimate of global warming in line with a new, lower feedback estimate from the IPCC. They still predict 3.3 C° of warming per CO2 doubling, when on this ground alone they should only be predicting 2.2 C° – about half from direct warming and half from amplifying feedbacks.
- Though the complex models say there is 0.6 C° manmade warming “in the pipeline” even if we stop emitting greenhouse gases, the simple model – confirmed by almost two decades without any significant global warming – shows there is no committed but unrealized manmade warming still to come.
- There is no scientific justification for the IPCC's extreme RCP 8.5 global warming scenario that predicts up to 12 C° global warming as a result of our industrial emissions of greenhouse gases.

Once errors like these are corrected, the most likely global warming in response to a doubling of CO2 concentration is not 3.3 C° but 1 C° or less. Even if all available fossil fuels were burned, less than 2.2 C° warming would result.

**Lord Monckton**, the paper's lead author, created the new model on the basis of earlier research by him published in journals such as *Physics and Society*, *UK Quarterly Economic Bulletin*, *Annual Proceedings of the World Federation of Scientists' Seminars on Planetary Emergencies*, and *Energy & Environment*. He said: “Our irreducibly simple climate model does not replace more complex models, but it does expose major errors and exaggerations in those models, such as the over-emphasis on positive or amplifying temperature feedbacks. For instance, take away the erroneous assumption that strongly net-positive feedback triples the rate of manmade global warming and the imagined climate crisis vanishes.”

**Dr Willie Soon**, an eminent solar physicist at the Harvard-Smithsonian Center for Astrophysics, said: “Our work suggests that Man's influence on climate may have been much overstated. The role of the Sun has been undervalued. Our model helps to present a more balanced view.”

**Dr David Legates**, Professor of Geography at the University of Delaware and formerly the State Climatologist, said: “This simple model is an invaluable teaching aid. Our paper is, in effect, the manual for the model, discussing appropriate values for the input parameters and demonstrating by examples how the model works.”

**Dr Matt Briggs**, “Statistician to the Stars”, said: “A high-school student with a pocket scientific calculator can now use this remarkable model and obtain credible estimates of global warming

simply and quickly, as well as acquiring a better understanding of how climate sensitivity is determined. As a statistician, I know the value of keeping things simple and the dangers in thinking that more complex models are necessarily better. Once people can understand how climate sensitivity is determined, they will realize how little evidence for alarm there is.””

**It is well known that the complex climate computer model predictions have grossly exaggerated global warming when compared to actual measured temperature data. One wonders how long we will continue to waste valuable resources on such activities based on poor performance which unfortunately the IPCC have adopted to predict catastrophic consequences. This article from WUWT summarizes a peer reviewed paper that more accurately predicts temperatures with a simple computer model. One of the big issues is the presumed "sensitivity" that is incorporated in the models. I'm sure this will be criticized by the CAGW believers.**

**Don Shaw**

## **J. 2014 AS THE MILDEST YEAR: WHY YOU ARE BEING MISLED ON GLOBAL TEMPERATURES**

January 18th, 2015

### **OR: Why I Should Have Been an Engineer Rather than a Climate Scientist**

I've been inundated with requests this past week to comment on the NOAA and NASA reports that 2014 was the “hottest” year on record. Since I was busy with a Japan space agency meeting in Tokyo, it has been difficult for me to formulate a quick response.

Of course, I've addressed the “hottest year” claim before it ever came out, both [here](#) on October 21, and [here](#) on Dec. 4.

In the three decades I've been in the climate research business, it's been clear that politics have been driving the global warming movement. I knew this from the politically-savvy scientists who helped organize the U.N.'s process for determining what to do about human-caused climate change. (The IPCC wasn't formed to determine whether it exists or whether it was even a threat, that was a given.)

I will admit the science has always supported the view that slowly increasing carbon dioxide levels in the atmosphere from burning of fossil fuels should cause *some* warming, but the view that this would in any way be a bad thing for humans or for Nature has been a politically (and even religiously) driven urban legend.

