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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.

NATIONAL

Farm Bill provides assistance for rural jobs (Oklahoman 6/23/2002) – Portions of the Farm Bill are aimed at creating a broad economic base in rural communities so that they will be less dependent upon agriculture. One measure provides \$100 million in loans and loan guarantees for development of high-speed, high-quality broadband services, with the goal of helping communities lure businesses. The bill increase value-added market development grants from a present \$15 million to \$40 million annually by 2007, and establishes resource centers to assist farmers with value-added projects. Another provision allows groups of investors to form a rural business investment company, which would then be eligible for loan guarantees up to \$105 million. The bill also provides \$360 million in federal loans for small water and waste disposal needs and \$50 million in grants to train rural firefighters and emergency personnel and improve training facilities. [Note: the Farm Bill is HR 2646].

Status of Legislation:

- HR 4: “Securing America's Future Energy Act of 2001” (Energy Bill) conference held on 6/27; Oklahoma conferees included Rep. Lucas (sections 401 and 6305 from House bill; sections 265, 301, 604, 941-948, 950, 1103, 1221, 1311-1313, 2008 for Senate Amendments) and Sen. Nickles. The bill includes the following relevant to climate:
 - Federal Renewable Energy Purchase (sec. 263) – 3% increasing to 7.5% in 2010;
 - Renewable Portfolio Standard (264) – 1% in 2005 increasing to 10% in 2019; facilities on Indian land get double credits;
 - National Climate Change policy (1001-1111) – creates office of climate change policy and technology and National Greenhouse Gas Database (Title XI; inventory and registry of emissions) and requires NAS review of president’s strategy;
 - Changes to Global Change Research Act of 1990 (1331-1337) - more short-term focus as well as long-term; research grants via NSF (\$17 million at minimum); emphasizes information useful to local, State and national decision-makers and other stakeholders;
 - National Climate Service Plan (1341-1345 + `6) - climate monitoring, regional planning; \$75.5M in 2004;
 - Ocean and Coastal Observing System (1352) - warnings, forecasts, preparedness, ocean health; \$235M 2003, up to \$445M 2006.
- HR 4754 / S 2528: “National Drought Preparedness Act of 2002” Referred to Senate Committee on Environment and Public Works on 5/12; Referred to House Transportation and Infrastructure, Agriculture, and Resources Committees on 5/16; no further action noted. Creates a National Drought Council within FEMA to develop a national drought policy action plan, evaluate federal programs, coordinate monitoring activities, and develop an information delivery system; Also creates a Drought Assistance Fund to assist State, local, tribal and critical service entities.
- HR 4900: “Weather Safety Act” – Introduced on 6/6 by Rep. Watts (R-OK) and referred to House Committee on Science. Creates Office of Climate Change Vulnerability and Resilience Research within the Department of Commerce, charged with performing vulnerability assessments, research, and preparedness recommendations; provides \$10M.
- No further action in Senate on HR 64 (“Strengthening Science at the Environmental Protection Agency Act”), HR 3908 (“North American Wetlands Conservation Reauthorization Act”), or HR 1370 (amending The National Wildlife Refuge System Administration Act of 1966).

AGENCY NEWS

Senators threaten to block Corps funding (OceanSpace 6/20/2002) – Senators Robert Smith (R-NH) and Russell Feingold (D-WI) threatened to hold up passage of the Water Resources Development Act, which authorizes which projects the Army Corps of Engineers can begin, unless Congress agrees on agency reform legislation. At the heart of the matter is a bill introduced by Feingold and John McCain (R-AZ) that would mandate independent peer review and improved financial benefits of projects before they can begin. The Corps welcomes reform legislation, citing \$52 billion in unfinished projects, \$5 billion of which is for projects that would not even work, although the projects remain on their books. Earlier this year, the Bush administration criticized the Corps for mismanagement and make-work projects.

