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Dramatic deforestation in Gishwati Forest, Rwanda 1978-2006

Exploitation for commercial products almost destroyed the Gishwati Forest Reserve; now reforestation efforts are helping the forest to regrow.

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The world's ten biggest renewable energy projects

More big renewable energy projects like these are needed to reduce greenhouse gas emissions.

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Atmospheric circulation patterns slow sea ice decline during August 2009

A change in arctic weather patterns in July kept sea ice within the Arctic Ocean during the first half of August, slowing its decline.

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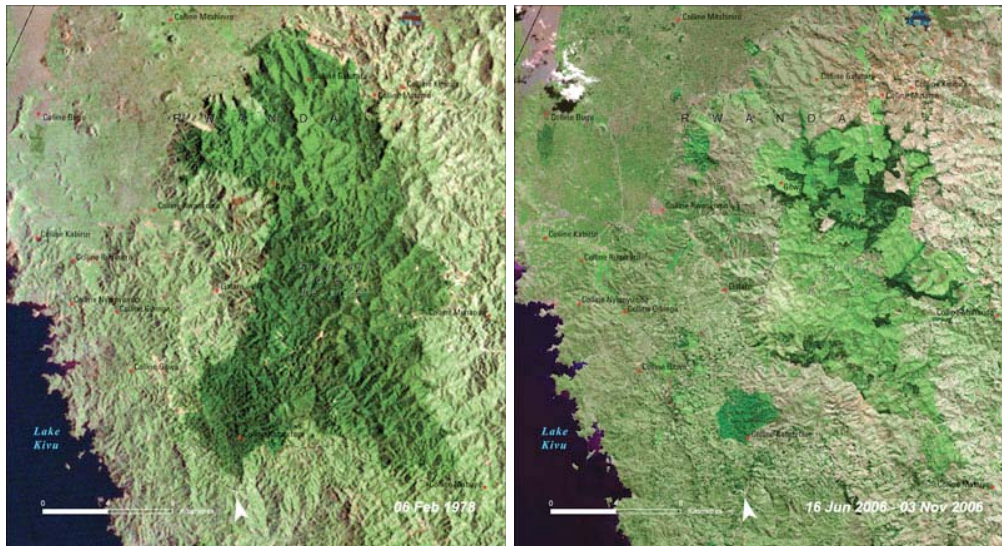
DID YOU KNOW...



The greatest lightning activity in the world occurs near the tiny town of Kifuka in the Democratic Republic of the Congo (NASA and GHRC).

Environmental **Hotspot** Alert

Dramatic deforestation in Gishwati Forest, Rwanda 1978-2006



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Gishwati Forest Reserve in northwestern Rwanda is one of the most severely deforested areas in the country. Exploitation of the forests for commercial products such as charcoal, timber, medicine, and food has been the main driver of this deforestation. The 1978 satellite image shows the Gishwati Forest Reserve as a dark-green carpet of dense forest nearly covering the entire protected area. The 2006 image shows that most of the forest has been cleared; the dark-green areas have been replaced by patches of pink and light green where the vegetation has been largely removed. Only a fraction of the forest that was intact in 1978 remains; what is left is in a degraded condition.

On a positive note, reforestation efforts in parts of the region, using agroforestry techniques such as radical terracing, progressive terracing, and live mulches, are currently being researched and implemented. Seedlings of species such as *Calliandra calothyrsus* and *Leucaena diversifolia* are being planted in several provinces of the country with collaboration from stakeholders and the local community. If such efforts continue and are successful, the Gishwati Forest Reserve may experience considerable regeneration within the next five to ten years.

Source: <http://na.unep.net/atlas/webatlas.php?id=280>

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Environmental Science Alert

The world's ten biggest renewable energy projects



Renewable energy-derived from natural sources that cannot be exhausted-contributes only a small portion of the world's energy supplies. But its share has been growing rapidly in recent years, especially in some countries. Together, geothermal, wind, and solar electricity contribute about 1.5 per cent of the world's total electricity generation. In Denmark, though, wind power alone generates about 20 per cent of the country's electricity, while geothermal sources account for 20 per cent of electricity generation in the Philippines, Kenya, and Iceland. In 2008, global renewable energy from all technologies continued to expand while the United States and China are joining Europe and Japan as global leaders in developing renewables.

