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Topic: Miscellaneous

Peak Oil and Hunger

Diesel farming feeds the world. But what happens if the fuel becomes too expensive for the farmers?

Listen in to WYPR 88.1 FM public radio in Baltimore tomorrow morning (Wednesday, July 23) at 9:35 a.m. to hear my most recent "Environment in Focus" program. If you're not next to your radio, or you miss the segment, you can listen to a podcast on the WYPR web site.

Tomorrow's piece is about "peak oil" and world hunger. Back in the 1950's, Shell Oil's top petroleum geologist, M. King Hubbert, discovered that all oil production follows a bell curve, with a rising amount of new discovery of oil fields, a peak and then an inevitable decline. He correctly predicted years in advance that America's lower 48 states, then the world's largest producer of oil, would pass its peak production in 1970. And since then, 33 of the world's 48 largest producers of oil have also passed their peak, including perhaps Saudi Arabia. That means production will start slowly declining (some say the world passed its peak in 2005, others say 2015). Meanwhile, the world's population continues to grow -- and developing nations like China and India are buying more cars and trying to live American lifestyles.

Long-distance commuters' road to nowhere

For Dollie Kinkead, the economic turmoil gripping the country translates into an 80-mile drive each work day from a house she can't sell to a job she thinks she's lucky to have.

For Danny Jesse, it means living with his parents and enduring a commute that is at times so costly and brutal that he would rather spend the night in his car.

For Brian and Ronda Mitchell, the combination of high gas prices and a housing market downturn has forced them to make the difficult choice to allow the home they have owned for seven years to go into foreclosure.

"Gas was, for us, the straw that broke the camel's back," Brian Mitchell said.

The weak housing market, high gas prices and iffy job market are proving a nasty mix, leaving many Americans stuck with long commutes, unwanted homes and few options.

Huge oil trading loss sinks energy trader SemGroup

NEW YORK — A \$3.2-billion (U.S.) trading loss on oil futures and derivatives sank high flying energy trader SemGroup LP, which at one time billed itself as the 14th-largest private company in the United States.

The Tulsa-based SemGroup shorted NYMEX crude oil futures to hedge against a decline in the value of the oil it purchased as part of its 500,000-barrel-per-day trading business, according to court documents, before surging crude prices forced it to recognize billions of dollars in losses on futures positions.

GM, utilities join to study electric car's impact

SAN JOSE, Calif. - General Motors Corp. has joined with more than 30 utility companies across the U.S. to help work out electricity issues that will crop up when it rolls out new electric vehicles in a little more than two years.

New Mexico: Residents asked to limit energy use

Xcel Energy officials are asking customers to limit power use Tuesday as expected electricity demands could outweigh production.

Xcel Energy spokesman Wes Reeves said the company shut down two generators Monday in coal-fire power plants in Muleshoe and Amarillo after discovering tubes in the boilers were leaking.

Iraq's parliament passes poll law, Kurds walk out

BAGHDAD (Reuters) - Iraq's parliament passed a provincial elections bill on Tuesday, but a walkout by Kurdish lawmakers over how to deal with the disputed oil city of Kirkuk could mean the law will not be ratified by the presidency.

China's June crude imports from Iran at 18-mth low

BEIJING (Reuters) - China's crude oil imports from Iran in June halved from a year ago to its lowest monthly level in 18 months, contributing to the overhang of crude stored offshore in Iran, official customs data showed on Tuesday.

... The lower Iranian supplies came after some refineries cut back on costlier Iran Light crude to trim deep refining losses aggravated by state-capped domestic fuel prices, the

trader said.

"Refineries are getting really picky as pressure is so huge to cut losses," said the trader familiar with Iranian supplies.

Preparing Australian aviation for a new world

For almost 90 years QANTAS has developed a cultural strength that enables us to cope well with crises. We have shown great resilience through numerous major shocks over the past decade alone.

But right now the global aviation industry faces, not a shock or a blip - not even a crisis - but a permanent transformation. The drivers of this transformation will be globalisation, accelerated by permanently high fuel prices. And the result will be a new aviation world order.

... Oil, of course, is a finite natural resource and whether or not the world has reached "peak oil" is a matter of debate. But there is no question that the cost of finding and extracting oil will continue to climb.

The race to own the top of the world

Melting icecap has circumpolar countries - including Canada - scrambling to bolster their claims to Arctic territory and the oil and gas riches beneath its seabed.

