

# The Horizon Newsletter

## June 2019

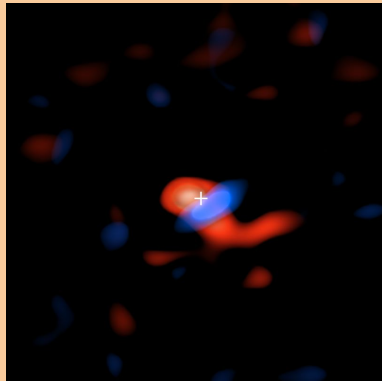
### ALMA Discovers a Nebulous Ring around Sagittarius A\*

*By: Shrihan Dadi*

Astronomers have become aware of Sagittarius A\*, the supermassive black hole at the center of our galaxy, for decades now, but they don't know much information about the black hole and celestial objects near it. So far, scientists know that this black hole's mass is 4 million times the mass of our sun and it is located 26,000 light years, or  $1.52844 \times 10^{17}$  miles, away from us. The main obstacle in managing to discover more information about this black hole is clouds of interstellar dust surrounding the hole. Recently, in the week of June 5, the ALMA telescope in Chile managed to locate a ring of cool nebulous gas around the humongous black hole. The NRAO describes this ring as part of the accretion disk of the black hole, which is a rotating clump of matter formed around a black hole as a result of its gravitational influence. Astronomers have used ALMA to locate gas clumps at temperatures of around 18,000 degrees Fahrenheit, much cooler than the blistering hot gases that were previously located and known to have



temperatures of around 18 million degrees Fahrenheit. They also identified that this disc is made of Hydrogen gas and the amount of Hydrogen gas in the disc is approximately 0.1% of the mass of Jupiter. The image to the left represents the gas around the black hole. The actual black hole is at the center of the crosshair and based on the Doppler effect, scientists were able to realize that the gas is actually rotating around the black hole. The red gas is moving away while the blue gas is coming closer. In conclusion, scientists used ALMA to located a nebulous ring of cool gas that is rotating around Sagittarius A\*. This information will help astronomers learn more about how black holes consume matter and how they interact with their celestial neighbors.



## Greenhouse effect article (Part 2)

*By Sumant Anantha*

How dangerous are the effects of Global warming and other Greenhouse effects? These disasters can kill millions of lives around the world. Plants and Herbs will start to deteriorate. Greenhouse gases pose a threat to public health. Bernstein, Acting Associate Director of the Medical School’s Center for Health and the Global Environment, said that “even a

small global temperature increase could lead to troubling consequences, like rising sea levels, population diaspora, a shortage of the food supply, mass flooding, and growth in infectious diseases.”

Rising sea levels are indicated when salt water starts entering water pipes that citizens use, leading to those with poor health statistics to become indisposed. Another consequence would

be heat waves which can lead to wildfires in the forest causing



deforestation. Heat waves can also increase the body temperature of an organism which could result in death. Carbon Pollution occurs when burning fossil fuel gases or burning the forest. Most Gas comes from Automobile companies like Ford, Toyota, and others. Sulfur dioxide and sulfate aerosols take in ultraviolet radiation, creating clouds to cover and cool cities pausing the formation of Global Warming. The sulfur travels to the ocean to evaporate and is mixed in the atmosphere with nitrogen, Acid Rain will occur damaging any organic substance(especially Aquatic Organisms). The effects of these gases are monstrously severe to the planet due to the number of gases entering the Atmosphere.

The Department of Commerce added five more organizations, to a list classified as "acting contrary to the national security or foreign policy interests of the United States.

*By: Harvik Kolla*

These 5 organizations include four companies and a supercomputing research institute. The companies include Sugon, a major Chinese supercomputer manufacturer, along Higon, Chengdu Haiguang Integrated Circuit, and Chengdu Haiguang Microelectronics Technology. The restrictions, which cut off the companies' access to US technology also include constraints against Tianjin Haiguang Advanced Technology Investment Co, which is a \$293 million chip licensing deal by the Chinese and US chipmaker AMD. The Wuxi Jiangnan Institute of Computing Technology, a Chinese supercomputing research institute is also targeted.

This is very important since it affects both China's and our economy. Friday's ban "could all but cripple" the Chinese companies due to the fact that they rely on US chips and other components to manufacture their products. Me, an avid tech consumer, feel strongly about this topic. This does not just stop here. First, it was the Huawei ban, now this and next it

might end up being restricting Xiaomi, a top-selling flagship phone company. The USA Commerce Department might be placing restrictions on these companies for our safety, but this might impact the world's economy. The decision to add these groups to the list comes a month after the Commerce Department took the same action with Chinese company Huawei. In response, a spokesperson for China's Commerce Ministry announced in May that the agency is working to create an "unreliable entity list" of foreign companies and individuals that "seriously damage" Chinese enterprises.