The following table and the linked slide show present the world's ten biggest renewable energy projects. More are on the way. These are the kinds of developments the world needs to help reduce the greenhouse gases that are changing our climate for the worse.

The World's Ten Biggest Renewable Energy Projects

Biggest On-Shore Wind Farm	Horse Hollow Wind Energy Center in Taylor and Nolan Counties, Texas, USA	735 megawatts
Biggest Offshore Wind Farm	Lynn and Inner Dowsing Wind Farm Near Skegness, Lincolnshire, England	194 megawatts
Largest Tidal Power Barrage	Rance Tidal Barrage in Bretagne, France	240-megawatts
Largest Tidal Power Turbine	SeaGen Turbine in Strangford Lough, Ireland	1.2-megawatts
Largest Solar Thermal Plant	Solar Energy Generating Systems in California, USA	354 megawatts
Largest Photovoltaic Power Plant	Olmedilla Photovoltaic Park in Olmedilla de Alarcón, Spain	60 megawatts
Most Productive Geothermal Field	The Geysers in Sonoma and Lake Counties, California, USA	1,000 megawatt
Largest Dry Biomass-Fired Power Plant	Oy Alholmens Kraft in Pietarsaari, Finland	240 megawatts
Largest Wave Power Plant	Aguçadoura Wave Farm near Póvoa de Varzim, Portugal	2.25 megawatts
Largest Hydroelectric Dam	China's Three Gorges Dam	14.1 gigawatts

[contentId=7044196](#) (Accessed on 27 August 2009).

Mims, Christopher. Slide Show: The World's 10 Largest Renewable Energy Projects. From Scientific American, June 4, 2009.
<http://www.scientificamerican.com/slideshow.cfm?id=10-largest-renewable-energy-projects> (Accessed on 28 August 2009).

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Near Real-Time Environmental Event Alert