Africa's Last and Least: Cultural Expectations Ensure Women Are Hit Hardest by Burgeoning Food Crisis

On her way to the market, Lingani explained the ugly math: A year ago, she could feed her entire family a nutritious meal of meat and vegetables and peanut sauce for about 75 cents. But now the family gets much lower-quality food for twice the price.

She said the cost of six pounds of cornmeal has risen from 75 cents to \$1.50. A kilogram -- 2.2 pounds -- of rice cost 60 cents last year and costs a little more than \$1 now. Other basics such as salt and cooking oil have also doubled in price.

Fuel costs have more than doubled for trucks that haul food to landlocked Burkina Faso, helping keep food prices high.

Soaring gas prices drive U.S. scooter sales

NEW YORK-Record gasoline prices are fueling a boom in sales of fuel-efficient scooters

across the United States, as commuters ditch their gas-guzzlers and don helmets and goggles to beat high prices at the pump.

U.S. scooter sales have risen 65.7 per cent in the first half of 2008, according to the Motorcycle Industry Council, making the industry one of the biggest beneficiaries of a more than 30 percent spike in oil prices this year.

Russia 'exceeds targets' for gas supplies via Ukraine to Europe

MOSCOW (RIA Novosti) - Ukraine's state oil and gas company Naftogaz told energy giant Gazprom on Tuesday that Russia is supplying more natural gas to Europe via Ukraine than it is obliged to under existing contracts.

Russia to raise oil export duty to record \$495.9/ton from August

MOSCOW, July 22 (RIA Novosti) - Russia's government has approved a rise in Russian oil export duty of \$97.8 to a record \$495.9 per metric ton as of August 1, the government press service said on Tuesday.

Export duties on light oil products will rise to \$346.4 per ton from August 1, 2008, from the current \$280.5, and duty on heavy petroleum products will grow to \$186.6 per ton from \$151.1.

Oil plummets \$5 a barrel

Economy: Analysts said remarks by Treasury Secretary Henry Paulson and a huge loss posted by banking company Wachovia Corp. contributed to the perception that demand for oil will drop in a weakened economy.

"Reduced economic activity translates into reduced energy demand," said John Kilduff, energy analyst with MF Global.

Paulson, speaking in New York, called for Congress to pass a bill to shore up mortgage lenders Fannie Mae and Freddie Mac, saying they were the key to repairing the battered financial markets.

BP 'Reluctantly' Removes Technical Experts from Russia

BP has withdrawn 60 remaining technical specialists, formerly assigned to TNK-BP, from Russia. All 148 technical experts, who have been instrumental in making TNK-BP one of Russia's best performing companies, have now been withdrawn to be redeployed in BP's businesses globally.

Fiji: Fuel shortage stops water supply in Rotuma

ROTUMA is again plagued with shortage of water because there is no fuel to operate pumps.

Speaking from the island yesterday, Samuela Kafoa said the last ship to visit to the island arrived there two weeks ago but since last week there had been no piped water on the island.

He said the island had run out of fuel.

"Yesterday the schools on the island had to be closed after lunch because there is no water," he said.

Egypt: Drivers infuriated by shortage of affordable fuel

CAIRO: Taxis queued in front of gas stations across Cairo as the congested city suffered a shortage of 80-octane and diesel fuel, a crisis that reached its peak last week.

PetroChina to control fuel exports

PetroChina will extend its "strict control" on fuel exports into the second half of the year as China, the world's fifth-biggest oil producer, seeks to ease a domestic petrol and diesel shortage.

Fuel supplies will remain "tight" for the rest of 2008, President Zhou Jiping said.

Cost of shipping doubles in the past 12 months

The cost of shipping a container from Dubai to key destinations around the world has almost doubled in the past 12 months – sparking fears that rates could reach alarming levels.

What's driving the asphalt shortage

Yes, refineries are making more profitable products, but asphalt is in short supply not because the refiners are greedy, but because Congress during the Clinton administration passed legislation mandating Ultra Low Sulfur Fuels (ULSF) for gasoline and diesel.

Fewer days, longer hours

The shorter week, which some New England employers are exchanging for longer workdays, is being touted as the latest way to go green and lower energy costs. But while the trend seems to be catching on with government agencies, adoption by the corporate world is lagging.

