

# MONTHLY NEWS REVIEW

Vol. 2, Issue 9, September 2002

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*Monthly News Review* is prepared by the Oklahoma Climatological Survey. Its purpose is to provide a summary of weather and climate news or related issues that may help guide policy-makers in the Oklahoma Weather Center. Along with weather, climate, environmental, and science issues, the review includes issues on the national and state agendas and events that affect major businesses in Oklahoma that bear some relation to demands for weather-related information. The summaries and any opinions expressed herein are those of the author, and in no way reflect positions of the Oklahoma Climatological Survey or the University of Oklahoma.

2<sup>nd</sup> Conference Held 7/25; no further listing

- HR 4754 / S 2528: “National Drought Preparedness Act of 2002” no further action; in House Transportation and Infrastructure, Agriculture, and Resources committees and Senate Committee on Environment and Public Works (5/16)
- HR 4900: “Weather Safety Act” – no further action; Referred to the House Committee on Science (6/6)
- HR 64: “Strengthening Science at the Environmental Protection Agency Act” no further action; passed by House (4/30), now in Senate Committee on Environment and Public Works (5/1)
- HR 3908: “North American Wetlands Conservation Reauthorization Act” no further action; passed by House (5/7), now in Senate Committee on Environment and Public Works (5/8)
- HR 1370: amending The National Wildlife Refuge System Administration Act of 1966 – no further action; passed by House (5/14), now in Senate Committee on Environment and Public Works (5/15)

## AGENCY NEWS

**NOAA seeks strategic plan input** (OceanSpace 8/22/2002) – Vice Admiral Conrad Lautenbacher Jr., administrator of NOAA, said recently: “As NOAA embarks on a major reconstruction effort, I am requesting your assistance to ensure that our transformation results in better products and services for our customers and the American Public.” NOAA has scheduled six “strategy and performance” dialogues with stakeholders from industry, non-profit organizations, academia, state and local governments, and others. The review relates to science, management improvement, and overall agency integration. Specific questions are:

- What outcomes should NOAA seek to achieve?
- What strategies should be pursued?
- What programs have the biggest impact and how should performance be measured?
- What is the constituents’ role in implementing the strategies and measuring success?

Each of the morning sessions are open to the public. Results will be available on the NOAA Office of Strategic Planning web site at <http://www.osp.noaa.gov/>. Meetings near Oklahoma include September 5 in New Orleans and September 26 in Broomfield, Colorado.

<http://www.oceanspace.net/index.cfm?issue=205>

**NOAA FY2004 budget being reviewed** (OceanSpace 8/8/2002) – NOAA has received preliminary approval from the Department of Commerce for \$10 million of its \$12.8 million requested appropriations increase. Included in the budget is an additional \$3.9 million for NOAA’s Coastal Storms Initiative, more than doubling its current funding.

<http://www.oceanspace.net/index.cfm?issue=201>

**NOAA and AWS announce partnership** (NOAA 8/6/2002) – the National Weather Service and AWS Convergence Technologies announced that the NWS will now be able to pull in real-time weather data from the AWS WeatherNet for applications to monitoring airborne hazards associated with homeland security. The AWS WeatherNet includes more than 6,000 automated weather stations located primarily at schools. The weather information is anticipated to be especially useful in major metropolitan areas, where AWS is most concentrated.

<http://www.noanews.noaa.gov/stories/s953.htm>

**Study calls for independent reviews of Corps projects** (OceanSpace 8/1/2002) – The U.S. National Academies’ National Research Council (NRC) stated that the U.S. Army Corps of Engineers should solicit external scientific reviews of its most costly, complex, and controversial planning studies. The NRC committee views independent reviews as essential to improving the credibility. The Corps requested the NRC review of their review procedures after several controversies erupted in recent years.

<http://www.oceanspace.net/index.cfm?issue=199>

**Department of Environmental Quality seeks comments on rule changes** (Oklahoman 8/16/2002) – The State Environmental Quality Department has proposed changes in the way data are collected on Oklahoma’s water resources. The new procedures would examine each stream, pond, lake, river, or aquifer, determine its beneficial use, and determine whether that use is being met. The Department held a public meeting to ask questions or comment on the proposed changes.