I am embarrassed by the scientific community's behavior on the subject. I went into science with the misguided belief that science provides answers. Too often, it doesn't. Some physical problems are simply too difficult. Two scientists can examine the same data and come to exactly opposite conclusions about causation.

We still don't understand what causes natural climate change to occur, so we simply assume it doesn't exist. This despite abundant evidence that it was just as warm 1,000 and 2,000 years ago as it is today. Forty years ago, “climate change” necessarily implied natural causation; now it only implies human causation.

What changed? Not the science...our estimates of climate sensitivity are about the same as they were 40 years ago.

What changed is the politics. And not just among the politicians. At AMS or AGU scientific conferences, political correctness and advocacy are now just as pervasive as they have become in

journalism school. Many (mostly older) scientists no longer participate and many have even resigned in protest.

Science as a methodology for getting closer to the truth has been all but abandoned. It is now just one more tool to achieve political ends.

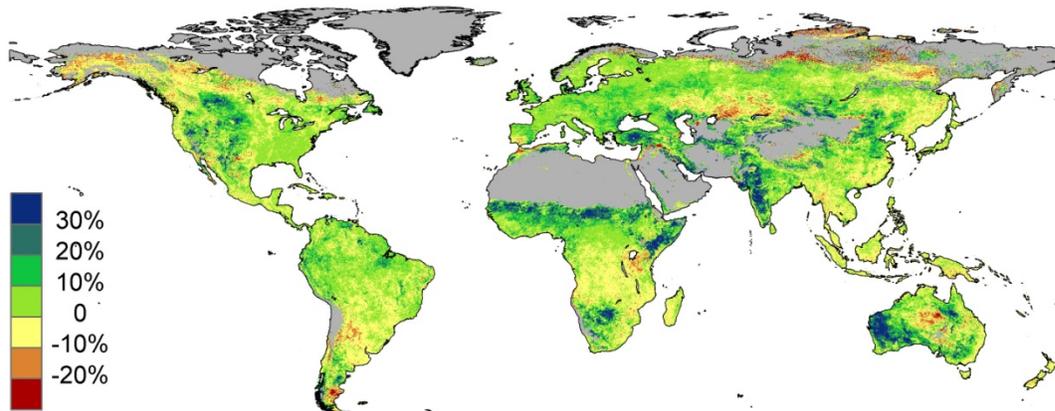
Reports that 2014 was the “hottest” year on record feed the insatiable appetite the public has for definitive, alarming headlines. It doesn’t matter that even in the thermometer record, [2014 wasn’t the warmest within the margin of error](#). Who wants to bother with “margin of error”? Journalists went into journalism so they wouldn’t have to deal with such technical mumbo-jumbo. [I said this six weeks ago](#), as did others, but no one cares unless a mainstream news source stumbles upon it and is objective enough to report it.

In what universe does a temperature change, that is too small for anyone to feel over a 50 year period become globally significant? Where we don’t know if the global average temperature is 58 or 59 or 60 deg. F, but we are sure that if it increases by 1 or 2 deg. F, that would be a catastrophe?

Where our only truly global temperature measurements, the satellites, are ignored because they don’t show a record warm year in 2014?

In what universe do the climate models, built to guide energy policy are not even adjusted to reflect reality, when they over-forecast past warming by a factor of 2 or 3?

And where people have to lie about severe weather getting worse (it hasn’t)? Or where we have totally forgotten that more CO<sub>2</sub> is actually good for life on Earth, leading to increased agricultural productivity, and [global greening](#)?:



Estimated changes in vegetative cover due to CO<sub>2</sub> fertilization between 1982 and 2010 (Donohue et al., 2013 GRL).

It’s the universe where political power and the desire to redistribute wealth have taken control of the public discourse. It’s a global society where people believe we can replace fossil fuels with unicorn farts and antigravity-based energy.

Feelings now trump facts.

At **least** engineers have to prove their ideas work. The widgets and cell phones and cars and jets and bridges they build either work or they don’t.

In climate science, whichever side is favored by politicians and journalism graduates is the side that wins.