Travel industry call for national energy policy

The Business Travel Coalition, along with former American Airlines Chairm and and CEO Bob Crandall are asking travel industry members to sign a letter to President George W. Bush calling for a special session of Congress "for the sole purpose of debating our energy alternatives and enacting a coherent national energy policy."

Fuel shortage will drastically reshape transportation

For cities, it's time to massively invest in public transit. More riders will need more buses to run more often, with more drivers, more shelters and benches, more convenient routes. The province as well as the federal government must get involved with the cities. In Regina, we welcome the transit review starting now, when citizens will be urged to give our views, and will be listened to.

Maintaining realistic expectations for more drilling

We didn't know from global warming in those days, and I guess we assumed the oil would flow forever. But about the time I quit doing oilfield work in the early '70s, the oilfields themselves began to stop working, as well, part of a long national decline in petroleum production.

In fact, the pinnacle of crude oil production in the United States occurred in 1970 at about 9.6 million barrels per day. Then a long, steady decline began and today petroleum production is around five million barrels per day. (By way of comparison, we consume about 21 million barrels per day.)

Even the most extensive exploration and drilling program is unlikely to raise petroleum production back to the 1970 level, at least for any length of time, and energy independence, based on more drilling, is a pipe dream. Ignoring global warming and traffic congestion, it would be nice to imagine that vast reservoirs of petroleum await our discovery, in spite of considerable indication to the contrary. We've been tapping the big reservoirs around the world extensively for decades, and common sense suggests that the oil cornucopia of the past can't last forever.

Why we need to keep gas above \$4

On the surface, the market's behavior on certain days of June and July has been so

illogical that my brain simply has refused to accept it. Double-digit intraday swings in prices of stocks without any material catalyst have become routine.

But last week's trading has finally explained what should have been clear for a while: Though current economic troubles may have started with lax credit and underwriting standards and the ensuing subprime-mortgage fiasco, they will likely continue or end based on the behavior of another, seemingly unrelated macroeconomic input: oil prices.

Crude Oil Prices, Monetary Stability and Credit Expansion

What so many commentators fail to grasp is that free markets, not taxes, conserve resources. This is really basic stuff. When the supply of any resource falls its price rises. Eventually the price reaches a point where the cost of producing an additional unit exceeds the demand. This is why we never run out of resources in a free market. If, however, the resource is treated like a free good, as in the case of fish, then complete exhaustion is possible. This is obviously not the case with oil.

The Strategic Vulnerabilities of Oil Dependence

Indeed, in a 2007 interview with The Futurist, former CIA director James Woolsey said that if the terrorists had gotten within mortar range of the facility, "they could have taken out the sulfur clearing towers. Robert McFarlane, President Reagan's National Security advisor, tells us that would take six or seven million barrels of oil a day off line for probably over a year."

Rick Bass's "Why I Came West"

"And when the bleeding is all done and the oil is all gone—not just the peak oil, but all the oil, down to the last drop—and we lie buried beneath our history, still waiting for some greater salvation or redemption to ignite us...even then, another temptation will reside beneath us and around us: if not the fluid supple allure of oil, then the densely compacted chitin of coal, the old dirty brown Paleozoic swamps, each lithified like a charred heart into brittlecake seams of strata—ten thousand years' worth of such brittlecake. And I fear that it will be the easiest thing in the world then to simply remain buried in this land of the fossil fuels, and to continue gnawing at the coal, worsening our problem tenfold with every sulfurous exhalation, and with the now acidic celestial dome or dark curtain above raining sulphuric hail, mercuric tempest, brimstone."

Peak Oil or Peak Stupidity?

THE MESS; Over 50 years ago a geologist named M. King Hubbert accurately predicted that US oil production would peak in the 1970s. The arrival of peak oil inspired our political leadership to unleash all their resources of stupidity. They curbed the

development of nuclear power, closed most of the American coast-line to exploration and extraction of oil and gas, placed a moratorium on the exploitation of our huge shale oil resources out west, put an end to refinery building for thirty years, and forbade the oil companies from disturbing Alaska's sacred caribou. The development of hydroelectric power and wind power have been unsystematically impeded by tangles of environmental regulations and law suits.

Answer to energy crisis? Stop using oil

The main cause of rising oil prices is a simple supply and demand market issue. World supply is peaking while demand continues to rise, mostly in China. So, the easy solution would be to raise supply, right? The problem, though, is we can't.