## STATE / LOCAL

### **\*\*\* RUNOFF ELECTIONS SEPTEMBER 17 \*\*\***

Three races on the Democratic state ticket and one on the Republican ticket went to runoff elections. The Democratic races to be decided on September 17 include:

- United States Senator: David Walters vs. Tom Boettcher
- Governor: Brad Henry vs. Vince Orza
- Corporation Commissioner: Jeff Tomlin vs. Keith Butler

The Republican race to be decided is:

- Corporation Commissioner: Dana Murphy vs. Jeff Cloud

The United States Representative, District 4 had also gone to a Democratic runoff but Ben Odom withdrew from the race, leaving Darryl Roberts (D) to face Tom Cole (R) in the general election on November 5.

**Tax revenue declines 15% in July** (Oklahoman 8/14/2002) – State revenues declined by \$50.6 million compared to July 2001, which was \$45 million below estimates. Officials with the Office of State Finance attribute the decline to individual tax refunds, but even when refunds are not factored in, the revenues still fell 6.9% below the estimate. Although the state's elected officials are concerned, they said no action is warranted until August figures come in. If back-to-back months significantly miss targets, then action should be taken rather than waiting until late in the fiscal year, like last year, according to Sen. Kelly Haney.

**Keating asks agencies to tighten budgets** (Oklahoman 8/16/2002) – In advance of any potential state budget cuts, Governor Keating requested that agencies continue the hiring freeze, monitor spending to assure expenditures are for direct services to the public, and to cancel or postpone discretionary purchases. No formal actions are likely to be taken until after the August numbers come in.

**West Nile Virus found in Edmond** (Oklahoman 8/8/2002) – The first case of West Nile Virus in the Oklahoma City metropolitan area was discovered in a dead mockingbird in Edmond. Dead birds carrying the virus have been found in several other locations in eastern Oklahoma, beginning in late July. There have been no human cases reported in Oklahoma, but several deaths in Louisiana and Mississippi have been attributed to the virus. The Centers for Disease Control estimate that fewer than one percent of mosquitoes carry the West Nile Virus, and fewer than one percent of people exposed to those mosquitoes will develop severe symptoms. The city of Edmond opted not to spray for mosquitoes due to possible environmental effects of the chemicals and their questionable effectiveness. Other communities have begun spraying programs.

**Oklahoma City firefighters get training funds** (Oklahoman 8/1/2002) – Oklahoma City will receive \$466,000 in federal grant and city matching funds to pay for new equipment and training. The funds will be used to purchase 15 extrication tools, 250 voice amplifiers for masks, three thermal imagers, and equipment for aerobic and strength training. In addition, 18 firefighters will be sent to hazardous materials training focusing on dealing with weapons of mass destruction. Those 18 firefighters will then train others when they return.

**FEMA denies Kay County storm damage costs** (Oklahoman 8/17/2002) – FEMA announced that it will only reimburse Kay County \$7.95 per cubic yard for cleanup costs associated with the January 2002 ice storm. The figure represents the lowest bid received by the county. The county contracted with AshBritt, Inc. at a rate of \$16 per cubic yard. The finding states that the procurement process was unfairly skewed in AshBritt's favor. County officials have 60 days to appeal the ruling, after which time FEMA's Washington office has six months to review the decision. FEMA pays 75% of allowable costs, with the state and local governments picking up the remainder of the costs.

**Texas stealing state water** (Oklahoman 8/26/2002) – The Oklahoma Water Resources Board (OWRB) is making a last-ditch attempt to find a solution to a lingering water issue with Texas. In the early 1990s, Oklahoma realized that Texas had built a reservoir on Palo Duro Creek, which flows into the Canadian River Basin. The reservoir stores two billion gallons annually that should flow into Oklahoma, according to the OWRB. The storage is in violation of the Canadian River Compact, between Oklahoma, Texas and New Mexico. If an agreement on further releases cannot be reached at an upcoming meeting of the Compact Commission, Oklahoma will file a lawsuit seeking a remedy.

**Cattle alliance to help smaller ranchers** (Oklahoman 7/28/2002) – Area Extension and other agricultural specialists are helping organize producers in the Southern Oklahoma Beef Cooperative Demonstration. The project is aimed at getting economies-of-scale for smaller ranch operations, which typically have a herd of about 37 cows. The pooling of resources helps producers meet industry standards and sell in large, truck-sized lots. One of the biggest benefits of a cooperative is improvement in communication. The cooperative expects to begin establishing protocols and marketing strategies by late summer.

