



Water's Greenhouse Effect

By CK Wong 2006.10.10

<http://www.ck-wong.ca/Science/waters%20greenhouse%20effect%2020061010.pdf>

Introduction

Fossil fuels generate carbon dioxide CO₂ which has the greenhouse effect which is alleged to be the main contributing factor of global warming. The clean fuel hydrogen has been hailed as the solution. Perhaps we jump to conclusion a little too early because we know cloud (water vapor in the atmosphere) acts as a thermal blanket which could be a contributing factor of global warming.

The Obvious

When we massively adopt hydrogen as the main source of fuel, water is created as a by-product. Water could be dispersed two ways: to the air when a continuous small amount is generated or drained to the ground.

When moisture is collected in the atmosphere the weather pattern could be impacted in two ways: more rain and severe temperature change caused by the water thermal exchange. Rain would mean flood. As water is condensed from its vapor form to droplet form, it releases heat. Depending on the amount of energy, it could create hurricane or storm in the summer, snow and hail in the cooler seasons. Both imply severe weather.

When water is drained to the ground, in the modern world it may not cause any soil erosion because it is processed by the sewage. City planners have to encounter the volume of additional water that comes with the hydrogen fuel age. Please do not overlook the quantity, we are talking about one liter of liquid hydrogen generates one liter of water. Let's do a simple calculation on making one liter of hydrogen to replace one liter of gasoline we are talking about a few liters per car per day. A 1 million car city will create additional one to two million liters of water every day depending on the consumption rate. It is a fraction compared to a person's daily usage, about 500 liters but we have not counted the heavy industry.

Extreme Weather

Water crystals have another different effect on earth. The crystals could reflect light back to space. The result is the opposite of warming. Two results could be created. The first one is the reduction of light that could reach the ground. For tropical and subtropical regions it sounds not a problem. But we have to consider these crystals could be at the stratosphere above these regions. Traditionally they are the food growing regions and light has been the major factor of photosynthesis. The global dimming research has pointed out that the process has been observed at the beginning of 1950 and it is the contribution of change of monsoon and rainfall patterns. On the other hand, when the thermal pattern has been changed, this will contribute to more severe weather.

For the hot region, there is a possibility of increasing the temperature because the cloud and water crystal can reflect the heat back to the surface. The increase in temperature will create two directions of movement: vertical and lateral. Vertical movement is the major cause of hurricane. Lateral movement will create the blowing wind which may intensified around mountain areas.

Deal or No Deal

All the fact I am presenting does not want to create a threat to the progress of hydrogen fuel. I just want to point out les do not release another genie out of the bottle before it is too late. When we develop a system which may last a few generation, let's expand the scope of impact to what it could be and do not jump to the bias conclusion. As Mao always says when you cut you expose two surfaces. Please do not just look at the surface you want to look and ignore the other.

Resources

- [1] *Molecular Absorption and Vibration*, 2006.09.17, London South Bank University. <http://www.lsbu.ac.uk/water/vibrat.html>
- [2] *Global Dimming*, Wikipedia, http://en.wikipedia.org/wiki/Global_dimming