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1-15 October 2009

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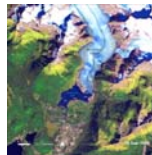
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IN THIS ISSUE



Retreat of the Mendenhall Glacier, USA 1986-2007

Melting glaciers, such as the Mendenhall Glacier near Juneau, Alaska USA, are contributing to changes in the global sea level. If climate conditions continue to follow current trends many glaciers will disappear completely.

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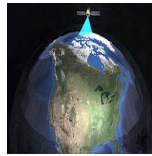
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The number of satellites being launched continues to increase

The satellite market will grow by 50 per cent in the next ten years, enabling more and better environmental reporting.

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DID YOU KNOW...



Africa, with 14 percent of the world's population, is responsible for less than three percent of global carbon dioxide emissions. (DESA, 2009)



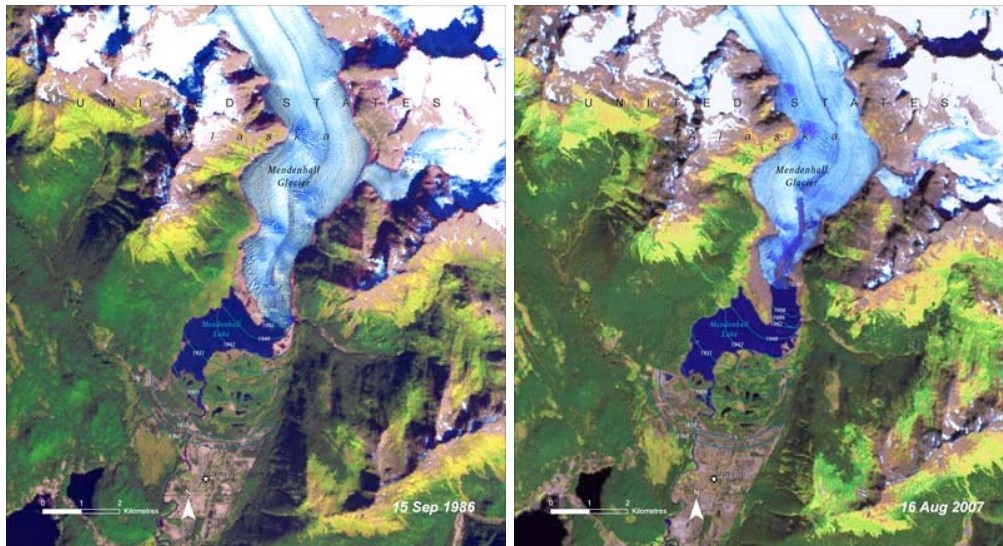
After drought, downpours and flooding devastate southern India

After a long period of drought, heavy floods hit southern India killing at least 247 people and evacuating millions.

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Environmental **Hotspot** Alert

Retreat of the Mendenhall Glacier, USA 1986-2007



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Mendenhall Glacier flows 22 kilometers from an elevation of nearly 1,600 meters in the Coast Mountain Range, to just above sea level at its terminus roughly 5 kilometers northeast of Juneau, Alaska. It has been receding since the 1700s when the "Little Ice Age" ended, retreating approximately 3 kilometers in the past century. Most of this retreat occurred in the mid-1940s and the late 1990s.

The majority of the global community now accepts fluctuations in glaciers, particularly changes in their volume, to be reliable indications of a global trend of warmer air temperatures. While the retreating tongues of glaciers are less directly linked to climate change than overall volume, they are much more readily observed and allow the study of glaciers which would otherwise be out of the reach of most research projects. It is believed that the current climate conditions will not be reflected in most glacier tongues for years and will eventually amount to a kilometer or more of additional retreat. If climate conditions continue to follow current trends many glaciers will disappear completely.

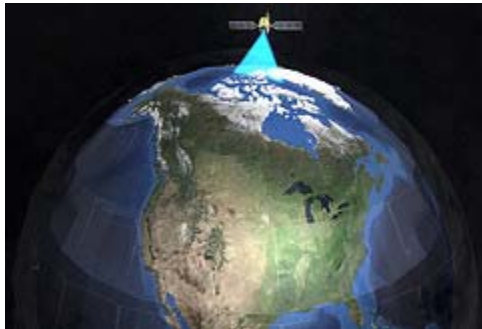
The satellite images from 1986 and 2007 show the continuing retreat of Mendenhall Glacier. Similar changes are taking place in many of the glaciers in southeastern Alaska. A 2002 study estimated the contribution of melting Alaska glaciers to sea level rise between the 1950s and 1990s to be twice that of the melting of Greenland's ice sheet during the same time period.