And what about those 97% of scientists who agree? Well, what they all agree on is that if their government climate funding goes away, their careers will end.

<http://www.drroyspencer.com/>

Roy Spencer

## **K. THE MERCHANTS OF SMEAR**

Obama, Gore other climate alarmists refuse to debate, but love to vilify – and love their money  
Guest essay by Paul Driessen Manmade climate disaster proponents know the Saul Alinsky community agitator playbook by heart. In a fight, almost anything goes. Never admit error; just change your terminology and attack again. Expand your base, by...

<http://wattsupwiththat.com/2015/01/18/the-merchants-of-smear-3/>

## **L. GLOBAL TEMPERATURE UPDATE DECEMBER 2014 GLOBAL SURFACE (LAND+OCEAN) AND LOWER TROPOSPHERE TEMPERATURE ANOMALY & MODEL-DATA DIFFERENCE UPDATE**

Guest Post by Bob Tisdale This post provides an update of the data for the three primary suppliers of global land+ocean surface temperature data—GISS and NCDC through December 2014 and HADCRUT4 through November 2014—and of the two suppliers of satellite-based lower troposphere temperature data (RSS and UAH) through December 2014. INITIAL NOTES: For discussions of...

<http://wattsupwiththat.com/2015/01/18/december-2014-global-surface-landocean-and-lower-troposphere-temperature-anomaly-model-data-difference-update/>

<http://wattsupwiththat.com/2015/01/20/2014-the-most-dishonest-year-on-record/>

## **M. BIGGER PROBLEMS THAN GLOBAL WARMING – NASA DISCOVERS 8 NEW DANGEROUS NEAR EARTH ASTEROIDS**

Guest essay by Eric Worrall- In 2013, NASA decided to take time out from creating spectacularly useless climate models, and reactivated their Near-Earth Object Wide-field Survey Explorer programme. The result is moderately terrifying – 8 previously unknown near Earth asteroids with catastrophic impact potential have been discovered, along with a host of smaller bodies which...

<http://wattsupwiththat.com/2015/01/19/bigger-problems-than-global-warming-nasa-discovers-8-new-dangerous-near-earth-asteroids/>

## **N. GISS & NCDC NEED TO BE MORE OPEN WITH THE PUBLIC WHEN MAKING PROCLAMATIONS ABOUT GLOBAL WARMING RECORDS**

Guest Post by Bob Tisdale

We discussed the 2014 global surface temperature announcements by NASA GISS and NOAA NCDC in the posts On the Biases Caused by Omissions in the 2014 NOAA State of the Climate Report and Does the Uptick in Global Surface Temperatures in 2014 Help the Growing Difference between Climate Models and...

<http://wattsupwiththat.com/2015/01/19/giss-ncdc-need-to-be-more-open-with-the-public-when-making-proclamations-about-global-warming-records/>

## **O. CLAIM: MELTING GLACIERS HAVE BIG CARBON IMPACT**

From Florida State University: TALLAHASSEE, Fla. — As the Earth warms and glaciers all over the world begin to melt, researchers and public policy experts have focused largely on how all of that extra water will contribute to sea level rise. But another impact lurking in that inevitable scenario is carbon. More specifically, what happens...

<http://wattsupwiththat.com/2015/01/19/claim-melting-glaciers-have-big-carbon-impact/>

## **P. TO THE GOP AND THE POPE: FORCING HIGHER ENERGY PRICES ON THE POOR IS IMMORAL**

Tuesday, January 20th, 2015

I'm seeing a flurry of news articles lately casting conservatives as closet believers in human-caused climate change who are struggling to formulate a global warming policy that is smart, but without looking like Liberals in the process.

Also, Pope Francis, after being advised by a committee of the most left-leaning global warming "experts" one could find, has decided to write an [encyclical on global warming and the environment](#) to be released later this year.

This all resonates with under-informed voters who think we already have the infrastructure to sustainably collect and distribute methane emissions from unicorn herds, and who believe [solar freakin' roadways](#) are a good idea.

Roy Spencer

<http://www.drroyspencer.com/category/blogarticle/>

Regards

George