Atmospheric circulation patterns slow sea ice decline during August 2009

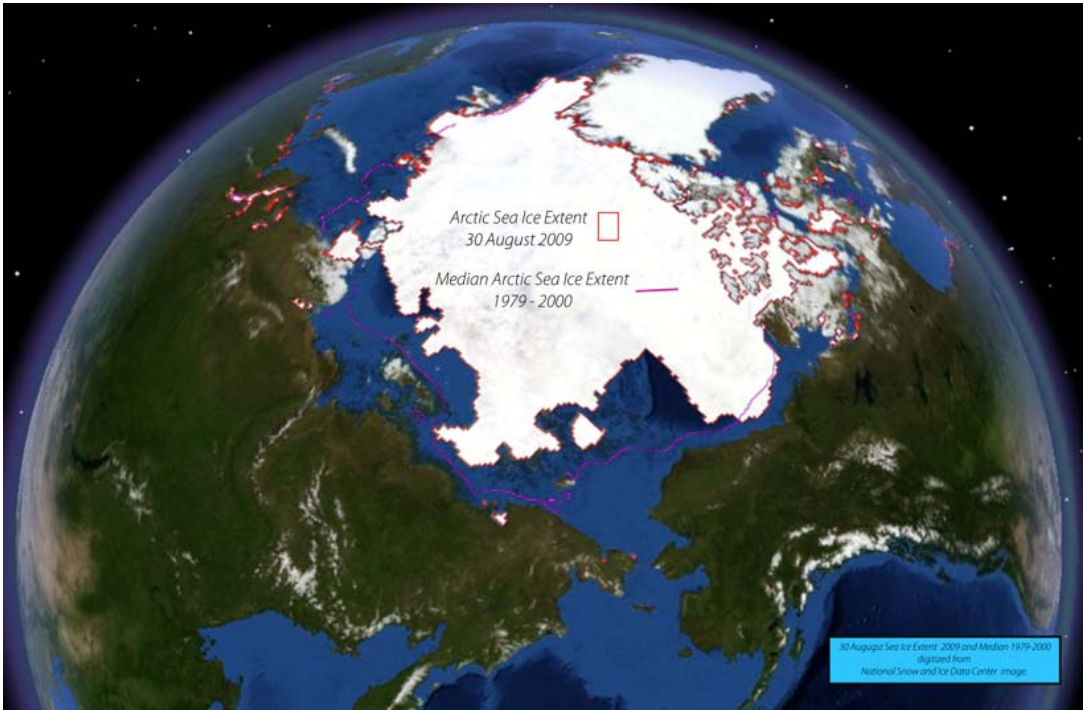


Figure 1

The annual minimum extent of Arctic sea ice occurs each year around the middle of September. Following the trend of the past 30 years, the extent of Arctic ice during the northern hemisphere's summer months for 2007, 2008, and until late July 2009, were all well below the 1979-2000 median extent (see Figure 2). During the first half of August 2009, however, the rate of decline in the Arctic sea ice extent slowed compared to the two previous years.

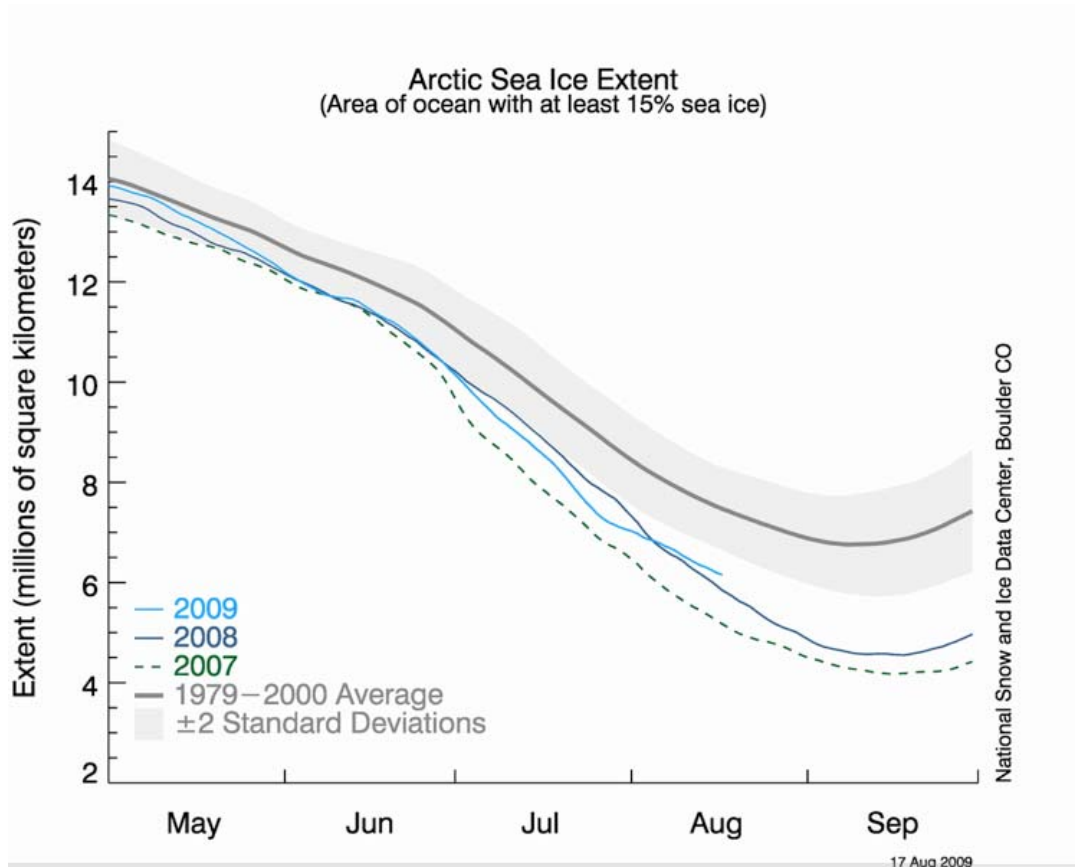


Figure 2 (NSIDC, 2009)

Researchers attribute this change to changes in weather patterns, which have redirected the movement of ice on the Arctic Ocean. Through the first two months of summer 2009, high-pressure over the Beaufort Sea and low pressure over the Laptev Sea brought winds that were pushing ice out of the Arctic Ocean (Figures 3 and 4). That pattern changed in July, when high pressure over the Barents Sea created winds that kept sea ice within the Arctic Ocean during the first half of August (Figure 5).