Source: <http://na.unep.net/atlas/webatlas.php?id=382>

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Environmental Science Alert

The number of satellites being launched continues to increase



Compared to the last ten years, when over 700 satellites were launched, the satellite market is poised to grow by 50 per cent in the next ten years, during which time it is expected that about 1,185 satellites will be built and launched. Governments are driving most of this growth for civilian purposes, while demand for military and security satellites is concentrated in only a few countries. The roles of most satellites will be Earth observation, meteorology, navigation, and communications. Over the next decade, Earth observation by governments will be largest application, with a total of 230 satellites launched by national space agencies, multilateral agencies, and public-private partnerships. In addition, 180 commercial communication satellites will be launched outside the geostationary orbit (104 more than the previous decade). Environmental reporting will benefit from these new satellites and in turn, improve economic and social well-being.

Source: Euroconsult. Satellites to be Built and Launched by 2018. June 8, 2009. <http://www.euroconsult-ec.com/research-reports/space-industry-reports/satellites-to-be-built-launched-by-2018-38-29.html> (Accessed on 27 August 2009).

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Near Real-Time Environmental Event Alert

After Drought, Downpours and Flooding Devastate Southern India

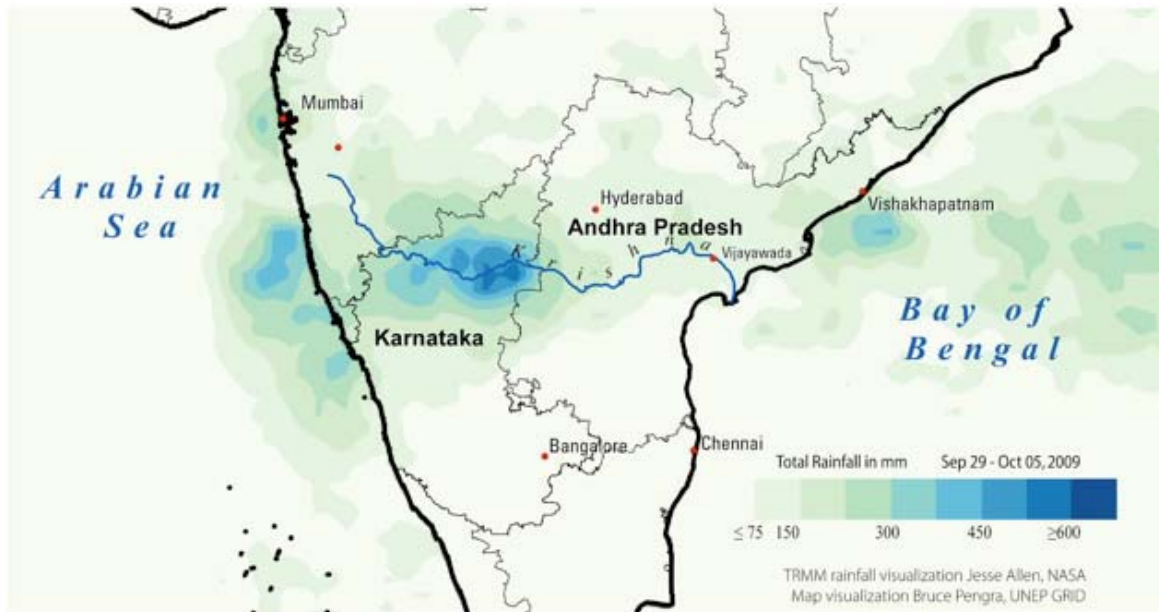


Figure 1: Rainfall estimates, derived from satellite data for the week beginning September 29, 2009. The heaviest rains are in blue. Some areas received an astonishing 600 millimeters of rain in this seven day period.

Devastating floods have hit southern India, just over a month after Andhra Pradesh and Karnataka were officially declared to be drought stricken. Late monsoon rains, reported to be the weakest in 40 years, had finished 23 per cent below normal at the end of the monsoon season. That drought, however, came to a dramatic end when parts of Karnataka and Andhra Pradesh received as much as 600 mm of rain at the end of September (figure 1). The resulting floods have killed at least 167 people in Karnataka and roughly 80 in Andhra Pradesh and have forced the evacuation of millions from their homes.



