

## Scientists Warn of a Very Fiery Fire Season in the Southern Amazon

By Alan Forsberg

Scientists from [New York's Colombia University](#) and the [University of California, Irvine](#) are forecasting [2016 will be a bad year for fires](#) in the southern Amazon rainforest due to a severe drought during this year's rainy season. Such [droughts are strongly linked to global climate anomalies](#) such as the El Niño in the Pacific Ocean and similar phenomena in the Atlantic. In South America, these [anomalies weaken the rain bearing trade winds and shift rain belts north](#). But beyond these periodic droughts, scientists are finding that the [length of the dry season there is increasing](#) by about a week per decade, especially in the southwestern Amazon. This is most likely due to human-caused global warming, which inhibits rainfall and increases fire risk.

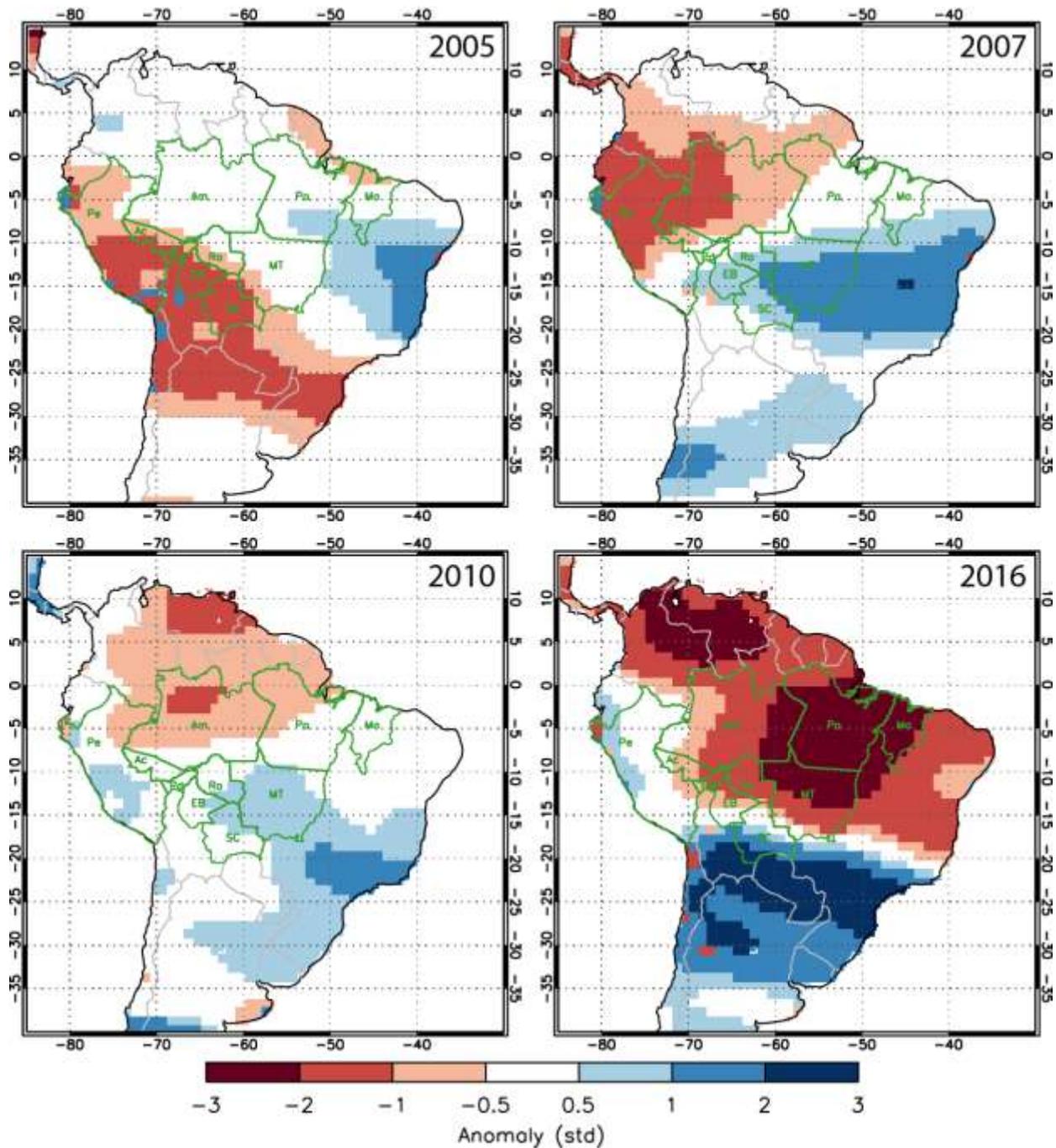
Many are concerned that widespread forest [fires could damage the forest's capacity to act as the "lungs of the planet"](#) by absorbing and storing carbon and keeping it out of the atmosphere. When the forest burns, it actually releases vast quantities of carbon into the atmosphere - exacerbating climate change by increasing global warming. Increased global warming will result in longer dry seasons, more frequent droughts, and even more fires. If something is not done, scientists warn that the feedbacks of this vicious circle [could reach a tipping point resulting in a massive die-back of the Amazon forest](#), with dire consequences for Bolivia and beyond.