**Cordell City Manager leaves for Wellington, Kansas** (Oklahoman 8/15/2002) – City Manager Bob Lambert came to be known as “Mr. FEMA” in his 21-month tenure as Cordell's City Manager. Lambert's tenure included four federally-declared disasters in a 13-month period: the Christmas 2000 ice storm, a May 2001 windstorm, a tornado on October 9, 2001 that destroyed more than 500 homes, and the January 2002 ice storm.

## **BUSINESS**

**Corporation Commission recommends \$39.1 million OG&E rate cut** (Oklahoman 8/7/2002) – The staff of the Oklahoma Corporation Commission recommended that OG&E cut its rates by \$39.1 million per year. OG&E has asked the Commission for an \$11.7 million rate increase and an additional \$92 million to cover the costs of the January ice storm. Attorney General Drew Edmondson earlier recommended a \$106 million rate cut, but some analysts believe that was an election-year maneuver to paint Denise Bode, Commission Chair and likely opponent in the general election, as less responsive to the citizens of Oklahoma. A Commission administrative law judge will hear the case in late September. OG&E posted a second-quarter profit of \$28.4 million, a 14% increase over the second quarter last year (Oklahoman 7/30/2002).

**SEC opens new inquiry into Williams** (Oklahoman 8/17/2002) – The Securities and Exchange Commission has opened an inquiry into Williams' use of "round-trip" energy trades. Round-trip trades are where a company sells a large amount of power and then buys it back at the same price. The transaction appears to boost demand for power, which drives up prices on the spot market. Identical information was earlier requested by the Federal Energy Regulatory Commission. Enron used similar tactics to move money between accounts and hide up to \$1.5 billion in profits during the California energy crisis.

**Williams size shrinking** (Oklahoman 8/21/2002) – Through sales of assets, Williams is getting to be a smaller, but more financially sound, company. Sales of oil reserves, petrochemical assets, pipelines, refineries, and convenience stores have shed parts of the company and allowed it to focus more on its core business of natural gas. Company leaders expect Williams to return to the size it was in 1995-96, when it had 8,000 employees. Currently, Williams has 12,000 employees, including 3,000 in Tulsa. Williams has so far survived bankruptcy fears, but the \$2 billion in credit it was able to secure came with a 30% interest rate.

**Aquila quits wholesale energy trading** (AP 8/7/2002) – Aquilla becomes the latest company to scale back or scrap its wholesale energy trading market. Following Dynegy and Williams, which scaled back operations, Aquilla will cease energy trading from facilities it does not own by late September. President and CEO Robert Green cites the deregulated market's high cost of capital and weak prices that have made earnings elusive.

**Microsoft opens technical data on Windows** (AP 8/6/2002) – Microsoft is set to release technical information on almost 400 Windows interfaces and protocols as part of a proposed federal antitrust settlement. Although the settlement is not final, Microsoft decided to begin complying with the proposed terms. Microsoft will keep two secret, under the exceptions for computer security or anti-piracy measured. Many details will be posted freely online, but some designed for larger "server" applications will require a licensing fee. The Justice Department has asked computer industry firms to review the changes and offer reactions.

## **WEATHER**

**Drought affects half the United States** (NOAA 8/14/2002) – The National Climatic Data Center (NCDC) reported that at the end of July, 49% of the contiguous United States was in moderate to extreme drought, based on the Palmer Drought Index. Thirty-seven percent of the U.S. was classified as severe to extreme drought conditions. Moderate to severe drought conditions were reported in at least part of 37 states according to the U.S. Drought Monitor. Extreme drought stretched from the southwest to Montana and Nebraska and from Georgia to Virginia. Parts of the southeast and western U.S. have been in drought conditions since 1998. The greatest extent of drought occurred in July 1934 when moderate to extreme drought covered 80 percent of the contiguous United States. A drier-than-normal July across much of the country contributed to the worsening conditions.

<http://www.publicaffairs.noaa.gov/releases2002/aug02/noaa02104.html>

**Drought taking a toll on crops** (AP 8/13/2002) – Government forecasters have lowered crop production estimates due to the widespread extent of an ongoing drought. Officials lowered their estimate for corn production to 7% lower than the 2001 crop, making it the lowest national production since 1995. Soybeans are expected to be 9% below last years crop, wheat down 14%, and cotton down 9%. Cattle sales have increased in areas where forage has been affected by the drought. The poor growing conditions could lead to increases in food prices, especially considering that corn and soybeans are used in hundreds of food products and feed. Utah has already been declared a disaster area, and Nebraska has requested such a designation. Conditions are deteriorating rapidly in Kansas, where half the corn crop is reported as poor or very poor.