Eco-friendly homes not hard to find

These homes were constructed in 1988 following the second energy crisis and were built using 2-by-6 construction instead of the traditional 2-by-4's. The heating system consists of only a hot water heater, a small air handler/heat exchanger, and an air distribution system in the flooring between the lower and upper levels. Windows have six inches of insulating airspace instead of the traditional four, with window-insulating thermal shades installed between the storm window and inside window. By diligently using the windows and thermal shades appropriately on days of temperature extremes, one can be comfortable almost all winter and summer. Because the homes are tightly built, there is no need during the winter for a humidifier as indoor humidity is relatively high.

Utility experts warn against burnout at 50

Canada's ageing electricity infrastructure will need billions of dollars in investments to ensure its generation stations, transmission and distribution lines do not collapse under an exploding demand, industry experts said yesterday.

While the engineering experts refused to draw direct links between the needs and a pair of recent incidents that struck two of the country's largest cities, they warned that time was running out for many steel towers, electric poles, wires, transformers and facilities.

"You're now looking at [50-year-old] infrastructure that is in need of replacement," said Jatin Nathwani, the executive director of Waterloo University's Institute for Sustainable Energy. "These things may last 20 years, [or] they may only last two. You don't know, so there's a large unknown and uncertain gap growing in terms of understanding the integrity of that infrastructure."

Japan's Hokuriku reports record summer power demand

TOKYO (Reuters) - Hokuriku Electric Power Co said on Tuesday demand for the company's electricity hit a record high earlier in the day as a heatwave scorched central Japan and boosted use of air-conditioning.

Hokuriku is the first Japanese utility to report record demand this summer, and others may follow suit this month and next as a heatwave sweeps through the country, in line with hotter-than-average forecasts by the nation's official weather forecaster.

Tokyo Electric Says Smoke Detected at Niigata Nuclear Plant

(Bloomberg) -- Tokyo Electric Power Co., Asia's largest utility, said smoke was detected at a generator powering a radiation-monitoring system at its Kashiwazaki Kariwa nuclear complex.

Local fire fighters confirmed the smoke stopped at 11:26 a.m. local time after the utility shut down the generator, Tokyo Electric said in a statement on its Web site. No injuries or radiation leaks occurred during the incident, the company said.

China refinery losses widen to \$850M

BEIJING - Refining losses for China's top two oil companies widened 47.9 percent to \$850 million in the first half due to government controls that limit their ability to pass on high crude costs to consumers, an industry association said Tuesday.

"They are facing big difficulties," said Feng Shiliang, deputy secretary-general of the China Petroleum and Chemical Industry Association, quoted by the China Daily newspaper.

Pemex May Drill Outside Mexico for First Time If Reforms Fail

(Bloomberg) -- Petroleos Mexicanos, struggling as oil production declines, may drill for crude outside Mexico for the first time unless lawmakers approve hiring foreign partners for domestic offshore projects.

Chief Executive Officer Jesus Reyes Heroles said the company, known as Pemex, may court partners on the U.S. side of the Gulf of Mexico, off the coast of Cuba and in Latin America unless Congress adopts oil reforms proposed by President Felipe Calderon. Pemex needs foreign help because it doesn't have the technology to drill in water deeper than 500 meters (1,640 feet), he said.

Oil Production on the Rise

Oil production rose briskly from 2002 through 2004, before appearing to hit a peak in 2005. That peak fueled more discussion of peak oil theory. However, rising prices have induced additional supply...

Expert view: We have to learn to live with costlier oil

Worryingly, the impact of the price hike is still working its way through those systems.

Worse still, as Martin Christopher, Professor of Marketing and Logistics at Cranfield School of Management, Cranfield University noted in a recent article, high oil prices are here to stay and more significant price rises are inevitable. Further, we may be approaching, or have already have passed, "peak oil", the moment when oil production enters a permanent decline.

Oil Myths, Oil Facts (video and transcript)

"We've got ourselves in a situation now where world wide demand is permanently outstripping world wide supply...

So, we're going to look at the conventional wisdom and arguments and try to give you a few facts...

Pickens talks about alternative energy

DOBBS: And the cost of conversion to natural gas for large vehicles, those dinosaurs or the gas guzzlers are the ones in many cases that are most readily convertible to natural gas, are they not?

PICKENS: I'm not interested in passenger car near as much as I am in heavy duty equipment. The government should move quickly to mandating that all new vehicles that be purchased by the government would be natural gas vehicles. General Motors has 19 different vehicles they make but none in the United States. All of them out of the country. South America and Europe.