Climate change is often seen to be a global problem historically caused by industrial processes of developed countries, and Bolivia isn't at fault for that. Mitigation of climate change is equally framed at the global scale, and largely the responsibility of others to reduce the amount of carbon they emit into the planet's atmosphere. But we should be mindful of the fact that the Amazon rainforest plays a vital role in the climate system not only globally, but also at regional and local scales, and fires in the Amazon have not only long distance, but also regional and local impacts.

### The last Amazon basin drought happened only 6 years ago

One only has to think back to what happened during the last Amazon basin drought in 2010 when huge smoke plumes choked the skies over Bolivia and dramatically increased respiratory illnesses, especially among children. Excessive smoke also suppresses rainfall resulting in even drier conditions nationwide. And this year the southern Amazon is [far drier than it has been since 2002!](#)

## Terrestrial Water Storage (March)



An analysis of data from the Gravity Recovery and Climate Experiment (GRACE) satellite mission shows greater soil water deficits in 2016 than in previous drought years with high Amazon fire activity. Credits: Yang Chen, University of California, Irvine

While we often think of the Amazon rainforest as the "lungs of the planet" [others liken it to the "Heart of Mother Earth"](#) due to its [vital role in pumping water from the Atlantic into the center of South America and beyond](#). If it were not for the natural aqueduct made up of centuries old Amazonian trees, Bolivia would surely be mostly desert.

Periodic droughts in the Amazon are nothing new, but large forest fires in the rainforest were unheard of until fairly recently. These fires are directly linked to widespread settlement and human-induced changes to the landscape. Undisturbed pristine rainforests are naturally fire resistant because the continuous forest canopy blocks sunlight and keeps the forest below cool and moist.



**Caption:** The smoke from multiple fires in the Mato Grosso region of Brazil rises over forested and deforested areas in this astronaut photograph taken from the International Space Station on Aug. 19, 2014. Credits: NASA

When parts of the forest are chopped down by people, it leaves the remaining forest more vulnerable to fire because the sun penetrates along the edges leaving it hotter and drier. Indeed, research shows that forests that have been thinned or fragmented by humans experience worse fires compared with undisturbed natural forest.

The danger of such intense fires is that the functioning and structure of the Amazon forest may be damaged beyond the natural capacity of regeneration or

recovery. Indeed, when such droughts end, researchers have found that the landscape changes to support not only [less dense forests but also more flammable grasses](#). The more forest is lost, the hotter and drier the regional climate becomes, making the forest more flammable, and thus feeding further into the [vicious circle of forest die-back](#).

Bolivians are not responsible for the historical causes of global climate change. However they can play an important role in maintaining a stable climate locally and regionally. They can protect and preserve their remaining forests by taking steps to prevent people from starting fires, if not to help mitigate climate change globally, then at least to protect the source of water these forests provide for cities, farming, mining, power generation, and long term economic development and stability.