<http://www.oceanspace.net/index.cfm?issue=191>

NOAA's Coastal Services Center helps support coastal resource management (NOAA Magazine 6/3/2002) – In 1994 NOAA established the Coastal Services Center, an organization tasked to apply new and improved technology and scientific discoveries to assist coastal managers in their everyday tasks. The center is designed to provide expertise and technological capabilities that are often outside the reach of state and local programs. NOAA looks toward the Coastal Services Center as a prototype for other customer-oriented endeavors – a technological catalyst for everyday decision-making. The center was developed in partnership with representatives from the coastal management community, who were consulted from the initial planning stages. Project proposals are sought from the community in order to guide the center's research and development. The center seeks a 'national in scope, local in approach' principle, in which individual projects are designed with broader applications in mind. Evaluations, surveys, and strategic planning are used to assure a customer focus on all aspects of organizational activity. For information about the Coastal Services Center, see : <http://www.csc.noaa.gov/>.

<http://www.noanews.noaa.gov/magazine/stories/mag38.htm>

Community Vulnerability Assessment CD (NOAA Magazine 6/3/2002) – One of the products from NOAA's Coastal Services Center is a Community Vulnerability Assessment CD. The CD provides a step-by-step guide for analyzing physical, social, economic, and environmental vulnerability to hazards at the community level. The CD allows emergency managers, planners, building officials, and others to assess risks and potential impacts from hazards. The CD also contains a case study for New Hanover County, NC. More information about the CD is available at: <http://www.csc.noaa.gov/products/nchaz/startup.htm>. OCS has ordered a copy of the CD.

<http://www.noanews.noaa.gov/magazine/stories/mag40.htm>

State environmental quality director retires (Oklahoman 6/16/2002) – Mark Coleman, head of the Oklahoma Department of Environmental Quality since the agency was founded in 1993, announced his retirement effective June 30. Coleman said he had accomplished “virtually everything” he wanted to do at DEQ. He remarked on how much people's mindset towards the environment has changed since he began at the state Health Department in 1970. When he started, discharge of pollution and untreated sewage into Oklahoma's streams was commonplace; today discharged water is often cleaner than its source. Steve Thompson, deputy director since 1993, will replace Coleman as the new Director. Thompson hopes to increase aid programs to small communities, beyond financial aid for water and sewer repairs.

STATE / LOCAL

Governor's redistricting plan upheld (Oklahoman 6/26/2002) – An appeals court upheld an earlier ruling that fixes the new Oklahoma Congressional districts as those of the plan offered by Governor Frank Keating. The plan creates 5 districts, one less than the current delegation, due to population loss. Essentially, the districts will represent western Oklahoma, eastern Oklahoma, south-central Oklahoma, the Oklahoma City area (plus Pottawattomie and Seminole counties), and the Tulsa area. Earlier, Wes Watkins announced his retirement, leaving five incumbents with the boundaries drawn such that no two incumbents would have to face each other in the election. With J.C. Watts' announced retirement, this leaves an open seat in the south-central district.

More towns eligible for emergency water assistance (Oklahoman 6/12/2002) – The state legislature increased the population cap for small communities to be eligible for grants for emergency repairs to water and sewage systems. The program, managed by the OWRB, previously provided emergency assistance to towns with 1,500 or fewer residents. The new limit is 1,750 residents. Larger rural water districts and schools are also eligible for priority consideration, under the new legislation. Despite increasing eligibility requirements, funds allocated for the grants declined to \$4 million for the 2003 fiscal year.

Commissioner seeks seasonal forecasts (Oklahoman 6/18/2002) – Oklahoma Corporation Commission Chairwoman Denise Bode wants to provide consumers seasonal outlooks on energy prices. The plan comes from the shock of price spikes during the winter of 2000-2001. Utilities would be required to submit anticipated price information along with purchase plans that are due to the Commission by May 15 each year. Some utilities have concerns about proprietary information included in their price forecasts, but Bode said the information provided to the public could be made more general to protect competitive interests.

State scholarships increase (Oklahoman 6/3/2002) – Despite budget woes this spring, legislators appropriated an additional \$3.3 million to fund new scholarships. The scholarships pay tuition at state colleges and universities to high school students who maintain a 2.5 grade point average and whose family income does not exceed \$32,000. The scholarship program was started in 1998, with the first batch of high school graduates just coming to the colleges this year. Next year, the family income limit will increase to \$50,000, which is expected to add 3,000 students to the current group of 800. Chancellor Hans Brisch expects the number of program recipients to increase to about 10,000 students by 2008. This program is in addition to other scholarship programs, which presently provide \$30 million annual in aid.