**Land Office grants relief for Panhandle ranchers** (Oklahoman 8/21/2002) – State Land Office commissioners voted to reduce next year's rent on school conservation lands in three parched Panhandle counties. Ranchers have had to pull cattle off the lands early, in some cases on the demand of the commission, in order to preserve the capacity for grasses to regenerate next year. As compensation, the Office will provide up to a 75% reduction in rates next year. It is not certain if the rent reduction is legal; a 1953 ruling by the state Attorney General stated that terms of the contracts could not be altered.

**Wells running dry** (AP 8/19/2002) – Wells in western Nebraska are running dry, one-by-one, leaving farmers and towns in a contest over every drop of water. Irrigation has drained wells in many areas, and in Sidney (population 6,200), two of its nine municipal wells have gone dry. Complicating the situation is that the state has very little regulation of groundwater, leaving control to local natural resources districts. As neighboring districts use differing standards for water use, the potential exists for water contests to erupt. Although neighbors realize they are all in the same situation, it may leave it up to the courts to decide who gets water.



**Mild summer drops gas prices, but not for long** (Oklahoman 8/9/2002) – Oklahoma’s natural gas price index for August dropped to \$2.82 per thousand cubic feet, down from a relative high of \$3.32 in April. High storage and lower-than-expected demand contributed to the decline. The development of many natural-gas fired plants has made natural gas prices sensitive to summer demand as well as their traditional wintertime demand period. Experts expect a rebound in October, and a longer-term increase in gas rates, perhaps nearing the \$5.30 mark set in April 2001. Despite activity in drilling, few large gas reserves have been found in Oklahoma or nationally, suggesting that shortages will become common as summer power-plant and winter heating demands reduce the storage volume. Large gas reserves still exist, but are more than three miles down; few companies have the technology to drill that deep.

**Cool summer beneficial for some** (Oklahoman 8/13/2002) – the cool, wet summer has been a blessing, not only to people who do not have to deal with as much heat, but through lower electric bills, no water rationing, and fewer herbicides needing to be sprayed on lawns. Oklahoma City’s Will Rogers Airport reported two inches of rainfall more than the normal July total. The abundant rainfall has made lawns healthier, reducing the need to spray herbicides. It has also kept water sources sufficiently full to limit the need for water rationing. That National Weather Service office in Norman attributes this to the normal summertime high pressure region being located further north than usual.

**Almanac foresees harsh winter** (AP 8/26/2002) – The Farmers’ Almanac predicts colder-than-normal temperatures from Maine to Colorado this year, with severe weather patterns that gradually shift eastward as the winter progresses. Of course, such predictions – based upon sunspot activity, planetary positions, and the effects of the moon – have little validity. Last year, the Almanac made a similar prediction, only to have the region embrace one of the warmest winters on record. The winter forecasts date back to the mid-1700s, in Benjamin Franklin’s Poor Richard’s Almanac. The Farmers’ Almanac should not be confused with the Old Farmer’s Almanac, which began publishing in New Hampshire in 1818.

**Tornado season may set new records** (Oklahoman 9/1/2002) – Only 12 tornadoes have been confirmed in Oklahoma this season, setting the state on a track for one of its lowest seasons on record. The normal annual total is 57 tornadoes. Forecasters caution that Oklahoma’s “second season” may raise that total; the biggest outbreak in 2001 was in October. According to the National Weather Service, cold air outbreaks in the early spring cooled temperatures in the Gulf of Mexico that suppressed springtime tornado production in the South. Nationally, only 540 tornadoes have been confirmed, about half of the 1,012 tornadoes averaged during January through August. The summer has been mild in other ways as well. Oklahoma City has yet to hit the century mark.

## CLIMATE

**Recent events not necessarily an indication of climate change** (AP 8/19/2002) – According to the National Climatic Data Center (NCDC) and National Center for Atmospheric Research (NCAR), recent extreme events are not necessarily attributable to climate change. Events such as the European floods are once in 100-year events, but such events have happened before and will happen again. The immediate cause of the flooding is more likely the North Atlantic Oscillation, which has moved the jet stream farther south than normal, allowing storms to tap into the Mediterranean moisture source. However, Jay Lawrimore at NCDC notes a trend toward heavier precipitation events over the last 50 to 100 years. Among the anticipated effects of global warming is an increase in climatic extremes, with typically wet areas becoming wetter and dry areas becoming drier.