Kuwait plans \$132bn dream city

FUELLED by soaring oil prices, Kuwait has ambitious plans to invest \$132 billion building a model city in its northern desert, complete with rail links to the rest of the Middle East, central Asia and China.

MOSCOW (Reuters) - BP's (BP.L) Russian oil joint venture TNK-BP will sign its first deal with Venezuela on Tuesday, a Kremlin source said, after months of dispute between BP and its Russian partners over its expansion abroad.

Fun at the pump? TV entertains, distracts

MIAMI - In the midst of a cruel summer for America's drivers, there's a diversion: TV at the gas station.

The number of televisions atop gas pumps have skyrocketed since their introduction at a handful of stations in 2006. Now, three privately held companies have placed more than 20,000 screens at thousands of stations from the Massachusetts Pike to Southern California.

Population bomb 'ticks louder than climate'

Global population growth is looming as a bigger threat to the world's food production and water supplies than climate change, a leading scientist says.

Speaking at a CSIRO public lecture in Canberra yesterday, UNESCO's chief of sustainable water resources development, Professor Shahbaz Khan, said overpopulation's impacts were potentially more economically, socially and environmentally destructive than those of climate change.

"Climate change is one of a number of stresses we're facing, but it's overshadowed by global population growth and the amount of water, land and energy needed to grow food to meet the projected increase in population. We are facing a world population crisis."

The *LA Times* has a special report on peak oil. In addition to the <u>main article</u> (discussed in yesterday's DrumBeat), there's a couple of sidebars:

Key terms in oil-supply debate

Oil Opinions

Resources: Peak oil websites

Pemex Oil Production Falls 11% in June on Aging Field

(Bloomberg) -- Petroleos Mexicanos, the state-owned energy company, said oil output

fell 11 percent in June from a year earlier as new wells failed to keep pace with a fouryear decline in the aging Cantarell field, the nation's largest.

Production dropped to 2.839 million barrels a day in June from 3.206 million a year earlier, the Mexico City-based company, known as Pemex, said today on its Web site.

Oil companies, refiners hurt by refining margins

The same historically high oil prices that are expected to contribute to massive profits for the major oil companies in the second quarter are dragging heavily, once again, on their refining operations.

And for companies whose primary business is refining oil and selling gasoline, secondquarter earnings versus a year ago could be ugly. Plummeting stock prices for many refiners reflect the difficult operating environment.

Australian oil production has peaked: report

Oil production in Australia has already peaked and the alternative fuels industry needs to be dramatically ramped up in response, an expert research group says.

After years of a stop-start approach to ethanol production, Australia is fast running out of time to end its love affair with crude oil, much of which is imported, the NRMA Motoring funded Jamison Group says.

"Oil production in Australia has already peaked," the group's report, *A Roadmap for Alternative Fuels in Australia*, warns.

Iran opposes OPEC oil output hike

TEHRAN (AFP) - Iran, the number two oil producer in OPEC, reaffirmed on Tuesday that it was against any hike in the cartel's output quota despite continued high crude prices.

"The market is in a good situation," Oil Minister Gholam Hossein Nozari told reporters in Tehran on the sidelines of a petrochemical conference.

"In the next OPEC meeting we are heading towards winter. I think that preserving the current situation is the most appropriate one," he added.

Kenyan group raises health fears over exploration oil deal

NAIROBI (AFP) - Kenyan activists on Monday called for a Swedish firm's plans to search for oil and natural gas in the northwest Lake Turkana basin to be delayed, because of concerns about health.

...Previous exploration in the 1980s left waste that local people suspect polluted wells, causing infections among the Turkana people.

Feds to propose rules for squeezing oil from rock

WASHINGTON (AP) — The Bush administration wants to set the stage before leaving office for developing oil shale, rocky deposits in the western U.S. that could eventually yield 800 billion barrels of oil, according to government estimates.

The Interior Department is scheduled to unveil proposed regulations Tuesday for a program to sell oil shale leases on federal lands, similar to the leases sold now for oil and natural gas both on and offshore.

Pakistan - Record jump in oil prices: 'A move to crush public'

The latest increase in the prices of the petroleum products would impact directly the living cost of the commoners as it would not only soar the common man's fuel consequent upon the kerosene price-hike but would also fuel the transportation cost for the commuters.

Consumers change buying habits, but will it last?