Government payroll in Oklahoma decreases (Oklahoman 6/3/2002) – Seventeen percent of Oklahoma’s workers are in the public sector, according to the 2000 census. This is down from 18% in 1990. Overall, the actual number of employees increased from 249,401 to 259,117. Figures include employment by federal, state, county, and local governments as well as public education, civilian military jobs, and tribal governments. Payne County has the highest percentage of people – 32% - working in government jobs. OSU’s 5,200 employees account for 15% of that counties public employees. Oklahoma County leads the way with 49,909 public employees, many of them employed by Tinker AFB. Cleveland County has 25,026 public employees, right behind Tulsa with 25,902. The overall percentage of public employees is comparable to neighbors. Texas and Kansas reported 15% of their workforce in the public sector and Louisiana had 17%. New Mexico led the region with 23%. Figures for Arkansas, Colorado, and Missouri have not been released.

A region on the brink (Oklahoman 5/3/2002) – For much of the Great Plains in western Oklahoma, population decline, low agricultural prices, and declining manufacturing jobs has placed counties in serious financial trouble. In the region from Caddo and Blaine counties westward to the Texas border, and from the Red River northward to Ellis County, the area lost 2.4% of its population between 1990 and 2000. The area has experienced an outward migration of 32% of its population since 1940. Nine hundred manufacturing jobs have disappeared in those counties since 1990, and dismal commodity markets pose serious challenges to family farms. The farm bill, which may be good news to some in the region, promises new hardships to peanut farmers, especially in Caddo County, as federal support switches from a quota system to a subsidy program. Some towns have sought to keep their communities strong through investments in their downtowns, but stories like Cordell, where 25% of downtown buildings are vacant, abound. Towns are struggling with an aging infrastructure, like in Clinton where 22.9% of houses are considered dilapidated. Some towns have been lucky enough to have I-40 running nearby, which brings business, but those off the modern westward trails are not faring as well.

BUSINESS

Economic recovery losing steam (AP 6/28/2002) – The red-hot growth of the first quarter this year slowed substantially during the second quarter. The decline is due to less confidence in the economy, as concerns mount over accounting scandals and job outlooks, leading consumers to take a more cautious approach in spending habits. Analysts expect the recovery to hold, but at a more moderate growth rate of between 3 and 3.5% for the remainder of the year. Due to economic uncertainties, the Federal Reserve opted to hold interest rates at their 40-year lows.

Cool May chills interest rates (AP 6/14/2002) – In a quirk that shows how much weather influences the U.S. economy, an unusually cool May depressed retail sales, leading to expectations that the Federal Reserve will not raise interest rates this summer. Retail prices fell 0.9% in May, after a 1.2% increase in April. Less spending on cars, clothes, building and garden supplies, and gasoline were cited as the causes of the decline. According to Stuart Hoffman, chief economist at PNC Financial Services Group, “consumers definitely took a breather.”

Williams scales back (Oklahoman 6/11/2002) – Williams Cos. announced plans to scale back its investment in energy trading from \$1.5 billion to \$1 billion, with a commensurate loss of 130 jobs in its energy trading department – a 16% reduction of that department’s staff (Oklahoman 6/25/2002). The move comes amid federal investigations of its energy-trading practices, falling credit ratings, and sector-wide questions about accounting practices. Williams stock dropped to a nine-year low, following cuts in its credit rating to just above junk-level debt. Analysts are optimistic that the worst is behind Williams, but given its financial obligations to Williams Communications, its former subsidiary that recently went bankrupt, recovery is likely to be slow.

Farmland Industries files for bankruptcy (AP 6/1/2002) – The nation’s largest farmer-owned cooperative announced filing for Chapter 11 bankruptcy protection. Farmland Industries is owned by local farm co-ops, which in turn are owned by local farmers. It was hit hard over the past two years from lagging fertilizer sales, its largest source of income. A wet spring and winter drought cut into demands for fertilizer, leaving the company vulnerable. Farmland Industries has operations in Enid, where it operates a nitrogen fertilizer plant and grain elevators, and fertilizer facilities near the Port of Catoosa. The company had also planned to build a coal gasification plant near Enid, scheduled for construction in 2003.