**El Nino expected to suppress Atlantic hurricane season** (NOAA 8/8/2002) – A developing El Nino is expected to decrease the number of storms in the Atlantic this fall. A revised estimate by NOAA indicates seven to 10 tropical storms should form, with four to six developing into hurricanes and one to three of those becoming major. This would place the season in the normal to below-normal range. El Nino, although weaker than the 1997-98 event, should have its first impacts in late September and October, and then broader effects on U.S. temperatures and precipitation in the fall and winter. Forecasters caution that even though the season is expected to be below-normal, that does not mean that people should not exercise caution; hurricane Andrew developed during a below-normal season in 1992.

<http://www.publicaffairs.noaa.gov/releases2002/aug02/noaa02101.html>

**Antarctic sea ice cover increasing** (NASA 8/22/2002) – A new study by a NASA scientist shows that the area of the Antarctic with increasing length of sea ice seasons is twice the size of the area where the season is shortening. Over a 21-year span, Claire Parkinson found that in general, the Ross Sea ice season is getting longer, while the Amundsen and Bellingshausen Seas season is getting shorter. This is consistent with Antarctic temperature trends, which have shown a warming in the peninsula near the Amundsen and Bellingshausen seas. Arctic ice seasons have been decreasing overall, but much of the change is attributed to the Arctic Oscillation and North Atlantic Oscillation.

<http://www.gsfc.nasa.gov/news-release/releases/2002/02-128.htm>

**Barrow summers getting balmy** (CBS News 8/28/2002) – Warm summers have become a fairly common feature, relative to historical norms at least. Normally ice sits on beaches – even in the height of summer – but now residents flock to the beaches, even with some people in bathing suits. Instead of snowy owls and Arctic foxes, residents see jellyfish and mosquitoes. Temperatures have risen 4 degrees Fahrenheit over the past 30 years, and the Arctic pack ice has retreated 15% and is only half as thick as it used to be. The ice breaks up in early spring, sometimes leaving whalers stranded, and less ice means more waves, and consequently more erosion. Already, one small nearby town had to relocate due to erosion.

<http://www.cbsnews.com/stories/2002/08/28/eveningnews/main520093.shtml>

## **ENVIRONMENT**

**United Nations World Summit on Sustainable Development Opens** (New York Times 8/26/2002) – More than 100 national leaders are expected to gather in Johannesburg, South Africa during the 10-day summit to devise a plan to protect the earth's atmosphere, lakes, forests and wildlife and to reduce the link between poverty and environmental degradation. Experts argue that poor nations must degrade their natural resources in pursuit of economic development, which leads to additional health and environmental side-effects. Poor nations are seeking a commitment of 0.7% of wealthy nation's gross national product to aid developing countries, to eliminate tariffs on agricultural goods from poor countries and improve sanitation systems. Wealthy countries, in particular the United States, maintains that poor countries must do more to eliminate corruption and increase democratic institutions before more aid is committed. Greenhouse gas emissions are also prominent on the agenda, especially in light of the U.S. refusal to commit to the Kyoto protocol. Summit leaders have already gained commitments on incentives for investment in cleaner forms of production, efforts to reduce desertification, and assistance to the most destitute individuals. Previous meetings were held in Stockholm in 1972 and in Rio in 1992. Despite considerable declarations in the Rio meeting, tangible efforts at population control, poverty solutions, and environmental issues have been fleeting.

**U.S. attacked on energy subsidies** (Washington Times 8/28/2002) – Delegates at the World Summit on Sustainable Development demanded that the United States commit to increasing the amount of renewable energy it uses and cutting subsidies for fossil fuel and nuclear energy. The United States delegate, supported by Canada, Australia, and Japan, have opposed a draft clause calling for the developed countries to "lead the way." The United States wants the developing world to be held to similar standards.

**President defends 'common sense' forest policy** (USA Today 8/23/2002) – President Bush announced a plan that would speed up timber harvest as a means to control forest fires. The proposal temporarily waive citizen appeals and lawsuit challenges to logging plans. The timber industry and its proponents claim that thinning the forests is necessary, especially the removal of smaller trees. Environmentalists argue that this is carte blanche for massive clear-cutting. Larger, old-growth trees are economically more valuable, but more environmentally necessary. The last time such laws were suspended was in 1995, which led to the cutting of green, old-growth timber in the Pacific Northwest.