Every economic downturn changes shoppers in some way. But this time, experts say the new behavior — fueled by higher gas and food prices, tightening credit and a slumping housing market — are the most dramatic and widespread that they have seen since the mid-1970s.

So retailers, marketers and investors are all trying to figure out which habits shoppers will keep and which will they drop when the economy recovers. Will the people who switched to store-brand ice cream go back to Breyers or Edy's? Will shoppers return to department stores or keep looking for labels at T.J. Maxx?

Cheap air travel in peril in Mexico

Mexico City — Skyrocketing fuel prices are rocking the Mexican airline industry, leading to steep fare increases, the slashing of routes and what some analysts fear could be the end of low-cost air travel south of the border.

Food banks turn to gleaning in lean times

As grocery prices continue to rise and food donations decline, a growing number of food banks across the USA are turning to local farms for produce that otherwise might go to waste.

The process, known as gleaning, involves collecting leftovers after crops have been harvested. While gleaning has long been part of some food bank collections, the current economic downturn has brought renewed emphasis to the practice.

...The Society of St. Andrew reports overall food donations have declined from 46 million pounds in 2001 to just over 20 million pounds in 2007.

Breitinger says that market conditions, the growing use of corn in the production of ethanol, the rising price of gas, along with climate problems like drought and floods, are all partly to blame for the drop in donations.

Gore's, Pickens' Energy Challenges Need Smart Infrastructure

Kurt Yeager, executive director of the Galvin Electricity Initiative, is responding to Al Gore's and T. Boone Pickens' proposals to reduce America's dependence on foreign oil with a call to action that is unfortunately relegated to the back seat in their plans.

While increased use of renewable energy sources such as wind, solar and geothermal energy should be everyone's goal, Yeager is calling for a stronger electric power grid as an essential first step that will allow for the full integration of renewables -- and meet our growing demand for energy in our homes and industries and for transportation.

Let's Have Some Love for Nuclear Power

While we may be at a turning point, one enormous question still hangs over this revival of nuclear power in the U.S.: Who is going to pay for it? The construction of reactors in the rest of the world is essentially a government enterprise. Private investment and even public approval are not always necessary. In the U.S., however, the capital will have to be raised from Wall Street. But not many investors are willing to put up \$5 billion to \$10 billion for a project that could become engulfed by 10 to 15 years of regulatory delay -- as occurred during the 1980s. The Seabrook plant in New Hampshire went through 14 years of that before opening in 1990. The Long Island Lighting Company's Shoreham plant began in 1973, but was shut down by protests in 1989 without generating a watt of electricity, and the company went bankrupt as a result.

The Global Credit Crisis

This year, Congress has repeatedly found itself stalemated over the renewal of renewable credits. Supporters of the credits haven't been able to overcome opposition by Republican senators, the White House and a handful of fiscally conservative Democrats, who won't vote for the credits unless they're paid for as they go. Supporters have tried paying for the credits by rescinding tax breaks for oil companies; they've also tried raising the funds by eliminating tax loopholes that benefit hedge fund managers. Even though oil executives and hedge fund managers are perhaps the most widely hated two groups in America, neither plan has worked.

UK: Coal-fired power stations will lock UK into a high-emissions future, say MPs

The government will come under increased pressure today to ban new coal-fired power stations such as the one planned for Kingsnorth in Kent unless they are equipped to trap and store carbon pollution underground, as a committee of MPs publishes a critical report.

The environmental audit committee urges ministers to make it clear that coal power plants that do not fit carbon capture and storage (CCS) equipment will be closed down. It says the government must set a deadline, after which the operation of unabated coal-fired power stations should not be permitted.

Is world's wettest place getting drier?

The town of Cherrapunjee, in the north-eastern Indian state of Meghalaya, is reputed to be the wettest place in the world.

But there are signs that its weather patterns may be being hit by global climate change.

Satellite cutbacks could leave us blind at the poles

In 1994, the US government decided to replace its separate climate and weather instruments with a fleet of satellites holding both. The National Polar-orbiting Operational Environmental Satellite System was intended to save money, but by late 2005, it was more than 25 per cent over its \$6.5 billion budget. This triggered cutbacks that eliminated two of the six planned satellites and delayed the launch of the first replacement climate instruments by five years until 2013.

The burden of the cuts has fallen heaviest on climate scientists, and if the old instruments fail it will create gaps in data covering microwave measurements of seasurface temperature, the hydrological cycle, and sea ice.



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