State Farm refusing new policies (Oklahoman 6/21/2002) – Due to a large number of homeowner insurance claims in Oklahoma and 15 other states, State Farm announced a moratorium on new homeowner policies in those states. State Farm holds 27% of the homeowner insurance policies issued in Oklahoma, the largest carrier for the state. The move comes after increased losses combined with a surge of new applications, many as a result of steep increases in rival carrier’s rates. The number of new applications far exceeded projected growth for the year, so the company imposed the moratorium in order to curtail growth to manageable levels. The moratorium is not permanent, and will be revised “when the business environment allows us,” according to a State Farm spokesman.

OG&E rate cut urged (Oklahoman 6/12/2002) – OG&E, who has placed a request for an annual rate increase of \$11.7 million before the Corporation Commission, should instead receive a \$106 million annual cut, according to Oklahoma Attorney General Drew Edmondson. In addition to the annual increase, OG&E has requested a \$140 million temporary increase to recover costs from ice storm damage last January. The attorney general, who is charged with protecting consumer interests, offered the recommendation after reviewing the request. Some suspect the move is to place Corporation Commission Chairwoman Denise Bode in a difficult position. Bode, who has announced plans to run for Attorney General, would appear to be anti-consumer if she voted in favor of OG&E's request. The Corporation's Public Utility Division is presently analyzing the request and has offered no comment at this point.

Emu Environmental surveys sites for offshore wind farms (OceanSpace 6/11/2002) – Emu Environmental completed a series of survey and environmental studies along coastal areas of the United Kingdom for development of offshore renewable energy facilities. The studies were done for NEG Micon, which develops turbines, and Renewable Energy Systems Ltd. and Amek UK, license holders for the sites. The study included studying geophysical aspects, coastal processes and possible impacts.

<http://www.oceanspace.net/index.cfm?issue=188>

Employees seek more from jobs (Chicago Tribune 4/7/2002) – Employees expectations of the workplace have changed, largely as a result of September 11. The previous model of a job, productivity, and a paycheck has been supplemented by a new emphasis on job satisfaction. People are looking to organizations to be more caring. “Employees want to feel as if their work actually has meaning beyond a place to work and a paycheck” said Solange Charas, president of Charas Consulting, Inc. Hallmarks of this new caring are flexible work hours so employees can spend time with their families, pursue personal goals, and volunteer.

WEATHER

Warm, dry conditions continue (NOAA 6/20/2002) – The 12-month period from June 2001 through May 2002 ranked as the 4th warmest on record, according to the National Climatic Data Center. The warmth was combined with extremely dry conditions in the southwestern United States. Colorado and Arizona marked their driest June-May period on record, and New Mexico and Utah were also much below normal. Eighty percent of range and pastures in Arizona, New Mexico, and Colorado are rated as poor to very poor, and water in the Upper Rio Grande and Upper Pecos rivers in New Mexico is less than ten percent of average, the lowest levels in more than 75 years. More than two million acres in the U.S. have burned in wildfires, more than double the average for this time of year, and more than the severe fire season of 2000. Drought conditions continued to worsen across much of the west, although the northeast has had a reprieve from their long fall and winter drought.

<http://www.noaanews.noaa.gov/stories/s926.htm>

Warm, dry winter saves U.S. \$21 billion (UniSci 6/20/2002) – Low heating costs, reduced snow-removal costs, increased construction income, reduced transportation costs, fewer insurance losses, and increased retail sales were some benefits attributed to the mild winter. Aside from the tourism industry, especially in the northern states where ski and snow-related venues were hit hard, most sectors of the U.S. economy benefited from the warm, dry winter. According to Stan and David Chagnon, professors at the University of Illinois and Northern Illinois University, respectively, the period from November 2001 through January 2002 was the warmest on record since 1895. Consumers saved more than \$7 billion alone in reduced heating costs, and governments saved \$750 million in avoided snow-removal costs. The only major weather-related catastrophe was a late-January ice storm that stretched from Oklahoma to Ohio. According to economists, the mild winter contributed to a speedy recovery from the recession.

<http://unisci.com/stories/20022/0620023.htm>

Texas County bans fireworks (Oklahoman 6/20/2002) – Amidst Oklahoma's longest-ever burn ban, Texas County voted to ban the sale of fireworks within the county. The move was the next logical step in a drought-plagued region where even a tiny spark can set off a large fire. Since June 2001, the area has received only 7-8 inches of precipitation, as compared to their normal of 19 inches. The ban on the sale of fireworks affects organizations that include an annual sale as a fund-raiser, including the Hooker Fire Department, where the \$5,000 typically raised from their fireworks stand accounts for more than a quarter of their annual budget.