**Implementation of fire management plan problematic** (USA Today 8/22/2002) – Two years after overhauling the nation's fire policy, results are lacking. Less than half of the areas in which vegetation has been thinned are near habited areas. According to a General Accounting Office audit, half of the towns identified as "high risk" by the Interior Department were located in Georgia, North Carolina, and Tennessee, despite the massive fires plaguing western states each summer. The forest service, which argued that homeowners' maintenance of their property is the best defense, has spent less than one percent of funds on homeowner education. Also, despite the policy of letting fires in remote areas burn, only 82 of the 59,000 fires this year have been left to a natural cycle. There is general agreement that solutions will take a long time to implement. The longstanding policy of fire suppression allowed forests, especially in the west, to expand from about 12 trees per acre to 100, making clearing vegetation difficult.

**EPA stays out of water quality dispute** (AP 8/13/2002) – An official with EPA’s Region 6 said they could only assist in negotiations between Oklahoma and Arkansas over poultry pollution in area rivers and lakes. Unless the parties are willing to negotiate, EPA cannot force a solution. The official suggested that Oklahoma legislators had the tools to create a solution, but lacked the political will to do so. The issue is at the heart of several lawsuits seeking to force the poultry industry in western Arkansas to change its practices related to management of chicken litter.

**Four Arkansas cities clean up rivers** (AP 8/14/2002) – Fayetteville, Springdale, Rogers, and Siloam Springs have promised to lower phosphorus levels in wastewater to one milligram per liter within a few years, according to the Oklahoma Water Resources Board. Current emissions at Springdale are between six and seven milligrams per liter. Despite the voluntary reductions, Arkansas will still not comply with the new Oklahoma regulations.

**Water facilities out of compliance, but better than most** (AP/Oklahoman 8/9/2002) – More than one-third of Oklahoma’s largest industrial, municipal, and federal facilities were out of compliance with the Clean Water Act during a 15-month study period, according to the U.S. Public Interest Research Group. The 34.4% noncompliance rate places Oklahoma ninth among the 48 contiguous states. Many violations were from wastewater discharges, often one-time occurrences which were corrected promptly. In the past year, Oklahoma reduced its unpermitted dischargers from 20% of total facilities to less than 10%, the only state in the region to reach such a figure (Oklahoman 8/16/2002).

**West Nile pesticide said to be safe** (AP 8/12/2002) – The Environmental Protection Agency and Centers for Disease control say that modern chemicals used to control mosquito populations are safe. However, Leonard Horowitz, who holds a Masters in Public Health degree from Harvard and authored the book “Death in the Air” says that Malathion and Anvil 10:10 can damage the nervous and immune systems and can cause cancer. Local health officials are not concerned about side-effects, and some ranchers have noted they are more concerned about airborne applications of common pesticides on fields than they are about the mosquito sprays.

**North America environment improving, but consumption a concern** (OceanSpace 8/20/2002) – A recent report by the United Nations noted great progress in North America in dealing with environmental pollution and degradation, but noted recent consumption patterns threaten to counteract those gains. Between 1981 and 2000, the United States reduced acid-rain emissions by 31%, and today the United States and Canada protect 11-13% of its land area and have slowed wetland losses considerably. However, the study notes that increasing consumption for its growing population is of concern. North America accounted for 25.8% of global carbon dioxide emissions in 1998 and per-capita gasoline consumption is nine times the world’s average. The report is available at <http://www.na.unep.net/publications/NA/geo-na.php3>.  
<http://www.oceanspace.net/index.cfm?issue=204>

**Norman land placed in permanent conservation easement** (Oklahoman 8/20/2002) – A \$25,000 grant from the National Resources Conservation System and a \$35,000 grant from the city of Norman created Oklahoma's first permanent conservancy easement. The easement means that the farm can never be used for any other purpose – it must remain a farm. The Kuhlmanns were concerned that the land, if sold, could become a housing addition or strip mall, but could not afford to donate the land.