James Overland of the NOAA Pacific Marine Environmental Lab in Seattle, Washington describes the circulation patterns during recent summers including 2007, 2008, and early summer 2009 as unusual. These anomalous patterns are believed to be contributing to the loss of Arctic sea ice as well as warmer ocean temperatures and changes in major ecosystems. These changing weather patterns and their relationship to broader, regional weather patterns are being investigated to determine if this new pattern will become more common and if perhaps the loss of sea ice is contributing to the changing weather patterns.

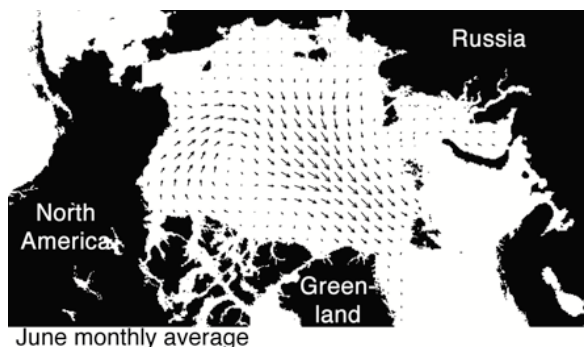


Figure 3 (NSIDC, 2009)

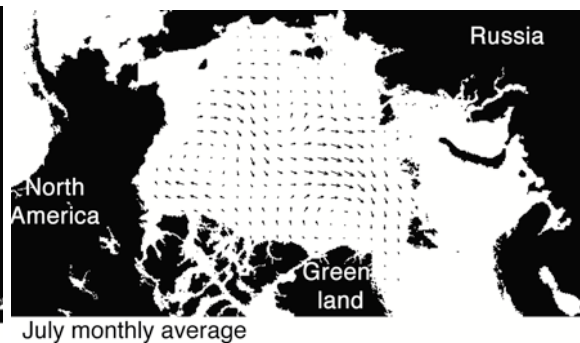


Figure 4 (NSIDC, 2009)

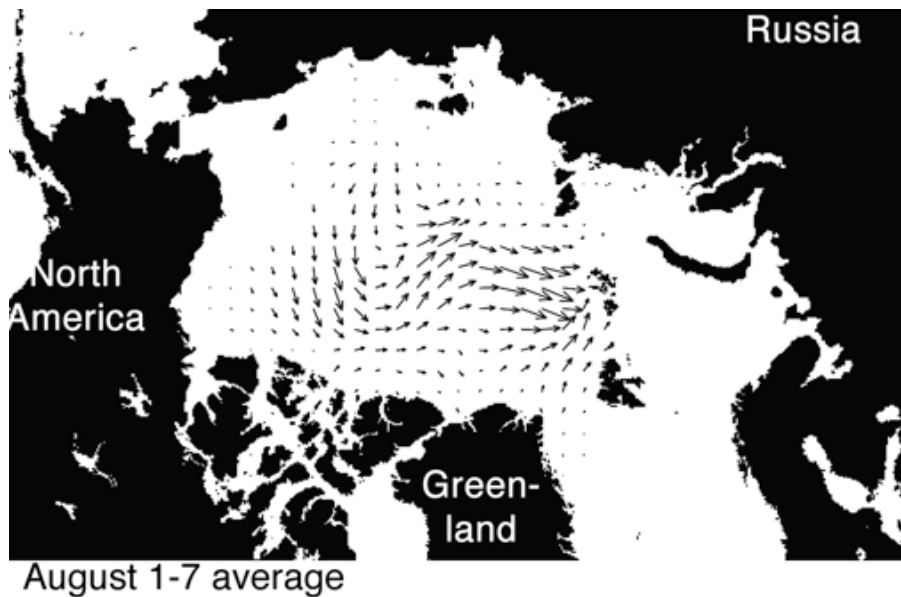


Figure 5 (NSIDC, 2009)

Sources: NSIDC (2009). A change in ice motion slows seasonal decline. Accessed on 31 August 2009 <http://nsidc.org/arcticseaicenews/>

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