El Nino conditions continue to develop (NOAA 6/6/2002) – NOAA scientists noted a further increase in ocean surface temperatures during May. Temperatures in the equatorial Pacific now average one degree C above average. Heavy rainfall in South America and decreased rainfall in Indonesia, highly correlated with previous El Nino events, have also been observed. Expectations are for the development of a weak-to-moderate El Nino throughout the remainder of the year. They do not expect it to have a significant effect on the Atlantic hurricane season, although some past El Nino events have been associated with suppressed tropical storm development in the Atlantic. NOAA reports that impacts are expected to be less severe than the strong 1997-98 event.

<http://www.noaanews.noaa.gov/stories/s922.htm>

Oklahoma crews help fight wildfires (Oklahoman 6/12/2002) – Eleven crews have been sent from Oklahoma to help battle wildfires in several southwestern and southeastern states. Nine of the crews are from area Indian tribes. Wildfires have plagued both regions during an extensive drought. Florida and Georgia are of particular concern, and available firefighters have been stretched thin. Current national preparedness stands at level 4; at level 5 state national guards will be activated. Crews work 16-hour days, clearing vegetation and building fire lines to contain fires. They also perform specialized operations, including operating machinery and helicopters, and providing communications assistance.

Kay Electric Cooperative receives \$26 million for ice storm aid (Oklahoman 6/12/2002) – FEMA approved federal assistance for Kay Electric Cooperative, covering 75% of the utility's costs to restore power following the January 2002 ice storm. The utility had to restore 9,000 poles in its area, just to get power back to its 6,000 customers. Additional assistance is possible as final costs become known. Other cooperatives have received assistance, and more is pending.

OG&E losses revised downward (Oklahoman 6/15/2002) – As OG&E completed its final repairs of damage resulting from the January 2002 ice storm, it revealed that losses are likely to be less than originally stated. Current projections indicate that the losses will still exceed \$100 million, but not as high as the \$140 million earlier projections.

New heat index developed (NOAA 6/21/2002) – The Hydrometeorological Prediction Center developed a new index, called the Mean Heat Index, that averages the heat index from the hottest and coldest times of each day. Heat waves are especially deadly when nighttime temperatures do not decline much from their daytime maxima. By comparing the daily heat index extremes, the new index identified such circumstances that can help people be more aware of life-threatening conditions. A Mean Heat Index of above 85 degrees is considered dangerous. The new index is available at: http://www.hpc.ncep.noaa.gov/heat_index.shtml.
<http://www.publicaffairs.noaa.gov/releases2002/june02/noaa02080.html>

Summer thunderstorm clusters tracked (UniSci 6/27/2002) – A group of scientists at NCAR, led by Richard Carbone, discovered a link between clusters of summer thunderstorms. Even absent any large-scale forcing, thunderstorm clusters seem to generate new thunderstorms downstream, during the summertime. These clusters can propagate more than 24 hours and 1,500 miles. Initiation seems to be linked to mountains and “waviness” in the atmosphere, although the exact causes are still uncertain. Their work will appear in the July 1 issue of the Journal of Atmospheric Science.
<http://unisci.com/stories/20022/0627022.htm>

CLIMATE

European Union ratifies Kyoto treaty (AP 6/1/2002) – All 15 European Union members ratified the Kyoto treaty to reduce greenhouse gas emissions. The EU members, the first industrialized bloc to ratify the treaty, boost the number of countries to 70, beyond the 55 minimum needed for the treaty to take effect. However, the treaty also stipulates it does not take effect until countries responsible for 55% of the 1990 greenhouse gas levels have ratified the treaty. With the EU countries added, only 24.2% of emissions are included. Japan has since ratified the protocol (AP 6/5/2002), but Australia has adopted the U.S. position and said it will not ratify it. The Kyoto treaty was signed by the Clinton administration, but never ratified. President Bush withdrew administration support last year.