**Pollution fines encourage corruption** (New Scientist 8/22/2002) – Richard Damania reports in a recent article from *Environment and Development Economics* that harsh penalties encourage corruption and bribery, rather than the stated goals of reducing pollution. As an example, he points out that Thailand has some of the most stringent regulations but Bangkok is one of the world's most polluted cities. Damania suggests that as fines increase, the incentives for giving bribes also increases. In order to afford those bribes, companies increase production, and thus more pollution. Instead, Damania suggests that a decreasing relative tax on pollution weakens the incentive for bribery by large polluters – those most able to afford bribes – while increasing incentives for compliance by small companies where coming into compliance may be less than the risks of the bribes. Similarly, he recommends auditing those with low emissions reported, because those with high emissions reported are less likely to be lying. This model works best for the developing world, where corruption and bribery are more pervasive.

<http://www.newscientist.com/news/news.jsp?id=ns99992697>

**Navy sonar threatens whales** (OceanSpace 8/13/2002) – Environmental groups filed a lawsuit to stop testing and deployment of a new sonar system developed by the U.S. Navy. The sonar produces an extremely loud, low frequency sound to detect submarines at great distances. The sound is capable of reaching 140 decibels more than 300 miles away, and could be detected all across the North Pacific Ocean in a recent test. Recent mass stranding of whales on beaches in the Bahamas in March 2000 raised concerns about the loud sound. Other studies have noted that other nearby whales have disappeared, either abandoning their habitat or dying at sea.

<http://www.oceanspace.net/index.cfm?issue=202>

## **SCIENCE & TECHNOLOGY**

**Ocean changes creating bulge in Earth's gravity field** (NASA 8/1/2002) – Satellite data since 1998 has shown a growing bulge in the Earth's gravity field at the equator. Prior to 1998, the bulge had been shrinking, due to the post-glacial rebound of the Earth's land masses after the last ice age. Sources of large changes in the gravitational field are the oceans, polar and glacial ice, and the atmosphere. The team has ruled out the atmosphere or ice as a cause, based upon TOPEX/POSEIDON satellite measurements of sea level that show no corresponding change in the rate of global sea level rise. Recent ice calving from the Antarctic ice sheet is insufficient to contribute to the bulge because the ice sheet was already floating. That leaves ocean circulation as a source. The team concludes that mass redistribution by ocean currents created a localized equatorial bulge of the ocean surface, corresponding to the magnitude of the gravitational field's change. Temperature and salinity may affect the mass distribution of the oceans, so the team is now looking at changes in those variables as possible sources of the bulge.

<http://www.gsfc.nasa.gov/news-release/releases/2002/h02-147.htm>

**AERONET monitors smoke from forest fires** (NASA 8/6/2002) – NASA's AEROSOL ROBOTIC NETWORK (AERONET) and its Canadian sub-network AEROCAN has been tracing the effects of smoke particles from large Western forest fires and their relation to pollution along the U.S. East Coast. The ground-based remote sensing instruments determine the amount of aerosols to assess their optical properties and validate satellite measurements. This summer, the network monitored fires during the first week of July near Quebec City in eastern Canada and tracked the aerosols to as far south as Washington, D.C. A brownish haze resulted from the smoke particles, affecting Toronto, New York, Philadelphia, and Baltimore. A sun photometer at NASA's Goddard Space Flight Center measured a record optical depth of 6, meaning only 0.25% of direct sunlight was getting through the aerosols to the ground, causing diffused light and hazy conditions. AERONET has been expanding by about ten percent per year.

<http://www.gsfc.nasa.gov/news-release/releases/2002/02-122.htm>

**NASA's new Aqua spacecraft provides 3D picture of the atmosphere** (NASA 8/6/2002) – Three new instruments about NASA's Aqua spacecraft use more than 2,000 channels to create a global, 3-dimensional map of atmospheric temperature and humidity. The spacecraft also provides information on clouds, greenhouse gasses, and other atmospheric phenomena. NASA scientists say the information will reduce uncertainties of model predictions, extending forecasts beyond their present range to five-day accuracy. Instrument validation will continue through next June as NOAA evaluates the new data set and learns how to integrate it.

<http://www.gsfc.nasa.gov/news-release/releases/2002/h02-151.htm>

**New land cover maps developed** (NASA 8/13/2002) – A project by Boston University has updated land cover maps using NASA's Terra satellite. The new maps have a spatial resolution of 1 kilometer and will aid scientists and policy makers involved in natural resource management and climate monitoring. The team automated classification of data from multiple scans over a one-year period to produce the maps, cutting the time to produce the maps from months to about one week. Each map contains 17 different land cover types.

<http://www.gsfc.nasa.gov/news-release/releases/2002/02-126.htm>