Figure 2: Srisailem Reservoir, where the Krishna's flow was expected to reach a record peak of around 2 million cubic feet per second. Photo: Hari Menon / Flickr



Figure 3: The yellow box shows the location of the two satellite images below.

The flooding is the heaviest on the River Krishna in more than 106 years. The River's watershed extends across much of Andhra Pradesh and Karnataka capturing water from the areas receiving the heaviest of September's rains. On the 5th of October, roughly 100 km from the River's mouth at Prakasam Barrage, discharge approached 1.1 million cubic feet per second; breaking the previous record of just over one million cubic feet per second set in 1903. Two-hundred kilometers further upstream at Srisailem Barrage (figure 2) the Krishna's flow was expected to reach over two million cubic feet per second dramatically eclipsing the previous record flow of just less than one million cubic feet per second.

The devastating impact of the floods can be seen in satellite images from early in September before the flooding and early October when the rains had generally receded, leaving behind widespread devastation. The Krishna River can be seen well within its banks running left to right across the September image. The yellow arrows along the course of the river in the October image indicate some of the areas of very serious flooding.

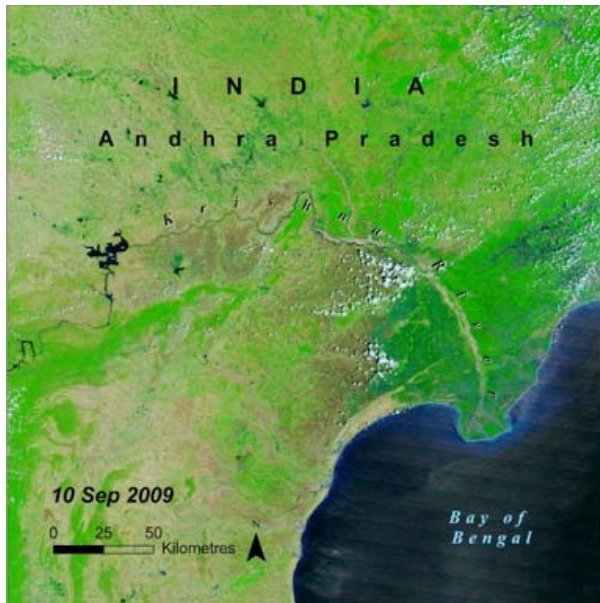


Figure 4: In early September before the devastating rains, the Krishna River is still well within its banks.

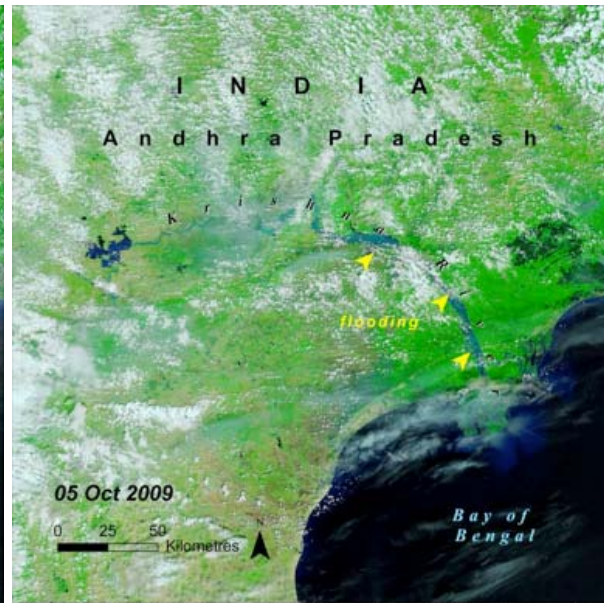


Figure 5: By the 5th of October the rains had brought death and destruction across Karnataka and Andhra Pradesh and the Krishna River is overflowing its banks (yellow arrows).

Sources: Government of Andhra Pradesh, Abstract – (September 9, 2009) Adverse Seasonal conditions 2009-10 – Drought Declaration of Certain Mandals as Drought Affected in the State – Orders – Issued. Accessed October 9, 2009 at: http://disastermanagement.ap.gov.in/website/G_O_Ms_No_20.pdf

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The Hindu (October 2009) Floods in Krishna threatens to submerge AP villages. Accessed October 9, 2009 at: <http://beta.thehindu.com/news/national/article29095.ece>

The Hindu (October 3, 2009) Record flood in Krishna. Accessed October 9, 2009 at: <http://www.thehindu.com/2009/10/03/stories/2009100360030800.htm>

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