Bush says Kyoto not the answer (AP 6/5/2002) – The Environmental Protection Agency released a report, *U.S. Climate Action Report – 2002*, in late May that for the first time attributed global climate change to “likely” human factors. The Bush Administration quickly distanced itself from the finding, and instead focused upon the voluntary carbon-reduction actions advocated in the report, consistent with the plan the administration released last February. Under Bush’s proposal, the United States would spend \$4.5 billion on climate change science and technology. The report noted that while uncertainties remain, there is general agreement on a warming trend, particularly over the last 20 years. The report notes that “the changes observed ... are likely mostly due to human activities, but we cannot rule out that some significant part of these changes is also a reflection of natural variability.” The report was the consensus among six federal agencies and the White House Council on Environmental Quality, whose chairman was appointed by the President and serves as his principal environmental policy advisor.

Global warming proponents say economic impacts overstated (New Scientist 6/14/2002) – Stephen Schneider and Swedish energy economist Christian Azar argue, in a forthcoming issue of *Ecological Economics*, that the estimated \$1-8 trillion cost of the Kyoto protocol would simply delay growth by two years over the next decade. Economic growth models indicate that the world as a whole will be 10 times richer by 2100, and individual people will average five times their current wealth. Against this backdrop, the IPCC-estimated costs are just a blip, with growth figures reaching the same levels in 2102 rather than in 2100. Leading environmental economists argue that the costs of implementing Kyoto would bankrupt the wealthy nations and plunge the world into depression, a position embraced by the Bush administration.

<http://www.newscientist.com/news/news.jsp?id=ns99992394>

U.S. Funding for Global Climate Observations (OceanSpace 6/18/2002) – NOAA Administrator Conrad Lautenbacher Jr., announced \$600,000 in new U.S. funding for support of the Global Climate Observing System, as part of a total \$2.7 million in U.S. State Department funding to the IPCC in fiscal year 2002. The funding will be used to expand data collection, especially within developing countries. The announcement comes at the end of a weeklong European trip, in which Lautenbacher met with European ocean, climate, and space organization leaders. Lautenbacher also gave remarks to the Intergovernmental Oceanographic Commission (IOC), a coordinating body for 129 participating members that oversees ocean science and service.

<http://www.oceanspace.net/index.cfm?issue=190>

Droughts may have been triggered by pollution (New Scientist 6/13/2002) – Researchers in Australia and Canada have attributed Northern Hemisphere pollution to the extreme droughts in the Sahel in the 1970s and 1980s. A global climate simulation that included sulphur dioxide emissions yielded cooling in the northern hemisphere that moved the tropical rain belt southward, causing droughts in the Sahel. Researchers speculate that increased sulphate aerosols increases condensation nuclei in clouds, which in turn creates more, smaller cloud droplets. These droplets are efficient at reflecting solar radiation, cooling the earth below. As air quality improved, the effect decreased, corresponding with recent increases in precipitation in the Sahel. The team hopes to test its model with other particulates, such as soot, to examine the effects of industrialization in India and China, the latter of which has been suffering extensive droughts in its northern areas.

<http://www.newscientist.com/news/news.jsp?id=ns99992393>

Croplands increase summer convection (NASA 6/26/2002) – Scientists at Colorado State University discovered that using real patterns of vegetation in the Great Plains and Rocky Mountains produced extra convection and a cooler, wetter climate in their climate model. Mixed crop land patterns creates temperature gradients that increase mixing, ultimately leading to enhanced convection. The researchers used measurements of “leaf area index” to discern different types of vegetation, rather than the normally-assumed uniformity of grasslands in most climate models. The results were an average of two-thirds of a millimeter per-day increase in precipitation during the growing season. Resulting cloud cover and moisture led to lower air temperatures – both in daily maxima and minima. Climate models that do not include detailed vegetation data tend to produce forecasts that are too warm and dry for the growing season. The study will appear in the June issue of the Journal of Hydrometeorology.

<http://www.gsfc.nasa.gov/news-release/releases/2002/02-102.htm>

UK researchers to map Mediterranean sea surface temperatures (UniSci 6/10/2002) – A team of researchers, led by Dr. Michal Kucera at the University of London, have developed an artificial intelligence system that relates fossil records to sea-surface temperatures. The team plans to use this technique to develop snapshots of the Mediterranean Sea, dating back 1,000 years. Current climate records use data from the last two centuries, during which time, according to Kucera, global climate was relatively static. A longer, detailed reconstruction of a region provides an ability to test climate change models over a much longer period when climate was more variable.

<http://unisci.com/stories/2002/0610022.htm>

ENVIRONMENT

Oklahoma and Arkansas discuss water issues (Oklahoman 6/4/2002) – State environmental leaders from Oklahoma and Arkansas began a series of discussions in early June, hoping to resolve the differences on water quality issues in eastern Oklahoma without litigation. The meetings, held in Oklahoma City, involved Secretary of Environment Brian Griffin and Arkansas Environmental Quality Department Director Marcus Devine. The meeting was productive, although Oklahoma Attorney General Drew Edmonson noted the absence of representatives from the poultry industry, who are essential to a solution.

Water Resources Board to study aquifer plan (Oklahoman 6/22/2002) – The Oklahoma Water Resources Board will undertake a five-year study of the Arbuckle-Simpson Aquifer to determine how much water the aquifer can safely yield each year. State Representative Danny Hilliard (D-Sulphur) requested the study because of concerns relating to a \$200 million pipeline project to transfer water from the aquifer to Canadian County. Residents in the region have raised issues with the project, generating over 600 letters of protest to the OWRB, including concerns expressed by the U.S. Geological Survey, the National Park Service, the Oklahoma Geological Survey, and the Arbuckle Master Conservancy District. The study is expected to cost \$614,000, of which \$50,000 has been allocated by the Oklahoma Legislature for the first year of the study.

World environment summit in disarray (New Scientist 6/10/2002) – A deadlock between wealthy and poor nations could not be reconciled as environment ministers met to discuss plans for the summit to take place in Johannesburg, South Africa, in late August. Issues dominating the agenda are protection of ocean fish stocks, sanitation, decreasing subsidies for polluting energy sources in wealthy countries, and electrification. Leading industrial nations, led by the U.S., opposed global targets and timetables and linked financial aid to reduced corruption and open markets. The summit is a follow-up to the Rio Earth Summit held ten years ago.

<http://www.newscientist.com/news/news.jsp?id=ns99992381>

New water regulations costly (Oklahoman 6/13/2002) – New EPA regulations that reduce the allowable level of arsenic from 50 parts per billion to 10 ppb would cost metro area communities \$1.5 million to upgrade wells to come into compliance with the new standards. Statewide, there are 141 wells, or about 7% of the state's total, at risk of non-compliance when the new standard comes into effect in 2006. The compliance relates to each well site, rather than the overall water system. Communities that have at-risk wells include Piedmont, Yukon, Mustang, Norman, Noble, Moor, Edmond, and Nichols Hills. Oklahoma City uses only surface water, so it is not likely to be affected by the new regulation.

Water standards may shut down rural systems (AP 6/25/2002) – Implementing the new EPA standards for arsenic could triple the cost of providing water in small water systems. According to EPA estimates, 97% of the 4,100 water systems that would not be in compliance with the new standards are small systems serving fewer than 10,000 people each. Many of these systems are in areas that are economically depressed, mostly in the western U.S., and can least afford the costs of compliance. It is possible that some systems could shut down, leaving individuals to dig their own wells and exposing them to more hazards than are present under current water systems designs.

Ouachita forest plan being revised (Oklahoman 6/22/2002) – The U.S. Forest Service is reviewing plans for the Ouachita National Forest in southeastern Oklahoma and western Arkansas. The plan addresses management of off-road vehicles, wilderness areas, proscribed burning. Critics argue that burning reduces diversity, favoring development of pine which is a valuable commodity to area sawmills.

Smog causes billions in crop damage (New Scientist 6/11/2002) – A new study shows European farmers experience more than 6 billion Euros in losses associated with ozone smog. These losses amount to “several percent” of annual production, most significantly in France, Germany, Spain, Italy, Poland, and the Ukraine. The study also finds that ozone levels are highest in countryside areas surrounding urban areas, rather than within the urban centers themselves. Complex chemical reactions take several hours to produce ozone, so the highest concentrations are often downwind from the source. Wheat, potatoes, and legumes are especially vulnerable. The study did not include grass pastures, but it is expected they could add another 4 billion Euros in loss productivity of the land.

<http://www.newscientist.com/news/news.jsp?id=ns99992387>

New herbicide offers hope in combating sandburs (Oklahoman 6/9/2002) – Hay producers have dealt with the problem of sandburs for years. Atrazine was, at one time, widely used to combat the weed, which can get caught up in bales of hay and lead to health problems for animals that consume the hay. Atrazine was taken off the shelves in 1988, and since then the problem has grown. Recently, a new herbicide called Plateau was approved for use on pasture and rangeland in Oklahoma. The herbicide, in use for over a year in Texas, should provide relief, but it also will likely stunt the growth of Bermuda grass, a principal source of feed for horses. OSU extension personnel are performing tests with Plateau to try to identify appropriate application levels that will eliminate the sandburs and cause minimal stunting of Bermuda growth. Sandburs are such a problem, however, that growers are sometimes willing to give up a whole year of growth, just to get rid of the weeds, so stunted growth would be a welcome alternative for them.

Natural herbicide may kill weeds without harming environment (UniSci 6/27/2002) – Catechin, a naturally-occurring herbicide produced by knapweed, has been identified as a potent herbicide that poses little environmental risk, according to researchers at Colorado State University. The chemical is fatal to a variety of weeds, as potent as synthetic herbicides, but grasses and wheat appear somewhat resistant. Catechin, which could be available commercially in less than two years, may reduce the need for synthetic herbicides that pose a risk to human and animal health.

<http://unisci.com/stories/20022/0627023.htm>

Students monitor asthma triggers (NASA 6/26/2002) – NASA provided sun photometers to students in Baltimore for the purpose of making daily observations of aerosols associated with triggering asthma. The hand-held devices will be used to make daily observations, which can be charted across the city and compared to a full-scale device located on the roof of the Maryland Science Center in Baltimore.

<http://www.gsfc.nasa.gov/news-release/releases/2002/02-101.htm>

SCIENCE & TECHNOLOGY

Cheap sensors could detect temperature, road stress (UniSci 6/28/2002) – Dr. Craig Grimes at Penn State University has led a team to develop cheap sensors for use in roadway management. The sensors are based upon the same technology as used in department stores to detect theft. Sensors cost less than a penny each, and can be embedded in a roadway very easily. As the sensors heat or cool, a monitoring antenna picks up the harmonics from the ‘soft’ magnetic field and relates that to certain physical properties, including temperature, stress, or viscosity. The sensors could tell if the temperature of the surface is appropriate for roadway salt.

<http://unisci.com/stories/20022/0628025.htm>

“Punch Card” could store one terabit of data (New Scientist 6/11/2002) – IBM has developed a new chip, using nanotechnology, that makes indentations on a chip (the Millipede chip) that store single bits of data. One chip, the size of a postage stamp, is able to store one terabit of information, or the equivalent of about 200 CDs. The new technology increases storage 10-15 times over current chip technology. Commercialization of the chip is several years away, although they hope to have a prototype in early 2003.

<http://www.newscientist.com/news/news.jsp?id=ns99992389>

New satellite improves earth monitoring (NASA 6/24/2002) – NASA’s Earth Observing 1 (EO-1) satellite has completed a one-year test in which its new instrumentation is proving adept at identifying a variety of land-use applications. The Hyperion hyperspectral satellite sensor provides 30-meter resolution and the Advance Land Imager (ALI) produces 10-meter resolution of the earth’s surface. The new sensors are able to distinguish types of trees and environments, grasslands from dormant vegetation, riverbeds from brush, paved from dirt road surfaces, and what types of crops are growing.

<http://www.gsfc.nasa.gov/news-release/releases/2002/02-98.htm>

TRMM documents enhanced rainfall from urban effects (NASA 6/18/2002) – NASA scientists documented a 28-51% increase in mean monthly precipitation within 30-60 km downwind of urban areas. Using data from Atlanta, Dallas, San Antonio, and Nashville, the team also found that peak rainfall rates were 48-116% higher downwind of cities than comparable upwind values. The findings are consistent with earlier ground-based studies in places like St. Louis, Chicago, Mexico City, and Atlanta. Use of the satellite provides an opportunity to study many large urban centers simultaneously. The scientists attribute the enhanced precipitation to higher temperatures, ranging from one to ten degrees Fahrenheit, in urban areas, which destabilize the atmosphere and produce enhanced convection. Flow around obstacles – large buildings – in some urban centers also may have an effect. The study, led by Dr. J. Marshall Shepherd, will be printed in the July 2002 of the Journal of Applied Meteorology.

<http://www.gsfc.nasa.gov/news-release/releases/2002/02-96.htm>